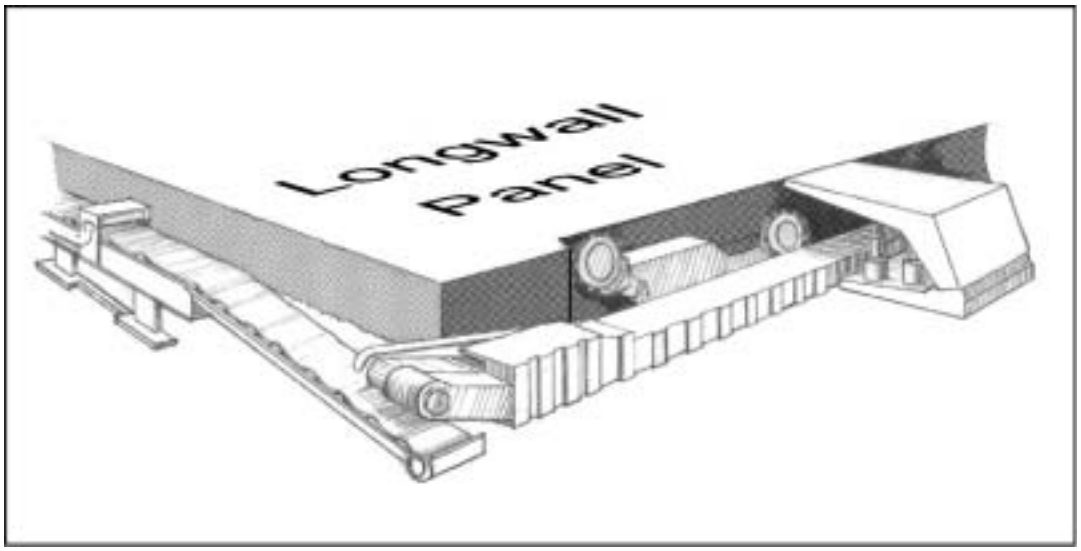
U.S. Department of the Interior

Bureau of Land Management
Rock Springs Field Office

February 2004

Draft

Environmental Assessment for the Proposed Ten Mile Rim Coal Lease-By-Application and Associated Rights-of-Way, Sweetwater County, Wyoming



MISSION STATEMENT

It is the mission of the Bureau of Land Management to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

BLM/WY/PL-04/009+1320

United States Department of the Interior

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In Reply Refer To:
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Ten Mile Rim
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JAN 2 2 2004

Dear Reader:

The Bureau of Land Management (BLM) is providing this Draft Environmental Assessment (DEA) for the Ten Mile Rim coal lease by application for your review and comment. The proposed lease area is located adjacent to the existing Jim Bridger Coal Mine in Sweetwater County, Wyoming. This DEA has been prepared pursuant to the National Environmental Policy Act and applicable regulations, and other applicable statutes, to address possible environmental and socioeconomic impacts that could result from this project. This DEA is not a decision document. Its purpose is to inform the public of the potential impacts from leasing and underground mining of Federal coal within the proposed tract and to evaluate alternatives to the proposal.

The proposed tract consists of public, private, and state owned minerals. The DEA analyzed two alternatives in detail including the proposed alternative to hold a coal lease sale for 2,242 acres of Federal coal reserves within the coal occurrence and development potential area outlined in the Green River Resource Management Plan (Rock Springs Field Office). This tract is estimated to contain 44 million tons of in-place Federal coal reserves. This alternative constitutes BLM's preferred alternative. The other alternative analyzed in detail is the No Action Alternative. Other alternatives were considered but dropped from detailed study.

A formal public hearing on the application to lease the tract of Federal coal identified as Ten Mile Rim will be held at 2:00 p.m., March 9, 2004, in the Pilot Butte Conference Room at the Rock Springs Field Office, 280 Highway 191 North, Rock Springs, Wyoming. The purpose of the hearing is to receive comments on the proposed coal lease sale, on the fair market value, maximum economic recovery of the Federal coal resources in the proposed tract, and on the DEA.

Copies of the DEA are available for inspection at the following locations:

Bureau of Land Management Wyoming State Office 5353 Yellowstone Road Cheyenne, Wyoming 82009	Bureau of Land Management Rock Springs Field Office 280 Highway 191 North Rock Springs, Wyoming 82901

The comment period will close thirty (30) days after the Federal Register publishes the Notice of Public Hearing/Notice of Availability. The expected date of publication is February 3, 2004. In addition to comments received on the DEA, the BLM will accept and consider comments on fair market value and maximum economic recovery of the coal tract. All responses received by the end of the public comment

period will be reproduced in the Final Environmental Assessment (FEA). Comments received after that date will be considered and reproduced in the FEA as time permits. Please address written comments to:

Bureau of Land Management
Rock Springs Field Office
Attn: Teri Deakins
280 Highway 191 North
Rock Springs, WY 82901

Comments may be submitted via email to teri_deakins@blm.gov (please put Ten Mile Rim in the subject line).

If you wish to comment on the DEA, your comments should relate directly to the document. We request that you make your comments as specific as possible and that you cite the location or locations in the document on which you are commenting. The agencies involved in preparing this DEA are required to respond in the FEA to all substantive comments submitted. Substantive comments should: (1) give any new information that could alter conclusions; (2) show why or how analysis or assumptions in the DEA are flawed; (3) show errors in data, sources, or methods; or (4) request clarifications that bear on conclusions. Opinions or preferences will not receive a formal response. However, they will be considered and included as part of the BLM decision-making process.

Comments, including the names and street addresses of respondents will be available for public review at the addresses listed above during regular business hours (7:45 a.m. to 4:30 p.m.), Monday through Friday, except Federal holidays, and may be published as part of the FEA. Individual respondents may request confidentiality. If you wish to withhold your name and/or street address from public review or disclosure under the Freedom of Information Act, you must state this prominently at the beginning of your written comment. Such requests will be honored to the extent allowed by law. All submissions from organizations or officials of organizations or businesses will be made available for public inspection in their entirety.

Please retain this document for future reference. Should the FEA be published in an abbreviated format, you will need both documents to fully review the EA. Should you wish to be removed from the mailing list for the FEA and decision document, print your name and address on the attached postcard, stamp and return to the Rock Springs Field Office.

If you have any questions or require additional information, please contact Teri Deakins, Project Manager at (307) 352-0211 or Jeff Clawson, Mining Engineer at (307) 352-0323.

Sincerely

Alan L. Kesterke

for Robert A. Bennett
State Director

DRAFT

ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED TEN MILE RIM COAL LEASE-BY-APPLICATION AND ASSOCIATED RIGHTS-OF-WAY, SWEETWATER COUNTY, WYOMING

WY-040-EA04-060

As Applied for by Bridger Coal Company
(Federal Coal Lease Application WYW-154595)

Prepared for

Bureau of Land Management
Rock Springs Field Office
Rock Springs, Wyoming

In Cooperation with

Office of Surface Mining Reclamation and Enforcement/Western Regional Coordinating Center
Denver, Colorado

This Environmental Assessment was prepared by TRC Mariah Associates Inc., an environmental consulting firm, with guidance, participation, and independent evaluation of the Bureau of Land Management (BLM). The BLM, in accordance with Title 40 Code of Federal Regulations, Part 1506(a) and (b), is in agreement with the findings of the analysis and approves and takes responsibility for the scope and content of this document.

February 2004

EXECUTIVE SUMMARY

On September 28, 2001, Bridger Coal Company (BCC) filed an application with the Bureau of Land Management (BLM) for federal coal reserves located adjacent to the existing Jim Bridger Mine in north-central Sweetwater County, Wyoming. On February 11, 2003, BCC filed a modified application with the BLM at the Wyoming State Office in Cheyenne for a reduced lease area. This application was made pursuant to provisions of the lease-by-application (LBA) regulations found in Title 43 *Code of Federal Regulation* (C.F.R.) 3425.1. The tract applied for, known as the Ten Mile Rim Tract (TMRT), contains federal-, state-, and private-owned coal reserves. The BLM assigned the federal lease area case number WYW-154595. In addition to the federal LBA action, the project would also require BLM to issue a right-of-way (ROW) associated with the LBA for a portion of a new powerline required for the project. The ROW applications would be made pursuant to Title 43 C.F.R., Part 2800, that govern the federal approval and issuance of ROW applications.

The TMRT area and the associated ROW would be located north of Interstate 80, approximately 10 mi north of Point of Rocks, approximately 25 mi east of Rock Springs, and approximately 70 mi west of Rawlins, Wyoming. The TMRT area is located in the area administered by the BLM Rock Springs Field Office.

BCC proposes to lease federal coal for a new underground mine located adjacent to the existing Jim Bridger Mine, a surface coal mine operation. According to LBA documents submitted by BCC, the coal would be required to provide fuel to the nearby Jim Bridger Power Plant for an additional 15 to 20 years. The surface ownership pattern within the TMRT area is checkerboard, where even-numbered sections are owned by the federal government, odd-numbered sections are privately owned, and select even-numbered sections are owned by the State of Wyoming. The Jim Bridger Mine has an approved mine and reclamation plan and permit (No. 338-T5) issued by the Wyoming Department of Environmental Quality/Land Quality Division (WDEQ/LQD) and other pertinent permits and approvals issued by other federal, state, and local regulatory agencies. As part of the federal coal-leasing process, BLM will evaluate the tract configuration and may add or subtract federal coal to avoid bypassing federal coal or to otherwise achieve

maximum economic recovery. BLM will also evaluate the application to define the characteristics of the federal coal reserves and to evaluate the fair market value of the tract. No vertical shafts or inclines would be required to access the coal reserves. According to BCC, underground access to the coal reserves within the TMRT area would be gained through access from the existing highwall area at Ramp 14 of the existing surface mine. Under the Proposed Action, no new mine facilities (such as ventilation shafts or support equipment) would be required within the TMRT area. Associated mine support facilities (e.g., buildings, roads, overland conveyor, powerlines, etc.) would be located on lands that the applicant currently has legal access rights to or where legal access would be secured.

In addition, the Proposed Action would include the approval of one associated ROW for a segment of a new powerline. This associated facility would be located outside of and near to the TMRT, and this ROW would be necessary for implementation of the Proposed Action. The *Federal Land Policy and Management Act of 1976* (FLPMA), as amended (43 *United States Code* [U.S.C.] §1701 et seq.), and promulgating regulations found in Title 43 C.F.R., Part 2800, govern the federal approval and issuance of ROW applications for facilities such as the proposed powerline.

Before the federal government may hold a competitive coal lease sale or issue the associated ROW grant, the BLM must analyze the potential environmental impacts of issuing a lease or ROW grant in accordance with the *National Environmental Policy Act* (NEPA). To assess potential impacts of the Proposed Action, BLM conducted internal BLM and public scoping. Public scoping was initiated on November 15, 2001, and concluded on December 31, 2001. Based on public and BLM internal scoping comments, BLM has decided to prepare an environmental assessment (EA) for the Proposed Action. BLM also determined that no additional public scoping was necessary or required as a result of the applicant's 2003 revised application and reduction in the size of the TMRT LBA area. This EA is prepared pursuant to NEPA, as amended (42 U.S.C. 4321 et seq.), its implementing regulations found in Title 40 C.F.R. Part 1500–1508, BLM's *National Environmental Policy Act Handbook* (H-1790-1) (BLM 1988), BLM's desktop reference *Overview of BLM's NEPA Process* (BLM 1996a), and

Considering Cumulative Impacts Under the National Environmental Policy Act (Council on Environmental Quality [CEQ] 1997).

This EA assesses the environmental impacts of the Proposed Action and the No Action Alternative. The Proposed Action is strictly defined as the leasing of the federal coal reserves located within the TMRT and the granting of one ROW for a segment of powerline (required for the Proposed Action) that would cross federal lands. This EA assesses the potential environmental impacts of these actions on federal lands but also includes the potential environmental impacts associated with the construction and mining activities that would occur on private- and state-owned lands. While some of these associated activities would occur on privately owned lands, they are described as connected actions under NEPA regulations and analyzed in this EA.

The Proposed Action would comply with all relevant federal, state, and local laws and regulations. In addition, the Proposed Action would be operated in accordance with federal Mine Safety and Health Administration (MSHA) and Wyoming Department of Employment, Division of Mine Inspections and Safety rules and regulations.

Several alternatives were identified and reviewed during the preparation of this EA. However, at the conclusion of the review, the EA team screened out all of the alternatives, except for the No Action Alternative, as not feasible and not warranting further analysis in this EA. The Proposed Action and the No Action Alternative are analyzed in detail in this draft EA.

Proposed Action

Under the Proposed Action, coal on federal lands within the TMRT would be offered for lease at a competitive sale, subject to standard BLM coal lease stipulations. 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. 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 panel development has taken place, underground longwall mining equipment would be assembled and put into service. Under the Proposed Action, 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 onto an electric conveyor system and transported directly to the Jim Bridger Power Plant, located approximately 4-5 mi south of the TMRT.

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 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 of 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.

Direct and Indirect Impacts

BLM resource specialists have determined that six of the 13 critical elements of the human environment are not present in the area, are not affected by the Proposed Action or alternatives of this EA, and are not discussed further. Seven critical elements (air quality; cultural resources; Native American religious concerns; TEC&P species; wastes [hazardous and solid]; water

quality; and wetlands/riparian areas) are present in the proposed project area, may be affected by the Proposed Action or alternatives, and are discussed in detail in this EA.

Based on comments received from the public during a BLM-sponsored open house for the Proposed Action on January 17, 2002, and additional existing information concerning the proposed project area, BLM resource specialists have determined that this EA will also analyze potential impacts of the Proposed Action and alternatives on geology and geologic hazards, minerals (solid and fluid), health and safety (transportation), land resources and use, noise, rangeland and livestock grazing, recreation, socioeconomics, soil resources, special status flora and fauna, vegetation, wild horses, and wildlife. Other resources (e.g., forested area/products, paleontology, visual resources, water rights, etc.) have been determined not to be affected by the proposed project and are therefore not analyzed in detail in this EA.

Based on the discussion presented above and in accordance with BLM NEPA regulations and policies, the following resource area/topics will be addressed in this EA: air quality and noise; cultural resources; geology and geologic hazards; health and safety (transportation); land resources and use; minerals (solid and fluid); Native American religious concerns; rangeland and livestock grazing; recreation; socioeconomics; soil resources; TEC&P and BLM-sensitive species; vegetation (including invasive species); wastes (hazardous and solid); water resources; wetlands/riparian areas; wild horses; and wildlife.

Air pollutant emissions would occur from construction of the mine facilities and from selected mine and reclamation operations associated with the Proposed Action. Air emissions and air pollutant impacts are limited by state and federal regulations, standards, and implementation plans established under the *Clean Air Act* and are administered within Wyoming by WDEQ/AQD. Chapter 6 of the WAQS&R requires all proposed air pollutant emission sources, including coal mining operations, to undergo a permitting review and, if necessary, to obtain a construction permit prior to construction or operation of the source. Chapter 3 of the WAQS&R specifies general emissions standards for new and existing sources, and Chapter 2 of the WAQS&R addresses ambient air quality standards. Additional state or federal programs may apply, to a proposed source, if certain emissions and other thresholds are met or exceeded. One

such program is the PSD permit program (also administered by WDEQ/AQD) that requires major sources to perform additional analyses, including Best Available Control Technology and Air Quality-Related Values analyses for federal Class I Areas. The Proposed Action, in combination with existing Jim Bridger Mine operations, would be classified as a minor source and therefore would not be subject to the PSD permit program. The Proposed Action would be subject to WDEQ/AQD construction and operating permit requirements and would be required to operate in compliance with emission standards and ambient air quality standards. Based on the discussion presented in the EA, no violations of applicable federal or state air quality regulations would occur.

Under the Proposed Action, human-related noise would increase above existing background levels; however, a majority of the mining activities would occur between 200 and 1,000 ft below the ground level and therefore would not be audible to the casual observer located within the TMRT. The highest level of noise associated with the Proposed Action would likely occur at or near the mine portal and surface support facility at Ramp 14. In addition, ongoing surface mining and reclamation operations, and the accompanying noise, would continue at the Jim Bridger Mine. As a result, noise from the Proposed Action would likely be less than surface mining operations and would not be distinguishable from the existing level of background noise in the area. In addition, there are no residences, schools, or noise-sensitive human receptors within the TMRT or the CIAA. The nearest residence to the TMRT would be more than 8 mi west in the town of Superior. It is unlikely that underground mining operations would be audible or would adversely affect residents in Superior.

Under the Proposed Action, 59 acres within the TMRT may be physically disturbed as a result of the repair of surface cracks due to subsidence. An additional 28 acres located away from the TMRT area would be disturbed due to the construction of associated support facilities (e.g., overland conveyor system, powerline, access road). In order to protect and mitigate potential impacts to NRHP-eligible sites (including the Point of Rocks to South Pass wagon road) within the TMRT area, BCC would enter into a cultural resource programmatic agreement with BLM, OSM, WDEQ/LQD, and Wyoming State Historic Preservation Office. This agreement would identify specific survey, testing, protection, and mitigation measures that would be implemented

by BCC to address and protect NRHP-eligible historic and prehistoric sites within the TMRT area. The programmatic agreement would demonstrate compliance with all applicable cultural resource laws and regulations.

Under the Proposed Action, 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.

The primary impact of the Proposed Action on geology would be the removal of approximately 44 million tons of in-place federal coal reserves included in the total of approximately 121.5 million tons of in-place federal, private, and state coal reserves from the TMRT area.

Under the Proposed Action, there would be a slight lowering of elevation within a majority of the TMRT. The amount of subsidence that reaches the surface depends on such factors as time, depth of mining, thickness of the coalbed extracted, thickness and strength of the overlying rock, and any previous mining of overlying coalbeds (U.S. Department of Energy 1995). BCC anticipates that 85% of the mined-out coal area may eventually be evident at the surface by a slight lowering (6.0-9.5 ft) of elevation. Based on the experience from other underground operations being conducted by PacifiCorp (BCC is a subsidiary of PacifiCorp), BCC expects that it would take approximately 3-4 weeks for subsidence caused by the longwall mining of the TMRT to initially reach the surface. In addition, BCC expects subsidence activities to be substantially complete within 2 years of the completion of mining operations at any particular location.

Material overlying the mains would generally remain intact at the original elevation, while the remaining mined longwall panel areas would settle. The surface would gradually settle over the longwall coal panel area following the completion of mining operations. While the area located above the longwall coal panels would subside, the settling would cause little or no surface disturbance (e.g., surface cracks, channel displacement, etc.) that would require corrective action (i.e., reclamation and revegetation) by BCC. This assessment is based on other longwall mining operations conducted in Wyoming. Therefore, for the purpose of this EA, it will be assumed that 1% (or 59 acres) of the surface area within the TMRT would be impacted over the LOM to a point that would require corrective action (i.e., repair and revegetation of surface cracks). If the project area were completely flat, the final topographic surface would be composed of ridges and basins. However, combined with the natural undulations of the topographic surface, the subsidence within the TMRT would generally not be noticeable to the causal observer.

Local surface water drainage patterns within the TMRT could be disrupted by subsidence. Therefore, besides the 59 acres of estimated subsidence that would need to be reclaimed, BCC would be responsible for repairing and revegetating any drainage channel affected by subsidence-related disturbance within the TMRT in accordance with WDEQ/LQD rules and regulations.

There may be slightly increased soil erosion due to subsidence. Soil loss would occur primarily due to wind and water erosion. Wind and water erosion would eventually reduce the relief due to the subsidence. Soils would be locally affected if cracks develop at the surface. BCC would be responsible for repairing and revegetation any area affected by subsidence-related disturbance within the TMRT in accordance with WDEQ/LQD rules and regulations.

Vegetation would not be directly disturbed unless subsidence cracks form; however, BCC would repair and revegetate any area affected by subsidence-related disturbances within the TMRT in accordance with WDEQ/LQD rules and regulations. Indirect impacts would occur because the new topography would alter local soil moisture regimes, which may eventually affect species distribution within the TMRT. The new topography may also alter snow distribution and thus

moisture accumulation patterns, which may eventually cause gradual permanent changes to vegetation communities.

Under the Proposed Action, approximately 10-75 temporary construction workers would be employed from approximately mid-2005 through the end of 2007, and an additional 50 miners may eventually be employed at the Jim Bridger Mine. Both temporary and full-time employees would travel to the mine site either in individual vehicles, vans, or buses. As a result, the number of individual vehicles, vans, and buses would not greatly increase from the existing numbers of vehicles that currently utilize Interstate 80 or Wyoming State Highway 377. It also follows that there would not be a large increase in the number of traffic accidents on both roads.

In addition, construction and new miners would travel on access roads controlled and maintained by BCC, and drivers would be required to comply with posted speed limits. The public would not have access to the working portions of the mine and these access roads. The existing mine access roads would be maintained according to appropriate transportation standards in order to handle the estimated 180 to 250 miners that would eventually work at and travel to the proposed underground mine. The actual number of vehicles that would utilize these roads at any one time cannot be accurately estimated but would be based on the average number of workers per vehicle and the number of employees that would be working in any specific work shift (the mine would generally be operated 24 hours per day 7 days per week).

Under the Proposed Action, landownership and mineral ownership would not change. Other current land uses within the TMRT (i.e., livestock grazing, wildlife habitat, and dispersed recreation) would continue at their current levels, unaltered and unaffected by the Proposed Action. However, current land uses in the approximate 28 acres that would be disturbed by the proposed construction of the mine facilities (e.g., overland conveyor, powerline, etc.) would be temporarily unavailable for livestock grazing, wildlife habitat, and/or recreational use. However, once mining operations have been completed, facilities removed, and the disturbed area reclaimed, previous land uses would be available.

There are no known producing oil, gas, or coalbed methane wells or fields within the TMRT or the CIAA, and the potential for near-term mineral development, besides coal, within the TMRT is moderate to low (BLM 1997a, 2003b). Coalbed methane testing conducted by BCC within the TMRT area indicates that there is no evidence of economic reserves of coalbed methane in any of the four holes that were drilled by BCC (BLM 2003b; PacifiCorp 2003). Given the lack of existing coalbed methane development within the TMRT and the lack of any proven reserves from the Deadman coal zone or even the CIAA, it is not possible to estimate the loss of any potential coalbed methane reserves that may potentially be present with the LBA area.

In addition, there are no active locatable mineral (e.g., precious metals, bentonite, etc.) mines or economically recoverable deposits of locatable minerals within the TMRT or the CIAA, and there are no claims for locatable minerals within the TMRT or CIAA (BLM 1996b). There are also no construction aggregate quarries (a saleable mineral) within the TMRT or the CIAA; however, the BLM has identified several sand and gravel deposits along the western boundary of the CIAA (BLM 1996b). Due to the limited size and remoteness of these deposits outside of the TMRT area, it is unlikely that these deposits would be developed in the near-term and therefore would be unaffected by the Proposed Action.

Exploration, including seismic testing, for and development of oil, gas, coalbed methane, locatable minerals, and salable minerals may continue to be permitted by the BLM within the TMRT in accordance with applicable regulations and as long as exploration would not interfere with ongoing coal mine development and operations.

No sites of Native American religious concern are known to occur within the TMRT; if such sites or localities are identified at a later date, they would be taken into consideration by the BLM and would be addressed in accordance with applicable rules, regulations, and policies.

Approximately 5 AUMs may potentially be temporarily displaced by reclamation operations associated with the repair of the surface cracks due to subsidence. This would account for less than 0.006% of the utilized AUMs within the Rock Springs grazing allotment. This displacement would be short-term (i.e., less than 10-20 years after reclamation operations have

been completed) and would be mitigated by timely implementation of reclamation operations. Reclamation and revegetation operations would be conducted in accordance with and approved by WDEQ/LQD. There would be no permanent displacement of livestock as a result of the Proposed Action. Noise from the underground mining operation would be minimal, and noise from the mine portal and surface support facilities would be similar to the existing noise being generated at the Jim Bridger Mine; therefore, there would be no displacement of livestock from the project area due to increased noise.

Under the Proposed Action, recreation opportunities within the TMRT would be discouraged but would not be restricted. Hunting and other dispersed recreational activities that currently occur within the TMRT project area would likely continue and would not be altered or impacted by the Proposed Action.

The Continental Divide dissects the TMRT LBA area; however, no segments or routes of the CDNST have been designated by the BLM along the southern branch around the Great Divide hydrologic drainage basin.

It is likely that most of the specialized temporary construction workers would come from outside of the Sweetwater County area. However, with underground longwall-type mining operations currently being conducted at the trona mines located west of Green River, it is possible that some of the additional miners may be hired from within the existing workforce.

Projected revenue to the State of Wyoming is estimated at $93.5 million from mining the entire TMRT area, of which $33.9 million would be generated from mining of the federal coal, based on $1.10 per ton of coal sold and including income from severance tax, property and production taxes, sales and use taxes, and Wyoming's share of federal royalty payment (Borden et al. 1994). Locally, mining of coal from the TMRT area would help stabilize municipal, county, and state economies.

Existing infrastructure in Sweetwater County (e.g., housing, utilities, schools, hospitals, etc.) would be adequate to accommodate the limited additional temporary construction and permanent mining jobs created by Proposed Action.

Direct impacts to soils would include the removal of vegetation, exposure of the soil, mixing of soil horizons, loss of topsoil productivity, soil compaction, and increased susceptibility to wind and water erosion. These impacts may, in turn, result in increased runoff, erosion, and sedimentation to the any receiving water system. Short-term control of surface runoff and sedimentation would be accomplished by implementation of alternate sediment control measures required by the WDEQ/LQD and described in the mine plan portion of the Proposed Action. Federally listed TEC&P species with the potential to occur in the project area are black-footed ferret and bald eagle and no impacts are expected.

All BLM-sensitive species likely to occur within the TMRT and vicinity have been identified. BLM-sensitive species documented in or in the vicinity of the TMRT include white-tailed prairie dog, white-faced ibis, ferruginous hawk, greater sage-grouse, long-billed curlew, burrowing owl, sage thrasher, loggerhead shrike, Brewer's sparrow, mountain plover, northern leopard frog, Great Basin spadefoot, Nelson's milkvetch, and mystery wormwood (WNDD 2003). Most of the BLM-sensitive species likely to occur within the TMRT are mobile enough that they would likely not be affected by the Proposed Action.

While it may be possible that individual white-tailed prairie dogs or burrowing owls that live in areas directly affected by mine-related subsidence may be adversely affected by the Proposed Action, the impacts would be limited to few individuals and would not have an adverse impact on their populations. In addition, the project area would not contribute to the need to list additional species under the provisions of the federal *Endangered Species Act*.

Direct impacts to vegetation due to the Proposed Action include the removal of existing vegetation community from the disturbed area. In turn, vegetation removal would result in increased runoff, erosion, and sedimentation to the any receiving water systems. Short-term control of surface runoff would be accomplished by implementation of alternate sediment control

measures required by the WDEQ/LQD and described in the mine and reclamation plan of the Proposed Action. In addition, long-term control of surface runoff would be accomplished by successful implementation of the reclamation plan described in the Proposed Action.

As part of the WDEQ/LQD permit to mine, BCC would be responsible for the development of mine subsidence and reclamation plans that would include detailed information concerning the amount of anticipated subsidence, mitigation measures to prevent or minimize the impacts of subsidence, mitigation measures to prevent, lessen, or mitigate material damage or loss of value of physical property in the area, a subsidence monitoring and mitigation plan, and a reclamation plan to address reclamation and revegetation requirements on affected areas. Following the completion of reclamation operations, the revegetated areas would be monitored at least annually for five years by BCC and WDEQ/LQD to assess the subsidence and the adequacy or need for additional reclamation and revegetation efforts. Subsidence and erosional features would be monitored and appropriate corrective actions instituted if conditions warrant. Additional erosion control features would be employed as needed and as directed by WDEQ/LQD. All mitigation and corrective actions would be conducted in accordance with the approved WDEQ/LQD mine permit.

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 in an approved facility capable of accepting such waste. All nonhazardous material would be disposed of in accordance with appropriate local, state, and federal regulations.

Direct impacts to surface water resources would include an increase in runoff, wind and water erosion, and sedimentation to any receiving system as a result of surface disturbance, removal of vegetation, exposure of the soil to the elements, and soil compaction. Ephemeral channels may also be impacted as a result of subsidence that may cause limited head-cutting or ponding within affected channels. Short-term control of surface runoff would be accomplished

by implementation of alternate sediment control measures required by the WDEQ/LQD and described in the mine plan portion of the Proposed Action. However, there would be no temporary or permanent depletion of surface water resources. In addition, long-term control of surface runoff would be accomplished by successful implementation of the reclamation plan described in the Proposed Action. Reclamation and revegetation procedures would be designed to reduce the susceptibility of disturbed areas to soil erosion in both the short-term and for the life of the project.

No perennial streams would be directly impacted by the underground mining activities, and there would be no depletion of surface water resources. Therefore, no additional mitigation measures beyond those already included in the Proposed Action would be required.

Under the Proposed Action, BCC would require approximately 100,000 to 500,000 gallons of water per day from the Deadman coal zone for dust suppression and equipment washdown and at the surface support facilities. In addition, approximately 5,915 acres of coal aquifer (the same one that would be mined) would be temporarily removed during mining.

Drawdown of the coal aquifer would occur throughout the life of the mine and would likely mimic groundwater drawdown patterns currently observed as a result of BCC's surface coal mining operation. The drawdown limit of the Deadman coal zone would likely continue to extend northwest of the existing surface mine operation. In addition, a limited amount of drawdown would also occur in the Lance Formation and Fort Union Formation overburden. The amount of drawdown would depend upon numerous hydrogeologic factors including the amount of hydraulic connectivity between the various formations. There are no known groundwater appropriations within the vicinity of the TMRT, except those currently held by BCC.

After mining operations have been completed, aquifers would begin to recharge, although the recharge rate would depend on the specific physical characteristics of the replaced aquifer (Deadman coal zone) and the indirectly impacted aquifers (the Fort Union Formation overburden and the Lance Formation). It may require 100 years or more for postmine groundwater levels to

recharge to premine levels (BLM 2003b). Impacts due to aquifer drawdown would last for 100 years or more beyond the life of the mine; however, these impacts would not be permanent.

The closest surface expression of groundwater to the TMRT is at Radar Springs, approximately 1 mi northwest of the TMRT. However, based upon the slope of the coal beds that would be impacted by the Proposed Action and knowledge gained at the existing Jim Bridger Mine and local geologic maps, the proposed underground mine would be located down-gradient of Radar Springs and most likely is not connected to Radar Springs and would not impact Radar Springs.

There are no jurisdictional or nonjurisdictional wetlands within the TMRT. The Proposed Action would have no impacts on wetland resources, and permit coverage from the U.S. Army Corps of Engineers would not be required.

Direct impacts to wild horse populations would result from the temporary loss of 87 acres of habitat due to vegetation removal; displacement of wild horses due to disturbance by project-related activities; direct mortality due to construction-related activities; and an increased likelihood of vehicle/animal collisions due to increased vehicle traffic. Impacts to vegetation due to disturbance would be limited in part due to the fact that the 87 acres of disturbance would be spread over a larger area and would not occur in a single block of disturbance. In addition, the population of wild horses within the GDBW HMA is within the BLM management level for this area, and there would be no impacts to the local wild horse numbers.

Direct impacts to big game would result from the loss of habitat due to vegetation removal; displacement of wildlife due to disturbance by project-related activities; direct mortality due to construction-related activities; increased mortality due to poaching and harassment; and an increased likelihood of vehicle/animal collisions due to increased traffic in the area. Due to the depth of the mining operations, noise from the underground mining operations would be minimal; therefore, no big game would be expected to be displaced from within the TMRT due to noise.

Approximately 1,726 acres or 30% of the TMRT area would be located within crucial winter/yearlong pronghorn antelope range. However, a majority of the TMRT area (70%) would be located in winter/yearlong habitat. Impacts to pronghorn antelope due to vegetation removal would be limited due in part to the fact that the 87 acres of project-related disturbance would occur in small amounts over a large area. In addition, only 30 acres of the disturbance would occur within crucial winter/yearlong range. Therefore, there would be no impacts to the population of pronghorn antelope within the Red Desert herd unit due to the Proposed Action.

The TMRT does not contain any crucial winter mule deer or elk range. Once construction activities and reclamation operations are completed and suitable vegetation habitat is re-established, mule deer and elk would likely reoccupy the ROWs and areas within the TMRT that are impacted by subsidence. Therefore, there would be no impacts to either mule deer or elk populations due to the Proposed Action.

Direct impacts to raptors include mortality due to electrocutions and collisions with powerline structures. It is unlikely that raptor populations would be impacted by the Proposed Action; however, individual birds may be impacted. Several raptor nests are located in the TMRT area; however, no raptor nests were documented within the ROW areas.

Direct impacts to greater sage-grouse and other upland game birds include loss of breeding and nesting habitat, wintering areas, and possibly strutting grounds (leks); displacement due to increased human activity; and collisions with vehicles and/or powerlines. Indirect impacts include the displacement due to noise, ground vibrations, and/or subsidence. The BLM requires special mitigation measures if greater sage-grouse leks are located within 0.25 mi of any proposed surface disturbance.

Only approximately 1% (59 acres) within the TMRT may be physically disturbed as a result of reclamation operations to repair cracks due to subsidence, and it is possible, but unlikely, that one or more of the three greater sage-grouse leks within the TMRT may be physically impacted by these operations. In order to minimize potential impacts to greater sage-grouse within the TMRT, reclamation operations would be conducted in accordance with standard BLM mitigation

measures outlined in the EA and WDEQ/LQD requirements specified in the mine and reclamation permit application prepared by BCC. BLM, WDEQ/LQD, and WGFD would carefully evaluate the need for and extent of any surface-disturbing activity that would occur within 1 mi of any greater sage-grouse lek. Priority would be given to minimizing any physical disturbance to greater sage-grouse leks.

Due to the depth of underground mining operations (i.e., 200 ft to 1,000 ft below the surface) and the limited amount of blasting, noise and/or ground vibrations at the surface within the TMRT due to mining operations would be minimal compared to nearby surface coal mining operations. Subsidence would also occur within the longwall coal panel areas. However, there is no documented or anecdotal evidence of impacts of noise, ground vibration, or subsidence from underground mining operations on greater sage-grouse behavior.

Cumulative Impacts

Cumulative impacts result from the incremental impacts of an action added to other past, present, and reasonably foreseeable future actions, regardless of who is responsible for such actions. Cumulative impacts may result from individually minor, but collectively significant, actions occurring over a period of time (40 C.F.R. 1508.7). The boundary of individual CIAA areas for this EA are based on the specific resource being discussed and evaluated.

Cumulative impacts to all of the environmental resources evaluated in this EA would not be important because there are no past, present, or reasonable foreseeable future actions that, when combined with the Proposed Action, would result in impacts beyond those that already exist or have already been identified and discussed in Chapter 4.0 of this EA.

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LIST OF ABBREVIATIONS AND ACRONYMS

APLIC	Avian Power Line Interaction Committee
AQD	Air Quality Division
AUM	Animal unit month
BCC	Bridger Coal Company
BLM	Bureau of Land Management
BTU	British Thermal Unit
CD/GWII	Continental Divide/Greater Wamsutter II
CDNST	Continental Divide National Scenic Trail
CERCLA	*Comprehensive Environmental Response, Compensation, and Liability Act of 1980*
C.F.R.	*Code of Federal Regulations*
CIAA	Cumulative impact analysis area
CO	Carbon monoxide
dBA	A-weighted decibels
DFP	Desolation Flats natural gas field development project
EA	Environmental assessment
EIS	Environmental impact statement
EPA	U.S. Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FLPMA	*Federal Land Policy and Management Act of 1976*
GDBWHMA	Great Divide Basin Wild Horse Herd Management Area
kV	Kilovolt
LBA	Lease-by-application
LOM	Life-of-mine
LQD	Land Quality Division
MER	Maximum economic recovery
MLA	*Mineral Leasing Act of 1920*
MSDS	Material Safety Data Sheets
MSHA	Mining Safety and Health Administration
MW	Megawatt
NAAQS	National Ambient Air Quality Standards
NEPA	*National Environmental Policy Act*
NMHCs	Nonmethane hydrocarbons
NO_2	Nitrogen dioxide
NO_X	Nitrogen oxide
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
OSM	Office of Surface Mining Reclamation and Enforcement
P.M.	Principal Meridian
$PM_{2.5}$	Particulate matter less than 2.5 microns in diameter

LIST OF ABBREVIATIONS AND ACRONYMS (CONTINUED)

PM_{10}	Particulate matter less than 10 microns in diameter
ppm	Parts per million
PSD	Prevention of Significant Deterioration
R2P2	Resource Recovery and Protection Plan
RMP	Resource Management Plan
ROD	Record of Decision
ROW	Right-of-way
SARA	*Superfund Amendments and Reauthorization Act of 1976*
SCS	Soil Conservation Service
SHWD	Solid and Hazardous Waste Division
SMCRA	*Surface Mining Control and Reclamation Act of 1977*
SO_2	Sulfur dioxide
SPCCP	Spill Prevention, Control, and Countermeasure Plan
TDS	Total dissolved solids
TEC&P	Threatened, endangered, candidate, and proposed
TMRT	Ten Mile Rim Tract
TSS	Total suspended solids
U.S.C.	*United States Code*
USDOC	U.S. Department of Commerce
USFWS	U.S. Fish and Wildlife Service
VOC	Volatile organic compounds
WAAQS	Wyoming Ambient Air Quality Standards
WAQS&R	Wyoming Air Quality Standards and Regulations
WDEA	Wyoming Division of Economic Analysis
WDEQ	Wyoming Department of Environmental Quality
WGFD	Wyoming Game and Fish Department
WNDD	Wyoming Natural Diversity Database
WOGCC	Wyoming Oil and Gas Conservation Commission
WOSLI	Wyoming Office of State Lands and Investment
WQD	Water Quality Division
W.S.	*Wyoming Statute*
WSEO	Wyoming State Engineer's Office

1.0 INTRODUCTION

1.1 BACKGROUND

On September 28, 2001, Bridger Coal Company (BCC) filed an application with the Bureau of Land Management (BLM) for federal coal reserves located adjacent to the existing Jim Bridger Mine in north-central Sweetwater County, Wyoming. On February 11, 2003, BCC filed a modified application with the BLM at the Wyoming State Office in Cheyenne for a reduced lease area (refer to Figure 1.1). This application was made pursuant to provisions of the lease-by-application (LBA) regulations found in Title 43 *Code of Federal Regulations* (C.F.R.) 3425.1. The tract applied for, known as the Ten Mile Rim Tract (TMRT), contains federal-, state-, and private-owned coal reserves. The BLM assigned the federal lease area case number WYW-154595. In addition to the federal LBA action, the project would also require BLM to issue a right-of-way (ROW) associated with the LBA for a portion of a new powerline required for the project. The ROW applications would be made pursuant to Title 43 C.F.R., Part 2800, that govern the federal approval and issuance of ROW applications.

The TMRT area and the associated ROW would be located north of Interstate 80, approximately 10 mi north of Point of Rocks, approximately 25 mi east of Rock Springs, and approximately 70 mi west of Rawlins, Wyoming (refer to Figure 1.1). The TMRT area is located in the area administered by the BLM Rock Springs Field Office.

BCC proposes to lease federal coal for a new underground mine located adjacent to the existing Jim Bridger Mine, a surface coal mine operation. According to LBA documents submitted by BCC, the coal would be required to provide fuel to the nearby Jim Bridger Power Plant for an additional 15 to 20 years. The surface ownership pattern within the TMRT area is checkerboard, where even-numbered sections are owned by the federal government, odd-numbered sections are privately owned, and select even-numbered sections are owned by the State of Wyoming. (Section 2.0 further describes surface and mineral ownership.) The Jim Bridger Mine has an

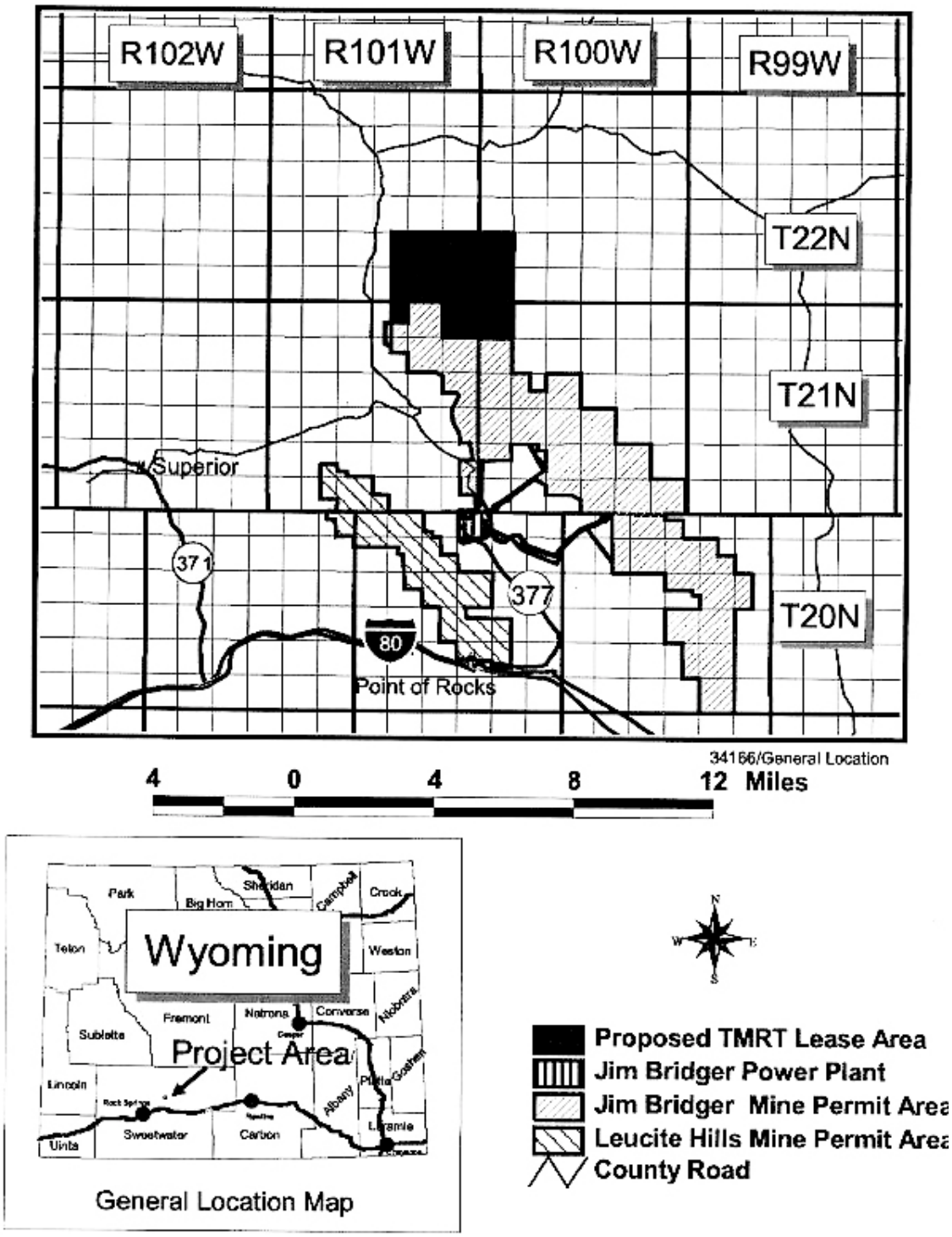

Figure 1.1 General Project Location.

approved mine and reclamation plan and permit (No. 338-T5) issued by the Wyoming Department of Environmental Quality/Land Quality Division (WDEQ/LQD) and other pertinent permits and approvals issued by other federal, state, and local regulatory agencies. As part of the federal coal-leasing process, BLM will evaluate the tract configuration and may add or subtract federal coal to avoid bypassing federal coal or to otherwise achieve maximum economic recovery. BLM will also evaluate the application to define the characteristics of the federal coal reserves and to evaluate the fair market value of the tract. No vertical shafts or inclines would be required to access the coal reserves. According to BCC, underground access to the coal reserves within the TMRT area would be gained through access from the existing highwall area at Ramp 14 of the existing surface mine. Under the Proposed Action, no new mine facilities (such as ventilation shafts or support equipment) would be required within the TMRT area. Associated mine support facilities (e.g., buildings, roads, overland conveyor, powerlines, etc.) would be located on lands that the applicant currently has legal access rights to or where legal access would be secured. These facilities are described in more detail in Chapter 2.0 of this environmental assessment (EA).

The federal government maintains a policy to encourage private industry to develop and mine domestic energy reserves in an economically and environmentally sound manner. The Secretary of the Interior has the responsibility to carry out this policy. Since the passage of the *Mineral Leasing Act of 1920* (MLA), as amended, the U.S. Department of the Interior, through its implementing agency, the BLM, has been charged with administrating a leasing program that would allow the private sector to mine federally owned coal reserves. Therefore, pursuant to the MLA, "it is the continuing policy of the federal government in the national interest to foster and encourage private enterprises in 1) the development of economically sound and stable domestic mining, minerals . . . industries, 2) the orderly and economic development of domestic mineral resources, reserves . . . to help assure satisfaction of industrial, security, and environmental needs" (BLM 2001a:4). This policy is reaffirmed in the BLM's 2001 plan for the implementation of the national energy policy (BLM 2001a).

In addition, the Proposed Action would include the approval of one associated ROW for a segment of a new powerline. This associated facility would be located outside of and near to the TMRT, and this ROW would be necessary for implementation of the Proposed Action. The *Federal Land Policy and Management Act of 1976* (FLPMA), as amended (43 *United States Code* [U.S.C.] §1701 et seq.), and promulgating regulations found in Title 43 C.F.R., Part 2800, govern the federal approval and issuance of ROW applications for facilities such as the proposed powerline.

Before the federal government may hold a competitive coal lease sale or issue the associated ROW grant, the BLM must analyze the potential environmental impacts of issuing a lease or ROW grant in accordance with the *National Environmental Policy Act* (NEPA). To assess potential impacts of the Proposed Action, BLM conducted internal BLM and public scoping. Public scoping was initiated on November 15, 2001, and concluded on December 31, 2001. Based on public and BLM internal scoping comments, BLM has decided to prepare an EA for the Proposed Action. BLM also determined that no additional public scoping was necessary or required as a result of the applicant's 2003 revised application and reduction in the size of the TMRT LBA area. This EA is prepared pursuant to NEPA, as amended (42 U.S.C. 4321 et seq.), its implementing regulations found in Title 40 C.F.R. Part 1500–1508, BLM's *National Environmental Policy Act Handbook* (H-1790-1) (BLM 1988), BLM's desktop reference *Overview of BLM's NEPA Process* (BLM 1996a), and *Considering Cumulative Impacts Under the National Environmental Policy Act* (Council on Environmental Quality [CEQ] 1997).

This EA assesses the environmental impacts of the Proposed Action and appropriate alternatives, including the No Action Alternative. The Proposed Action is strictly defined as the leasing and mining of the federal coal reserves located within the TMRT and the granting of one ROW for the construction of a segment of powerline (required for the Proposed Action) that would cross federal lands. This EA assesses the potential environmental impacts of these actions on federal lands but also includes the potential environmental impacts associated with the construction and mining activities that would occur on privately owned lands. While some of these associated

activities would occur on privately owned lands, they are described as connected actions under NEPA regulations and analyzed in this EA.

The BLM will use this analysis to make a decision whether or not to hold a competitive, sealed-bid lease sale and to issue a coal lease for the federal coal within the TMRT area. If a lease sale is held, a lease will be issued to the highest bidder, if a federal sale panel determines that the highest bidder meets or exceeds the fair market value as determined by BLM's economic evaluation and if the U.S. Department of Justice determines that there are no antitrust violations if the lease is issued to the highest bidder.

The Office of Surface Mining Reclamation and Enforcement (OSM) is a cooperating agency on the EA and will use this analysis to make decisions related to mining federal coal in this tract.

The Proposed Action would comply with all relevant federal, state, and local laws and regulations. Table 1.1 lists the potential authorizing actions required for project compliance. In addition, the Proposed Action would be operated in accordance with federal Mine Safety and Health Administration (MSHA) and Wyoming Department of Employment, Division of Mine Inspections and Safety rules and regulations.

1.2 PURPOSE AND NEED

Coal production at the Jim Bridger Mine is slowing because existing privately and federally leased coal reserves are becoming too deep and uneconomical to be recovered utilizing conventional surface mining methods (i.e., draglines). As a result, additional mineable coal reserves are needed to meet production requirements. Representatives of BCC plan to supplement the decreasing supply of surface-mined coal with the addition of adjacent underground mining operations. The development of underground mining operations next to the existing surface mine would allow BCC to utilize many of the existing support systems at the Jim Bridger Mine (e.g., roads, overland conveyor, administrative and maintenance facilities), thereby minimizing costs and disturbance to the environment.

Table 1.1 Potential Federal, State, and Local Agencies and Authorizing Actions, TMRT LBA Project, 2003.

Agency	Nature of Action
U.S. Bureau of Land Management	NEPA compliance
	Coal lease
	ROW easement
	Lease authorization and surface use
U.S. Office of Surface Mining Reclamation and Enforcement	Cooperating agency for NEPA compliance
	Prepare mining plan decision document
	Mine permit review
Assistant Secretary of the Interior	*Mineral Leasing Act of 1920* mine plan approval
U.S. Fish and Wildlife Service	Review of potential impacts on federally listed threatened, endangered, and candidate species
Wyoming Office of State Lands and Investment	Coal lease on state land
Wyoming Department of Environmental Quality, Land Quality Division	Permit to mine coal
Wyoming Department of Environmental Quality, Air Quality Division	Amendment to air quality permit to operate
Wyoming Department of Environmental Quality, Water Quality Division	National Pollutant Discharge Elimination System (NPDES) permit
	Storm Water Pollution Prevention permit and plan
	Construction permit for drinking water system
Wyoming State Engineer's Office	Surface water appropriation permit(s)
	Groundwater appropriation permit(s)
Wyoming Game and Fish Department	Review of potential impacts on game and fish resources, including state-sensitive species
Wyoming Industrial Siting Counsel	Review proposed project relative to applicable *Industrial Site Act* regulations
Wyoming State Historic Preservation Office	Consultation with BLM and review of potential impacts on cultural resources
Sweetwater County Planning and Zoning Department	Approval of land use change
Sweetwater County Road and Bridge Department	Approval for powerline crossing of county road and special use permit for new road intersection with County Road 15
Sweetwater County Health Department	Construction permit for septic system

The Proposed Action is needed to allow the leasing and subsequent mining of federal coal within the TMRT, and the approval of the associated federal ROW is necessary to facilitate said coal mining for the nearby Jim Bridger Power Plant for the generation of electricity.

The Jim Bridger Mine started operations in 1971 and annually mines approximately 5 to 6 million tons with approximately 350 employees. Since startup, more than 150 million tons of coal have been mined at the Jim Bridger Mine (Wyoming State Geological Survey 1998). The Jim Bridger Mine has been the primary supplier of coal to the nearby Jim Bridger Power Plant. Depending on numerous factors such as electric load requirements, the power plant burns approximately 9 million tons of coal per year (Wyoming State Geological Survey 1998). The Jim Bridger Power Plant will be obtaining the remainder of its required coal from other sources. BCC indicates that the additional coal reserves within the TMRT area will be needed within the next 2 years in order for the company to meet fuel supply requirements for the power plant.

1.3 CONFORMANCE WITH LAND USE PLANS AND RELATIONSHIP TO STATUTES, REGULATIONS, AND OTHER PLANS

1.3.1 BLM Resource Management Plan

The Green River Resource Management Plan (RMP) and Record of Decision (ROD) (BLM 1997a) allows for coal leasing and development. The Green River RMP provides land use guidance for coal leasing within the project area. The exploration and development of solid leasable minerals (i.e., coal) is subject to the appropriate level of environmental analysis. The BLM Green River RMP and ROD (1997a:13) states:

> The objective for management of the federal coal resources in the planning area is to provide for both short- and long-range development of federal coal, in an orderly and timely manner, consistent with the policies of the federal coal management program, environmental integrity, national energy needs, and related demands.

With appropriate limitations and mitigation requirements for the protection of other resource values, all BLM-administered public lands and federal coal lands in the Green River planning

area, except for those identified as closed, are open to coal resource inventory and exploration to help identify coal resources and their development potential.

Federal coal lands within the Coal Occurrence and Development Potential area (that include the TMRA area) are open to further consideration for coal leasing and development (i.e., new competitive leasing, emergency leasing, lease modification, and exchange proposals, under the Federal Coal Management Program) with appropriate and necessary conditions and requirements for protection of other land and resource values and uses. In addition, the LBA process would conform with BLM coal development objectives within the Green River-Hams Fork Coal Region.

The relevant management action from the Green River RMP and ROD (BLM 1997a:137) states in part:

> Federal coal lands within the Coal Occurrence and Development Potential area (about 422,000 acres) are open to further consideration for coal leasing and development (i.e., new competitive leasing, emergency leasing, lease modifications, and exchange proposal, under the Federal Coal Management Program) with appropriate and necessary conditions and requirements for protection of other land and resource values and uses.

The Coal Occurrence and Development Potential area is subject to continued field investigations, studies, and evaluations to determine if certain methods of coal mining may occur without having a significant long-term impact on wildlife, cultural, and watershed resources, in general, and on threatened and endangered plant and animal species and their essential habitats, in particular. Such investigations, studies, and evaluations may be conducted on an as-needed or case-by-case basis in reviewing individual coal leasing or development proposals (e.g., mine plans) or, if opportunities or needs arise, area-wide studies may be conducted. These studies include keeping resource databases current (e.g., where existing raptor nests become abandoned or where new raptor nests become established, etc.), analysis of effects to wildlife and threatened and endangered species habitats and populations, and the cumulative effects of mining operations and other activities in the area. Consultation with other agencies (e.g., U.S. Fish and

Wildlife Service [USFWS], Wyoming Game and Fish Department [WGFD], etc.) with interested parties, and with industry will occur as needed or required.

A portion of the proposed powerline would require the issuance and approval of a ROW grant from the BLM and would be in conformance with the Green River Resource Area RMP and ROD. The relevant management objective from the Green River Resource Area RMP (BLM 1997a:128) states:

> The objective for the management of the lands and realty program are to: 1) manage the public lands to support the goals and objectives of other resource programs; 2) respond to public demand for land use authorizations; and 3) acquire administrative and public access where necessary.

The Green River RMP also states, "Public lands will be made available throughout the planning area for rights-of-way permits and leases (for utility and transportation systems)" (BLM 1997a:86).

1.3.2 Existing NEPA Documents

Existing NEPA documents that may be related to the proposed project includes the following:

- the BLM Green River RMP and environmental impact statement (EIS) (BLM 1992, 1996b),
- the BLM Green River RMP and ROD (1997a),
- air quality analysis from the BLM Continental Divide/Wamsutter II natural gas project EIS (BLM 1999a, 1999b),
- air quality analysis from the Desolation Flats natural gas field development project (DFP) draft EIS (BLM 2003a),
- the BLM coal exploration drilling project EA of the TMRT (2001b),
- the BLM Jim Bridger Power Plant flue gas de-sulfurization pond expansion project EA (2002a), and
- the BLM final EIS for the regional and site specific coal development for southwest Wyoming (BLM 1979b).

The BLM Green River RMP and ROD, referenced in Section 1.3.1 above, presents the management plan currently being administered in this RMP. This EA is tiered to the BLM Green River RMP (BLM 1992, 1996b, 1997a). The Green River RMP provides planning and objectives for the management of public lands in the BLM Rock Springs Field Office Area, including the leasing of solid mineral materials and issuance of ROW grants.

1.3.3 Review of Select Permits, Approvals, and Authorizations

Described below are a few of the major permits, approvals, and authorizations that would be required of BCC prior to the initiation of underground mining operations within the TMRT area. These descriptions do not address every regulatory or administrative requirement and provide only a brief overview of some of the permits, approvals, and authorizations required for the Proposed Action. All permits, approvals, and authorizations listed in Table 1.1 would have to be addressed by the appropriate regulatory agencies.

1.3.3.1 OSM Requirements

The *Surface Mining Control and Reclamation Act of 1977* (SMCRA), as amended, gives the OSM primary responsibility to administer programs that regulate surface coal mining operations and the surface effects of underground coal mining operations in the U.S. Pursuant to Section 503 of SMCRA, the WDEQ/LQD developed and the Secretary of the Interior approved WDEQ/LQD's permanent regulatory program. This approval authorizes WDEQ/LQD to regulate surface coal mining operations and the surface effects of underground coal mining on private and state lands within the State of Wyoming.

Pursuant to the cooperative agreement, federal coal lease holders in Wyoming must submit a permit application to OSM and WDEQ/LQD for all proposed mining and reclamation operations on federal lands in the state. WDEQ/LQD reviews the permit application package to ensure that it complies with the approved Wyoming state permanent program and other state statutes. If it complies, WDEQ/LQD issues the applicant a permit to conduct coal mining operations (i.e.,

permit to mine coal). OSM and other federal agencies review the permit application package to ensure that it contains the necessary information for compliance with the coal lease, the MLA, NEPA, and other applicable federal laws and their attendant regulations. OSM recommends one of the following to the Assistant Secretary of the Interior, Land and Minerals Management: (1) approval of the MLA mine plan, (2) approval of the MLA mine plan with conditions, or (3) disapproval of the MLA mine plan. Before making a recommendation regarding the mine plan, OSM obtains input from certain other federal agencies, including the appropriate federal surface management agency.

WDEQ/LQD enforces the environmental performance standards and permit requirements during the mine's operation and has primary authority in environmental emergencies. OSM retains oversight responsibilities for this enforcement. The surface management agency (i.e., BLM) has authority in emergency situations in which WDEQ/LQD or OSM inspectors cannot act before environmental harm or damage occurs.

1.3.3.2 WDEQ Requirements

As discussed above, the WDEQ/LQD administers and regulates surface coal mining and reclamation operations and the surface effects of underground coal mining operation in accordance with SMCRA and the *Wyoming Environmental Quality Act*. The WDEQ/LQD reviews and approves all proposed mining and reclamation plans under its jurisdiction. In addition, other WDEQ divisions (i.e., Water Quality Division [WQD] and Air Quality Division [AQD]) would review specific portions of the proposed mine and reclamation plan, and, if the plans conform to and comply with applicable rules and regulations, specific environmental permits would be issued by the appropriate agency.

1.3.3.3 Wyoming State Engineer's Office (WSEO) Requirements

The WSEO is responsible for administering and regulating water resources within Wyoming, including issuing permits and appropriations for all surface- and groundwater resources and the

adjudication of water rights issues and disputes. The WSEO would review specific applications filed by BCC for the appropriation of surface water and groundwater that would be utilized for the Proposed Action. The WSEO would issue permits and appropriations in accordance with the applicant's needs and available water resources.

1.3.3.4 Wyoming Office of State Lands and Investment (WOSLI) Requirements

The WOSLI is responsible for the administration and leasing of all subsurface minerals on State of Wyoming lands. As of March 1, 2001, BCC had applied for and received a lease (State Lease #0-040779) for state-owned coal located in Section 36, T22N, R101W. In addition to securing the state lease, BCC has also secured a lease from the owner of the private coal reserves within the TMRT.

1.3.3.5 Sweetwater County Requirements

Sweetwater County administers land use within the county in accordance with the approved land use plan, issues road encroachment authorizations, special use permits for roads, and issues permits for septic systems. BCC would apply for all necessary permits, land use changes, and/or authorizations from the appropriate Sweetwater County agency or department for the specific program to be undertaken.

1.3.4 Public Involvement

On November 9, 2001, pursuant to NEPA regulations, BLM released a scoping notice to the public. In addition, a Scoping Notice was published in the *Federal Register* on December 21, 2001. Ten comment letters were received in response to the scoping notice. In addition to releasing the scoping notice, BLM held a public meeting on December 12, 2001. As a result of BLM, OSM, and public input, the following issues and agency concerns have been identified:

- subsidence;
- existing oil and gas leases that overlap the LBA area and potential for concurrent development;

- wildlife considerations including potential affects to fossorial wildlife (e.g., white-tailed prairie dogs, burrowing owls) and greater sage-grouse;
- listed species and species proposed for listing, candidate species, m igratory birds, and wetland or riparian areas;
- protection of ephemeral drainages;
- socioeconomic impacts including workforce and housing requirements;
- possible impact to Point of Rocks water source;
- possible effects of construction activity and blasting on residences and businesses located in Point of Rocks; and
- maintaining public access to public lands around the mine and power plant.

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 rooms 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,

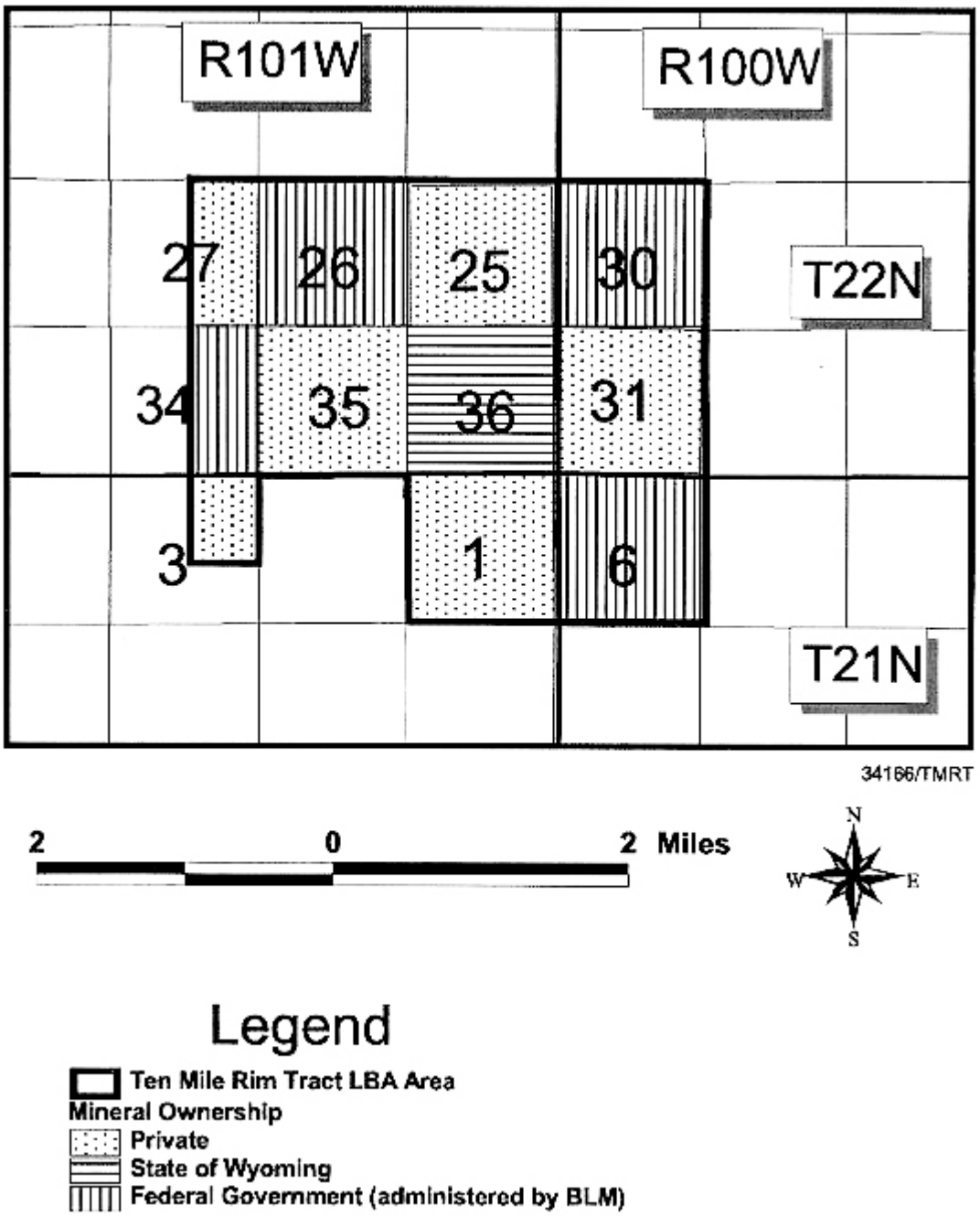

Figure 2.1 Mineral Ownership Within the TMRT.

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 m ine subsidence. BCC (if the successful bidder) would utilize both previously undisturbed and disturbed areas for the construction of the associated facilities. Approxim ately 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 estim ated 59 acres of new disturbance (i.e., previously undisturbed areas) would be disturbed due to the repair of potential subsidence from underground m ining (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 m ining operations, additional m ine 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 m ine 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 (approxim ately 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 lo cated on the north side of Ram p 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 treatm ent equipment, an electric substation, a diesel fuel tank, and a septic system with septic tanks and absorption field for the treatm ent of waste water from the bathhouse and office. A conceptual layout of the underground m ine 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 m ine portal at Ram p 14 to the existing Truck Dum p Station #2 (refer to Figure 2.3). From Truck Dum p Station #2, the existing overland conveyor system would transport the coal the rem aining 20,000 ft to th e Jim Bridger Power Plant. Installation of the proposed overland conveyor system would be com pletely 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 ne w 17,000-ft overland conveyor system would be located on previously disturbed lands and approxim ately 10,000 linear ft (or 23 acres) of new conveyor system would be located on previously undisturbed land.

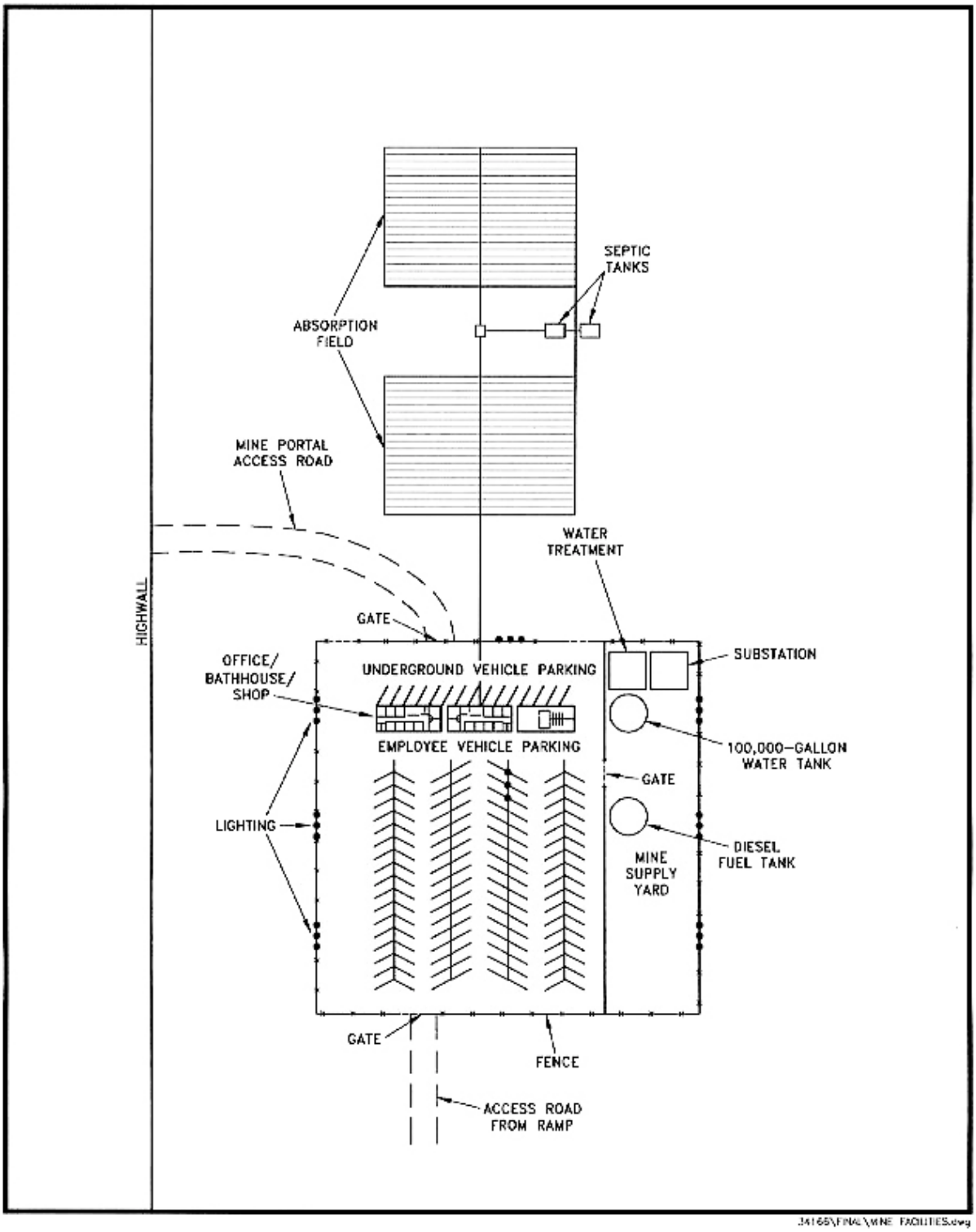

Figure 2.2 Typical Surface Support Facilities Layout.

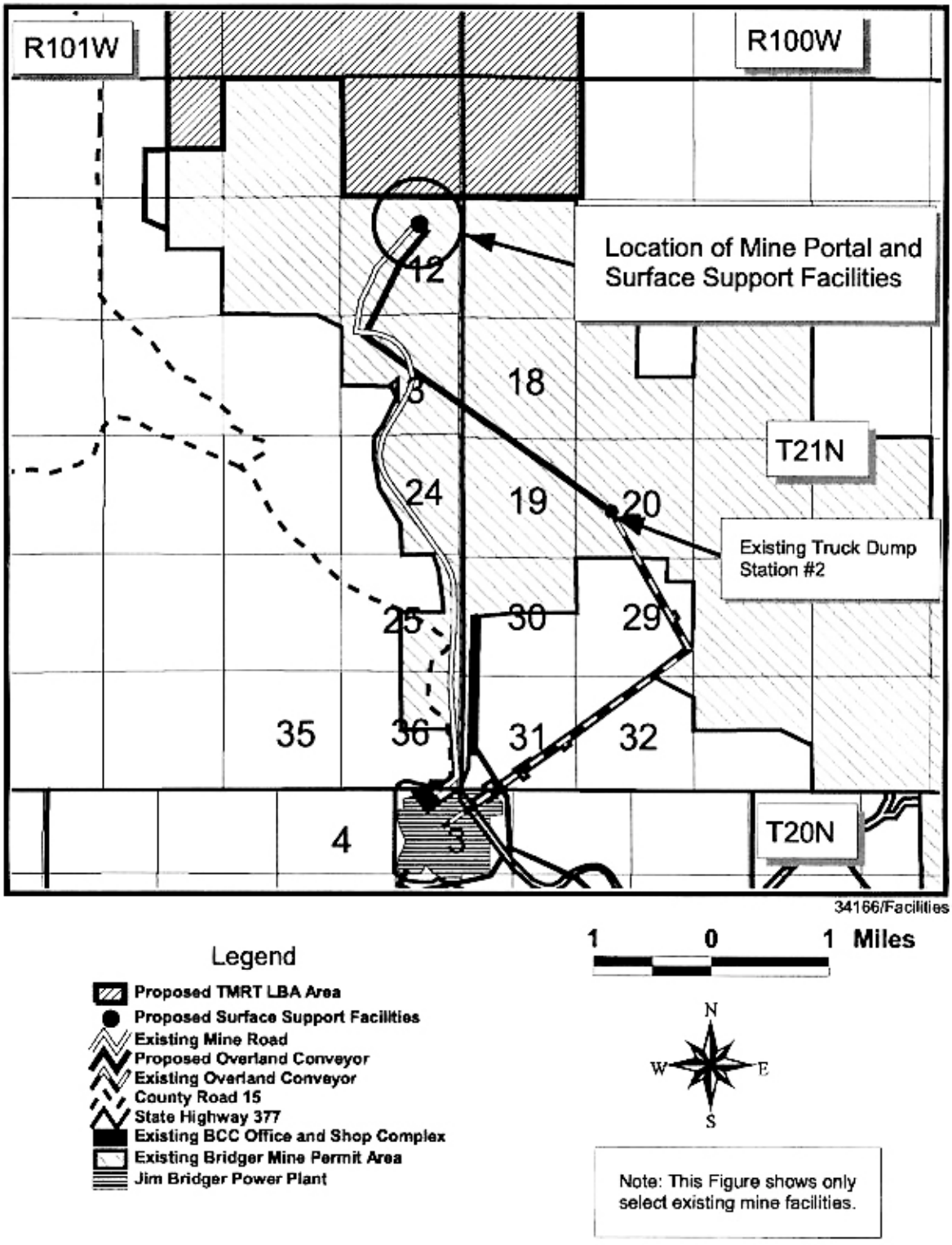

Figure 2.3 Major Transportation Systems.

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

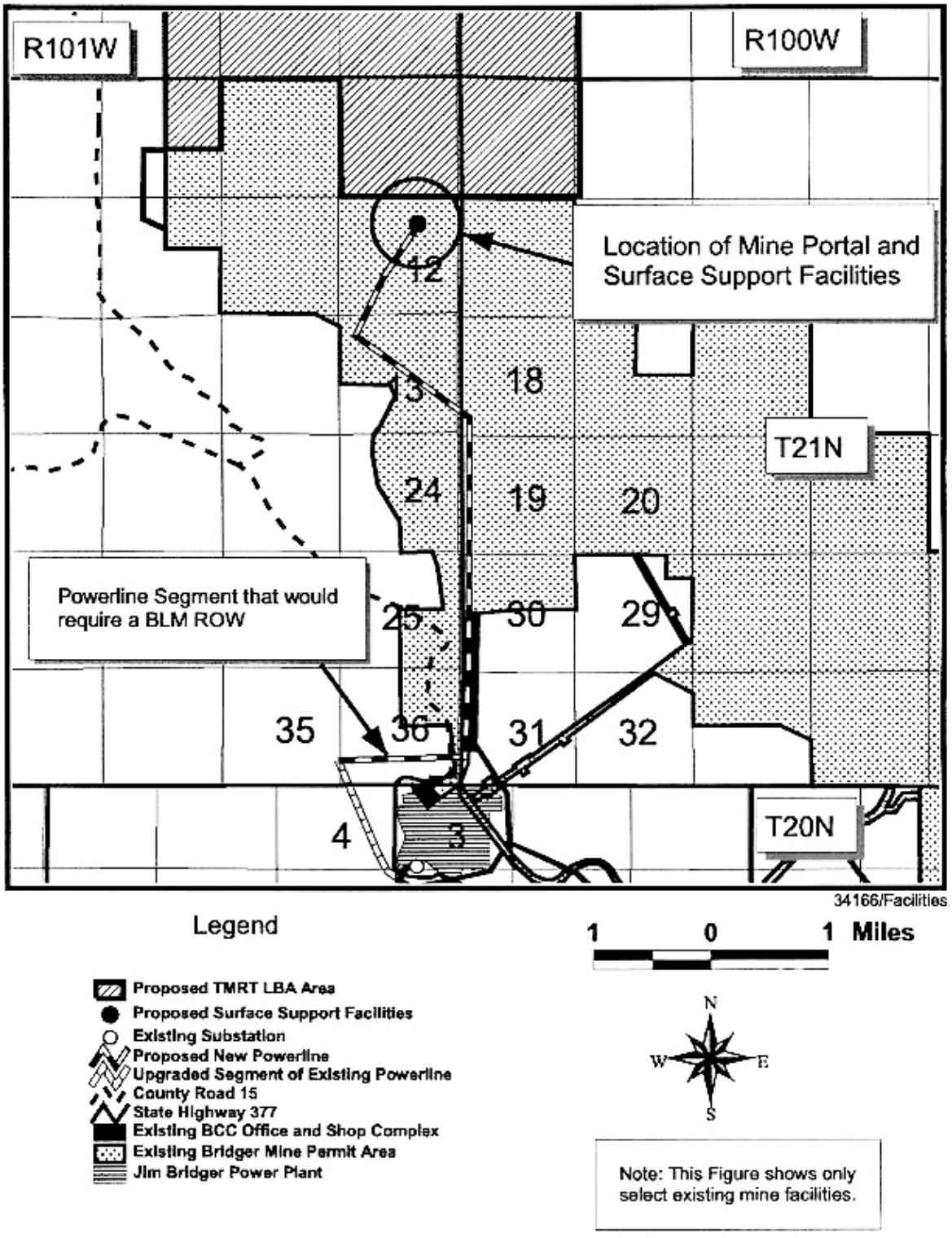

Figure 2.4 Powerline System.

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 th e 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) m aterial staging area. The tem porary 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 prim arily from existing public and private roads. From Point of Rocks, construction workers and m iners would travel north approxim ately 8 m i on W yoming 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 m ine road system (refer to Figure 2.5). The new access road segm ent would reduce traffic congestion and im prove safety around BCC's office and shop com plex. BCC would obtain a special use perm it from the Sweetwater County Road and Bridge Departm ent, and the road would m eet all appropriate road design standards. Assuming the road disturbance would be approxim ately 50 ft wide, the new access road would result in approximately 3 acres of new disturbance.

Construction workers and m iners would then enter the BCC m ine property through a access control point and travel north approxim ately 4.2 m i on the existing m ine road to the proposed surface support facilities located at Ram p 14 (refer to Figure 2.3). In order to im prove 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 equipm ent that would be used under the Proposed Action during construction, exploration, m ine operations, and reclam ation. The specific num ber and

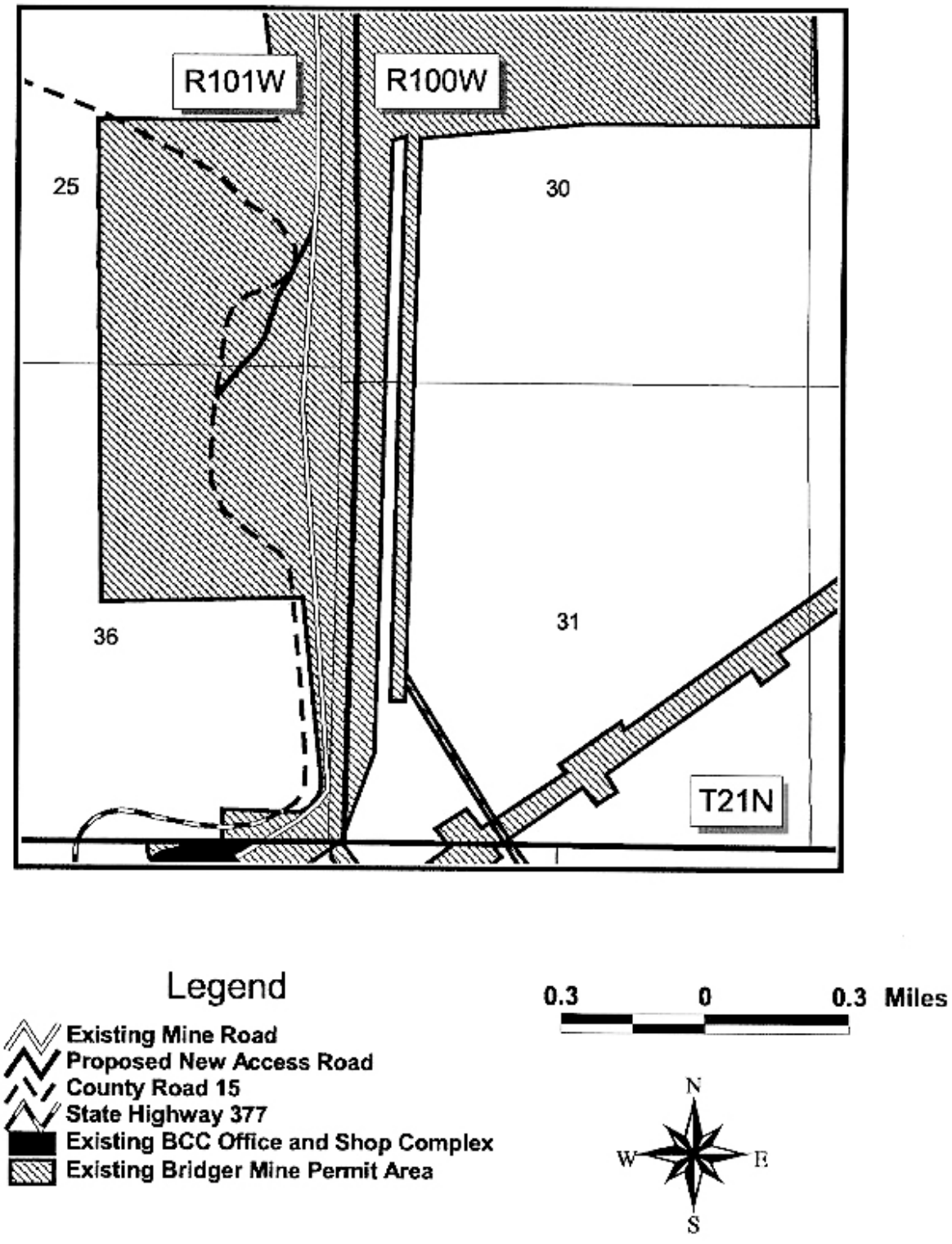

Figure 2.5 Proposed Mine Access Roads.

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 [SO_2] per million BTU) and, with blending at the Jim Bridger Power Plant, it would be compatible with SO_2 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

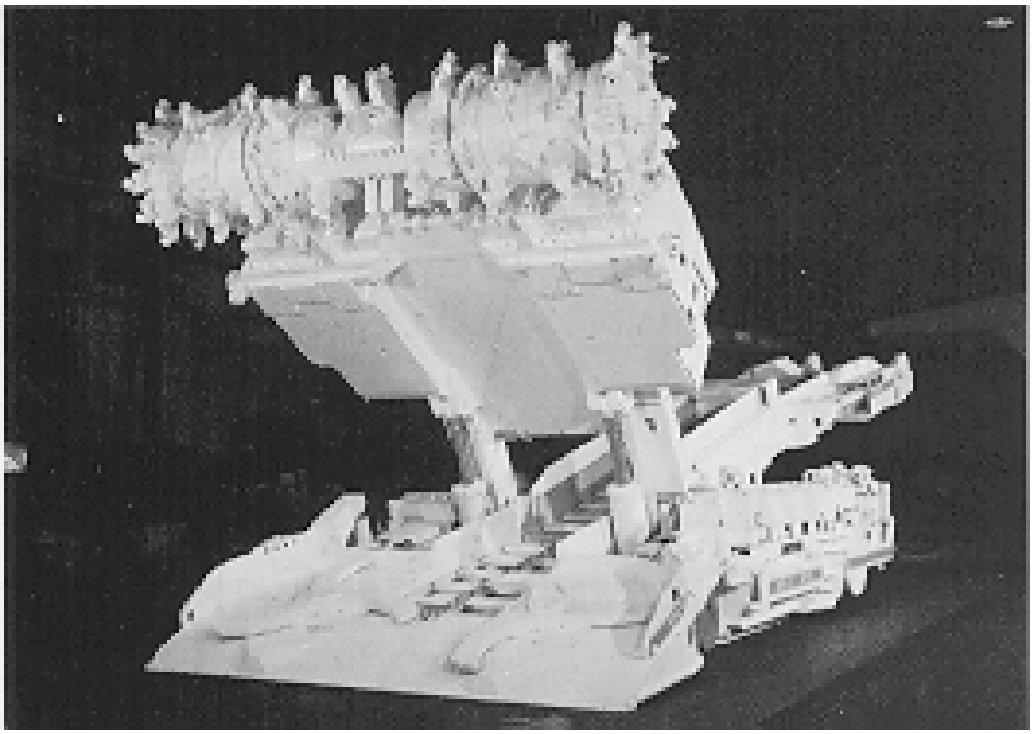

Figure 2.6 Typical Continuous Mining Equipment.

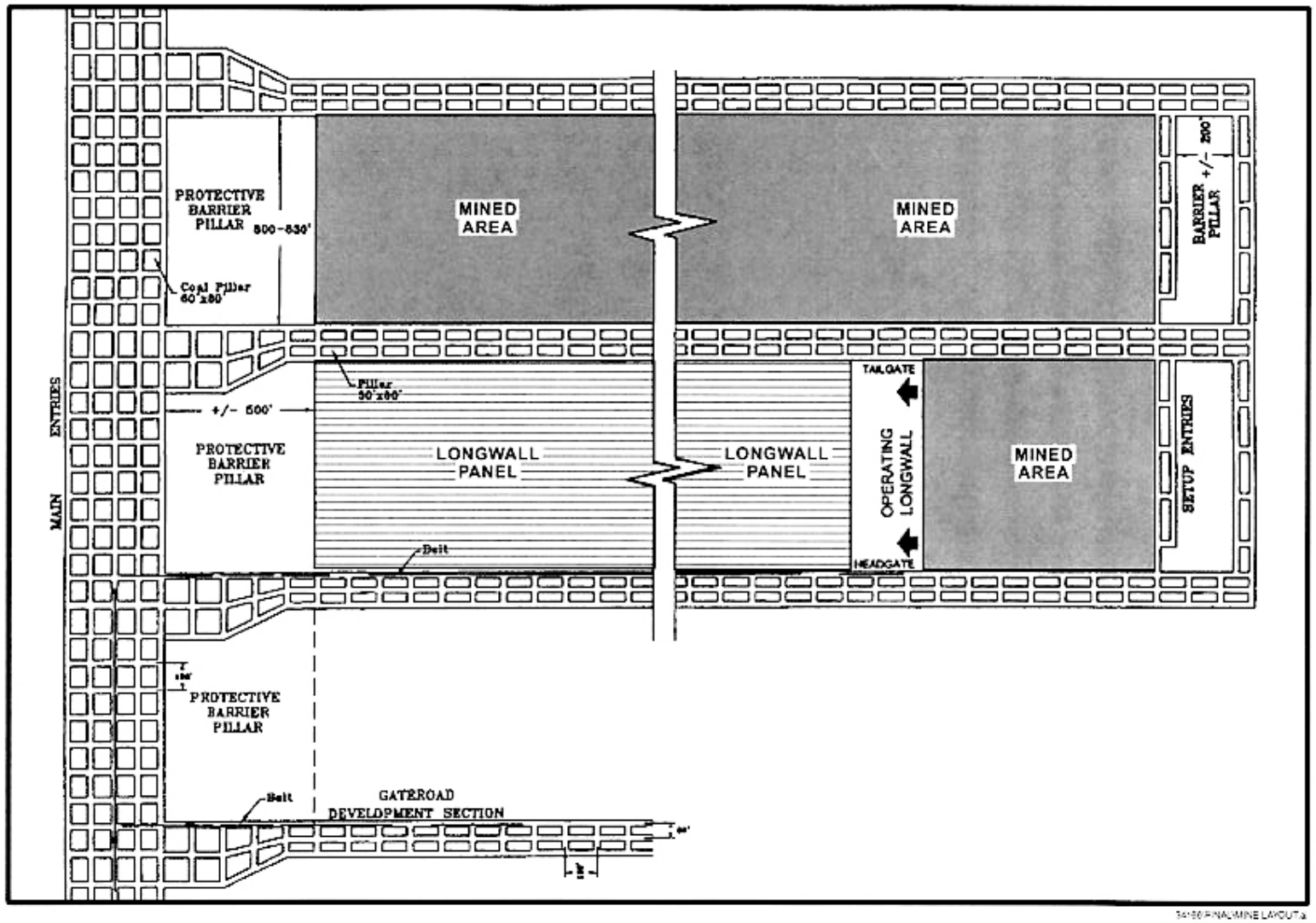

Figure 2.7 Typical Longwall Panel with Main Entry and Submain Entry.

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.

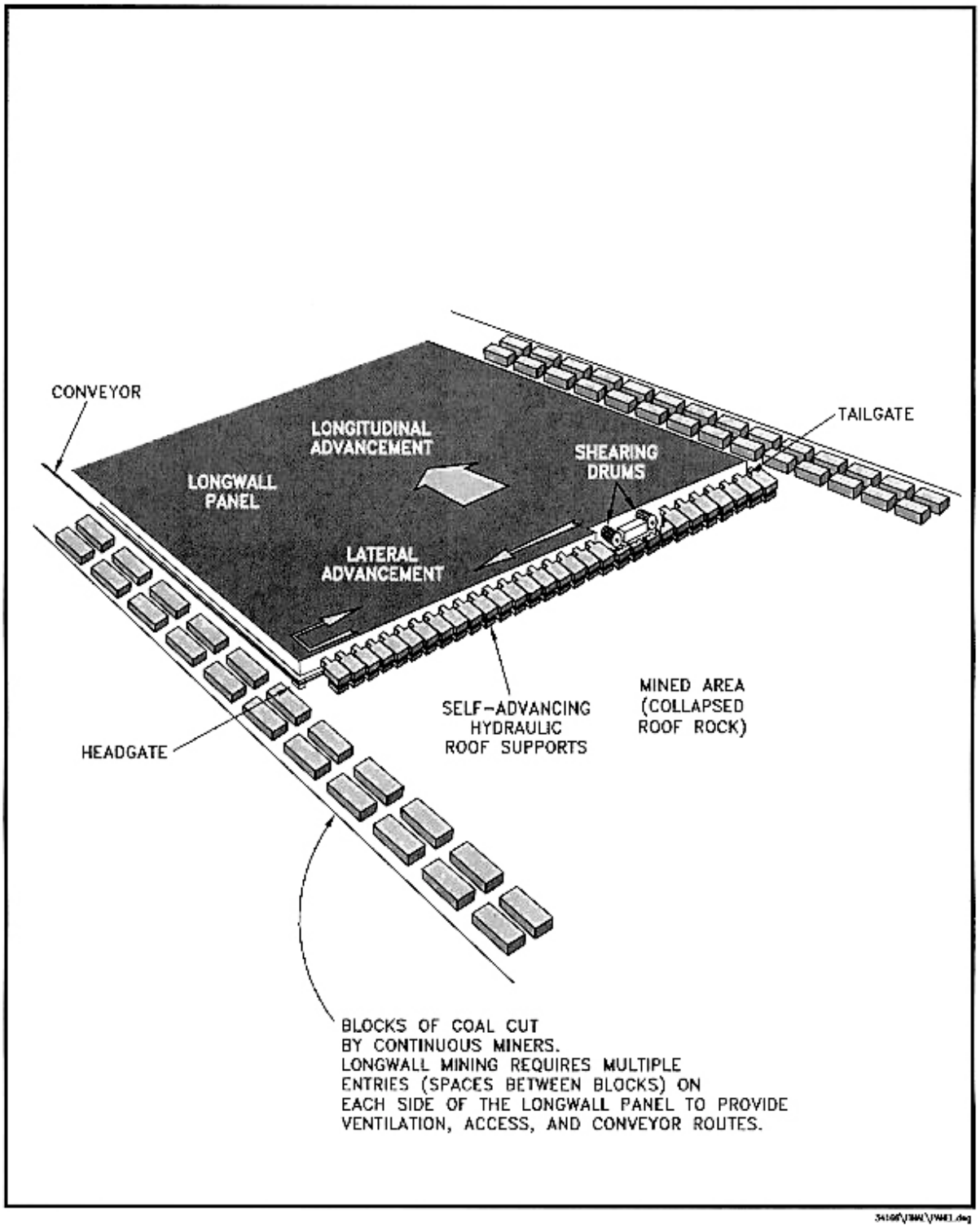

Figure 2.8 Typical Longwall Mining System.

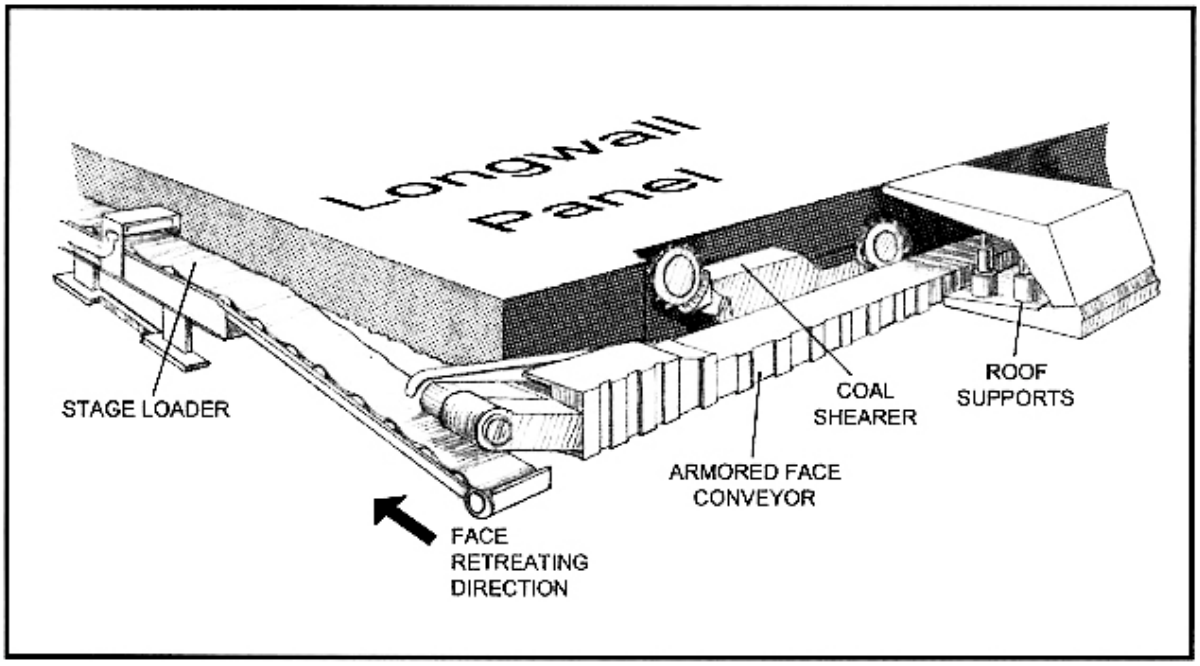

Figure 2.9 Close-up of Major Components of Longwall Mining System.

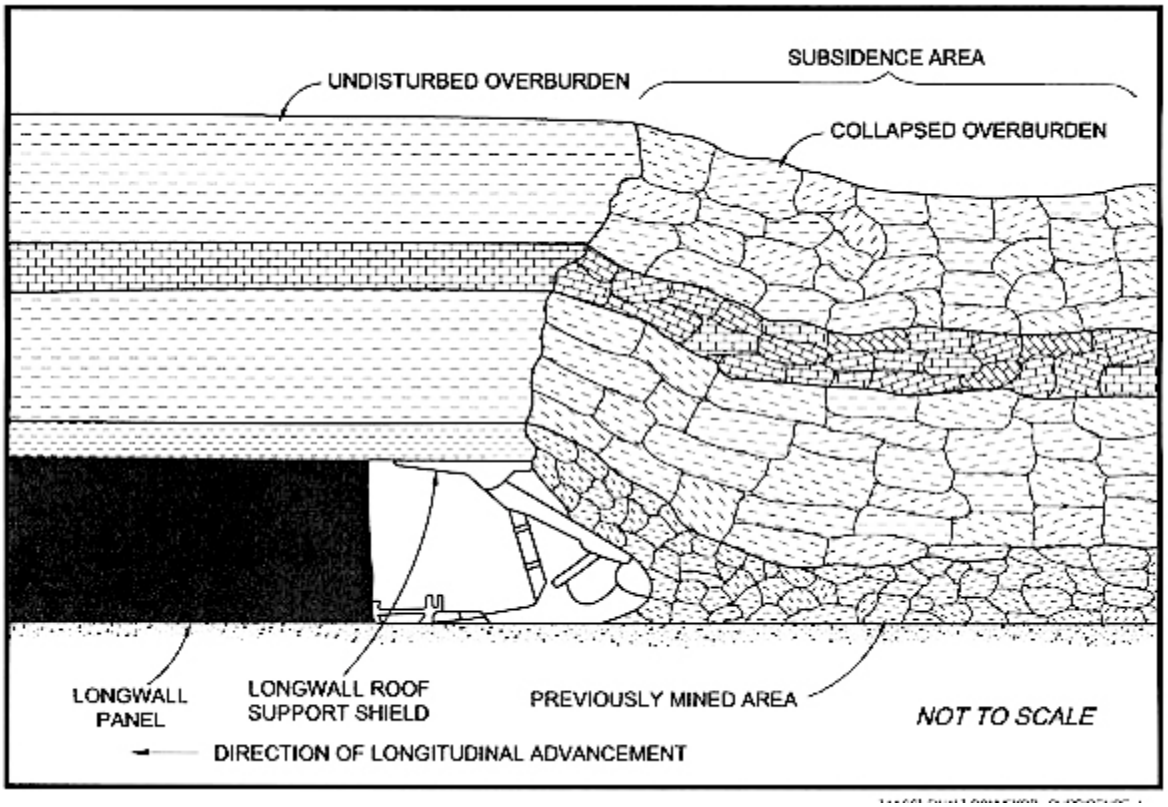

Figure 2.10 Typical Trough Subsidence Due to Longwall Mining.

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 (NO_2), 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 NO_2; 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. W DEQ/LQD is responsible for reviewing and approving all m ine and reclamation plans prior to the initiation of actual m ining operations. BCC would utilize only weed-free reclamation materials (e.g., seed, mulch).

BCC would be required to post a reclam ation perform ance bond for all areas physically disturbed by m ining operations (including areas of repaired subsidence) with the State of Wyoming to ensure that it com plies with all the reclam ation requirem ents of the W DEQ/LQD permit and that reclamation requirements are met. Once mining and reclamation operations have been com pleted, BCC would follow reclam ation bond release procedures specified by WDEQ/LQD. Reclam ation bond release procedures for an underground coal m ine are identical to surface coal m ines, including the 10-year bond release period after the com pletion of permanent reclam ation operations, and they require that a stable land form exists on disturbed areas and that revegetation standards have been m et. W DEQ/LQD would release the full reclamation perform ance bond after strict reclam ation standards have been m et 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 W DEQ can deny a perm it to m ine if the a ffected lands lie within 300 ft of any existing occupied dwelling, hom e, pub lic building, school, church, com munity or institutional building, park or cem etery, unless the landowner's consent is obtained. There are no occupied dwellings, homes, public buildings, schools, churches or institutional buildings, parks, cem eteries, or community centers within 300 ft of the proposed TMRT area. The nearest occupied dwellings, homes, public buildings, schools, churches or institutional buildings, parks, cem eteries, or community centers are located approxim ately 8 mi west of the TMRT in the com munity 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 to 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 Apppendix 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 determ ined not econom ically feasible, was elim inated from consideration, and is not analyzed in detail in this EA. The elim ination of this alternative from the detailed analysis in this EA would not result in the perm anent 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 assum ption 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 governm ents from the leasing and m ining of federal coal: a bonus bid paid at the tim e the coal is leased and a royalty paym ent (based on 8% of the gross value of the coal) is collected when the coal is sold. The royalty paym ent is the larger of the two incom e sources, and since it is collected when the coal is sold, a m echanism is already in place for government revenues to increase if prices rise.

Although postponing the lease sale until prices rise m ay conceivably result in a higher bonus bid paid for the tract, it would not necessarily result in higher royalty paym ents. It typically takes several years to lease and perm it a coal tract, a nd coal prices would not necessarily rem ain high until the coal is actually mined if a sale is postponed until the prices increase.

There is also the econom ic concept of net pres ent value of m oney; that m eans that future economic values m ust be financially discounted due to the effect of inflation and that m oney earned today is more valuable than undetermined revenues earned in the future because it can be invested at a known rate. Therefore, unless coal pr ices are expected to increase and stay at these higher levels, it is in the governm ent'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 m ining). Therefore, this alternative was found to be unreasonable and was eliminated from consideration and is not analyzed in detail in this EA.

3.0 AFFECTED ENVIRONMENT

3.1 LOCATION, SETTING, AND HISTORICAL USE

The proposed project area is located in north-central Sweetwater County north of Interstate 80, approximately 10 m i north of Point of Rocks, approxim ately 25 m i east of Rock Springs, and approximately 70 m i west of Rawlins, W yoming (refer to Figure 1.1). Topography within the proposed project area ranges from flat to rolling, dissected by sm all ephem eral drainage channels. Elevations within the proposed project area range from a low of approxim ately 6,800 ft above mean sea level along the southwestern boundary of the property to approxim ately 7,080 ft above mean sea level along the Continental Divide near the center of the property.

The TMRT area lies on the eastern flank of the Rock Springs uplift within the Great Divide Basin physiographic province (Knight 1994). The proposed project area also straddles the Continental Divide, with the southern portion of the TMRT area draining into the Green River drainage basin and the northern portion of the TMRT draining into the closed Great Divide Basin drainage system (Blackstone 1988).

Climate in the project area is typical of high deserts of the interm ountain west (Knight 1994). Record high and low tem peratures at the Bitter Creek weather station (approxim ately 17 m i south of the TMRT area) are 103ºF and -46ºF, re spectively, with an average of approxim ately 5 days per year above 90ºF. Sum mer temperatures range widely, typically with warm sunny days and cool nights. During winter nights, tem peratures fall to 0ºF or below an average of about 30 days per year. The area has approxim ately 200 days per year with m inimum temperatures at or below 32ºF, and there are an average of approxim ately 100 frost-free days a year in the north-central Sweetwater County. The proposed project area receives approxim ately 6 to 8 inches of precipitation per year, and the prevailing winds are from the southwest with an average annual wind speed of approximately 12 mi per hour (Martner 1986).

The proposed project area has historically been utilized for livestock grazing, wildlife habitat, and recreational hunting. This area provides limited winter grazing for cattle, sheep, and horses. However, stocking rates are low primarily due to sparse vegetation (Soil Conservation Service [SCS] 1988).

3.2 CRITICAL ELEMENTS

Critical elements of the human environment as defined by the BLM (1988), their status in the proposed project area, and their potential to be affected by the Proposed Action or No Action alternative is presented in Table 3.1. BLM resource specialists have determined that six of the 13 critical elements of the human environment are not present in the area, are not affected by the Proposed Action or alternatives of this EA, and are not discussed further. Seven critical elements (air quality; cultural resources; Native American religious concerns; TEC&P species; wastes [hazardous and solid]; water quality; and wetlands/riparian areas) are present in the proposed project area, may be affected by the Proposed Action or alternatives, and are discussed in detail in this EA.

Based on comments received from the public during a BLM-sponsored open house for the Proposed Action on January 17, 2002, and additional existing information concerning the proposed project area, BLM resource specialists have determined that this EA will also analyze potential impacts of the Proposed Action and alternatives on geology and geologic hazards, minerals (solid and fluid), health and safety (transportation), land resources and use, noise, rangeland and livestock grazing, recreation, socioeconomics, soil resources, special status flora and fauna, vegetation, wild horses, and wildlife. Other resources (e.g., forested area/products, paleontology, visual resources, water rights, etc.) have been determined not to be affected by the proposed project and are therefore not analyzed in detail in this EA.

Based on the discussion presented above and in accordance with BLM NEPA regulations and policies, the following resource area/topics will be addressed in this EA: air quality and noise;

Table 3.1 Critical Elements of the Human Environment.[1]

Element	Status	Analyzed in Detail in This EA
Air quality	Potentially affected	Yes
Areas of critical environmental concern	Not present	No
Cultural resources	Potentially affected	Yes
Environmental justice related issues	Not present	No
Farmlands (prime or unique)	Not present	No
Floodplains	Not present	No
Native American religious concerns	Potentially affected	Yes
TEC&P species	Potentially affected	Yes
Wastes (hazardous and solid)	Potentially affected	Yes
Water quality	Potentially affected	Yes
Wetlands/riparian areas	Potentially affected	Yes
Wild and scenic rivers	Not present	No
Wilderness (wilderness study areas and wilderness areas)	Not present	No

[1] Adapted from the BLM NEPA Handbook H-1790-1 (BLM 1988).

cultural resources; geology and geologic hazards; health and safety (transportation); land resources and use; minerals (solid and fluid); Native American religious concerns; rangeland and livestock grazing; recreation; socioeconom ics; soil resources; TEC&P and BLM-sensitive species; vegetation (including invasive species); wastes (hazardous and solid); water resources; wetlands/riparian areas; wild horses; and wildlife.

The primary purpose of Chapter 3.0 of this EA is to provide a description of the affected area for those resource areas or topics to be addressed. Descriptions focus on those portions of the environment that would be affected by the Proposed Action and alternatives.

The purpose of an EA is not only to discuss the environmental consequences of the Proposed Action and the No Action Alternative on the environmental resources or topics within the actual boundary of the proposed project area but also to discuss the cumulative impacts relative to past, present, and reasonably foreseeable future action within an identified cumulative impact analysis area (CIAA) (Council on Environmental Quality 1997). The boundaries of each CIAA were defined based on the specific resource that was evaluated and the potential for impacts beyond the CIAA. Each CIAA is described later in Chapter 3 under the specific resource being evaluated.

In addition, disturbances due to existing activities and reasonably foreseeable future actions have been quantified using data input into a computerized geographic information system. Existing disturbance has been quantified and is discussed, while disturbance due to reasonably foreseeable future actions has been quantified and is discussed in Chapter 4. Categories of existing disturbance include major industrial facilities (e.g., Jim Bridger Power Plant, Jim Bridger surface coal mine, Leucite Hills surface coal mine, Black Butte Mine); minor industrial facilities (e.g., communication sites, electric substations, ranches, small quarry sites); roads (e.g., interstate highways, state highways, county roads, unpaved roads, two-track roads); railroads tracks; oil and gas wells and associated pad, road, and pipeline facilities; and cities (e.g., Superior, Point of Rocks, Rock Springs, Green River).

Numerous projects previously authorized by the BLM and currently under review by the BLM were evaluated to determine if they would result in disturbance within any of the specific CIAAs. Future disturbance from those projects that would or could reasonably be expected to occur within the specific CIAAs were included in cumulative impact analysis. Reasonably foreseeable future actions include the Proposed Action, the remaining disturbance associated with the Continental Divide/Wamsutter II Natural Gas Project, and the Vermillion Basin Natural Gas Exploration and Production Project. In addition, disturbances related to projects current under review by the BLM, including the DFP, the Pacific Rim Shallow Gas Project, and the Bitter Creek Shallow Gas Project, were also evaluated in the cumulative impact analysis.

3.3 AFFECTED RESOURCES

3.3.1 Air Quality and Noise

3.3.1.1 Air Quality

The WDEQ/AQD has been authorized to enforce national ambient air quality standards set forth in the federal *Clean Air Act,* as amended (42 U.S.C. §7401 et seq.) through Article 2 of the *Wyoming Environmental Quality Act* (W.S. 35-11-201 et seq.) and the Wyoming State Implementation Plan, which has been approved by the EPA. The Wyoming and National Ambient Air Quality Standards (WAAQS and NAAQS) set upper limits for specific air pollutant concentrations at all locations where the public has access, expressed in micrograms per cubic meter ($\mu g/m^3$). The WAAQS and NAAQS are shown in Table 3.2. Wyoming Air Quality Standards and Regulations (WAQS&R) define ambient air as "that portion of the atmosphere, external to buildings, to which the general public has access" (WDEQ/LQD 2000b:8) Lands within an approved mine permit boundary are not usually accessible to the general public and are not subject to the state air quality standards; rather, they are governed by federal MSHA respirable dust standards and regulations designed to protect worker safety (Title 30 C.F.R. Parts 70, 72, 74, and 75 et seq.).

Ambient air concentration data collected at monitoring sites in the region provide an indication of existing air quality in the region. Criteria pollutant monitoring has been performed in the region for particulate matter less than 10 microns in diameter (PM_{10}) at sites both displaced from and predominantly upwind of the project area. Both displaced and local upwind sites are considered "background" monitoring sites for this analysis, although local upwind monitoring sites may be impacted by local industrial operations under certain meteorological conditions. By considering local upwind sites as background sites, a conservative range of PM_{10} concentrations are reported to reflect existing air quality in the region. These conservative monitoring results indicate that PM_{10} concentrations in the study area are below applicable WAAQS and NAAQS.

Table 3.2 Selected National and Wyoming Air Quality Standards.

Air Pollutant	Averaging Time Period	Local and Regional Background Concentration ($\mu g/m^3$) [1]	NAAQS ($\mu g/m^3$)[2]	WAAQS ($\mu g/m^3$)[3]	Incremental Increase Above Legal Baseline	
					PSD Class I	PSD Class II
Particulate matter <10 microns in diameter (PM_{10})	24-hour	18-35	150	150	8	30
	AAM[4]	8-10	50	50	4	17
Particulate matter <2.5 microns in diameter ($PM_{2.5}$)	24-hour	nd[5]	65	65	ns[6]	ns
	AAM	nd	15	15	ns	ns
Ozone	1-hour	144	235	235	ns	ns
	8-hour	139	157	na	ns	ns
Nitrogen dioxide (NO_2)	AAM	4	100	100	2.5	25
Sulfur dioxide (SO_2)	3-hour	132	1,300[7]	1,300	25	512
	24-hour	43	365	260	5	91
	AAM	9	80	60	2	20
Carbon monoxide (CO)	1-hour	3,481	40,000	40,000	ns	ns
	8-hour	1,489	10,000	10,000	ns	ns

1 Source of data: PM_{10} - data collected at Bridger Power Plant, Site 901 from Jan. 1999 to Dec. 2000; Black Butte Mine, Site 863, from Jan. 1999 to Dec. 2000 (WDEQ/AQD 2000a); and Seedskadee National Wildlife Refuge, 1989-2001 (personal communication, April 4, 2002, with Ken Rairigh and Bob Schick, WDEQ/AQD, Cheyenne, Wyoming). Ozone - data collected near Pinedale, Wyoming, from 1997 to 1999 (EPA 2002). NO_X - Green River Visibility Study, period of record 1996-1999 (personal communication, April 4, 2002, with Ken Rairigh, WDEQ/AQD, Cheyenne, Wyoming). SO_2 - data collected at LaBarge Study Area, Northwest Pipeline Craven Creek Site (personal communication, April 4, 2002, with Ken Rairigh, WDEQ/AQD, Cheyenne, Wyoming). CO (BLM 1983).

2 NAAQS = National Ambient Air Quality Standards (adapted from 40 C.F.R. 50.5-50.12). Primary standard unless otherwise noted. National Primary Standards establish the level of air quality necessary to protect public health from any known or anticipated effects of a pollutant, allowing a margin of safety to protect sensitive members of the population.

3 WAAQS = Wyoming Ambient Air Quality Standard (adapted from WDEQ/AQD [2000a]).

4 AAM = annual arithmetic mean.

5 nd = no data.

6 ns = no standard.

7 Secondary standard. National Secondary Standards establish the level of air quality to protect the public welfare by preventing injury to agricultural crops and livestock deterioration of materials and property and adverse impacts to the environment.

Ambient standards for particulate matter less than 2.5 microns in diameter ($PM_{2.5}$) have been defined in the WAQS&R; however, these standards would not be enforced at the state level until EPA has completed an ongoing review and has determined to retain and enforce these regulations. Regional monitoring-based background values for other criteria pollutants (carbon monoxide [CO], nitrogen dioxide [NO_2], ozone, and sulfur dioxide [SO_2]) have been collected at monitoring sites in Sweetwater County, Wyoming, and in northwest Colorado and are well below applicable WAAQS and NAAQS. Ambient air quality data for all pollutants are summarized in Table 3.2.

There are no site-specific air quality monitors located within the TMRT area; however, numerous air quality monitors are located within the CIAA and region. Based on calculated emission, the dominant air pollutants emitted in the CIAA area are particulates (i.e., PM_{10}), SO_2, and NO_X. The largest contributors to PM_{10} emissions in the CIAA area are associated with the three industrial operations in the area, including the Jim Bridger Mine and Leucite Hills Mine and the Jim Bridger Power Plant. Local traffic on unpaved roads also contributes to total PM_{10} concentrations, as does wind erosion of exposed surfaces. Ambient concentrations of gaseous criteria pollutants (CO, NO_2, and SO_2) occur primarily from mobile sources (vehicles) and from the Jim Bridger Power Plant.

Table 3.2 shows the maximum increase of PM_{10} that is allowed by the federal *Clean Air Act* under the Prevention of Significant Deterioration (PSD) regulations and adopted in Chapter 6 of the WAQS&R. These regulations are designed to prevent significant deterioration of existing air quality in regions cleaner than the NAAQS. Under these regulations, the ambient levels of pollutants would be allowed to rise by specified increments. Prior to obtaining a permit to construct through the WDEQ/AQD, an emissions source must demonstrate that ambient concentrations from the proposed source plus selected regional sources are less than applicable Class I and Class II increments.

The CIAA for air quality resources is the same area utilized in the Continental Divide/Greater Wamsutter II CD/GWII (EIS), completed in 1998 (BLM 1999a, 1999b), and the DFP draft EIS,

completed in April 2003 (BLM 2003a). These studies were utilized to analyze cumulative impacts at Class I and Class II areas from emissions sources in southwest Wyoming, northeast Utah, northwest Colorado and a limited portion of southeast Idaho (refer to Figure 3.1). The CD/GWII and DFP EIS analyses predicted the impacts on ambient concentrations in PSD Class I and Class II areas, the impacts of acid deposition of sensitive lakes, and the impacts to regional visibility.

Class I areas, which are allowed the smallest increment, include national parks and wilderness areas. The nearest Class I area to the CIAA is approximately 52 mi north of the project area at the Bridger Wilderness Area. All portions of Wyoming outside of Class I areas are designated as Class II areas. The CIAA is a Class II area and is not designated a nonattainment area for any pollutant by WDEQ/AQD. Class I and Class II PSD Increments are shown in Table 3.2, which indicates that all ambient concentrations (all monitored in Class II areas) are below Class II increments.

Chapter 6 of the WAQS&R requires WDEQ/AQD to review all plans for the construction of any new or modified emissions source prior to the issuance of a construction permit. In order to obtain a construction permit, an emissions source must demonstrate compliance with emissions standards, NAAQS, WAAQS, PSD Increments, and other applicable air quality regulatory requirements. If required by WDEQ/AQD, the demonstration must include air pollutant emissions from other nearby existing emissions sources to ensure that overall air quality is quantified as part of the permitting process.

3.3.1.2 Noise

No site-specific noise level data are available for the proposed project area; however, noise in the area is probably in the range reported for "Grand Canyon (North Rim)" (wilderness) and "Farm in Valley" sites (Wyle Laboratories 1971). The A-weighted sound pressure level, or A-scale, is used extensively in the U.S. to measure community and transportation noise and is a

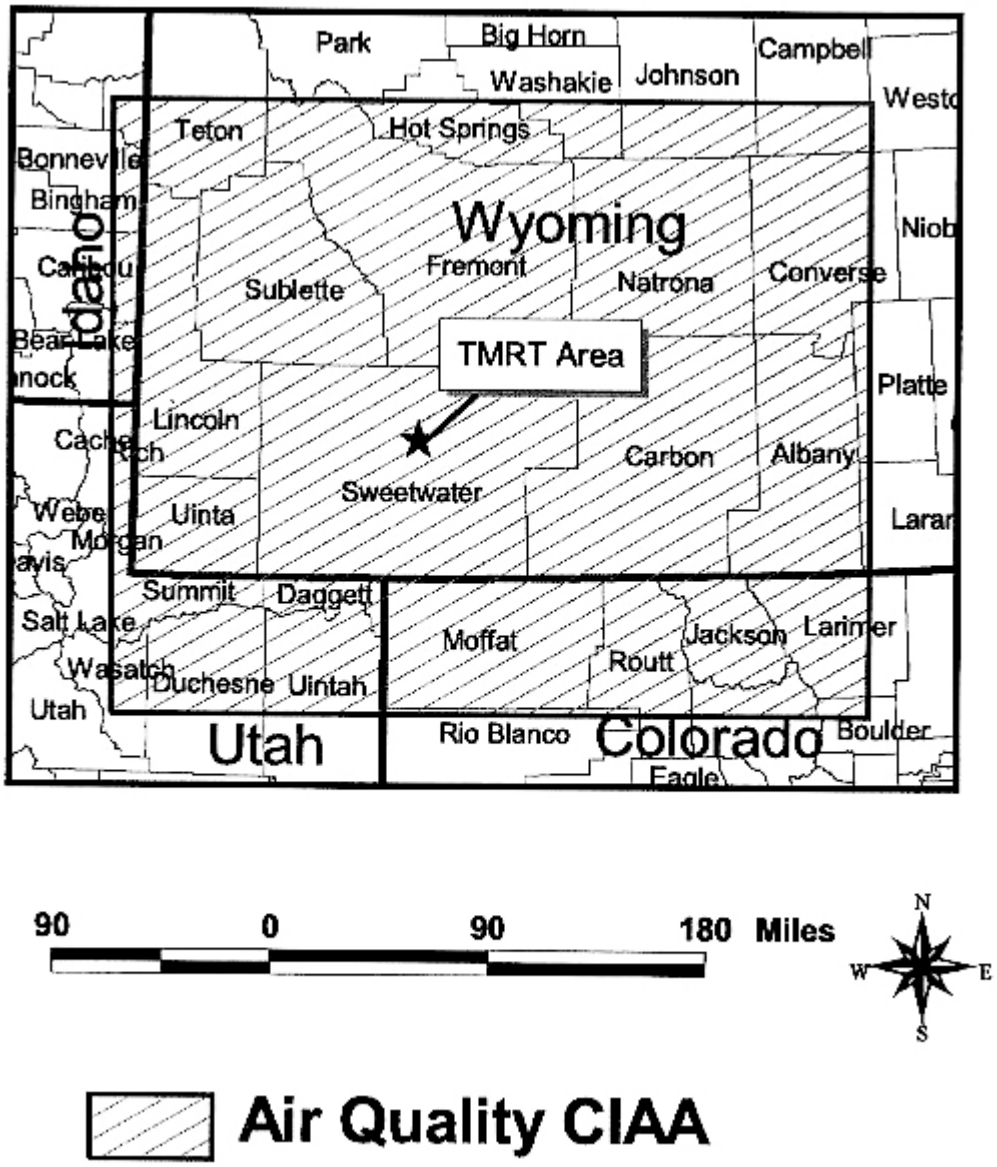

Figure 3.1 Air Quality CIAA.

measure of noise in A-weighted decibels (dBA), which is directly correlated with some commonly heard sounds. Table 3.3 presents a list of commonly heard sounds with the corresponding noise level (Rau and Wooten 1980).

Median noise levels for the proposed project area likely range from 20 to 40 dBA in the morning and evening and from 50 to 60 dBA in the afternoon when wind speeds are typically greatest. These levels correspond to noise levels of a soft whisper (30 dBA), a library (40 dBA), a quiet office (50 dBA), a small town (40-50 dBA), and normal conversation (60 dBA). Traffic along an interstate typically averages noise levels greater than 70 dBA (Wyle Laboratories 1971). Typical ambient noise levels at an operating surface quarry are in the 40- to 60-dBA range for a 24-hour period, and within 50 ft of the operation the maximum noise level may reach or exceed 85 to 95 dBA (BLM 1997b). Mining operations at the Jim Bridger Mine, livestock grazing operations, and wind are presently the primary sources of noise in the proposed project area. Major industrial noise sources within 4 mi of the TMRT area include the Jim Bridger Power Plant, Jim Bridger Mine, Leucite Hills Mine, and vehicular traffic. Noise-sensitive areas in Wyoming include private residences, occupied raptor nests, and greater sage-grouse leks during the breeding and nesting season.

Noise levels within the working mine area are governed by federal MSHA occupational noise standards and regulations designed to protect worker safety (Title 30 C.F.R. Parts 62 et seq.).

3.3.2 Cultural Resources

Cultural resources are the nonrenewable physical remains of past human activity and are protected under Section 106 of the *National Historic Preservation Act of 1966* (as amended) and the *Archaeological Resources Protection Action of 1979* (as amended). Archaeological investigations in the Great Divide Basin indicate that human activity has occurred across the landscape over the past 10,000 years, beginning during the Paleoindian period and continuing up to the present. Throughout the prehistoric past, the area was used by highly mobile hunters and gathers who exploited a wide variety of natural resources (Frison 1991).

Table 3.3 Comparison of Measured Noise Levels with Com monly Heard Sounds, TMRT and CIAA, 2003.[1]

Source	dBA	Description
Normal breathing	10	Barely audible
Rustling leaves	20	
Soft whisper (at 16 ft)	30	Very quiet
Library	40	
Quiet office	50	Quiet
Normal conversation (at 3 ft)	60	
Busy traffic	70	Noisy
Noisy office with machines; factory	80	
Heavy truck traffic (at 49 ft)	90	Constant exposure endangers hearing

[1] Source: Rau and Wooten (1980).

A BLM Class I cultural resource inventory (i.e., file search) was conducted for the proposed TMRT area, and the file search indicates th at 39 cultural resource inventories have been conducted within the proposed TMRT area. These projects include well pad/access road projects, exploratory core holes projects, and block surveys for the Jim Bridger Mine. Linear surveys include power transm ission line projects, access roads, and an inventory of the Point of Rocks to South Pass W agon Road. Approxim ately 2,474 acres or 42% of the TMRT area have previously been inventoried for cultural resources; however, 640 of those acres were not surveyed to current technical standards.

Twenty-five cultural resource sites have been recorded within proposed TMRT area, including 22 prehistoric sites and three historic sites. Three of the prehistoric sites have been recommended eligible for inclusion on the National Register of Historic Places (NRHP), 13 prehistoric sites are recom mended not eligible for the NRHP, and the NRHP eligibility of the remaining six prehistoric sites has not been determ ined. One historic site, the Point of Rocks to South Pass W agon Road, which occurs in several sections of the TMRT area, has been determined eligible for inclusion on the NRHP (refer to Figure 3.2); however, the eligibility of

the individual segments of the route within the TMRT has not been determined. The remaining two historic sites have been recommended not eligible for the NRHP.

The CIAA for cultural resources includes the TMRT area and 5-mi buffer. Numerous cultural resource inventories have been conducted within the CIAA due to the presence of the Jim Bridger Mine, a portion of the Leucite Hills Mine, and numerous linear and block projects in the general area. WDEQ/LQD required the BLM Class I and III cultural resource surveys be completed for the entire Jim Bridger and Leucite Hills mine permit areas. As a result, there may be a comparable number of prehistoric and historic sites within the unsurveyed portions of the CIAA.

3.3.3 Geology and Geologic Hazards

The proposed TMRT is located on the eastern flank of the Rock Springs uplift that is an anticlinal structure that trends north/south through the center of the Greater Green River Basin. The uplift is asymmetric to the west, so its western flank is steeper than the eastern flank. The eastern flank of the uplift is marine Cretaceous and non-marine Paleocene sandstones and shales that dip eastward 5 to 10 degrees into the Great Divide Basin (Lageson and Spearing 1988; Love and Christiansen 1985). Coal that would be mined under the Proposed Action is described as the coal seam of the Fort Union Formation and has a thickness of approximately 7-11 ft and a heat content of approximately 9,000 to 9,500 BTUs per pound. Under the Proposed Action, approximately 121.5 million tons of coal would be mined over the life of the project (BCC 2003).

Surface geology within the TMRT includes four major classification units, including aeolian mixed with scattered deposits of residuum, alluvium, and slopewash; bedrock and glaciated bedrock including volcanic necks mixed with scattered shallow deposits of aeolian, grus, slopewash, colluvium residuum, and alluvium; residuum mixed with alluvium, aeolian,

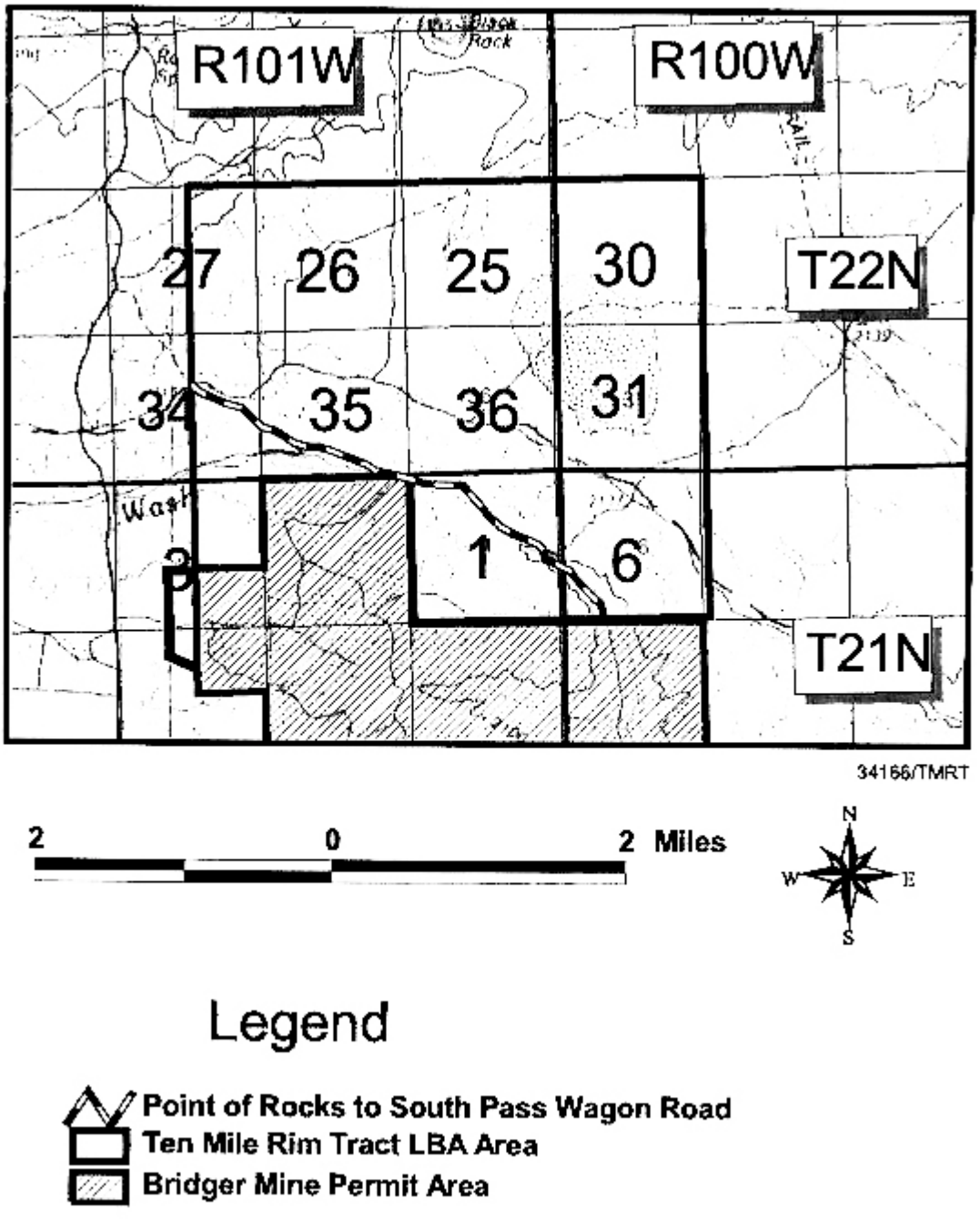

Figure 3.2 Location of the Point of Rocks to South Pass Wagon Road.

slopewash, grus, and/or bedrock outcrops; and playa deposits mixed with scattered deposits of alluvium and aeolian soils (Case et al. 1998).

The CIAA for geology and geological hazards includes the TMRT area and 4.3-mi buffer. Surface geology of the CIAA is similar to that of the TMRT and includes predominantly aeolian mixed with scattered deposits of residuum, alluvium, and slopewash and bedrock and glaciated bedrock including volcanic necks mixed with scattered shallow deposits of aeolian, grus, slopewash, colluvium residuum, and alluvium (Case et al. 1998).

The potential for seismic activity in the TMRT area is low to moderate. There have been no recorded earthquakes within the TMRT; however, there have been four recorded earthquakes within the northern portion of the CIAA over the past 20 years. Two occurred in 1975, one in 1985, and one in 1986. All of these nondamaging earthquakes ranged in magnitude between 3.3 and 3.7 on the Richter scale and would have been barely noticeable by human beings in the area (Case 2000; personal communication, March 19, 2002, with James Case, Wyoming Geological Survey). The Richter scale is a quantitative measure of the magnitude (i.e., the relative amplitude of ground motion caused by seismic waves) of an earthquake, with a lower number representing lower magnitude and a higher number representing a higher magnitude. There are no known or suspected active faults in the TMRT area or the CIAA (BLM 1996b), and there are no active or historic underground mines within the TMRT or CIAA. The nearest historic underground mines are located in Superior, approximately 8 mi southwest of the TMRT area (outside of the CIAA) (refer to Figure 1.1). Subsidence due to underground coal mining at Superior has been limited to the area immediately surrounding the mines (Case 2000; personal communication, March 19, 2002, with James Case, Wyoming Geological Survey). Therefore, there is little potential for subsidence due to the historic mining in Superior within the TMRT area or the CIAA.

There are also no other geologic hazards (e.g., landslide areas, hydrogen sulfide-producing wells, or wind-blown sand areas) known within the TMRT or the CIAA (BLM 1996b). There are also

no known Special Flood Management Areas designated by Federal Emergency Management Agency (FEMA) within the TMRT or CIAA.

3.3.4 Health and Safety (Transportation)

The primary health and safety risks for people living, working, and traveling in the general proposed project area are related to vehicle traffic. Surface transportation into and out of the TMRT area would be provided by a network of primary and secondary roads (refer to Figure 1.1). Specifically, primary public access to the TMRT is provided on Interstate 80 from the east and west to Point of Rocks and Wyoming State Highway 377 and County Road 15 to the Jim Bridger Mine where the public road terminates and the private road starts. From the Jim Bridger Mine entrance, traffic is controlled and restricted by BCC, and only authorized personnel are allowed to enter the mine permit area. However, the Jim Bridger Mine cannot legally and does not restrict access to inactive portions of the mine property where livestock grazing occurs. Workers accessing the underground working within the TMRT area would travel on improved roads and haul roads to Ramp 14 where the only access to the underground mine would be located.

According to 2000 data from the Wyoming Department of Transportation (2001), average daily traffic for Interstate 80 between Point of Rocks exit and the Superior exit was recorded at 12,500 over a 24-hour period, and, of that total, 6,800 were recorded as all types of trucks (e.g., pickups, semis, flatbeds, stock trucks, etc.). For Wyoming State Highway 377 north of Point of Rocks, the average daily traffic was recorded at 1,200 vehicles over a 24-hour period, and, of the total, 180 vehicles were recorded as all types of trucks (e.g., pickups, semis, flatbeds, stock trucks, etc.).

3.3.5 Land Resources and Use

The surface ownership pattern within and adjacent to the TMRT is checkerboard, typically where even-numbered sections are owned by the federal government, odd-numbered sections are

privately owned, and select even-numbered sections are owned by the State of Wyoming. Major land uses in the TMRT area include livestock grazing, wildlife habitat, and recreation. In addition, some activities associated with the adjacent Jim Bridger Mine are also located within the TMRT area. These activities include coal exploration activity, vegetation study exclosures, access roads, and a distribution powerline. BCC has obtained ROWs and/or special use permits for all mine-related activities located on BLM-administered land that are located off of the federal lease area. No other ROWs or special use permits are known to have been issued within the TMRT by BLM (BCC 2003). In addition, there are no ROWs exclusion areas within the TMRT area (BLM 1996b).

The TMRT includes 5,916 acres, of which 2,242 acres of coal reserves (38%) are owned by the federal government and administered by the BLM, 640 acres of coal reserves (11%) are owned by the State of Wyoming and administered by the WOSLI, and 3,034 acres of coal reserves (51%) are privately owned (refer to Figure 3.2). A detailed description of mineral and surface ownership for the TMRT is presented in Table 2.1.

The CIAA for land resources and use is defined as the TMRT area and a 4.3-mi buffer area around the TMRT area and includes a total of approximately 78,200 acres. Within the CIAA there is a total of 6,308 acres of existing disturbance. Major industrial facilities account for 4,661 acres of disturbance, roads count for 385 acres of disturbance, and minor industrial facilities account for 1,262 acres of disturbance.

3.3.6 Minerals (Solid and Fluid)

3.3.6.1 Leasable Solid Minerals (Coal)

Coal reserves in the TMRT are contained in the Fort Union Formation, and there are an estimated 121.5 million tons of in-place underground-minable low-sulfur subbituminous coal within the D-41 seam of the TMRT. The D-41 seam ranges from 7 to 11 ft in thickness. There are other coal seams within the TMRT area, including Deadman #5 and #6 beds; however, these beds are much thinner, ranging from 2 to 5 ft in thickness, and would not be mined under the Proposed Action.

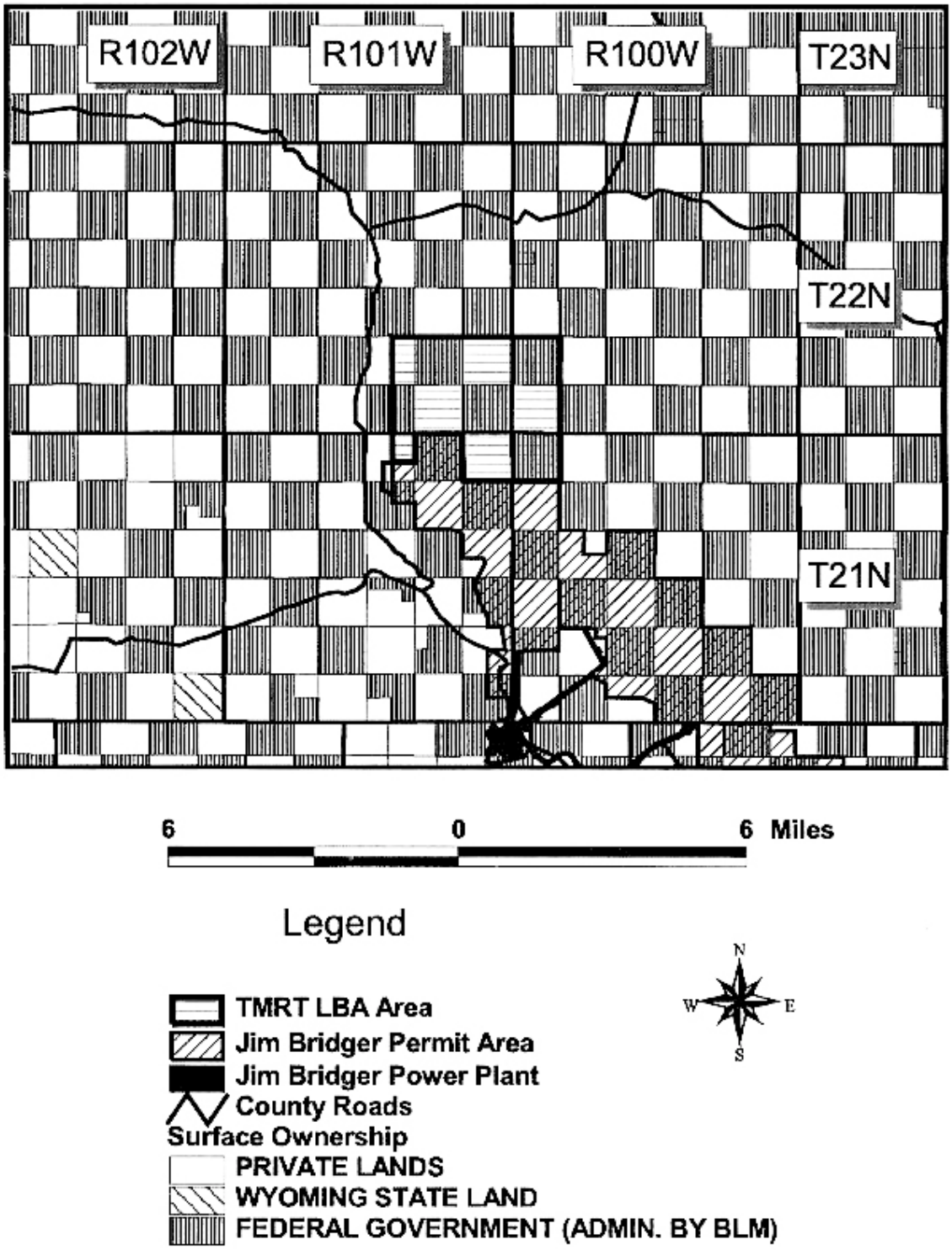

Figure 3.3 Surface Landownership in the TMRT Area and Vicinity.

The CIAA for mineral resources includes the TMRT area and a 4.3-mi buffer area. Within the CIAA, coal continues to be mined at the Jim Bridger Mine, which mines coal from all of the seams discussed above. The Jim Bridger Mine removed approximately 5.8 million tons of coal in 2002 from the entire mine area (i.e., not just from the CIAA).

3.3.6.2 Leasable Fluid Minerals (Oil, Gas, and Coalbed Methane)

There is a moderate potential for oil and gas development within the TMRT area; however, historically, there has been little interest in conventional oil and gas exploration in the TMTA (refer to Figure 3.4) (Anderson et al. 1990; BLM 2003b; PacifiCorp 2003). While there are numerous federal oil and gas leases within the TMRT area, there are no producing wells. There are three plugged and permanently abandoned drill holes within the TMRT area, indicating that the tract has been explored for potential oil and gas reserves (Wyoming Oil and Gas Conservation Commission [WOGCC] 2003).

The CIAA also has a moderate potential for oil and gas development (Anderson et al. 1990) (refer to Figure 3.4). WOGCC well records for the CIAA encompassing the TMRT area indicates that only 17 wells have been drilled, that none of these wells have reported any production, and that there are currently no producing wells within the CIAA (refer to Figure 3.4) (BLM 2003b; WOGCC 2003). The nearest producing well is located approximately 10 mi southeast of the TMRT, outside of the CIAA.

BLM reports indicate that there is a high potential for tertiary and upper cretaceous coalbed methane within coal seams found in both the TMRT area and the CIAA; however, there are no producing wells in either of these areas (BLM 1996b, 2003b). During coal exploration drilling, BCC tested four of its exploration drill holes for the presence of coalbed methane. These wells were 1,000+ ft deep and were drilled into the Deadman coal zone of the Fort Union Formation (the same coal zone that would be mined under the Proposed Action). Results indicate that there was no evidence of economic reserves of coalbed methane in any of these drill holes and the samples were essentially devoid of methane in the coal (BLM 2003b; PacifiCorp 2003). In

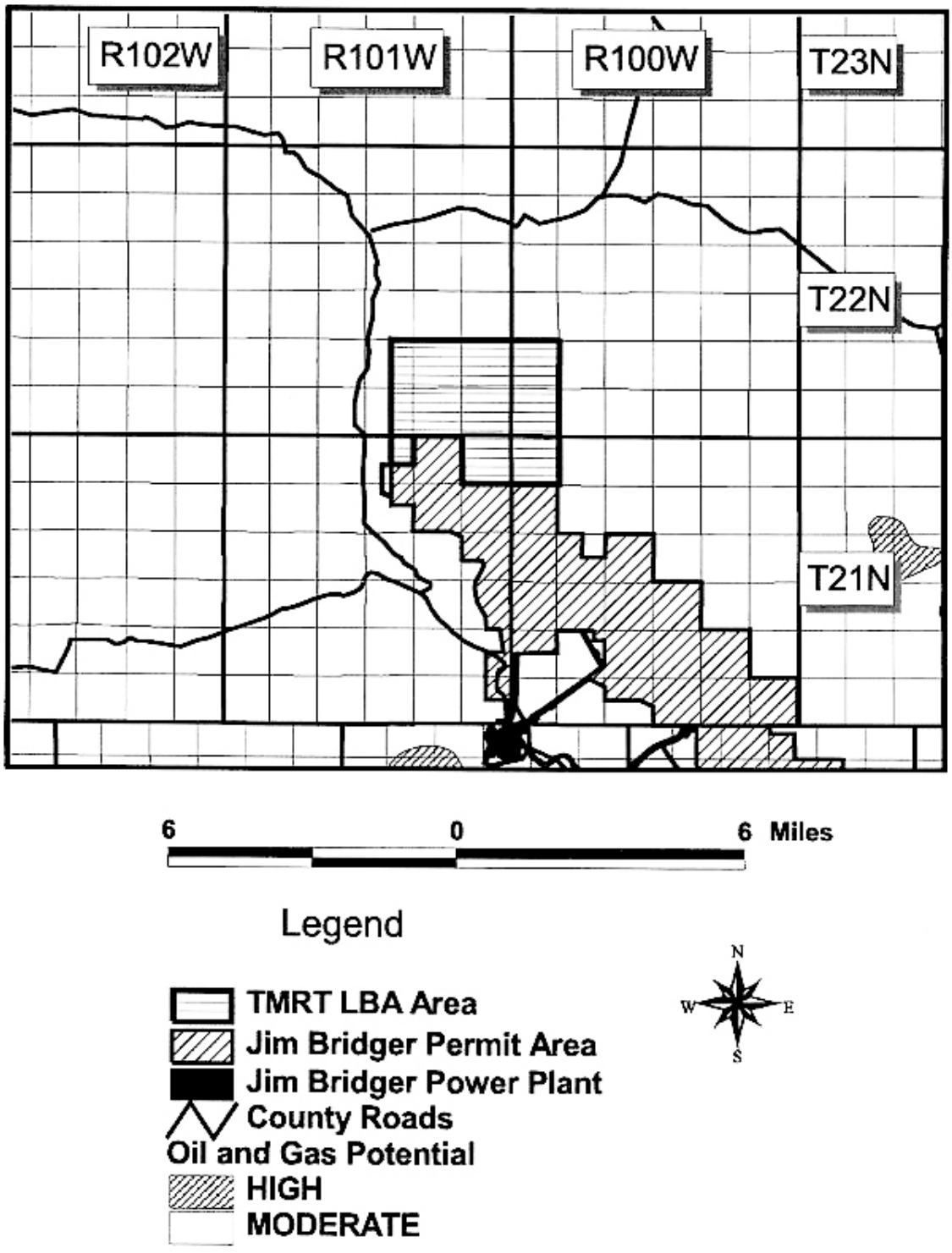

Figure 3.4 Oil and Gas Potential Within the TMRT and Vicinity.

addition, as of January 29, 2003, the WOGCC had not issued any Applications for a Permit to Drill coalbed methane wells within the TMRT or the CIAA (BLM 2003b; PacifiCorp 2003). Based on results of coal samples collected from the TMRT area, coalbed methane content is insufficient to support economic gas development in this area (BLM 2003b). The nearest coalbed methane project is located approximately 11 mi northwest of the TMRT but has only produced small amounts of gas, has been temporarily shut-in, and is not producing any gas (BLM 2003b).

3.3.6.3 Locatable Minerals

There are no active locatable mineral (e.g., precious metals, bentonite, etc.) mines or economically recoverable deposits of locatable minerals within the TMRT or the CIAA, and there are no leases or claims for locatable minerals within the TMRT or CIAA (BLM 1996b).

3.3.6.4 Salable Minerals

There are no active construction aggregate quarries within the TMRT or the CIAA; however, the BLM has identified several sand and gravel deposits along the western boundary of the CIAA (BLM 1996b).

3.3.7 Native American Religious Concerns

In accordance with the *American Indian Religious Freedom Act* and BLM Manual 8160-1 Handbook (BLM 1979a), numerous Native American groups including but not limited to Crow, Shoshone, Comanche, Arapaho, Cheyenne, and Sioux have utilized the proposed project area (BLM 1996b). Native American tribes were consulted during the scoping period for this EA. Tribes and/or individuals were sent certified letters requesting their comments concerning any religious or cultural areas within or near the TMRT area. The CIAA for Native American religious concerns in the TMRT area and a 5-mi buffer area. To date, no sites or areas of traditional cultural interest have been identified within the TMRT or the CIAA.

3.3.8 Rangeland and Livestock Grazing

The TMRT is located within the Rock Springs grazing allotment. Grazing privileges (including federal and state grazing allotments) within the proposed project area are permitted to private individuals. Stocking rates for livestock within the proposed project area are approximately 12.5 acres per animal unit month (AUM) (personal communication, October 15, 2003, with Kevin Lloyd, Range/Horse Specialist, BLM, Rock Springs Field Office, Wyoming). Therefore, the entire TMRT area would potentially contain approximately 473 AUMs.

The CIAA for livestock grazing is the entire Rock Springs grazing allotment which encompasses 2,135,539 acres (refer to Figure 3.5). Approximately 2.0% of the CIAA (43,363 acres) is currently disturbed by roads, major industrial facilities, cities, minor industrial facilities, and wells and associated facilities. Approximately 92% of the allotment is utilized from December 1 to May 15 by cattle and sheep, while the remaining 8% of the allotment is permitted for spring and fall grazing. Of the 180,000 AUMs available within the Rock Springs grazing allotment, usage is approximately 90,000 AUMs (50% of the available AUMs) (personal communication, October 15, 2003, with Kevin Lloyd, Range/Horse Specialist, BLM, Rock Springs Field Office, Wyoming).

3.3.9 Recreation

Lands within the TMRT offer some big game hunting opportunities for antelope, mule deer, elk, and greater sage-grouse. Secondary recreational activities within the TMRT include camping, off-road use, rock and fossil hunting, and hiking. However, given the checkerboard landownership pattern, the controlled nature of the TMRT property, the remoteness of the TMRT, and the availability of other more potentially appealing areas in the general area, these secondary recreational opportunities appear to receive limited use in the TMRT. There are no developed recreation areas within the TMRT.

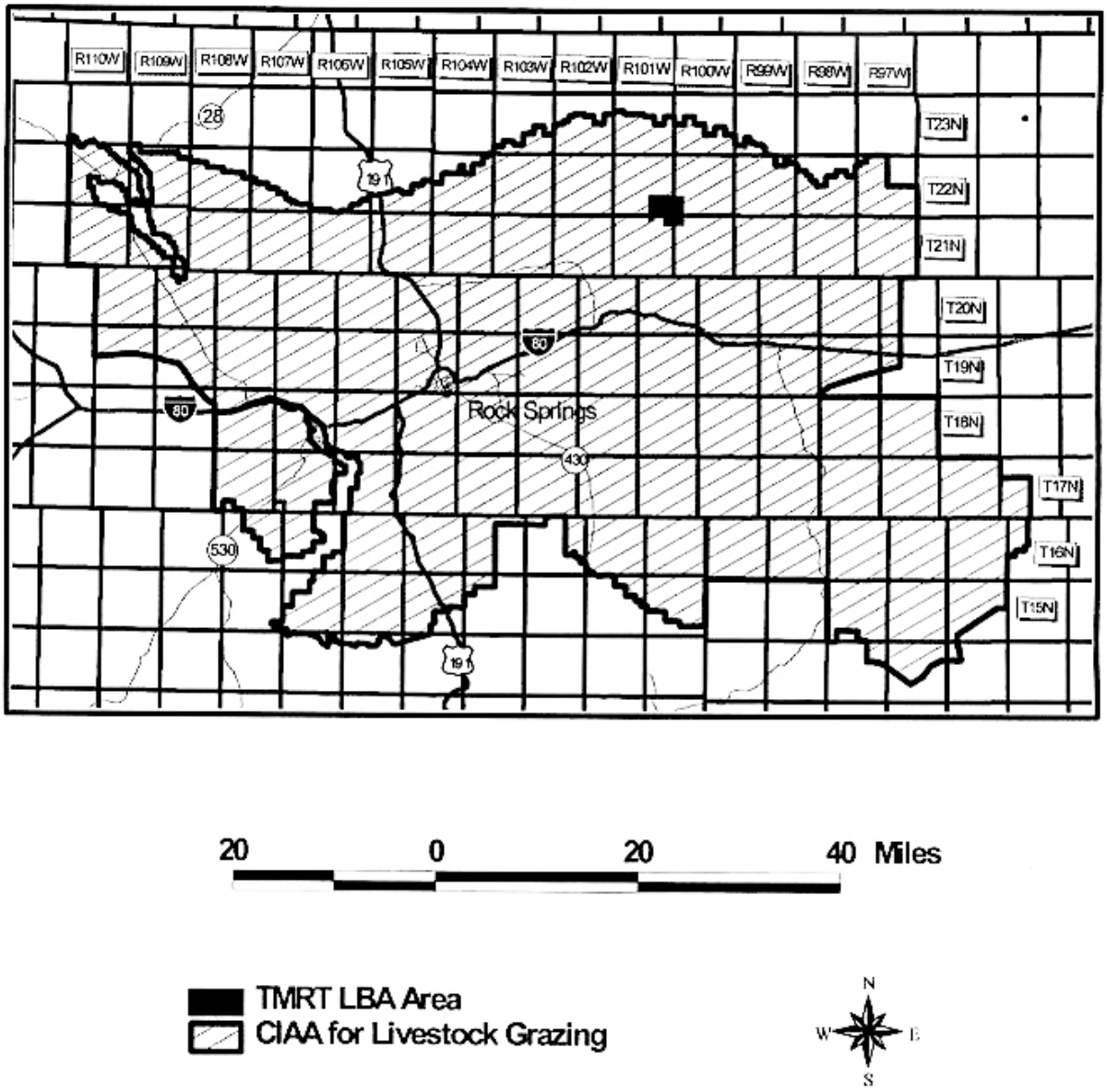

Figure 3.5 Livestock Grazing Allotment Within the TMRT Area and CIAA.

The Continental Divide National Scenic Trail (CDNST) was established by Congress in 1978 and covers approximately 3,100 mi from Canada to Mexico, with approximately 600 mi located within Wyoming. In accordance with the 1985 U.S. Forest Service Comprehensive Management Plan, the on-the-ground route of the CDNST attempts stay within 50 mi either side of the Continental Divide. In establishing officially designated segments of the CDNST, the BLM attempted to located the trail on existing primitive two-track roads or, as necessary, improved roads (i.e., paved roads) and to minimize on-the-ground segments that are located on privately owned land. The BLM has also entered into cooperative agreements with private landowners to provide the public with legal access to those trail segments that are located on private land.

As illustrated on Figure 3.6, the Continental Divide separates approximately 30 mi north of the TMRT area near a geographic feature called Oregon Buttes. The northern branch of the Continental Divide heads east from Oregon Buttes, crosses U.S. Highway 287 toward the Ferris Mountains, turns south, and continues past Rawlins, Wyoming. The southern branch of the Continental Divide heads south from Oregon Buttes, turns east near Superior, Wyoming, crosses through the TMRT LBA area, and then proceeds east-southeast to a point south of Rawlins Wyoming, where the two branches merge back into a single geographic feature. The area located between the two branches of the Continental Divide is designated as the Great Divide hydrologic basin (Knight 1994). This is a 3,865-mi^2 area where water does not flow to either the Atlantic Ocean or the Pacific Oceans (i.e., surface water will not flow out of this area) and is the largest internally controlled drainage basin along the Continental Divide within the US.

The only BLM-designated segments of the CDNST in Wyoming are located along the northern branch of the Continental Divide in central Wyoming. In June 2000, the BLM Lander, Rock Springs, and Rawlins Field Offices completed the official designation and signing of the 165-mi segment between Wyoming State Highway 28 near South Pass City, Wyoming, and the Medicine Bow/Routt National Forest south of Rawlins, Wyoming (refer to Figure 3.6). The CDNST segment generally follows the Continental Divide but deviates along a 40-mi segment north of Rawlins, Wyoming. This trail segment crosses land owned by private individuals, the State of Wyoming, and the federal government (administered by the BLM).

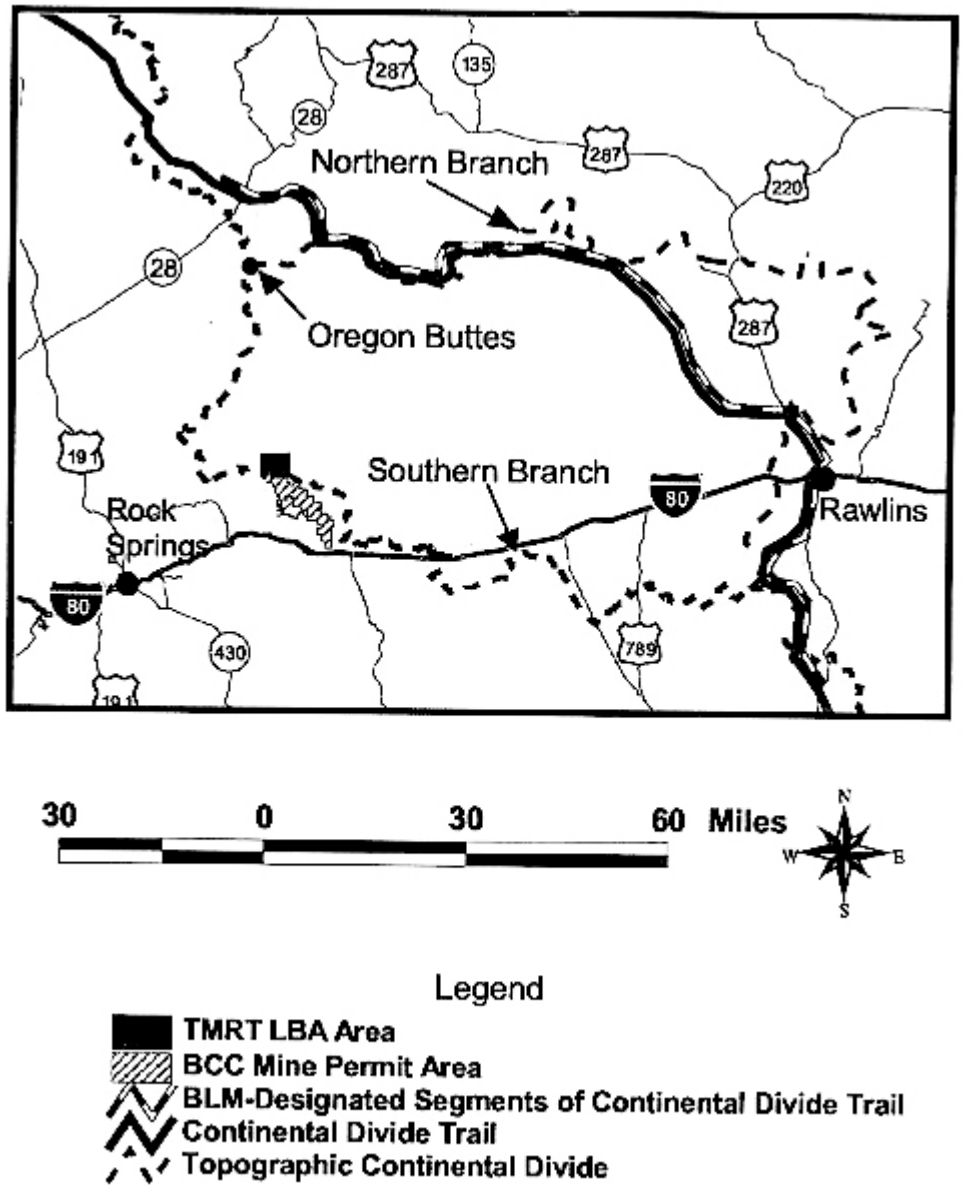

Figure 3.6 Location of the CDNST.

At this time, there are no BLM officially designated segments of the CDNST along the southern branch of the Continental Divide. However, there is a possibility of the future establishment of an official trail along the southern branch of the Continental Divide (personal communication, November 12, 2003, with Jo Foster, BLM-recreation planner, Rock Springs, Wyoming). Any new route or on-the-ground segment of the CDNST that would follow the southern branch of the Continental Divide within the TMRT LBA area would only be approximately 0.5 to 1.0 mi away from the proposed location of the surface support facilities for underground mining operation and the active highwall mining area of the existing surface coal mining operations at the Jim Bridger Mine.

3.3.10 Socioeconomics

For the purpose of this section, the CIAA is assumed to include all of Sweetwater County.

The TMRT is located in Sweetwater County. Based on the 2000 census, Sweetwater County's population is estimated at 37,613, a 3.1% decrease in population from 1990 (U.S. Department of Commerce [USDOC] 2000). Total full-time and part-time employment in Sweetwater County was 25,246 in 1998, which was composed of 25,043 nonfarm workers and 203 farm workers. In 1998, mining accounted for 3,966 jobs, with approximately 4,636 workers employed in retail trade, 4,203 workers employed by government and government enterprises, and 12,238 workers employed in the service industry (USDOC 2000).

Annual per capita personal income in Sweetwater County was $16,810 in 1990 compared to $25,345 in 1998--a 50.8% increase (USDOC 2000). The adjusted annual average unemployment rate in Sweetwater County in 2002 was 4.7% (Wyoming Department of Employment 2003). The cost of living index for Sweetwater County was 97 during the second quarter of 2002, compared to a statewide average for Wyoming of 100 (Wyoming Division of Economic Analysis 2003). According to the 1990 census, the percent of all persons living below the poverty level in Sweetwater County was 8.5%. There were 1,816 vacant housing units or a rate of 11.4% in Sweetwater County in 2000, compared to the statewide average vacant housing rate of 13.5%

(USDOC 2000). In 1999, the average annual wage for coal miners in Wyoming (not including benefits) was approximately $58,100 (Borden et al. 1994).

Rock Springs is the closest city to the project area. Most of the workforce would reside in Rock Springs or Green River, thereby benefiting the local economy and Sweetwater County.

As discussed earlier in this EA, coal mined at the Jim Bridger Mine is utilized to generate electricity at the nearby Jim Bridger Power Plant. The power plant is capable of generating 1,120 megawatts (MW) of electricity and is the largest coal-fired power plant in PacifiCorp's or Idaho Power's system. In addition, the Jim Bridger Power Plant and is connected to the western power grid through a series of transmission lines. The western power grid provides electricity to 13 western states, the provinces of British Columbia and Alberta, and a portion of northern Mexico.

The coal mined at the Jim Bridger Mine includes minimal transportation costs because the mine is less than 10 mi away from the power plant. Once mined, the coal is hauled directly to the power plant by truck or via an overland conveyor system. This type of mine-mouth operation helps minimize the cost of electricity for commercial and residential customers. Coal purchased by the power plant from other suppliers would have to be transported to the power plant by rail and would include increased transportation costs that are not currently incurred for coal that is produced at the Jim Bridger Mine.

3.3.11 Soil Resources

The Natural Resources Conservation Service (NRCS) has not published a detailed soil survey report for the TMRT. However, the College of Agriculture at the University of Wyoming has prepared digital soil maps (at 1:100,000 scale) for southwest Wyoming including the TMRT area and CIAA (Munn and Arneson 1998). The CIAA includes the TMRT area and a 4.3-mi buffer. The TMRT is primarily composed of typical Torriothents, loamy mixed, mixed (calcareous), frigid, shallow-Typic Haplocalcids (76%, soil map unit SW09). The remainder of the TMRT is

composed of 15% dune land - Typic Torripsam ments, m ixed, frigid - Typical Torriorthents, coarse-loamy, m ixed (calcareous), shallow (soil m ap unit SW 02) and 9% Typic Haplosalids, fine, m ixed, frigid and Typic Haplocam bids, fine-silty, m ixed, frigid (soil m ap unit SW 08) (refer to Figure 3.7). The soils in the areas of support facilities (e.g., conveyor and powerline) are prim arily com posed of typical Torriothents, loam y m ixed, m ixed (calcareous), frigid, shallow-Typical Haplocalcids (SW 09) and Ustic Torriorthents, coarse-loam y, mixed, frigid, and Typic Torrifluvents, loam y-skeletal, frigid (SW 12). In addition to the soil types described above, the CIAA also includes Typic Torrifluvents, fine-silty and fine, m ixed (calcareous), frigid (SW01); Ustic Haplargids, fine-loam y, m ixed, frigid-Ustic Haplocam bids, find-loam y, m ixed, frigid, and Typic Natrargids, fine-loam y, m ixed frigid (SW 11); and Ustic Torriorthents, coarse-loamy, m ixed, frigid, and Typic Torrifluents, loam y-skeletal, frigid (SW 12). Soil information presented in this section does not include areas that have been disturbed or developed by industrial or mine-related activities.

3.3.12 TEC&P and BLM-sensitive Species

3.3.12.1 Introduction

The federal *Endangered Species Act* (16 U.S.C. 1531-1543) protects listed threatened and endangered plant and anim al species and their critical habitats. A list of federally listed threatened, endangered, candidate, and proposed (TEC&P) species that potentially occur in the vicinity of the proposed project was com piled from information provided by the W yoming State Office of the USFW S and the W yoming Natural Diversity Database (W NDD) (2003) and is presented in Table 3.4.

TEC&P species are those that have been specifically designated as such by the USFW S. Endangered species are those that are in danger of extinction throughout all or a significant portion of their range. Threatened species are those that are likely to becom e endangered in the foreseeable future throughout all or a significant portion of their range. Proposed species are those for which the USFW S has published proposed rules in the *Federal Register* for listing of the species but for which a final rule has not been adopted. Candidate species are those for

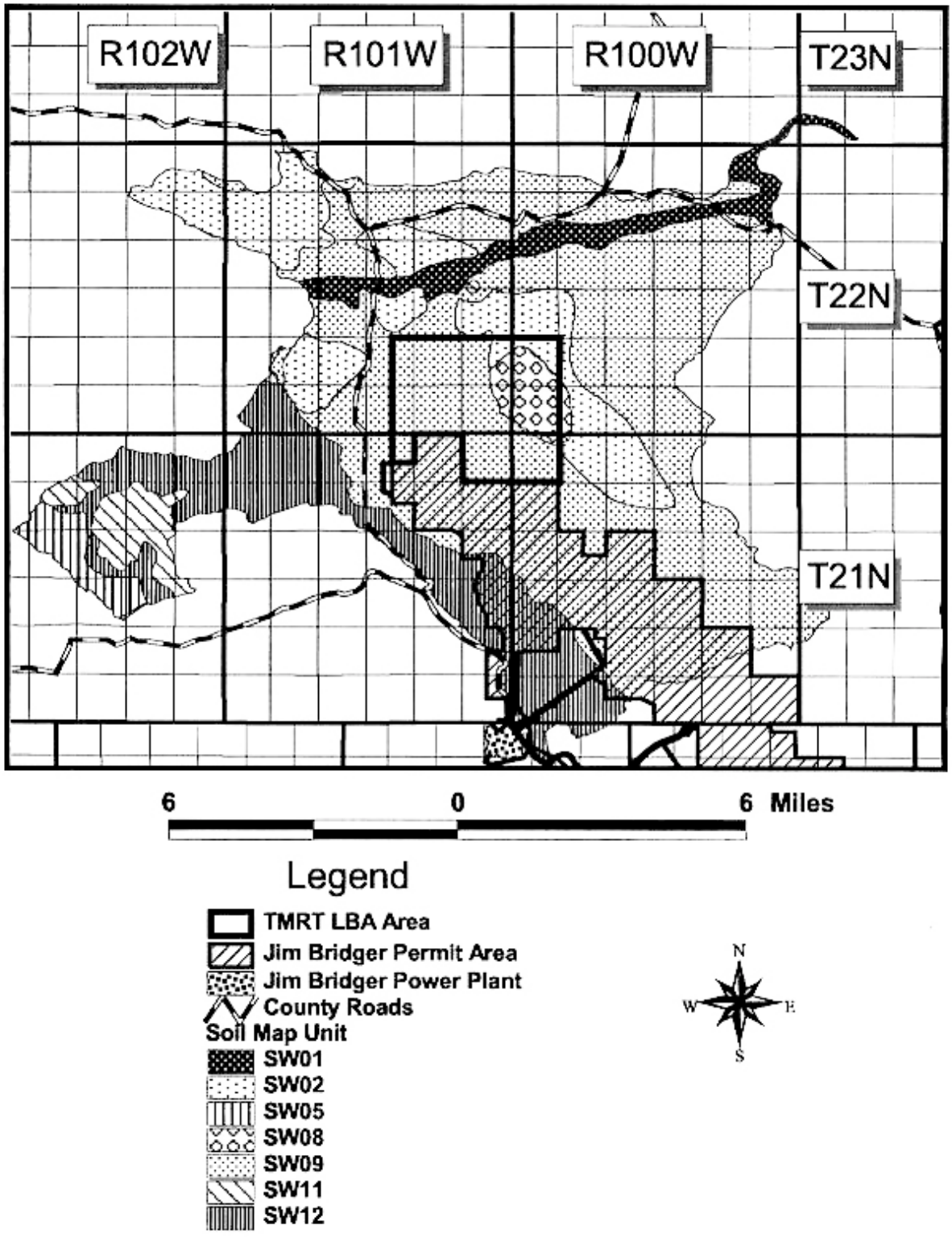

Figure 3.7 Soil Map Units Within the TMRT and CIAA.

which the USFWS has sufficient data to list as threatened or endangered but for which proposed rules have not yet been issued. BLM-sensitive species are those that may warrant future designation as candidate species but available data are not sufficient for USFWS to make such a designation decision; however, these species have been designated as a BLM-sensitive species by the BLM.

3.3.12.2 Federally Listed Animal and Plant Species

Federal threatened and endangered animal species that may occur in the vicinity of the TMRT include black-footed ferret and bald eagle (Table 3.4). The yellow-billed cuckoo is a candidate for listing. The threatened Ute ladies'-tresses is the only federally listed plant species with the potential to occur within or in the vicinity of the TMRT.

The USFWS is currently evaluating petitions for the possible listing of the pygmy rabbit and greater sage-grouse under the federal *Endangered Species Act*. In addition, the decision by the USFWS in 2003 to not list the mountain plover is currently under review. However, at this time, these species are not protected under the federal *Endangered Species Act*.

Black-footed Ferret. The black-footed ferret, a federally endangered species, was once distributed throughout the high plains of the Rocky Mountain and western Great Plains regions (Clark and Stromberg 1987; Forrest et al. 1985). Prairie dogs are the main food of black-footed ferrets (Sheets et al. 1972), although a few black-footed ferrets have been historically collected away from prairie dog towns (Forrest et al. 1985). The last known wild population of black-footed ferrets was discovered in the Pitchfork area near Meeteetse in northwest Wyoming, in 1981. Due to the fear that canine distemper would wipe out this population, all remaining black-footed ferrets were captured from the Pitchfork area and placed into a captive breeding project in 1985 (WGFD 1997). The captive breeding program is designed with the objective of reintroducing the species into suitable habitats in the wild. The nearest black-footed ferret reintroduction area is located approximately 65 mi south of the TMRT in the Little Snake Black-footed Ferret Management Area, Moffat County, Colorado.

The *Black-footed Ferret Survey Guidelines for Compliance with the Endangered Species Act* (USFWS 1989) defines potential black-footed ferret habitat as any white-tailed prairie

Table 3.4 Federal Threatened, Endangered, Proposed, and Candidate Species and Their Potential Occurrence Within the Proposed Project Area, 2003.[1]

Common Name	Scientific Name	Federal Status[2]	Potential Occurrence Within the Proposed Project Area[3]
Mammals			
Black-footed ferret	*Mustela nigripes*	E	X
Birds			
Bald eagle[4]	*Haliaeetus leucocephalus*	T	O
Yellow-billed cuckoo	*Coccyzus americanus*	C	R
Plants			
Ute ladies'-tresses	*Spiranthes diluvialis*	T	X

[1] The Colorado pikeminnow, razorback sucker, humpback chub, and bonytail are endangered fish species found in the upper Colorado River and could be adversely impacted by the withdrawal of groundwater associated with the Proposed Action. Formal consultation with the USFWS will determine if any impacts would occur and an appropriate discussion will be included in the final EA.

[2] Federal status:
E = listed as federally endangered.
T = listed as federally threatened.
C = candidate for listing.

[3] Species occurrence:
O = occasional; this species may occur in the project area during specific times of the year and may be locally common when suitable food is available; generally not present for extended periods.
R = rare; species may be in the project area for just a few days or hours (e.g., stopping over during migration), or the species has only occasionally or rarely been sighted in the project area. Encounters during the proposed action are very unlikely.
X = unlikely; there has been no recent historical record of the species' occurrence in the project area; probability of encountering the species during the Proposed Action is very unlikely.

[4] Proposed for removal from federal listing.

dog towns or complexes greater than 200 acres in size with a burrow density of greater than 20 burrows per hectare (8 burrows per acre). Prairie dogs are known to occur within the TMRT; however, prairie dog towns have not been delineated nor densities calculated. Therefore, potential black-footed ferret habitat may occur within the TMRT. No recent black-footed ferret observations have been recorded in the vicinity of the TMRT (WNDD 2003).

Bald Eagle. The bald eagle is a federal threatened species (down-listed from endangered and now proposed for removal from federal listing) that requires cliffs, large trees, or sheltered canyons associated with concentrated food sources (e.g., fisheries or waterfowl concentration areas) for nesting and/or roosting areas (Edwards 1969; Snow 1973; Call 1978; Steenhof 1978; Peterson 1986). Bald eagles forage over wide areas during the nonnesting season (i.e., fall and winter) and scavenge on animal carcasses such as pronghorn, deer, and elk.

No bald eagle nests or winter roosts are known to occur in the TMRT; the lack of suitable nesting or winter roosting habitats within the TMRT likely precludes its use for such activities by bald eagles. The Green River, Flaming Gorge Reservoir, Big Sandy Reservoir, and Seedskadee National Wildlife Refuge provide the nearest favorable nesting, roosting, and foraging habitat for bald eagles. The nearest of these areas is the Green River, approximately 40 mi west of the TMRT. Searches of the WNDD revealed no records of bald eagles in the vicinity of the TMRT, including the Jim Bridger Reservoir (WNDD 2003); however, it is likely that individual bald eagles occasionally forage in or fly through the area.

Yellow-billed cuckoo. The yellow-billed cuckoo is a federal candidate and BLM-sensitive species. In Wyoming, the yellow-billed cuckoo is a rare summer breeder that arrives from wintering grounds in South America late May and departs September to October. The yellow-billed cuckoo is primarily found in open streamside deciduous woodland with low, scrubby vegetation under growth bordering the Bighorn, Powder, North Platte, Henry's Fork, and Black's Fork Rivers. Cottonwood stands and willow thickets are preferred for nesting and foraging (WNDD 2003). The yellow-billed cuckoo has been identified as potentially occurring in the riparian areas west of the Continental Divide; however, it is highly unlikely that the yellow-billed cuckoo occurs in the TMRT, since no riparian habitat is present and no observations have been recorded in the vicinity (WNDD 2003). The nearest potential yellow-billed cuckoo habitat is likely located along the Green River located approximately 40 mi to the west of the TMRT. The likelihood of yellow-billed cuckoo presence in the project area is extremely low; therefore, the yellow-billed cuckoo is not expected to be impacted by the Proposed Action and is not discussed further in this EA.

Ute ladies'-tresses. Ute ladies'-tresses, a federal threatened species, is a perennial plant and a member of the orchid family that inhabits moist streambanks, wet meadows, and abandoned stream channels at elevations of 4,500-6,800 ft (Fertig 1994; Spackman et al. 1997). Where it occurs in ephemeral drainages, groundwater is typically shallow (i.e., within approximately 18 inches of the ground surface) (personal communication, March 16, 2000, with Pat Deibert, USFWS; personal communication, March 22, 2000, with Walt Fertig, WNDD). No suitable Ute ladies'-tresses habitat occurs within the TMRT, and no known occurrences have been recorded in the vicinity of the TMRT (WNDD 2003). The likelihood of Ute ladies'-tresses being present in the project area is extremely low; therefore, the Ute ladies'-tresses is not expected to be impacted by the Proposed Action and is not discussed further in this EA.

3.3.12.3 BLM-sensitive Animal and Plant Species

Based on habitat preference and geographic location, numerous BLM-sensitive species are known to occur or potentially to occur within the TMRT. Table 3.5 presents a list of BLM-sensitive species identified by the BLM Rock Springs Field Office. BLM-sensitive animal or plant species observed in or in the vicinity of the TMRT include white-tailed prairie dog, pygmy rabbit, white-faced ibis, ferruginous hawk, greater sage-grouse, long-billed curlew, burrowing owl; sage thrasher, Brewer's sparrow, northern leopard frog, Great Basin spadefoot, mystery wormwood, and Nelson's milkvetch (WNDD 2002).

3.3.13 Vegetation (Including Invasive Species)

Based upon 1:100,000 scale mapping, Wyoming big sagebrush is the dominant plant community within the TMRT, along the proposed access road, along the proposed overland conveyor, and adjacent to County Road 15 (U.S. Geological Survey 1996). Wyoming big sagebrush is the dominant plant community along a portion of the proposed overland conveyor and the proposed powerline (refer to Figure 3.8). Dominant species in big sagebrush plant community include Wyoming big sagebrush, black greasewood, shadscale, broom snakeweed, fringed sage, Hood's phlox, prairie Junegrass, needle-and-thread, green needlegrass, blue grama, bluebunch wheatgrass, alkali sacaton, western wheatgrass, and threadleaf sedge.

The CIAA for vegetation includes the two fifth-level watersheds that drain the TMRT--Middle Black Rock Creek and Upper Deadman Wash. Together, they have a combined drainage area of 67,815 acres (refer to Figure 3.8). Vegetation in the CIAA is composed primarily of Wyoming big sagebrush, greasewood fans and flats, and shrub-dominated riparian vegetation communities (refer to Table 3.6 and Figure 3.8). The greasewood fans and flats community type is generally found along streams on fine-textured, saline upland areas and on basin fans and flats with black greasewood comprising more than 75% of the total shrub cover. The shrub-dominated riparian type occurs along drainages where shrubs comprise more than 25% of the vegetative cover and are generally comprised of black greasewood and various sagebrush species (Merrill et al. 1996).

Table 3.5 BLM-sensitive Species and Habitat Preference, Rock Springs Field Office, TMRT and CIAA, 2003.

Species			
Common Name	Scientific Name	Habitat	Likely[1]
Mammals			
Long-eared Myotis	*Myotis evotis*	Conifer and deciduous forests, caves and mines	
Fringed Myotis	*Myotis thysanodes*	Conifer forests, woodland-chaparral, caves and mine	
Spotted Bat	*Euderma maculatum*	Cliffs over perennial water, basin-prairie shrub	
Townsend's Big-eared Bat	*Corynorhinus townsendii*	Forests, basin-prairie shrub, caves and mines	
Pygmy Rabbit	*Brachylagus idahoensis*	Basin-prairie and riparian shrub	X
White-tailed Prairie Dog	*Cynomys leucurus*	Basin-prairie shrub, grasslands	X
Wyoming Pocket Gopher	*Thomomys clusius*	Meadows with loose soil	
Idaho Pocket Gopher	*Thomomys idahoensis*	Shallow stony soils	
Swift Fox	*Vulpes velox*	Grasslands	
Birds			
White-faced Ibis	*Plegadis chihi*	Marshes, wet meadows	X
Trumpeter Swan	*Cygnus buccinator*	Lakes, ponds, rivers	
Northern Goshawk	*Accipter gentilis*	Conifer and deciduous forests	
Ferruginous Hawk	*Buteo regalis*	Basin-prairie shrub, grassland, rock outcrops	X
Greater Sage-grouse	*Centrocercus urophasianus*	Basin-prairie shrub, mountain-foothill shrub	X
Long-billed Curlew	*Numenius americanus*	Grasslands, plains, foothills, wet meadows	X
Yellow-billed Cuckoo	*Coccyzus americanus*	Open woodlands, streamside willow and alder groves	
Burrowing Owl	*Athene cunicularia*	Grasslands, basin-prairie shrub	X
Sage Thrasher	*Oreoscoptes montanus*	Basin-prairie shrub, mountain-foothill shrub	X
Loggerhead Shrike	*Lanius ludovicianus*	Basin-prairie shrub, mountain-foothill shrub	X
Brewer's Sparrow	*Spizella breweri*	Basin-prairie shrub	X
Mountain Plover	*Charadrius montanus*	Shortgrass, great basin-foothills grassland, and sagebrush-grasslands	X
Fish			
Roundtail Chub	*Gila robusta*	Colorado River drainage, mostly large rivers, also streams and lakes	
Leatherside Chub	*Gila copei*	Bear, Snake and Green drainages, clear, cool streams and pools	
Bluehead Sucker	*Catostomus discobolus*	Bear, Snake and Green drainages, all waters	
Flannelmouth Sucker	*Catostomus latipinnis*	Colorado River drainage, large rivers, streams and lakes	
Colorado River Cutthroat Trout	*Oncorhynchus clarki pleuriticus*	Colorado River drainage, clear mountain streams	
Reptiles			
Midget Faded Rattlesnake	*Crotalus viridis concolor*	Mountain foothills shrub, rock outcrop	
Amphibians			
Northern Leopard Frog	*Rana pipiens*	Beaver ponds, permanent water in plains and foothills	X
Great Basin Spadefoot	*Spea intermontana*	Spring seeps, permanent and temporary waters	X

Table 3.5 (Continued)

Species			
Common Name	Scientific Name	Habitat	Likely[1]
Boreal (Northern Rocky Mountain population) Toad	*Bufo boreas boreas*	Pond margins, wet meadows, riparian areas	
Spotted Frog	*Ranus pretiosa (lutieventris)*	Ponds, sloughs, small streams	
Plants			
Meadow Pussytoes	*Antennaria arcuata*	Moist, hummocky meadows, seeps or springs surrounded by sage/grasslands 4,950-7,900 ft	
Small Rock Cress	*Arabis pusilla*	Cracks/Crevices in sparsely vegetated granite/pegmatite outcrops w/in sage/grasslands 8,000-8,100 ft	
Mystery Wormwood	*Artemisia biennis* var. *diffusa*	Clay flats and playas 6,500 ft	X
Nelson's Milkvetch	*Astragalus nelsonianus* -or- *Astragalus pectinatus* var. *platyphyllus*	Alkaline clay flats, shale bluffs and gullies, pebbly slopes, and volcanic cinders in sparsely vegetated sagebrush, juniper, and cushion plant communities at 5,200-7,600 ft	X
Precocious Milkvetch	*Astragalus proimanthus*	Cushion plant communities on rocky, clay soils mixed with shale on summits and slopes of white shale hills 6,800-7,200 ft	
Cedar Rim Thistle	*Cirsium aridum*	Barren, chalky hills, gravelly slopes, and fine textured, sandy-shaley draws 6,700-7,200 ft	
Ownbey's Thistle	*Cirsium ownbeyi*	Sparsely vegetated shaley slopes in sage and juniper communities 6,440-8,400 ft	
Wyoming Tansymustard	*Descurainia torulosa*	Sparsely vegetated sandy slopes at base of cliffs of volcanic breccia or sandstone 8,300-10,000 ft	
Large-fruited Bladderpod	*Lesquerella macrocarpa*	Gypsum-clay hills and benches, clay flats, and barren hills 7,200-7,700 ft	
Stemless Beardtongue	*Penstemon acaulis* var. *acaulis*	Cushion plant or Black sage grassland communities on semi-barren rocky ridges, knolls, and slopes at 5,900-8,200 ft	
Beaver Rim Phlox	*Phlox pungens*	Sparsely vegetated slopes on sandstone, siltstone, or limestone substrates 6,000-7,400 ft	
Tufted Twinpod	*Physaria condensata*	Sparsely vegetated shale slopes and ridges 6,500-7,000 ft	
Green River Greenthread	*Thelesperma caespitosum*	White shale slopes and ridges of Green River Formation 6,300 ft	
Uinta Greenthread	*Thelesperma pubescens*	Sparsely vegetated benches and ridges on coarse, cobbly soils of Bishop Conglomerate 8,200-8,900 ft	
Cedar Mountain Easter Daisy	*Townsendia microcephala*	Rocky slopes of Bishop Conglomerate 8,500 ft	

[1] Likely to occur in or in the vicinity of the TMRT based on habitat and WNDD data (2003).

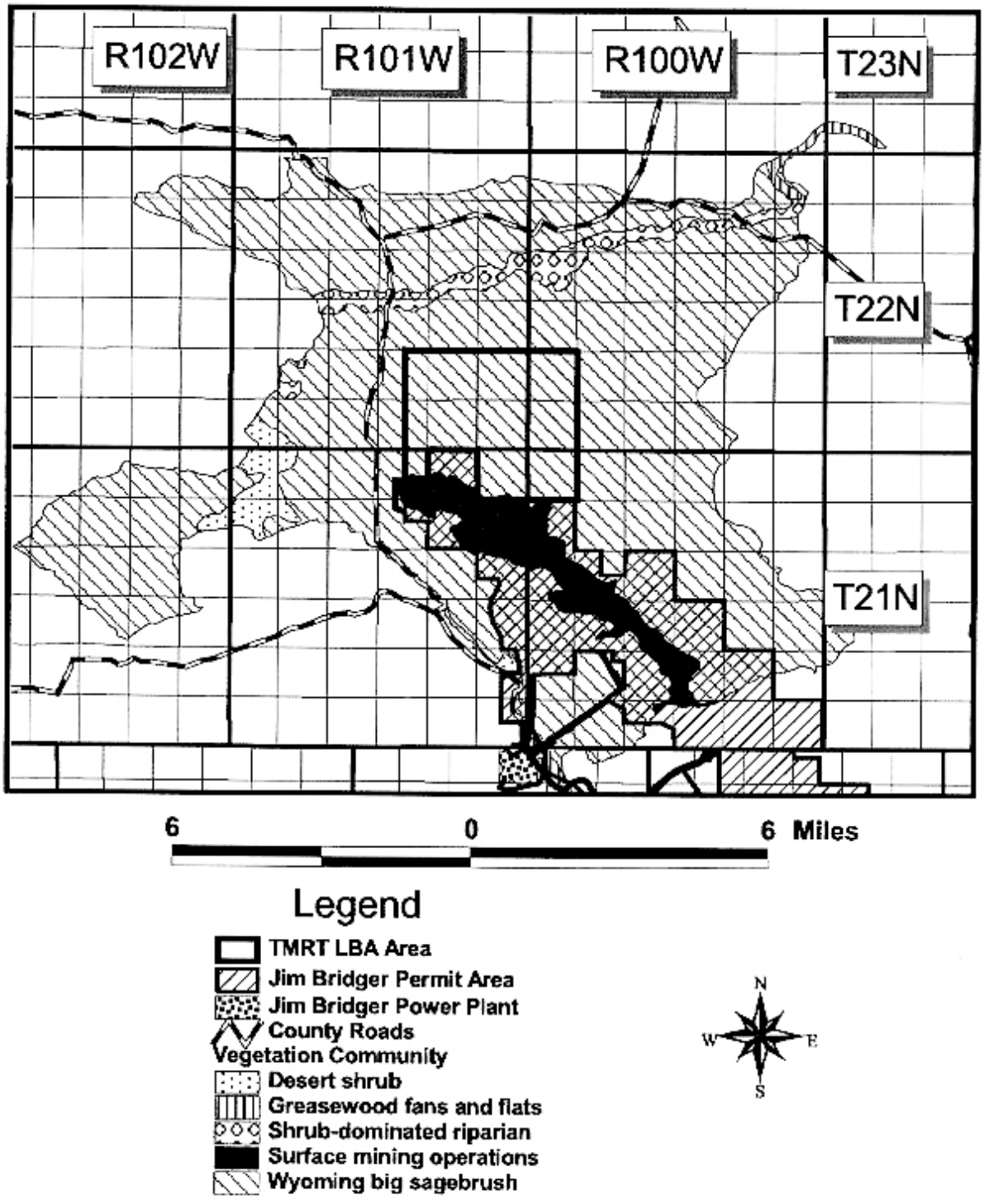

Figure 3.8 Major Vegetation Com munities W ithin the TMRT and CIAA (as of January 2000).

Table 3.6 Major Vegetation Communities Within the TMRT and CIAA.

Vegetation Community	Approx. % Within TMRT	Approx. % Within CIAA
Greasewood fans and flats	--	1
Open water	--	2
Shrub-dominated riparian	--	3
Surface mine operations	--	10
Wyoming big sagebrush	100	84

Approximately 9.6% of the CIAA (6,511 acres) has been disturbed by major industrial facilities, minor industrial facilities, wells and associated facilities, and roads.

Invasive species (i.e., noxious weeds) known to exist in the vicinity of the TMRT include perennial pepperweed (*Lepidium latifolium*), hoary cress (*Cardaria* spp.), Canada thistle (*Cirsium arvense*), and dalmation toadflax (*Linaria dalmatica*) (personal communication, October 27, 2003, with Jim Cotterman, Sweetwater County Weed and Pest Control, Farson, Wyoming).

3.3.14 Wastes (Hazardous and Solid)

There are no known hazardous or solid wastes present with the TMRT. Hazardous and solid wastes generated within the vicinity of the TMRT area include those generated and produced in association with surface coal mining, oil and natural gas exploration, development, and production, and activities conducted at the Jim Bridger Power Plant. Under *Resource Conservation and Recovery Act* regulations, the Jim Bridger Mine and the Jim Bridger Power Plant are both registered as a small-quantity generators. There are also two permitted and active solid waste disposal sites within the vicinity of the TMRT area, one operated by BCC and one operated by the Jim Bridger Power Plant (personal communication, April 18, 2002, with Kathy Brown, WDEQ, Solid and Hazardous Waste Division (SHWD), Lander, Wyoming).

3.3.15 Water Resources

3.3.15.1 Surface Water Resources

The TMRT straddles the Continental Divide, with approximately 56% of the TMRT located within the Great Divide Basin (this is a closed basin that does not flow out of Wyoming) and 44% of the TMRT within the Upper Green River drainage basin, a tributary of the Colorado River (refer to Figure 3.9). There are no perennial or intermittent streams or springs within the proposed TMRT. The TMRT is primarily drained by two ephemeral drainages--Middle Black Rock Creek, located north and east of the TMRT, and Upper Deadman Wash, located south of the Continental Divide. Middle Black Rock Creek drains into the Great Divide Basin, while Upper Deadman Wash drains into Bitter Creek at Point of Rocks, Wyoming, and is located within the Upper Green River Basin (refer to Figure 3.9).

The surface water that flows within Deadman Wash is highly variable in quality depending on the nature of the runoff. Runoff from snowmelt usually generates lower concentrations of total dissolved solids (TDS) and total suspended solids (TSS) than runoff from rainfall storm events. The average water quality of Deadman Wash meets WDEQ/WQD standards for livestock class of use (Class III) (BCC 2003). The TDS level averages about 3,300 parts per million (ppm), pH averages approximately 7.9, and bicarbonate averages approximately 290 ppm.

While no data are available for Black Rock Creek, water quality is expected to be similar to that of Deadman Wash.

All the ephemeral channels within the project area have been designated as having Class 4 surface water quality by WDEQ/WQD. The Class 4 designation in Chapter 1 of the WDEQ/WQD regulations means waters that cannot support fish (WDEQ/WQD 1990).

The CIAA for surface water resources are the two fifth-level watersheds that drain the TMRT--Middle Black Rock Creek and Upper Deadman Wash. Together, they have a combined

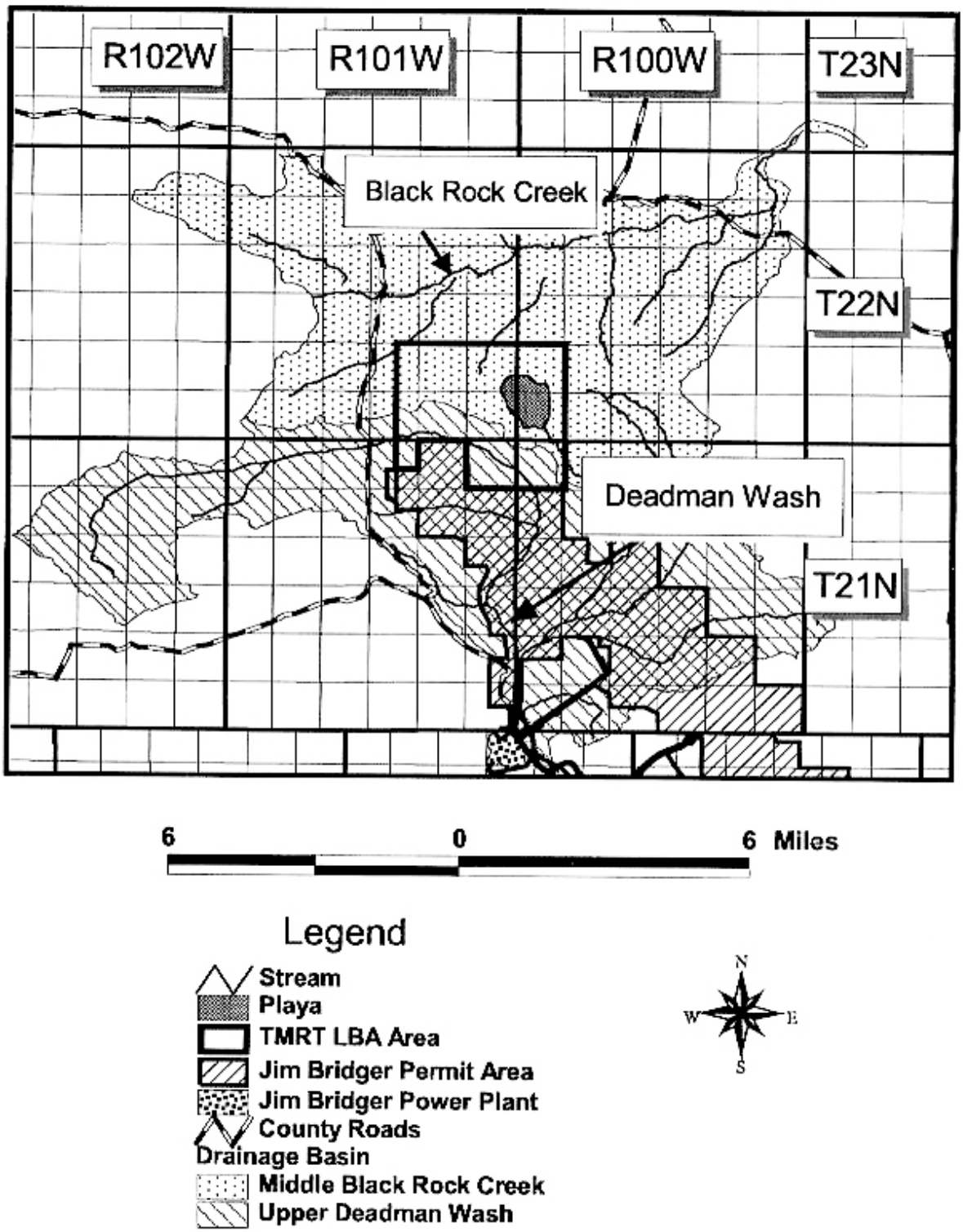

Figure 3.9 Surface Water Drainages and Features Located Within the TMRT and CIAA.

drainage area of 67,815 acres (refer to Figure 3.9). The CIAA includes approximately 93 mi of ephemeral streams and one large playa (512 acres). Approximately 9.6% of the CIAA (6,511 acres), has been disturbed by major industrial facilities, minor industrial facilities, well and associated facilities, and roads.

3.3.15.2 Groundwater Resources

Groundwater within the TMRT and vicinity is contained in several aquifers. Alluvial aquifers are found in some of the surface drainage channels and aquifers of the Fort Union Formation overburden, Deadman Formation coal zone, and Lance Formation. The Fort Union Formation overburden is the only aquifer that is capable of a sustainable yield of approximately 1 gallon per minute. The upper Lance Formation, located below the Fort Union Formation, is classified as an aquitard (i.e., a leaky confining bed that transmits water at a very slow rate to or from an adjacent aquifer), even though it is a water-bearing formation. In some areas, the Continental Divide appears to affect the piezometric surface of these aquifers; however, in general the regional groundwater flow is in a northeasterly direction (BCC 2003).

The proposed underground mine would likely intercept groundwater contained in the Deadman coal zone of the Fort Union Formation. The Fort Union Formation is approximately 1,500 ft thick in the area of the TMRT. Except for water used by BCC for exploration drilling, there are no known groundwater appropriations (i.e., water rights) issued by the WSEO for use of groundwater from the Deadman coal zone aquifer within the vicinity of the TMRT. BCC has appropriations for groundwater rights for portions of the Deadman coal zone aquifer located within the existing surface mining operation (BCC 2003).

The groundwater quality from wells within the BCC mine area within the Deadman coal zone aquifer indicates an average TDS of 1,711 ppm, bicarbonate of 664 ppm, and sulfur of 656 ppm. The pH of the groundwater average approximately 8.0. Average water quality of the Fort Union aquifer meets WDEQ/WQD standards for agricultural use (Class II) (WDEQ/WQD 1993; BCC 2003).

The closest surface expression of groundwater to the TMRT is at Radar Springs, approximately 1 mi northwest of the tract.

3.3.16 Wetlands/Riparian Areas

A jurisdicational wetland inventory of the TMRT area was completed in 2002 and determined that there are no jurisdictional wetlands within the TMRT area (Intermountain Resources 2002). While the inventory has been completed, it has not been formally submitted to the U.S. Army Corps of Engineers for a formal review and determination.

The CIAA for wetland resources are the two fifth-level watersheds that drain the TMRT--Middle Black Rock Creek and Upper Deadman Wash. Together, they have a combined drainage area of 67,815 acres (refer to Figure 3.10). The CIAA includes approximately 100 acres of potential wetlands that are composed of palustrine temporarily flooded (USWFS wetland classification PUSA), lacustrine/limnetic (USFWS wetland classification L1) and lacustrine/littoral (USFWS wetland classification L2). In addition, there is a total of 34 mi of ephemeral streams (USFWS wetland classification R4SB) and adjacent wetlands (USFWS wetland classification PEM, PSS, and PUS) (USFWS 1997) (refer to Figure 3.10). Approximately 9.6% of the CIAA (6,511 acres) has been disturbed by major industrial facilities, minor industrial facilities, wells and associated facilities, and roads.

3.3.17 Wild Horses

The TMRT is located within the Great Divide Basin Wild Horse Herd Management Area (GDBWHMA) (refer to Figure 3.11). The GDBWHMA encompasses 778,915 acres, of which 73% is public land. The GDBWHMA is located from the Rawlins-Rock Springs District boundary west to the Continental Divide. The "herd-appropriate management level" for the Great Divide Basin herd is between 415 to 600 wild horses, and the herd is currently estimated to have approximately 500 wild horses (personal communication, October 30, 2003, with Kevin

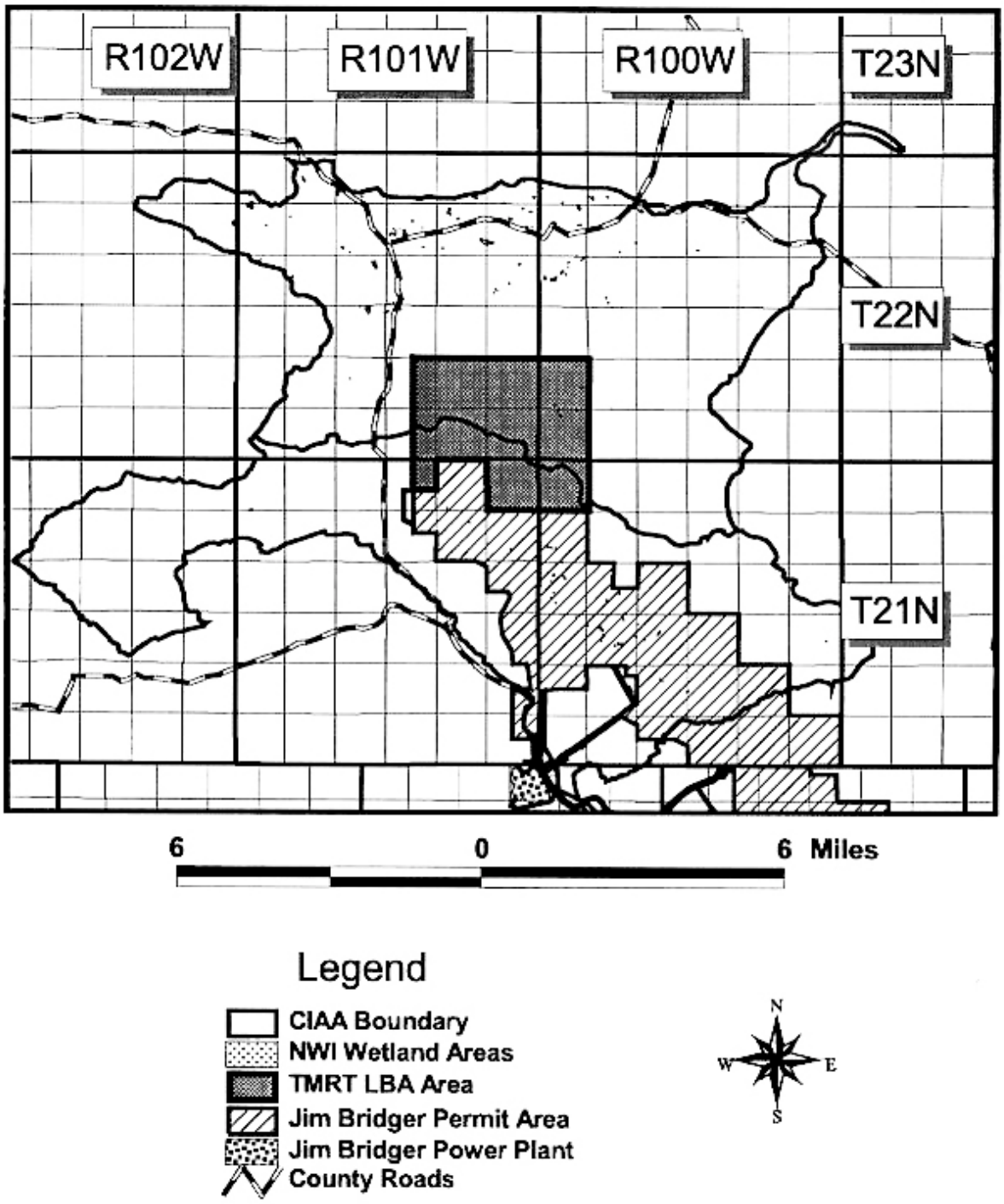

Figure 3.10 Potential Wetlands Located Within the TMRT and CIAA (as of 1983).

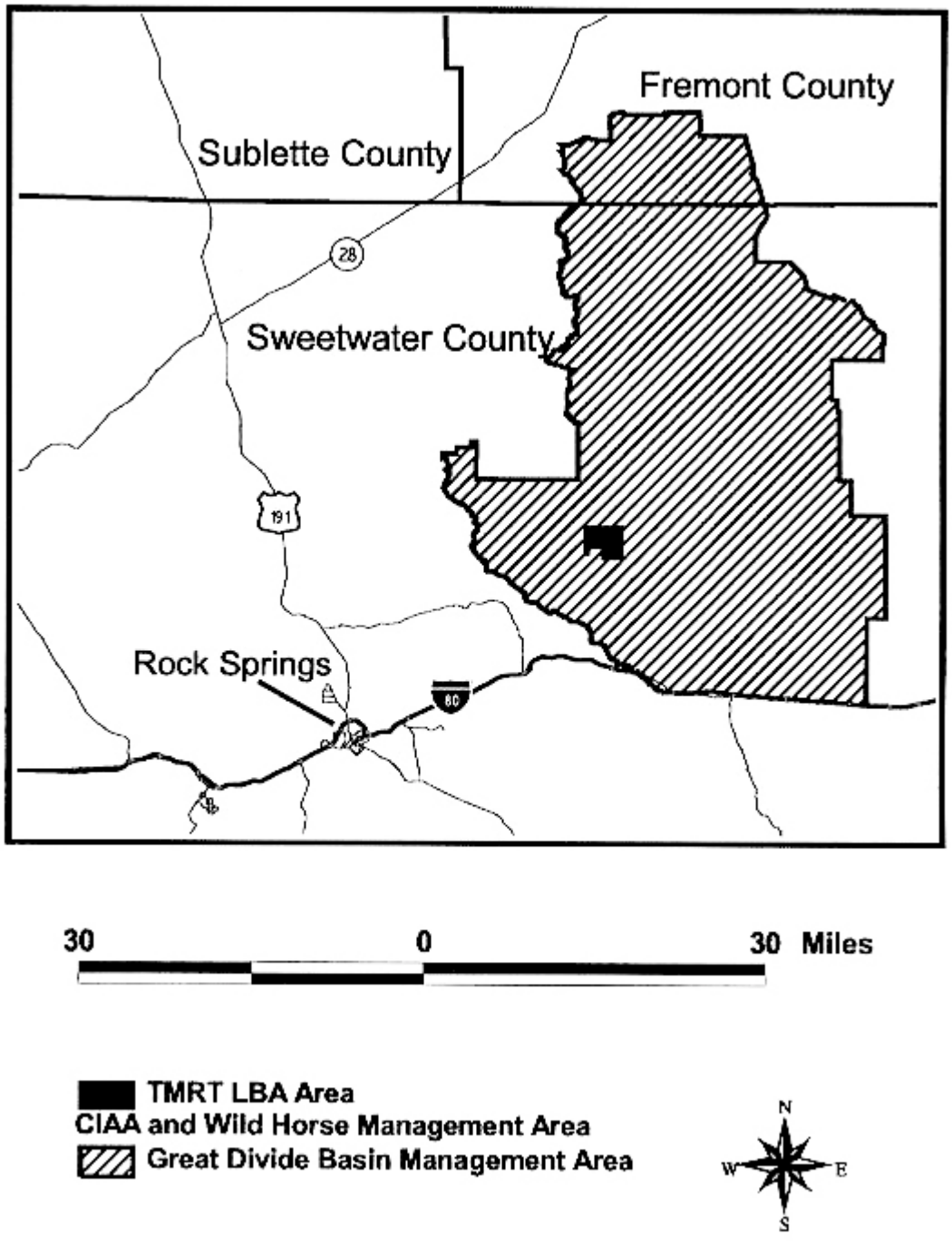

Figure 3.11 Great Divide Basin Wild Horse Herd Management Area.

Lloyd, Range Conservationist/Wild Horse Specialist, BLM, Rock Springs Field Office, Wyoming).

The CIAA for wild horses is the GDBW HMA. Approximately 2.4% or 18,360 acres of the CIAA has been disturbed. Approximately 10,674 acres within the CIAA have been disturbed by major industrial facilities, 3,672 acres by minor industrial facilities, 3,404 acres by roads, and 610 acres by wells and associated facilities.

3.3.18 Wildlife

Wildlife surveys (such as aerial big game surveys, driving surveys, greater sage-grouse lek surveys, raptor nest surveys, etc.) have been conducted for more that 20 years at the Jim Bridger Mine. Results of the baseline and annual monitoring surveys are reported in permit documents and annual reports submitted to WDEQ/LQD. Some of the surveys were also conducted within a 2-mi buffer surrounding BCC's current permit boundary that overlaps with portions of the TMRT. Additional complete surveys of the TMRT were conducted by BCC in 2001 during the exploratory drilling of the TMRT. Wildlife species composition within the TMRT is anticipated to be generally comparable to those found on the adjacent Jim Bridger Mine, except that no water fowl and shorebirds are expected in the TMRT.

3.3.18.1 Big Game

Three big game species--pronghorn antelope, mule deer, and elk--occur within or immediately adjacent to the TMRT. The population estimates for big game herds provided below are based upon WGFD models presented in the most recent annual big game herd unit report (WGFD 2003).

Pronghorn Antelope. Pronghorn antelope in the proposed project area belong to the Red Desert Pronghorn Antelope Herd (herd unit 615). The Red Desert Pronghorn Antelope Herd had a 2002 postseason population estimate of 14,000 antelope, approximately 93% of the population

objective of 15,000 animals (WGFD 2003). The 5-year (1997-2001) population average was 14,890 animals (99% of objective) (WGFD 2003).

Approximately 1,726 acres or 29% of the TMRT is habitat the WGFD has designated as crucial winter/yearlong antelope range (WGFD 2003), and the remaining 71% is designated as winter/yearlong habitat (refer to Figure 3.12). The proposed new access road would be constructed in winter/yearlong habitat, whereas the conveyor and powerline would be constructed in crucial antelope winter range.

The CIAA for pronghorn antelope is the entire Red Desert herd unit which encompasses approximately 2,167,479 acres (refer to Figure 3.13). Approximately, 85% of the CIAA is located in winter/yearlong range, 13% is located in crucial winter/yearlong range, and 2% is located in spring/summer/fall range (refer to Figure 3.13). Approximately 1.52% of the CIAA (32,983 acres) has been disturbed by major industrial facilities, minor industrial facilities, roads, and well and associated facilities. Within the range designated as crucial winter/yearlong range, approximately 14,101 acres have been disturbed by major industrial facilities, minor industrial facilities, roads, and wells and associated facilities. This represents approximately 5.17% of all crucial winter/yearlong range within the CIAA.

Mule Deer. Mule deer within the TMRT belong to Steamboat Mule Deer herd unit (herd unit 430). The core of this population inhabits the canyons and mesas associated with Steamboat Mountain and Oregon Butte north of the TMRT. Another segment of the population inhabits the Green River riparian zone west of the TMRT. The Steamboat Mule Deer Herd had a 2002 posthunting season population estimate of 3,100 mule deer, approximately 78% the population objective of 4,000 animals (WGFD 2003) The 5-year (1997-2001) population average was 3,120 animals (78% of objective) (WGFD 2003).

All of the TMRT and project-related support facilities (access road, powerline, and conveyor) would be located in habitat the WGFD has designated as winter/yearlong mule deer range

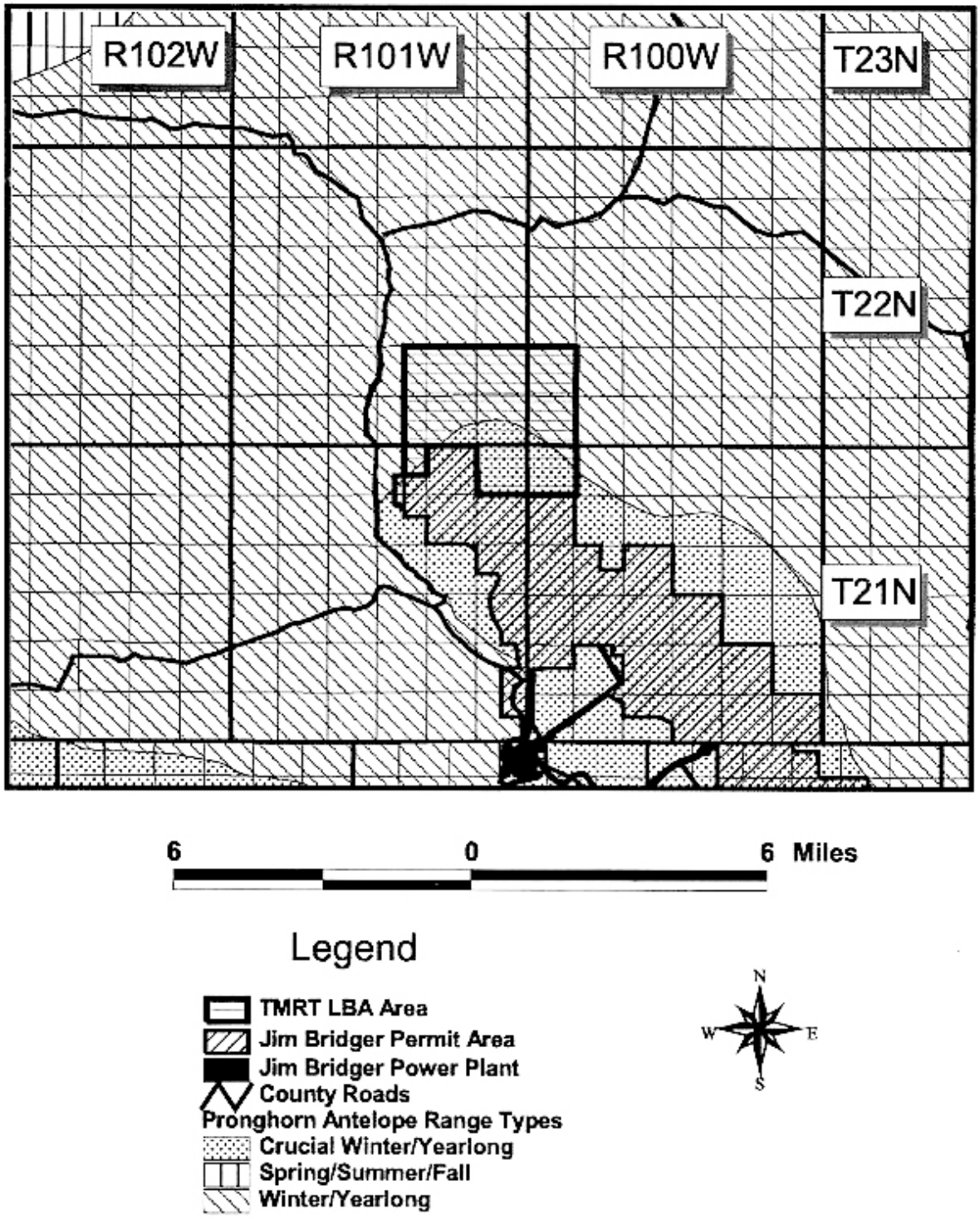

Figure 3.12 Pronghorn Antelope Range Within the TMRT.

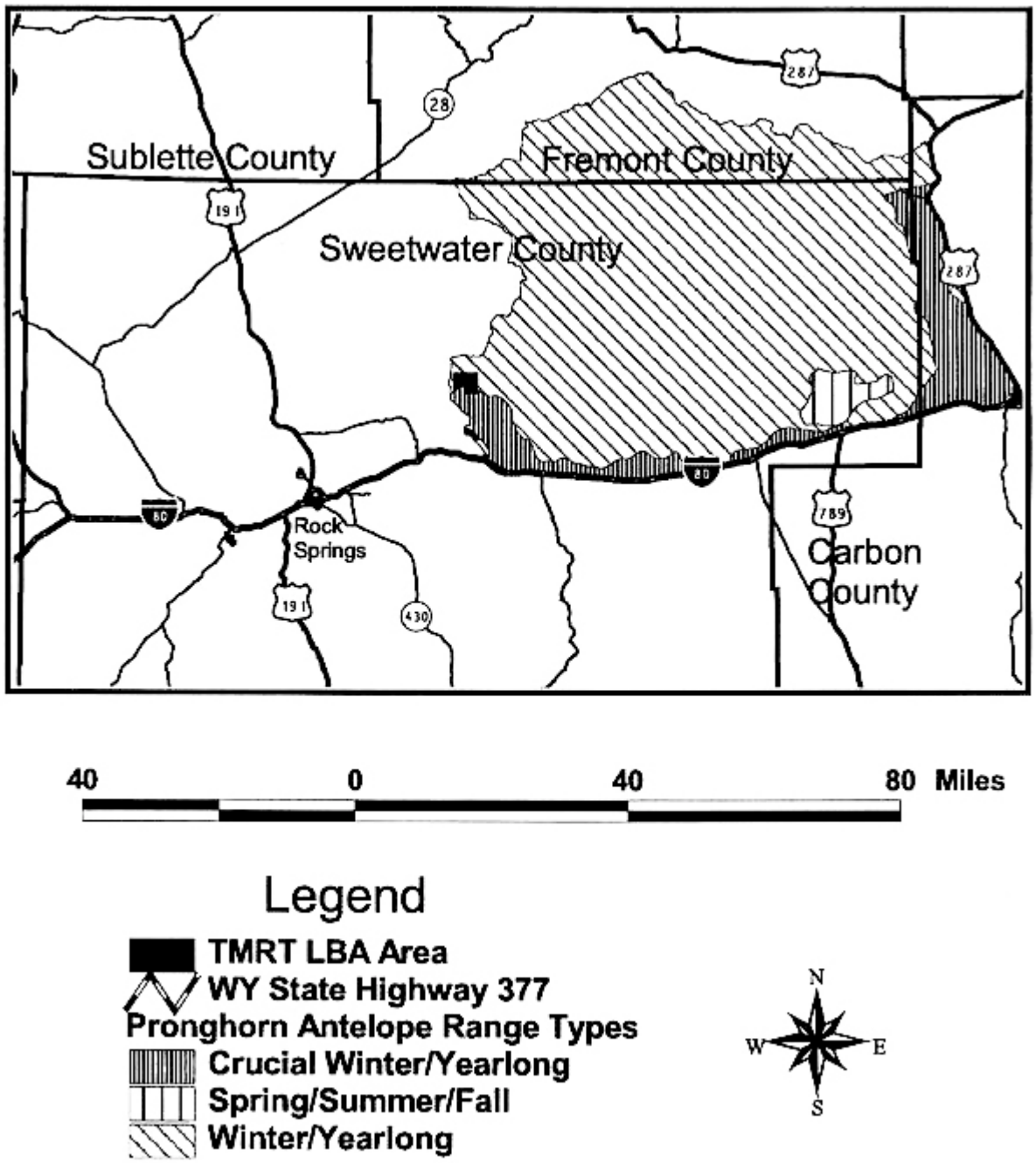

Figure 3.13 Pronghorn Antelope Range Within the CIAA.

(WGFD 2003). No mule deer crucial winter range occurs within the TMRT (refer to Figure 3.13) (WGFD 2003).

The CIAA for mule deer is the entire Steamboat herd unit, which encompasses approximately 2,553,133 acres (refer to Figure 3.14). Approximately, 25% of the CIAA is located in winter/yearlong range, 8% is located in crucial winter/yearlong range, and 4% is located in spring/summer/fall range (refer to Figure 3.15). The remaining 62% of the CIAA does not contain enough animals to be important habitat or the habitats are of limited importance to this species and is designated by the WGFD as "out" (refer to Figure 3.15). Approximately 1.7% of the CIAA (44,168 acres) has been disturbed by major industrial facilities, minor industrial facilities, roads, and well and associated facilities. Within the range designated as crucial winter/yearlong range, approximately 3,503 acres have been disturbed by major industrial facilities, minor industrial facilities, roads, and wells and associated facilities. This represents approximately 1.7% of all of the crucial winter/yearlong range within the CIAA.

Elk. Elk within the TMRT belong to Steamboat Elk herd unit (herd unit 426). This herd unit occupies the area north of Rock Springs, east of Green River, south of Wyoming Highway 28 and the Sweetwater River, and west of Wamsutter. This unique elk herd exists almost entirely on the sagebrush desert ecosystem as there is little conifer or aspen habitat available for use by the elk that inhabit this area year-round (WGFD 2003). At the December 2002 meeting of the Wyoming Game and Fish Commission, the commission revised the population objective from 500 animals to 1,200 animals for the Steamboat Elk herd unit. This is an increase of 140% above the previous population objectives as of the end 2001. The Steamboat Elk Herd had a 2002 postseason population estimate of 1,660 elk, approximately 138% of the population objective of 1,200 animals (WGFD 2003). The 5-year (1997-2001) population average was 1,750 animals (146% of population objective) (WGFD 2003).

Approximately 70% of the TMRT is designated by the WGFD as winter/yearlong elk range (WGFD 2003), and approximately 30% of the TMRT is designated as yearlong range (refer to

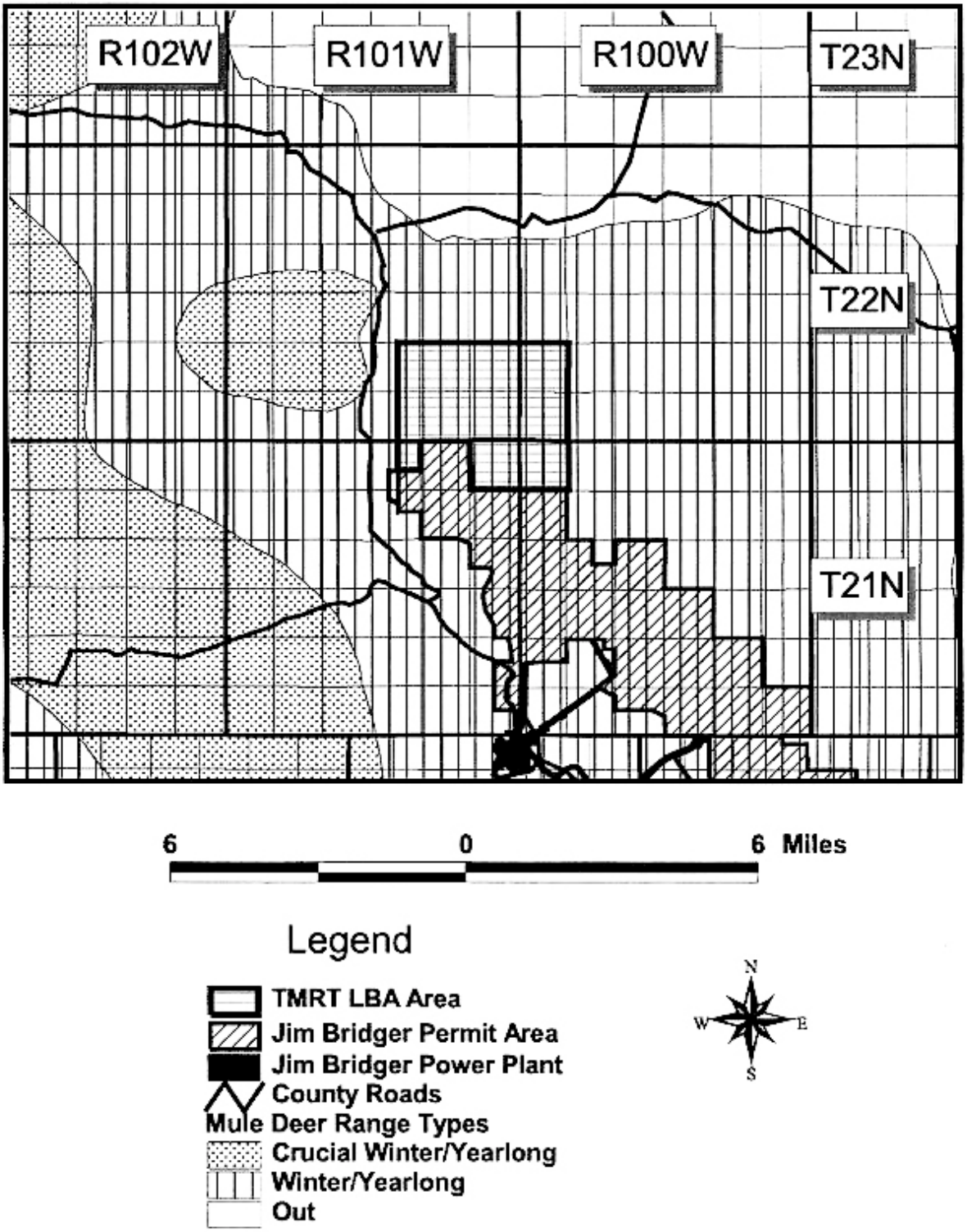

Figure 3.14 Mule Deer Range Within the TMRT and Vicinity.

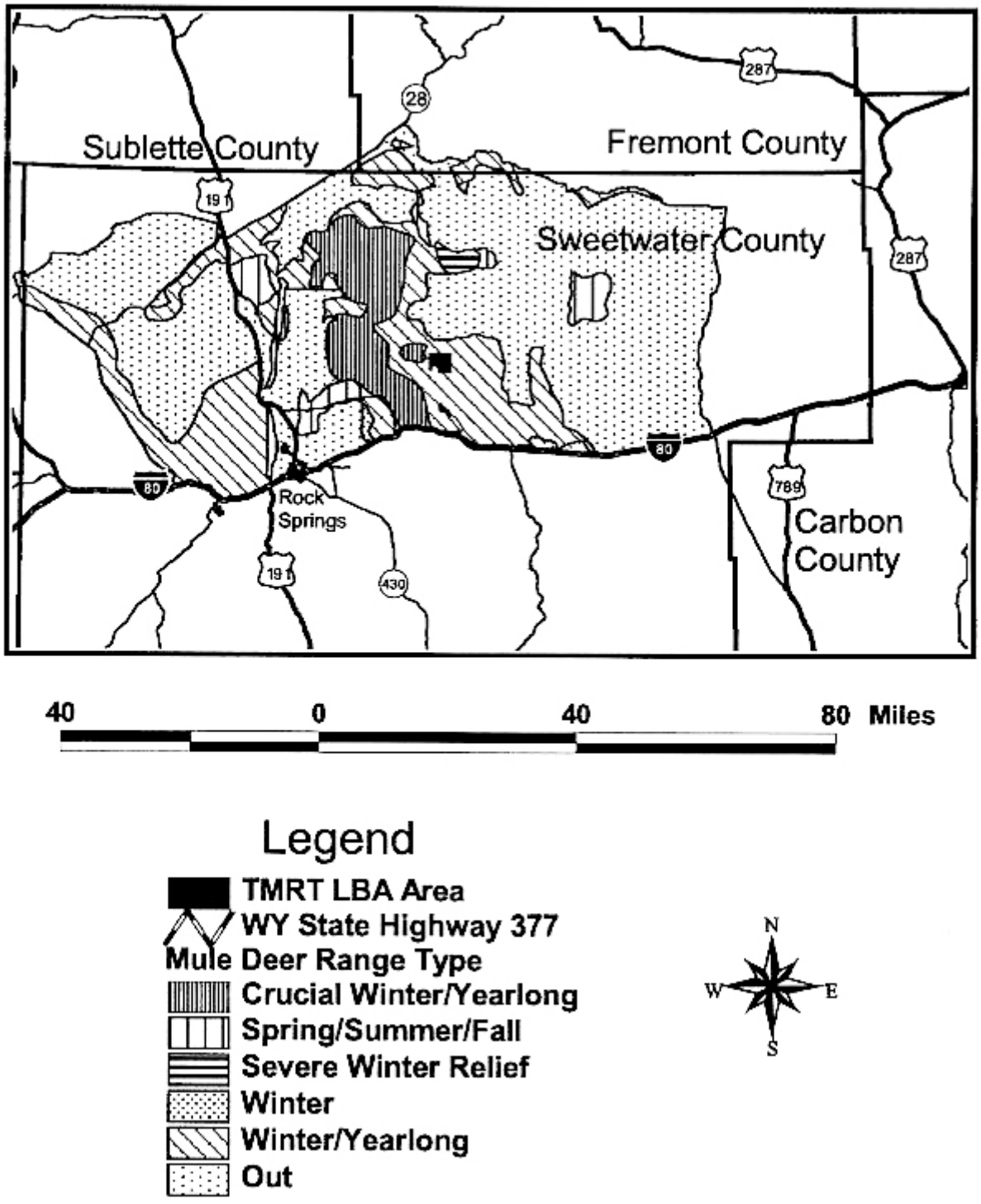

Figure 3.15 Mule Deer Range Within the CIAA.

Figure 3.16). The proposed access road and conveyor would be located within habitats that are of limited importance to this species. No crucial winter range for elk occurs within the TMRT. The nearest elk crucial range is located approximately 5.0 mi east of the proposed project (refer to Figure 3.16).

The CIAA for elk is the entire Steamboat herd unit which encompasses approximately 2,649,306 acres (refer to Figure 3.17). Approximately 13% is located in spring/summer/fall range, 11% of the CIAA is located in crucial winter range or crucial winter/yearlong range, 9% in winter/yearlong range, 7% in winter range, and 2% in yearlong range (refer to Figure 3.8). The remaining 58% of the CIAA does not contain enough animals to be important habitat or the habitats are of limited importance to this species and is designated by the WGFD as "out" (refer to Figure 3.17). Approximately 1.6% of the CIAA (43,356 acres) has been disturbed by major industrial facilities, minor industrial facilities, roads, and well and associated facilities. Within the range designated as crucial winter range or crucial winter/yearlong range, approximately 1,873 acres have been disturbed by major industrial facilities, minor industrial facilities, roads, and wells and associated facilities. This represents approximately 0.6% of all crucial winter and crucial winter/yearlong range within the CIAA.

3.3.18.2 Other Mammals

Predators known to occur or to potentially occur in the TMRT and CIAA are coyote, red fox, raccoon, ermine, long-tailed weasel, badger, western spotted skunk, striped skunk, mountain lion, and bobcat. Lagomorph species include desert cottontail, mountain (Nuttall's) cottontail, and white-tailed jackrabbit. Squirrels known to occur or to potentially occur include least chipmunk, Wyoming ground squirrel, golden-mantled ground squirrel, and thirteen-lined ground squirrel. Other rodents include four species of pocket gopher (northern, plains, Merriam's, and Great Basin), two species of pocket mouse (olive-backed and northern), Ord's kangaroo rat, deer mouse, northern grasshopper mouse, bushy-tailed woodrat, six species of vole (western, heather, meadow, long-tailed, prairie, and sagebrush), and western jumping mouse. Bats (western

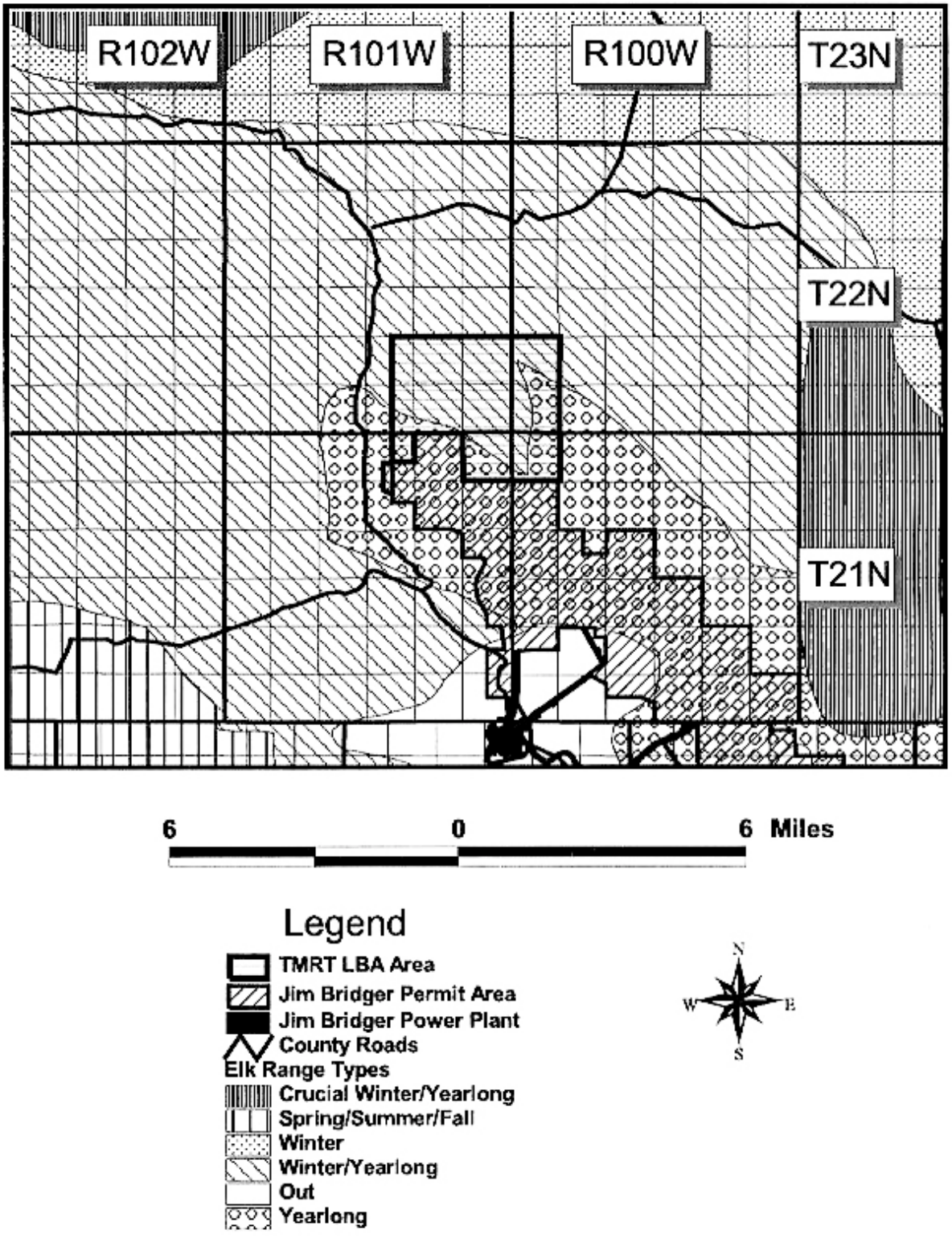

Figure 3.16 Elk Range Within the TMRT and Vicinity.

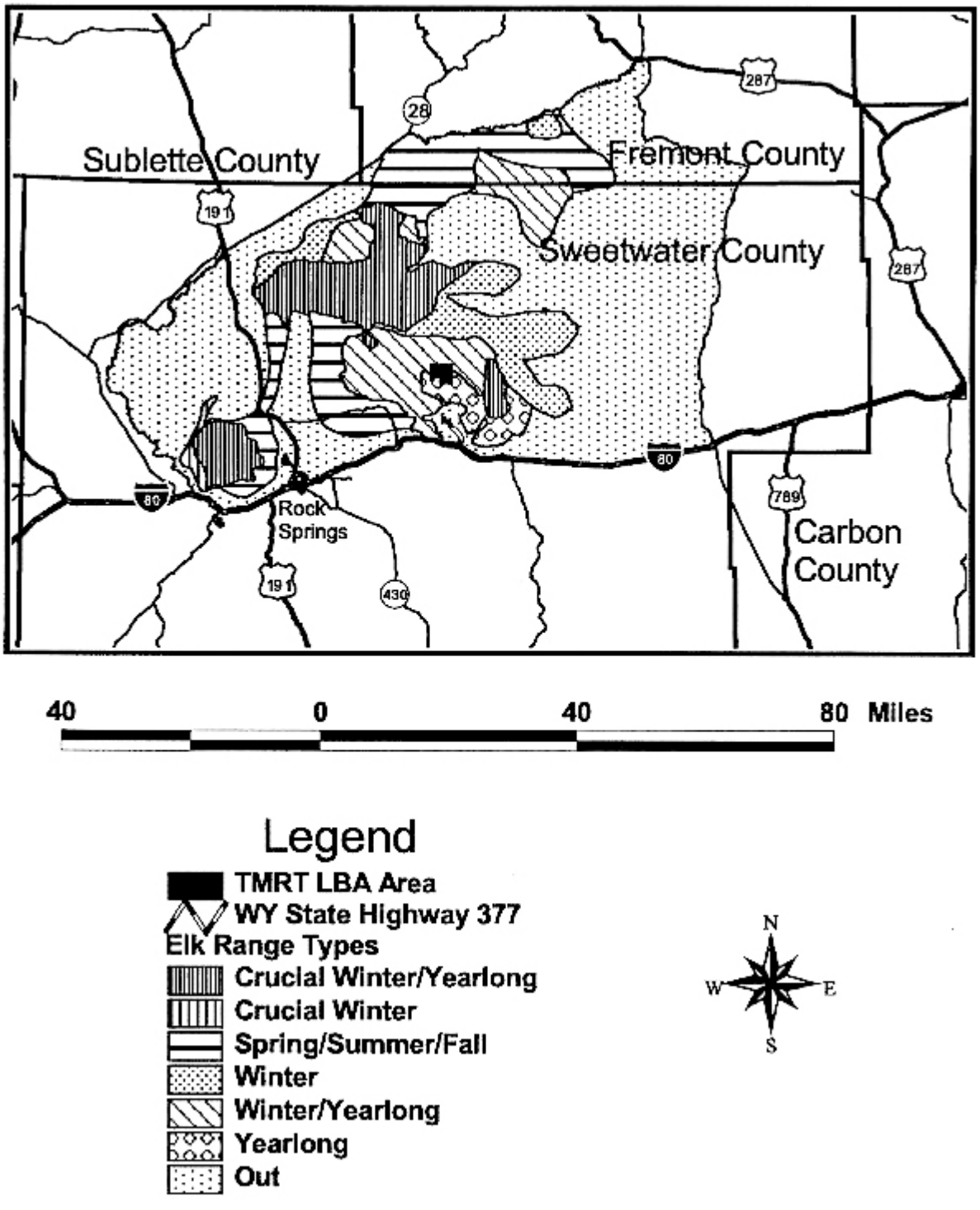

Figure 3.17 Elk Range Within the CIAA.

small-footed, long-eared, fringed, long-legged, little brown, and silver-haired) may also occur (WGFD 1999).

3.3.18.3 Raptors

Raptor species known to occur or potentially to occur within the TMRT and CIAA include bald eagle (addressed in Section 3.3.12.2), peregrine falcon, golden eagle, prairie falcon, American kestrel, merlin, Swainson's hawk, ferruginous hawk, red-tailed hawk (winter resident), northern harrier, rough-legged hawk, great horned owl, burrowing owl, and short-eared owl (WGFD 1999; BCC 2003; BLM 2002b).

Historically, portions of the TMRT have been included in the annual raptor monitoring surveys conducted for BCC's current surface coal mine operation. Raptor surveys were also conducted in 2003 within the entire TMRT or adjacent to the TMRT to determine the occupancy and productivity of individual raptor nests. Nine raptor nests are located within the TMRT; seven of these nests were identified as ferruginous hawk nests and two were identified as red-tailed hawk nests (refer to Figure 3.12) (BCC 2003). Only one of the nests (a red-tailed hawk) within the TMRT was active in 2003 (BCC 2003).

The CIAA for raptors includes the TMRT area and a 2-mi buffer (30,366 acres). There are approximately 31 raptor nest sites within the CIAA, and many of these sites have been or are currently being monitored annually for occupancy and productivity by personnel from BCC for the Jim Bridger Mine and Black Butte Coal Company for the Leucite Hills Mine (refer to Figure 3.18). Of the 31 known raptor nests in the CIAA, five were determined to be active in 2003 (BCC 2003). Within the CIAA for raptors, there is approximately 3,536 acres of existing disturbance; 2,667 acres of disturbance due to major industrial facilities, 707 acres due to minor industrial facilities, and 162 acres due to roads. This represents 11.6% of the total area of the CIAA.

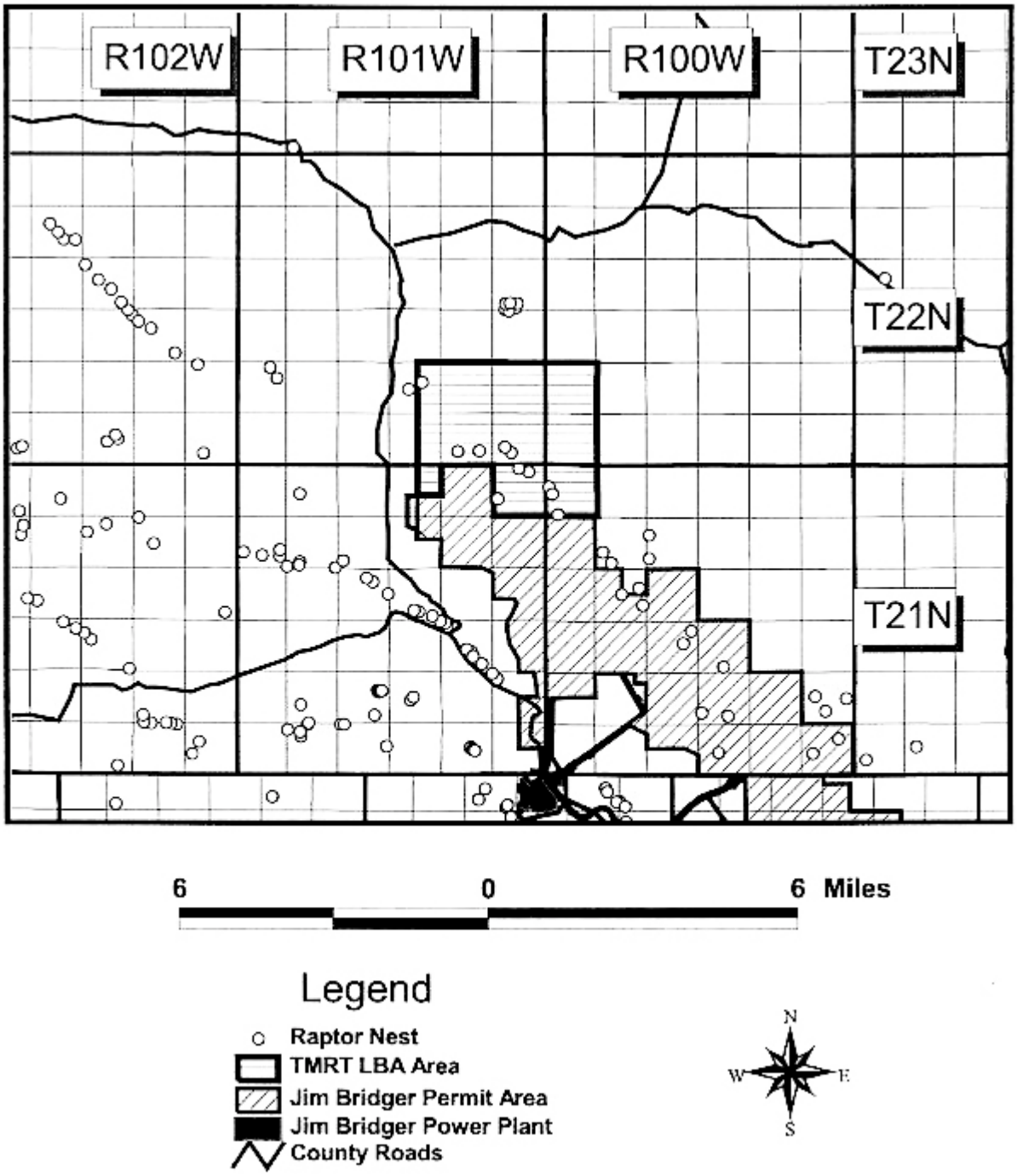

Figure 3.18 Raptor Nests Within the TMRT and Vicinity.

3.3.18.4 Upland Game Birds

The proposed project area is located within WGFD upland game bird management area number 7. Mourning dove is the only upland game bird species other than greater sage-grouse likely to occur on and adjacent to the proposed project area (BCC 2003).

Two greater sage-grouse leks are known to occur with the TMRT (Figure 3.19), of which one was found to be occupied by grouse in 2003 (BCC 2003; WGFD 2003).

The CIAA for upland bird species encompasses 946,912 acres and includes portions of Upland Game Management Area 7 (WGFD 2003) and Lower Green River Basin Sage Grouse Conservation Planning area (WGFD 2003) north of Interstate 80, east of Wyoming Highway 191, and south of Wyoming Highway 28 (refer to Figure 3.20). The CIAA contains 43 known greater sage-grouse leks (WGFD 2003). Thirty-six of the leks in the CIAA were monitored in 2003, and 16 (44%) were found to contain birds (WGFD Green River District n.d.). Approximately 2.2% of the CIAA (20,899 acres) has been disturbed by major industrial facilities, minor industrial facilities, cities, roads, and wells and associated facilities.

3.3.18.5 Other Birds

Bird species potentially occurring within the TMRT, based upon range and habitat preference, include common nighthawk, Say's phoebe, western kingbird, horned lark, swallows (e.g., violet-green, barn, cliff), black-billed magpie, common raven, American crow, rock wren, mountain bluebird, loggerhead shrike, Brewer's sparrow, vesper sparrow, savannah sparrow, sage sparrow, lark bunting, McCown's longspur, red-winged blackbird, western meadowlark, Brewer's blackbird, common grackle, green-tailed towhee, and brown-headed cowbird (WGFD 1999).

Since there are no permanent surface water bodies within the TMRT, it is unlikely that waterfowl and shorebirds would nest in the TMRT area; however, several species of waterfowl and wading/shore birds may seasonally utilize the playa located within the TMRT area, the flue gas-desulfurization or evaporation ponds located south of the TMRT. The nearest potential

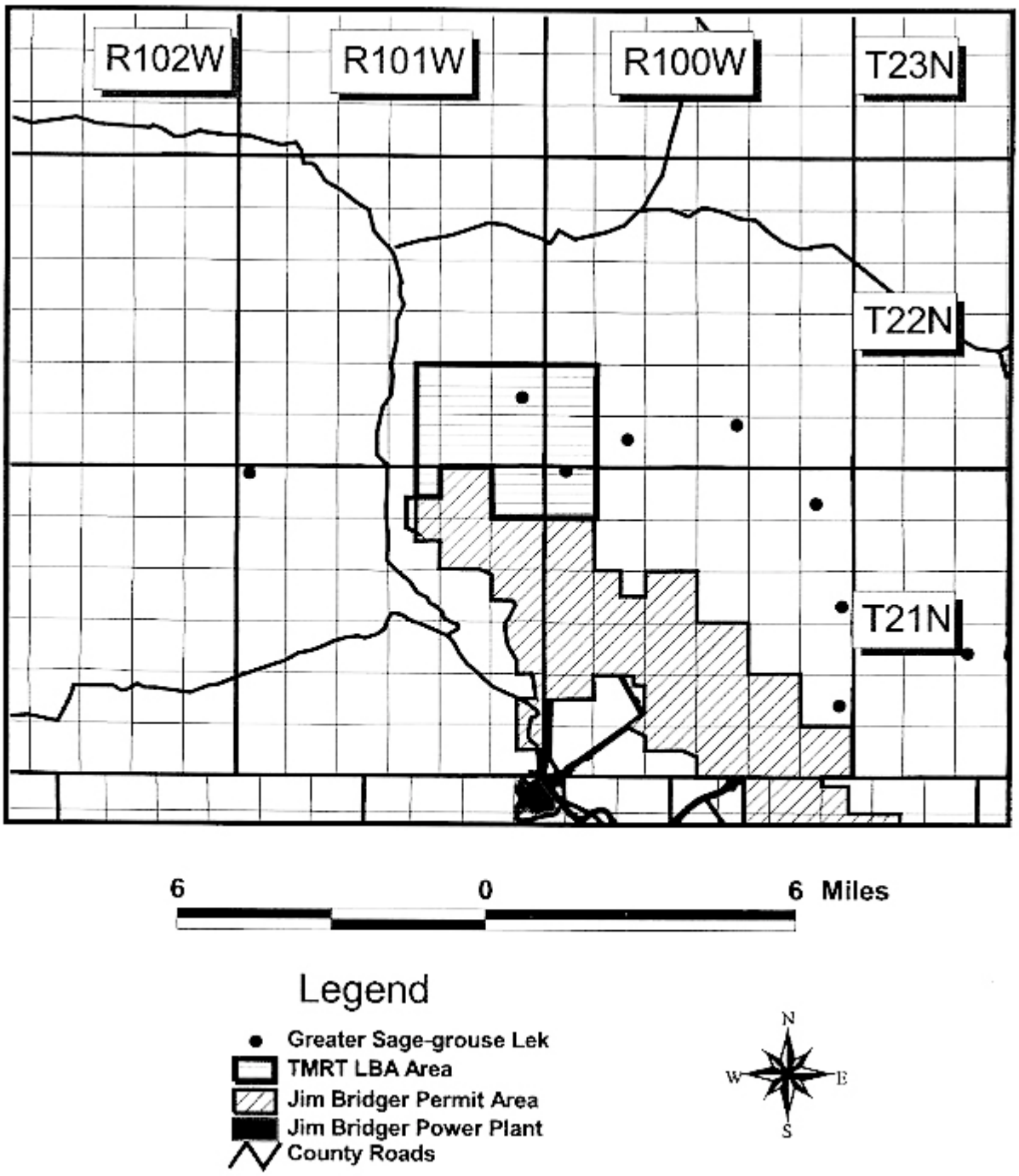

Figure 3.19 Greater Sage-grouse Leks Within the TMRT.

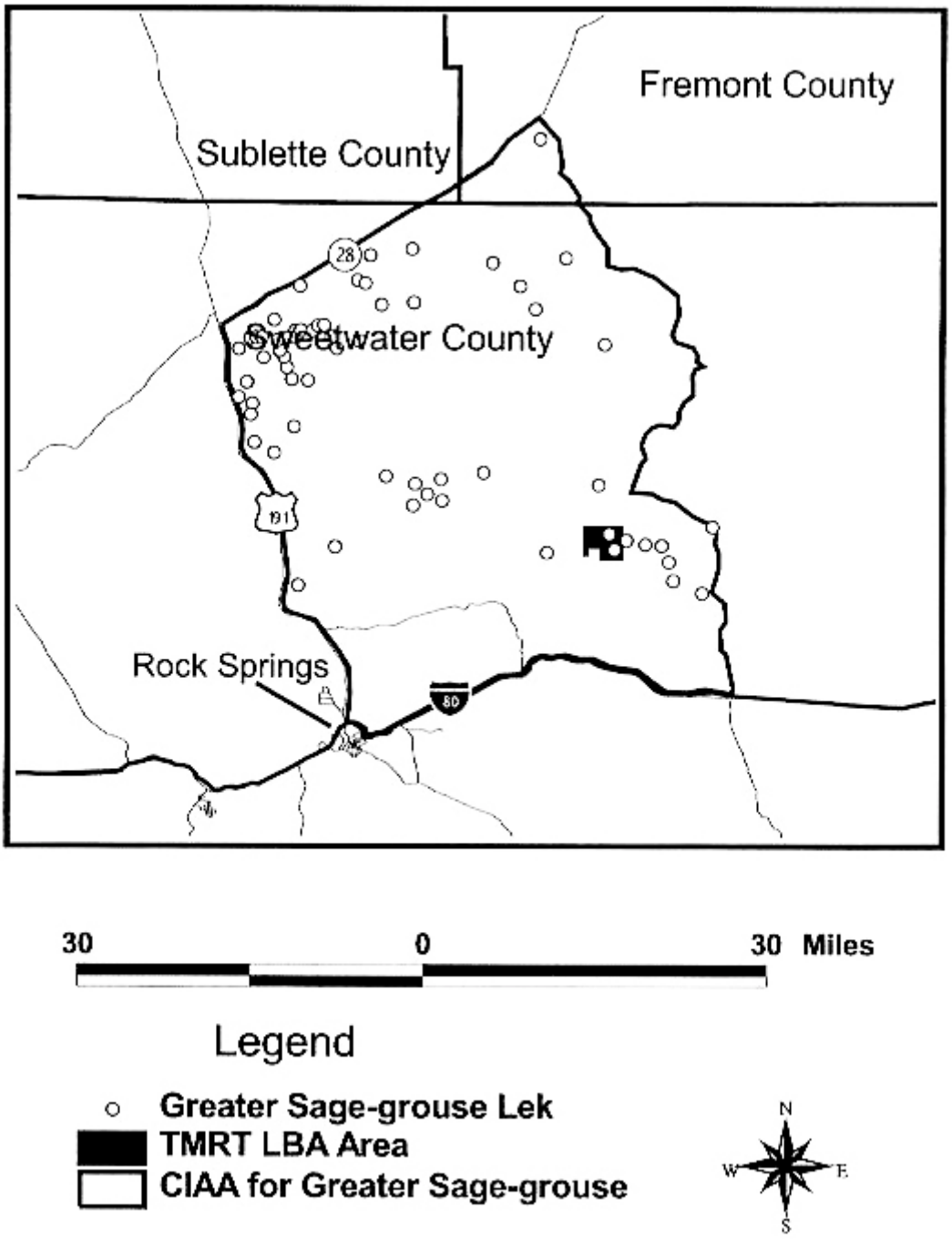

Figure 3.20 Greater Sage-grouse Leks Within the CIAA.

waterfowl and shorebird nesting habitat is likely located along the Deadman Wash and lakes and ponds associated with the Jim Bridger Power Plant south of the TMRT.

The CIAA for other birds encompasses the TMRT area and a 4.3-mi buffer area around the TMRT area and includes a total of approximately 78,200 acres. Waterfowl species likely to occur in the CIAA include common loon, pied-billed grebe, horned grebe, western grebe, Clark's grebe, eared grebe, white pelican, double-breasted cormorant, American coot, Canada goose, mallard, green-winged teal, northern pintail, blue-winged teal, cinnamon teal, northern shoveler, redhead, ring-necked duck, goodwill, American wigeon, and common merganser (WGFD 1999). Within the CIAA, there is a total of 6,308 acres of existing disturbance. Major industrial facilities account for 4,661 acres of disturbance, roads account for 385 acres of disturbance, and minor industrial facilities account for 1,262 acres of disturbance.

3.3.18.6 Amphibians, Reptiles, and Fish

Based on range and habitat preference, few if any amphibians or reptiles would be found within the TMRT. Due to the lack of permanent water bodies or perennial streams, the TMRT would not support any fish populations.

The CIAA for amphibians, reptiles, and fish encompasses the TMRT area and a 4.3-mi buffer area around the TMRT area and includes a total of approximately 78,200 acres. Several amphibian and reptile species are known to or may occur within the Deadman Wash located south of the TMRT area. Amphibians include tiger salamander, western toad, striped chorus frog, northern leopard frog, and Great Basin spadefoot, all of which may occur primarily in and adjacent to aquatic habitats within the lower portions of the Deadman Wash below of the TMRT. Reptile species include eastern short-horned lizard, racer, northern sagebrush lizard, prairie rattlesnake, Great Basin gopher snake, western rattlesnake, and valley garter snake (BCC 2003; WGFD 1999). None of the streams, draws, and washes within the CIAA are known to support any permanent fish populations (WGFD 1991). Within the CIAA, there is a total of 6,308 acres of existing disturbance. Major industrial facilities account for 4,661 acres of disturbance, roads count for 385 acres of disturbance, and minor industrial facilities account for 1,262 acres of disturbance.

4.0 ENVIRONMENTAL CONSEQUENCES

In accordance with 40 C.F.R. 1502.16, this chapter of the EA includes a discussion of the potential environmental consequences of the Proposed Action and the No Action Alternative on each of the affected resources. An environmental impact is defined as a change in the quality or quantity of a given resource due to a modification in the existing environment resulting from project-related activities. Impacts may be beneficial or adverse, may be a primary result (direct) or secondary result (indirect) of an action, and may be permanent and long-term or temporary and of a short duration. Impacts may vary in degree from a slightly discernible change to a total change in the environment. This impact assessment assumes that all applicant-committed measures described in the Proposed Action would be successfully implemented. If such measures were not implemented, additional adverse impacts may occur.

Residual impacts are impacts resulting from the Proposed Action after application of appropriate mitigation measures (BLM 1988). These impacts would remain for some period of time but would eventually subside or would be ameliorated by natural conditions and would not be permanent. For example, increased surface water erosion would eventually be reduced after disturbed soils are stabilized, native vegetation is planted and becomes re-established, and stream channels are naturally stabilized. Residual impacts are different from irreversible and irretrievable impacts. Residual impacts will eventually subside and would no longer result in adverse conditions, while irreversible and irretrievable impacts are permanent conditions that cannot be altered after they have occurred (e.g., the mining and burning of the federal coal within the TMRT area).

Cumulative impacts result from the incremental impacts of an action added to other past, present, and reasonably foreseeable future actions, regardless of who is responsible for such actions. Cumulative impacts may result from individually minor, but collectively significant, actions occurring over a period of time (40 C.F.R. 1508.7). The boundary of individual CIAA areas for this EA are based on the specific resource being discussed and evaluated.

Irreversible and irretrievable commitments are discussed in Sections 4.19, and short-term use of the environment versus long-term productivity is discussed in Section 4.20.

4.1 AIR QUALITY AND NOISE

4.1.1 Air Quality

4.1.1.1 Proposed Action

Air pollutant emissions would occur from construction of the mine facilities and from selected mine and reclamation operations associated with the Proposed Action. Air emissions and air pollutant impacts are limited by state and federal regulations, standards, and implementation plans established under the *Clean Air Act* and are administered within Wyoming by WDEQ/AQD. Chapter 6 of the WAQS&R requires all proposed air pollutant emission sources, including coal mining operations, to undergo a permitting review and, if necessary, to obtain a construction permit prior to construction or operation of the source. Chapter 3 of the WAQS&R specifies general emissions standards for new and existing sources, and Chapter 2 of the WAQS&R addresses ambient air quality standards. Additional state and federal programs may apply to a proposed source if certain emissions and other thresholds are met or exceeded. One such program is the PSD permit program (also administered by WDEQ/AQD) that requires major sources to perform additional analyses, including Best Available Control Technology and Air Quality-Related Values analyses for federal Class I Areas. The Proposed Action, in combination with existing Jim Bridger Mine operations, would be classified as a minor source and therefore would not be subject to the PSD permit program. The Proposed Action would be subject to WDEQ/AQD construction and operating permit requirements and would be required to operate in compliance with emission standards and ambient air quality standards.

In order to assess potential impacts of the Proposed Action, emissions have been estimated below.

Construction Activities. Air pollutant emissions from construction of the Proposed Action would be temporary in nature and would result primarily due to surface disturbance, travel on unpaved roads, and diesel engine combustion from mobile equipment. The primary air pollutants emitted would be PM_{10}, SO_2, NO_X, CO, and volatile organic compounds (VOCs).

New surface disturbance from construction activities associated with the Proposed Action would total 28 acres: construction of overland conveyor (23 acres), powerline power pole installation (2 acres), and mine access road (3 acres).

PM_{10} emissions from wind erosion of these disturbed areas are calculated using EPA's AP-42 emission factor (EPA 1995) for industrial wind erosion and based on a full year of regional meteorological data. PM_{10} emissions are estimated to be approximately 1 ton per year from the 25-acre construction area for 1-2 years.

Construction traffic would travel to the mine site on an existing paved road outside of the BCC mine area (Wyoming State Highway 377) and on chemically treated existing access roads once inside the BCC mine area (approximately 5.3 mi in length). The construction workers would make an estimated 75 round-trips on this route per day for the duration of construction operations. PM_{10} emissions from construction travel are estimated at 0.3 tons per day (110 tons per year) using EPA's AP-42 emission factor for unpaved roads and a control efficiency of 50% for watering. Emissions of NO_X, SO_2, CO, and VOCs would also occur from gasoline and diesel combustion in passenger vehicles and diesel combustion from larger trucks traveling unpaved roads during construction of the Proposed Action.

Mine Operations. Upon commencement of mine operations, employees would travel to work via Wyoming State Highway 377 and existing unpaved access roads (5.3 mi). Employees would make approximately 250 round-trips on this route per day. PM_{10} emissions from employee travel to and from the mine are estimated to be 0.41 tons per day (150 tons per year) calculated using EPA's AP-42 emission factor for unpaved roads and a control efficiency of 80% for chemical dust suppression. PM_{10}, NO_X, SO_2, CO, and VOC emissions would also occur from

other gasoline and diesel combustion engines in vehicles traveling to and from the Project Area. These mobile source emissions are not subject to state or federal air quality permitting requirements and are generally regulated under WAQS&R Chapter 13, Mobile Sources.

Various diesel- and gasoline-powered equipment would operate at the proposed underground mine. Air pollutant emissions associated with these mobile sources include PM_{10}, NO_X, SO_2, CO, and VOCs from diesel combustion in underground mining equipment. Amounts of emissions would depend on fleet composition, maintenance, and operating conditions. In the mine itself, much of the equipment would be operated by electricity. Vehicles operated underground would be diesel-powered. Fugitive dust emissions would be limited by the natural moisture content of the underground traveled surface, supplemented by water application as necessary. The underground mine would intake and exhaust air from the mine portal.

Under the Proposed Action, a maximum of 5.5 million tons per year of coal would be loaded to an overland conveyor that originates from the underground mine. The overland conveyor would be 17,000 ft in length and would transport coal to the existing Truck Dump Station #2 for further transport to the Jim Bridger Power Plant via the existing overland conveyor system. The coal would be sprayed with water or a dust suppressant to reduce potential dust emissions. No additional air emissions, beyond those currently permitted, would occur from the existing overland conveyor due to the Proposed Action. The new overland conveyor system would be enclosed at both the transfer points and along the entire length of the conveyor. WDEQ/AQD permits typically do not quantify emissions from covered and controlled coal conveyor emissions and instead limit visible emissions from coal transfer operations to a 20% opacity limit in accordance with PM_{10} emission limits set forth in Chapter 3 of the WAQS&R (WDEQ/AQD 2000b). In other words, technically there would be no emissions from the overland conveyor system.

As discussed previously, fugitive dust from vehicle travel on unpaved roads and disturbed areas would be controlled by treatment with water and chemical dust suppressants on a regular schedule, as required by WAQS&R Section 3 (WDEQ/AQD 2000). Fugitive dust control and

emission limits would be outlined in the WDEQ/AQD construction permit required for the Proposed Action prior to construction and commencement of operations. These control requirements and limits would become part of the facility's operating permit, supplemented by reporting requirements to demonstrate that compliance with the requirements is maintained.

Mobile fuel trucks and the stationary fuel tank would be used to fuel diesel-powered equipment during operations. Equipment fueling would result in VOC and HAP emissions from volatilization of diesel fuel. Emissions from diesel storage and transfer are typically below permitting and reporting thresholds at coal mines, in part due to the inherent low volatility of diesel fuel.

Reclamation. The primary source of emissions during reclamation and revegetation operations would be associated with the repair of surface cracks due to subsidence. For the purpose of this EA, it is estimated that 1% of subsidence area within the TMRT area, or 59 acres, would require surface-disturbing activities for reclamation. PM_{10} emissions for 59 acres of disturbed topsoil over an estimated 20-year period (2.95 acres per year) of operation were estimated to be approximately 1.1 tons per year, using EPA's AP-42 emission factor for heavy construction operations (EPA 1995). As surface mining operations and areas are reclaimed and revegetated, PM_{10} emissions would be expected to decrease.

Ambient Impacts. No exceedances of ambient air quality standards or Class II PSD Increments are expected to occur as a result of the Proposed Action. The Proposed Action, operating in conjunction with existing emissions sources at the Bridger Mine, would be required to comply with NAAQS, WAAQS, and Class II PSD Increments for all regulated air pollutants emitted. The primary air pollutant emitted in this coal mining operation would be PM_{10}. Compliance with the established 24-hour and annual average PM_{10} standards and increments shown in Table 3.2 would be demonstrated based on dispersion modeling performed as part of the WDEQ/AQD permit process.

Ambient PM_{10} data collected near the mine would also serve as a demonstration of compliance with these ambient standards. The mine currently conducts ambient PM_{10} monitoring that

measures 24-hour PM_{10} concentrations in the vicinity of the mine. This ambient monitoring program would be continued under the Proposed Action. Additional monitors also collect ambient PM_{10} concentrations at the nearby Jim Bridger Power Plant and Leucite Hills Mine.

Based on the discussion presented above, no violations of applicable federal or state air quality regulations would occur.

4.1.1.2 No Action Alternative

Under the No Action Alternative, the coal lease sale would not occur, no underground mining operations would be conducted within the TMRT, there would be no additional development in the proposed project area, and impacts to air quality resources would remain at existing levels.

4.1.1.3 Residual Impacts

Under the Proposed Action, approximately 111 tons per year of PM_{10} would be generated during construction operations and approximately 151.1 tons per year of PM_{10} would generated during mining and reclamation operations. As a result, there would be some short-term deterioration to air quality in the vicinity of the proposed mine portal and surface support facility. However, implementation of appropriate air quality control methods (e.g., watering and chemical treatment of access, watering or chemical treatment of coal on the overland conveyor, etc.) would minimize and mitigate impacts to air quality resources. In addition, impacts would be within state-permitted air quality levels, would be localized and temporary, and would be quickly dispersed by the wind.

4.1.1.4 Cumulative Impacts

The Continental Divide/Greater Wamsutter II (CD/GWII) EIS, completed in 1998, and the DFP draft EIS, completed in April 2003, analyzed cumulative impacts at Class I and Class II areas from emissions sources in southwest Wyoming. The analyses used a "reasonable but

conservative" approach that included the modeling of regional sources at permitted emission rates. The regional emissions inventory and CALPUFF modeling analysis included industrial development prior to June 30, 1995, by adding background ambient monitoring data collected for that period to modeled concentrations. Industrial development after 1995 was explicitly modeled in the analysis for permitted sources in southwest Wyoming, northwest Colorado, and northeast Utah. Emissions from operation of the Jim Bridger Mine, as it existed prior to 1995, are assumed to be included in the monitored background value for that analysis. A permit modification approved by WDEQ/AQD in 2001 allowed increased PM_{10} emissions from the Jim Bridger Mine of 157.7 tons per year. This change represents 4% of the total permitted PM_{10} emissions at the mine. Emissions from the three permitted emissions sources in the Bridger cumulative study area, the Jim Bridger Power Plant, the Jim Bridger Mine, and the Leucite Hills Mine were also included in the CD/GW II cumulative modeling study as part of the ambient background collected in 1995.

The CD/GW II and DFP EIS analyses predicted the impacts on ambient concentrations in PSD Class I and Class II areas, the impacts of acid deposition of sensitive lakes, and the impacts to regional visibility. The study found no exceedances of PSD Class I increments in federal Class I areas and no exceedances of PSD Class II increments in Class II areas located between those project areas and distant Class I areas. Potential impacts to sensitive lakes were found to be well below applicable thresholds. One of modeled 24-hour periods at Rawah Wilderness Area PSD Class I Area was found to exhibit a "just-noticeable change" in visibility in the CD/GW II EIS study area, and no days were found to exhibit visibility degradation did not surpass the threshold for in the DFP EIS study area.

In addition, construction-related air quality emissions associated with the expansion of the flue gas de-sulfurization pond is expected to be completed by the summer of 2003 and would result in no significant short- or long-term air quality impacts to the CIAA (BLM 2002a).

Therefore, cumulative impacts to air quality resources would not be important because there are no past, present, or reasonable foreseeable future actions that, when combined with the Proposed

Action, would result in im pacts beyond those that already exist or have already been identified and discussed in Chapter 4.0 of this EA.

4.1.2 Noise

4.1.2.1 Proposed Action

There are no federal or state regulations governi ng environmental noise levels related to m ining or industrial activities. However, MSHA rules regarding noise in the workplace would protect construction workers and m iners, and BCC would com ply with all applicable noise control, mitigation, and m onitoring requirements. All m achines utilized for the Proposed Action would be equipped with manufacturer's recommended mufflers or other noise control devices.

Under the Proposed Action, hum an-related noise would increase above existing background levels; however, a majority of the mining activities would occur between 200 and 1,000 ft below the ground level and therefore would not be audible to the casual observer located within the TMRT. The highest level of noise associated with the Proposed Action would likely occur at or near the m ine portal (with the blowing fan system) and surface support facility at Ram p 14. In addition, ongoing surface mining and reclamation operation, and the accompanying noise, would continue at the Jim Bridger Mine. As a result, m ost of the noise from the Proposed Action would be located below the existing m ine highwall, would likely be less than surface m ining operations, and would not be distinguishable from the existing level of background noise in the area. In addition, there are no residences, schools, or noise-sensitive hum an receptors within the TMRT or the CIAA. The nearest residence to th e TMRT would be m ore than 8 m i west in the town of Superior. It is unlikely that underground m ining operations would be audible or would adversely affect residents in Superior.

Noise affects on local wildlife populations are addressed separately in the wildlife portion (Section 4.18) of this EA.

4.1.2.2 No Action Alternative

Under the No Action Alternative, the coal lease sale would not occur, no underground mining operations would be conducted within the TMRT, there would be no additional development in the proposed project area, and impacts to noise levels would remain at existing levels.

4.1.2.3 Residual Impacts

As a result of the Proposed Action, there would be increased noise underground within the TMRT. The highest noise levels would generally be limited to activity near the mine portal and surface support facilities; however, noise levels would be comparable to or less than the existing noise levels associated with the existing surface mine. BCC would comply with all applicable noise control, mitigation, and monitoring requirements as specified by MSHA. All machines utilized for the Proposed Action would be equipped with manufacturer's recommended mufflers or other noise-control devices Noise levels would be short-term and would generally be dispersed by the wind, and noise levels would also return to background levels when mining operations are not being conducted.

4.1.2.4 Cumulative Impacts

Existing land uses within the CIAA contribute to noise levels, but wind is generally the primary noise source. Mining within the TMRT would not greatly increase the number of noise-producing facilities within the CIAA. Noise from underground coal mining operations, associated surface support facilities, and road traffic would generally be masked by the wind and noise from the existing surface mining operations at BCC at short distances, so cumulative overlap of noise impacts would not be likely.

In addition, construction-related noise associated with the expansion of the flue gas de-sulfurization pond is expected to be completed by the summer of 2003 and would result in minimal short- or long-term noise impacts to the CIAA.

Recreational users and grazing lessees within th e CIAA would likely not be able to identify noise generated from the Proposed Action. Existing noise sources within the CIAA (e.g., the Jim Bridger Mine) would generally contribute more noise than the Proposed Action.

Therefore, cum ulative im pacts due to noise would not be im portant because there are no past, present, or reasonable foreseeable future actions that, when com bined with the Proposed Action, would result in im pacts beyond those that alrea dy exist or have already been identified and discussed in Chapter 4.0 of this EA.

4.2 CULTURAL RESOURCES

4.2.1 Proposed Action

Under the Proposed Action, 59 acres within the TMRT may be physically disturbed as a result of the repair of surface cracks due to subsidence. An additional 28 acres located away from the TMRT area would be disturbed due to the c onstruction of associated support facilities (e.g., overland conveyor system , powerline, access road). In order to protect and m itigate potential impacts to NRHP-eligible sites (including the Point of Rocks to South Pass wagon road) within the TMRT area, BCC would enter into a cultural resource program matic agreem ent with BLM, OSM, W DEQ/LQD, and W yoming State Historic Preservation Office. This agreem ent would identify specific survey, testing, protection, and mitigation m easures that would be im plemented by BCC to address and protect NRHP-eligible historic and prehistoric sites within the TMRT area. The program matic agreem ent would dem onstrate com pliance with all applicable cultural resource laws and regulations.

Under the Proposed Action, 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 m itigated 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.

The Proposed Action, among other things, includes a commitment that if any cultural resources are discovered during construction or reclamation operations, work in the area of the discovery would be halted and the appropriate regulatory agency would be notified and appropriate treatment plans implemented. BCC employees would also 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.

Therefore, documented and undocumented cultural resources would be protected during construction, operations, and maintenance operations, and no unmitigated cultural resources that are eligible for listing on the NRHP would be impacted by the Proposed Action.

4.2.2 No Action Alternative

Under the No Action Alternative, the coal lease sale would not occur, no underground mining operations would be conducted within the TMRT, there would be no additional development in the proposed project area (beyond the existing mining and other industrial development), and no additional impacts to cultural resources would occur.

4.2.3 Residual Impacts

The Proposed Action would not result in any residual impacts to identified cultural resource. However, some loss of unidentified cultural resources sites or artifacts may occur. However, if it becomes necessary to disturb an area within the TMRT to remediate subsidence-related

reclamation problems and previously unidentified cultural resources are located, activity in the area would be halted, the proper regulatory authority would be contacted, and appropriate treatment of the resource undertaken to avoid impacts to NRHP-eligible cultural resource sites.

4.2.4 Cumulative Impacts

With the presence of the Jim Bridger and Leucite Hills Mines, a large area within the CIAA has been inventoried for cultural resources, and historic and prehistoric sites have been identified. Many of the sites have been determined to be eligible for the NRHP. Eligible sites within the mine properties that would be disturbed have been treated, and other eligible sites would be avoided. Employees at Jim Bridger and Leucite Hills Mines are instructed that they are not to disturb or vandalize any cultural resource site. However, property outside of the mines' boundaries do not have any such protection; they may be accessed and potentially vandalized by the general public.

Based on the identified reasonably foreseeable future actions, there would be no proposed disturbance within the CIAA to cultural resources except for that associated with the Proposed Action.

Therefore, cumulative impacts to cultural resources would not be important because there are no past, present, or reasonably foreseeable future action that, when combined with the Proposed Action, would result in impacts beyond those that already exist or have already been identified and discussed in Chapter 4.0 of this EA.

4.3 GEOLOGY AND GEOLOGIC HAZARDS

4.3.1 Proposed Action

The primary impact of the Proposed Action on geology would be the removal of approximately 44 million tons of in-place federal coal reserves included in the total of approximately

121.5 million tons of in-place federal, private, and state coal reserves from the TMRT area. A more detailed discussion of impacts to mineral resources is presented in Section 4.6 of this EA.

Under the Proposed Action, there would be a slight lowering (6.0 to 9.5 ft) of elevation within a majority of the TMRT. Based on the subsidence discussion presented in Chapter 2 of the EA (refer to Section 2.1.5.8), BCC estimates that the Proposed Action may result in the permanent lowering of surface elevation within the TMRT of between approximately 6.0 and 9.5 ft. Subsidence would not occur over the main and submain entries because they would be designed to last beyond the life of the project. Therefore, material overlying the mains would remain intact at the original elevation as the remaining mined longwall panel areas settle. In an area with a flat topographic surface, trough subsidence would result in a series of ridges and basin. However, since the premining topographic surface within the TMRT is naturally undulating, there would likely be no identifiable surface expression of any ridges or basins within the TMRT area. After mining operations have been completed in an area, the surface would gradually settle over the longwall coal panel areas during an approximate 2-year period.

Studies at similar longwall underground coal mines in Utah indicate that the effects of subsidence typically do not extend more than 50 ft beyond the limits of the longwall panels (U.S. Department of Energy 1995). Therefore, subsidence would not be expected much past the underground limits of the longwall panels.

As part of the WDEQ/LQD mine permit application required for the Proposed Action, BCC would be responsible for developing a subsidence plan that would include a subsidence monitoring and mitigation plan. Subsidence from the underground mine would have the following effects and would be mitigated as follows.

The amount of subsidence that reaches the surface depends on such factors as time, depth of mining, thickness of the coalbed extracted, thickness and strength of the overlying rock, and any previous mining of overlying coalbeds (U.S. Department of Energy 1995). BCC anticipates that 85% of the mined-out coal area may eventually be evident at the surface by a slight lowering

(6.0-9.5 ft) of elevation. Based on the corporate mining experience from other underground operations (i.e., Deer Creek Mine and Trail Mountain Mine in Utah) being conducted by BCC (PacifiCorp), BCC expects that it would take approximately 3-4 weeks for subsidence caused by the longwall mining of the TMRT to initially reach the surface. In addition, BCC expects subsidence activities to be substantially complete within 2 years of the completion of mining operations at any particular location.

Material overlying the mains would generally remain intact at the original elevation, while the remaining mined longwall panel areas would settle. The surface would gradually settle over the longwall coal panel area following the completion of mining operations. While the area located above the longwall coal panels would subside, the settling would cause little or no surface disturbance (e.g., surface cracks, channel displacement, etc.) that would require corrective action (i.e., reclamation and revegetation) by BCC. This assessment is based on other longwall mining operations conducted in Wyoming (personal communication, April 19, 2002, with Bill Hogg, WDEQ/LQD; April 23, 2002, with Amy Boil, WDEQ/LQD; and April 17, 2002, with Jeff Clawson, BLM Mine Engineer). Therefore, for the purpose of this EA, it will be assumed at 1% (or 59 acres) of the surface area within the TMRT would be impacted by subsidence over the LOM to a point that would require corrective action (i.e., repair and revegetation of surface cracks). The 1% value is likely much higher than would likely occur but is a reasonable assumption for this analysis.

If the project area were completely flat, the final topographic surface would be composed of ridges and basins. However, combined with the natural undulations of the topographic surface, the subsidence within the TMRT would generally not be noticeable to the causal observer (personal communication, April 19, 2002, with Bill Hogg, WDEQ/LQD; April 23, 2002, with Amy Boil, WDEQ/LQD; and April 17, 2002, with Jeff Clawson, BLM Mine Engineer).

Local surface water drainage patterns within the TMRT would be disrupted by the basins and ridges created by subsidence. Therefore, besides the 59 acres of estimated subsidence that would need to be reclaimed, BCC would be responsible for repairing and revegetating any drainage

channel affected by subsidence-related disturbance within the TMRT in accordance with WDEQ/LQD rules and regulations.

There may be slightly increased soil erosion from ridges into basins. Soil loss would occur primarily due to wind and water erosion. Wind and water erosion would eventually reduce the relief between ridges and basins. Soils would be locally affected if cracks develop at the surface. BCC would be responsible for repairing and revegetation any area affected by subsidence-related disturbance within the TMRT in accordance with WDEQ/LQD rules and regulations.

Vegetation would not be directly disturbed unless subsidence cracks form; however, BCC would repair and revegetate any area affected by subsidence-related disturbances within the TMRT in accordance with WDEQ/LQD rules and regulations. Indirect impacts would occur because the basin and ridge topography would alter local soil moisture regimes, which may eventually affect species distribution within the TMRT. The basin and ridge topography may also alter snow distribution and thus moisture accumulation patterns, which may eventually cause gradual permanent changes to vegetation communities.

Some wildlife would be affected due to changes in vegetation, but the changes would be limited to the affected areas within TMRT and thus would not likely cause any noticeable impacts to wildlife populations. The low ridges may alter small-scale movement patterns of wildlife but would not affect regional patterns.

There is a potential for wildlife, livestock, and individuals walking or moving through the area to trip over or become injured in surface cracks; however, BCC would monitor and promptly repair and reclaim this type of surface disturbance.

Earthquake and landslide potential in the TMRT and CIAA is relatively low, so impacts from earthquakes and landslides would be unlikely.

4.3.2 No Action Alternative

Under the No Action Alternative, the coal lease sale would not occur, no underground mining operations would be conducted within the TMRT, there would be no additional development in the proposed project area (beyond the existing mining and other industrial development), and there would be limited impacts to geology and geologic hazards.

4.3.3 Residual Impacts

Residual impacts to geology and geologic hazards would be similar to those discussed under the Proposed Action and will not be repeated here. The major impact would be the lowering of the topography due to subsidence within the TMRT area.

4.3.4 Cumulative Impacts

Surface and underground coal mining operations would be the only industrial activity that would occur within the CIAA and, cumulatively, approximately 5 to 6 million tons of coal per year would be mined and utilized at the Jim Bridger Power Plant. This amount of coal would not be expected to change as a result of the Proposed Action, and leasing of coal within the TMRT would continue the long-term trend within the CIAA of development of public- and private-sector coal reserves. Surface geology within the existing surface mine area would change slightly due to the surface mining methods being employed; however, surface geology within the TMRT would remain essentially unaltered, with the topography lowered by approximately 6.0 to 9.5 ft due to anticipated subsidence. This risk of geologic hazards (e.g., earthquakes, landslides, floodplains, and floods) occurring within the CIAA would remain unaltered as a result of the Proposed Action.

Therefore, cumulative impacts to geology and geologic hazards would not be important because there are no past, present, or reasonable foreseeable future actions that, when combined with the

Proposed Action, would result in impacts beyond those that already exist or have already been identified and discussed in Chapter 4.0 of this EA.

4.4 HEALTH AND SAFETY (TRANSPORTATION)

4.4.1 Proposed Action

Under the Proposed Action, approximately 10-75 temporary construction workers would be employed from approximately mid-2005 through the end of 2007, and an additional 50 miners may eventually be employed at the Jim Bridger Mine. Both temporary and full-time employees would travel to the mine site either in individual vehicles, vans, or buses. Based on the average daily trips numbers from the Wyoming Department of Transportation, an average of 12,500 vehicles per 24-hour period utilize Interstate 80 between Superior and Point of Rocks and 1,200 vehicles per 24-hour period utilize Wyoming State Highway 377 north of Point of Rocks (Wyoming Department of Transportation 2001). If it is assumed that the number of vehicles would increase on a one-person to one-vehicle basis, the maximum number of vehicles on Interstate 80 would increase from an average of 12,500 to 12,650 over a 24-hour period (two one-way trips per 24-hour period), and the number of vehicles on Wyoming State Highway 377 would increase from an average 1,200 to 1,350 per 24-hour period. As a result, the number of individual vehicles, vans, and buses would not greatly increase from the existing numbers of vehicles that currently utilize Interstate 80 or Wyoming State Highway 377. It is also follows that there would not be a large increase in the number of traffic accidents on both roads.

In addition, construction and new miners would travel on access roads controlled and maintained by BCC, and drivers would be required to comply with posted speed limits. The public would not have access to the working portions of the mine and these access roads. The existing mine access roads would be maintained according to appropriate transportation standards in order to handle the estimated 180 to 250 miners that would eventually work at and travel to the proposed underground mine. The actual number of vehicles that would utilize these roads at any one time cannot be accurately estimated but would be based on the average number of workers per vehicle

and the number of employees that would be working in any specific work shift (the mine would generally be operated 24 hours per day 7 days per week).

Due to the remote location of the project area, there are a series of improved and unimproved (dirt or two-track) roads that access the surface of the TMRT area. Underground mining operations would be conducted in a manner intended to prevent and 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 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 varies but is generally limited to 35 mi per hour due to the conditions in the area. All employees would be advised of the posted speed limits.

4.4.2 No Action Alternative

Under the No Action Alternative, the coal lease sale would not occur, no mining would be conducted, there would be no additional development in the proposed project area (beyond the existing mining and other industrial development), and impacts to health and safety (transportation) issues would remain at their current levels.

4.4.3 Residual Impacts

There would be a limited increase in the volume of traffic and in the rate of traffic accidents on Interstate 80, Wyoming State Highway 377, and County Road 15 due to the Proposed Action. Properly designed and maintained roads, increased signage on these roads, proper licensing, and safety awareness training for employees by the BCC would mitigate and minimize the increased risk to the public and mine employees.

4.4.4 Cumulative Impacts

There would be an increase in the traffic on some public roads in the immediate project area (i.e., Interstate 80, Wyoming State Highway 377, and County Road 15) due to the Proposed Action. However, the estimated increase in traffic would not likely create any major traffic congestion or accident problems. Properly designed and maintained roads, increased signage on both roads, proper licensing, and safety awareness training for employees by the BCC would mitigate and minimize the increased risk to the public and the mine employees. Therefore, cumulative impacts to health and safety (i.e., transportation) would not be important because there are no past, present, or reasonably foreseeable future actions that, when combined with the Proposed Action, would result in impacts beyond those that already exist or have already been identified and discussed in Chapter 4.0 of this EA.

4.5 LAND RESOURCES AND USE

4.5.1 Proposed Action

Under the Proposed Action, landownership and mineral ownership would not change. Other current land uses within the TMRT (i.e., livestock grazing, wildlife habitat, and dispersed recreation) would continue at their current rates, unaltered and unaffected by the Proposed Action. However, current land uses in the approximate 28 acres that would be disturbed by the proposed construction of the mine facilities (e.g., overland conveyor, powerline, etc.) would be

temporarily unavailable for livestock grazing, wildlife habitat, and/or recreational use. However, once mining operations have been completed, facilities removed, and the disturbed area reclaimed, previous land uses would be available.

4.5.2 No Action Alternative

Under the No Action Alternative, the coal lease sale would not occur, no underground mining operations would be conducted within the TMRT, there would be no additional development in the proposed project area (beyond the existing mining and other industrial development), and there would be no impacts to land resources or use.

4.5.3 Residual Impacts

There would be limited residual impacts to land resources or use due to the Proposed Action within the TMRT; however, there would be a temporary hiatus in non-mining-related land use within the approximately 28 acres that would disturbed for the construction of mine support facilities. The Proposed Action would result in limited short-term impact to range vegetation and the temporary displacement of livestock grazing, wildlife habitat, and recreational use from the ROW areas. However, once mining and reclamation operations are completed, reclamation efforts would re-establish the vegetative habitat and would mitigate any long-term impacts to livestock grazing, wildlife habitat, and recreational use.

4.5.4 Cumulative Impacts

Based on the disturbance calculations presented in Chapter 3, approximately 6,308 acres are currently disturbed within the CIAA. This represents 8.07% of the total area within the CIAA. reasonably foreseeable future actions (including the Proposed Action) within the CIAA would result in an additional 109 acres of disturbance (6,417 acres of total disturbance due to existing activities, the Proposed Action, and reasonably foreseeable future actions). This represents

0.14% of the total area within the CIAA (78,200 acres) or 8.21% based on the total disturbance due to existing activities and reasonably foreseeable future actions.

Once reclamation operations are complete on existing surface-mined lands, they would eventually be capable of supporting predisturbance uses. Disturbance from the Jim Bridger Power Plant ponds, roads, powerlines, and pipelines are part of the long-term economic development within the CIAA. None of the current land uses within the CIAA limits the area's ability to support grazing, wildlife habitat, and recreation.

Therefore, cumulative impacts to land resources and use would not be important because there are no past, present, or reasonably foreseeable future actions that, when combined with the Proposed Action, would result in impacts beyond those that already exist or have already been identified and discussed in Chapter 4.0 of this EA.

4.6 MINERALS (SOLID AND FLUID)

4.6.1 Proposed Action

The primary purpose of the Proposed Action would be the mining and removal of approximately 44 millions tons of in-place federal coal reserves and a total of approximately 121.5 million tons of in-place federal, private, and state coal reserves from the entire TMRT area. All of the mined coal would be utilized at the nearby Jim Bridger Power Plant. Once removed, coal from the D-41 coal seam within the TMRT would no longer be available.

There are no known producing oil, gas, or coalbed methane wells or fields within the TMRT or the CIAA. Therefore, the Proposed Action would have no impacts on existing oil, gas or coalbed methane wells within the TMRT or the CIAA. The BLM would expect lessees to resolve any development conflicts if existing oil or gas leases within the TMRT were to be developed while mining operations are being conducted and development conflicts arise.

As administrators of public land, including some of those within the TMRT, the BLM has prepared Instruction Memorandum No. 2000-081 that indicates BLM would work to achieve three principal goals in resolving mineral development conflicts. The three goals are:

- to protect the rights of each lessee under the terms of it lease, the MLA and the implementing regulations, including those concerning conservation of natural resources;
- to optimize the recovery of multiple resources; and
- to optimize the return to the public while protecting public safety and the environment and minimizing impacts on local communities.

The BLM prefers that these goals be achieved through agreement among the lessees, but BLM would use it authority to manage mineral development on public lands when it is necessary. Therefore, the Proposed Action would have few, if any, impacts on existing oil or gas leases within the TMRT.

In addition, since there are no producing oil or gas wells and no proven oil or gas reserves within the TMRT area and the potential for near-term oil and gas development within the TMRT is moderate, few, if any, future leases would likely be applied for in the TMRT area. Correspondingly, there would be no impacts on oil or gas resources due to the Proposed Action. Any future oil and gas leases that might be issued would be subject to BLM's coincidental development stipulations.

Coalbed methane testing conducted by BCC within the TMRT area indicates that there is no evidence of economic reserves of coalbed methane in any of the four holes that were drilled by BCC (BLM 2003b; PacifiCorp 2003). Given the lack of existing coalbed methane development within the TMRT and the lack of any proven reserves within the TMRT or even the CIAA, there would be no loss of proven reserves of coalbed methane within the LBA area and no impacts to this resource.

In addition, there are no active locatable mineral (e.g., precious metals, bentonite, etc.) mines or economically recoverable deposits of locatable minerals within the TMRT or the CIAA, and

there are no claims for locatable minerals within the TMRT or CIAA (BLM 1996b). There are also no construction aggregate quarries (a saleable mineral) within the TMRT or the CIAA; however, the BLM has identified several sand and gravel deposits along the western boundary of the CIAA (BLM 1996b). Due to the limited size and remoteness of these deposits outside of the TMRT area, it is unlikely that these deposits would be developed in the near-term and therefore would be unaffected by the Proposed Action.

Exploration, including seismic testing, for and development of oil, gas, coalbed methane, locatable minerals, and salable minerals would continue to be permitted by the BLM within the TMRT in accordance with applicable regulations and as long as exploration activities would not interfere with ongoing coal mine development and operations.

4.6.2 No Action Alternative

Under the No Action Alternative, the coal lease sale would not occur, no underground mining operations would be conducted within the TMRT, and there would be no additional development in the TMRT area (beyond the existing mining and other industrial development). Other mineral developments, including coal and/or oil and gas, may be proposed in the future.

4.6.3 Residual Impacts

There would be no residual impacts to mineral resources; however, the removal of coal with the D-41 coal seam within the TMRT, as described within the Proposed Action, would constitute an unavoidable impact.

4.6.4 Cumulative Impacts

Cumulative impacts to mineral resources would include large-scale removal of coal from the TMRT. Access to oil, gas, and coalbed methane reserves may be temporarily hindered due to underground coal mine development, and the BLM would provide direction and clarification on resolving mineral development conflicts in the unlikely event they arise. However, to date, there have been no mineral development conflicts within the TMRT. Exploration for and development of locatable and salable minerals would continue to be permitted by the BLM within the TMRT in accordance with applicable regulations and as long as exploration would not interfere with ongoing coal mine development and operations.

Therefore, cumulative impacts to solid and fluid mineral resources would not be important because there are no past, present, or reasonably foreseeable future actions that, when combined with the Proposed Action, would result in impacts beyond those that already exist or have already been identified and discussed in Chapter 4.0 of this EA.

4.7 NATIVE AMERICAN RELIGIOUS CONCERNS

4.7.1 Proposed Action

No sites of Native American religious concern are known to occur within the TMRT; if such sites or localities are identified at a later date, they would be taken into consideration by the BLM and would be addressed in accordance with applicable rules, regulations, and policies.

4.7.2 No Action Alternative

Under the No Action Alternative, the coal lease sale would not occur, no underground mining operations would be conducted within the TMRT, there would be no additional development in the proposed project area (beyond the existing mining and other industrial development), and there would be no impacts to Native American religious concerns.

4.7.3 Residual Impacts

No residual impacts to Native American concerns are expected from implementation of the Proposed Action.

4.7.4 Cumulative Impacts

Cumulative impacts to Native American religious concerns would not be important because there are no past, present, or reasonably foreseeable future actions that, when combined with the Proposed Action, would result in any impacts to Native American religious concerns.

4.8 RANGELAND AND LIVESTOCK GRAZING

4.8.1 Proposed Action

It is difficult to accurately predict if reclamation operations would be necessary to repair surface cracks due to subsidence or to estimate how many acres would be disturbed by reclamation operations. However, reclamation operations associated with underground longwall mining operations typically disturbed only a limited number of acres within the entire mining area (personal communication, March 15, 2001, with John Wagner, WDEQ/LQD Cheyenne, Wyoming). Under the Proposed Action, it is assumed that only 59 acres (1%) within the TMRT would be disturbed as a result of the repair of surface cracks due to subsidence. Livestock grazing would continue to be permitted within the TMRT and would continue uninterrupted by underground mining operations. Approximately 5 AUMs may potentially be temporarily displaced by reclamation operations associated with the repair of the surface cracks due to subsidence. This would account for less than 0.006% of the utilized AUMs within the Rock Springs grazing allotment. This displacement would be short-term (i.e., less than 10-20 years after reclamation operations have been completed) and would be mitigated by timely implementation of reclamation operations. Reclamation and revegetation operations would be conducted in accordance with and approved by WDEQ/LQD. There would be no permanent

displacement of livestock as a result of th e Proposed Action. Noise from the underground mining operation would be minimal, and noise from the mine portal and surface support facilities would be similar to the existing noise being generated at the Jim Bridger Mine; therefore, there would be no displacement of livestock from the project area due to increased noise.

In addition, approxim ately 28 acres of native rangeland would be disturbed during the construction of the m ine facilities. This would potentially result in the tem porary displacement of livestock grazing from the affected area. This would account for only approximately 3 AUMs of the 90,000 AUMs (<0.003%) currently utilized within the Rock Springs grazing allotm ent. Since most of these areas are located within the current Jim Bridger Mine, it is unlikely that many of the permitted AUMs are regularly utilized.

Once stabilization and reclamation operations for subsidence repair and support facility rem oval operations are com pleted, revegetation efforts would re-establish the vegetative habitat and would mitigate any long-term impacts to range vegetation and livestock grazing. Other direct impacts to livestock grazing would include an increased risk of accidents between livestock and vehicles owned by BCC. Should such accidents occur, the party responsible for the accident would be liable to provide appropriate compensation to the livestock owner.

4.8.2 No Action Alternative

Under the No Action Alternative, the coal lease sale would not occur, no underground m ining operations would be conducted within the TMRT, there would be no additional developm ent in the proposed project area (beyond the existing m ining and other industrial developm ent), and impacts vegetation resources and livestock grazing operations would continue to occur at current rates.

4.8.3 Residual Impacts

The Proposed Action would result in the temporary disturbance of an estimated 59 acres within the TMRT and 28 acres associated with the mine support facilities and the temporary displacement of approximately 8 AUMs. However, once mine operations are completed, reclamation efforts would re-establish the vegetative habitat and would mitigate any long-term impacts to vegetation and livestock grazing. It could take 10-20 years after reclamation operations have been completed for some of the reclaimed areas to have shrub conditions and vegetation diversity comparable to predisturbance conditions.

4.8.4 Cumulative Impacts

Approximately 43,364 acres (or 2.03%) of the entire CIAA for livestock grazing is currently disturbed. This includes approximately 11,256 acres of disturbance due to unimproved roads (i.e., dirt and two-track roads), 10,736 acres due to major industrial facilities, 9,246 acres due to cities (i.e., Rock Springs, Green River, and Superior), 8,673 acres due to minor industrial facilities, 2,910 acres due to wells and associated facilities, and 543 acres due to Interstate 80, state highways, and paved county roads. Total proposed disturbance due to the Proposed Action would account for an additional 87 acres (0.004% of the total CIAA), and reasonably foreseeable future actions would account for an additional 2,803 acres (0.13% of the total CIAA). Approximately 2,225 acres of disturbance would be associated with wells and related facilities and 578 acres would be associated with minor industrial facilities. Total existing, Proposed Action, and reasonably foreseeable future actions disturbance within the CIAA would be approximately 46,253 acres (or 2.17% of the total CIAA).

Disturbance from the major industrial facilities (e.g., Jim Bridger Power Plant, Jim Bridger Mine, Leucite Hills Mine, Black Butte Mine) and wells and associated facilities are part of the long-term economic development within the CIAA and would not be available for livestock grazing until the specific facility is removed and the land revegetated. In addition, disturbance from cities and Interstate 80, state highways, paved county roads, and most dirt or two-track

roads are also part of the economic infrastructure of southwest Wyoming and would not be removed in the foreseeable future. None of the current land uses within the CIAA appear to limit the area's ability to support livestock grazing. In addition, only 50% of the available AUMs in the CIAA are currently being utilized.

Therefore, cumulative impacts to rangeland and livestock grazing would not be important because there are no past, present, or reasonable foreseeable future actions that, when combined with the Proposed Action, would result in impacts beyond those that already exist or have already been identified and discussed in Chapter 4.0 of this EA.

4.9 RECREATION

4.9.1 Proposed Action

Recreational activities (including activities such as big game hunting) within the TMRT would be discouraged by BCC because of the potential safety hazard to the public due to ongoing surface mining operations and the potential hazards to mine workers that could be affected by big game hunting. However, BCC would not be able to prohibit or restrict public access to the TMRT area due to the lack of controlled access points and authorized ongoing activities such as livestock grazing. As a result, BCC would not be able to prevent the public from entering the TMRT area from the north, east, or west sides of the area. Access from the southern portion of TMRT area would be restricted by the controlled entry points leading into the BCC mine facilities. However, in accordance with WDEQ/LQD regulations, signs would be posted on main two-track roads leading into the TMRT area to inform the public that they are entering a mine area and that authorized personnel are only allowed on the property.

Under the Proposed Action, recreation opportunities within the TMRT would be discouraged but would not be restricted. Hunting and other dispersed recreational activities that currently occur within the TMRT project area would likely continue and would not be altered or impacted by the Proposed Action.

The Continental Divide dissects the TMRT LBA area; however, no segments or routes of the CDNST have been designated by the BLM along the southern branch around the Great Divide hydrologic drainage basin. However, the BLM may designate an official route in this area in the future (refer to Figure 3.6). If an official segment of the CDNST is developed in the TMRT area, the BLM would have to secure legal access for the public to cross private lands along the route including those portions of the CDNST located within the TMRT LBA area.

Underground coal mining operations conducted under the Proposed Action would have no affect on the public's ability to travel along the Continental Divide. In addition, no new surface facilities would be located within the TMRT LBA area. With longwall mining operations specified under the Proposed Action, trough-type subsidence would occur above the area where the coal has been mined or removed (refer to Figure 2.11). Trough-type subsidence would not pose a safety concern to persons travelling along the Continental Divide. Subsidence activities would occur gradually and would not be observed or perceived by the public.

Any new route or segment of the CDNST that would follow the Continental Divide within the TMRT LBA would only be approximately 0.5 to 1.0 mi away from the location of the proposed surface support facilities for underground mining operation and the active highwall mining area of the existing surface coal mining operations at the Jim Bridger Mine. Persons travelling on any proposed segment of the CDNST that follows the Continental Divide within the TMRT LBA may become endangered if they were to leave the trail and go sightseeing to the highwall area to view mining or reclamation operations. Highwall areas can be dangerous to the public for numerous reasons including the presence of unstable, loose, and/or sloughing materials. In accordance with MSHA regulations (30 CFR Part 77.1006), only authorized personnel are allowed access to highwall areas.

Therefore, regardless of whether the Proposed Action is approved or not or if the current applicant is the successful bidder for the federal coal reserves, BCC would likely request that BLM temporarily locate any proposed route or segment of the CDNST several miles away from the existing surface mining operations, including the TMRT LBA area. The temporary

relocation of the route or segment of the CDNST located near the TMRT LBA area or the existing surface coal mining operations away from the Continental Divide would minimize the physical dangers to the public travelling on the trail. In addition, the temporary relocation would also minimize visual intrusion that the surface mining operations would have on the trail viewshed and the accompanying trail experience. The temporary trail relocation would conform with typical BLM siting criteria for the CDNST. The trail segment or route may eventually be relocated back to the Continental Divide after all mining and reclamation operations have been completed at the Jim Bridger Mine.

4.9.2 No Action Alternative

Under the No Action Alternative, the coal lease sale would not occur, no underground mining operations would be conducted within the TMRT, there would be no additional development in the proposed project area (beyond the existing mining and other industrial development), and recreational opportunities within the TMRT project area would continue at current rates.

As discussed above, any new route or segment of the CDNST that would follow the Continental Divide would only be approximately 0.5 to 1.0 mi away from the active highwall mining area of the existing surface coal mining operations at the Jim Bridger Mine. Persons travelling on any proposed segment of the CDNST that follows the Continental Divide near the active mine area may become endangered if they were to leave the trail and go sightseeing to the highwall area to view mining or reclamation operations. Highwall areas can be dangerous to the public for numerous reasons including the presence of unstable, loose, and/or sloughing materials. In accordance with MSHA regulations (30 CFR Part 77.1006), only authorized personnel are allowed access to highwall areas.

Therefore, even if the Proposed Action is not approved, BCC would likely request that BLM temporarily locate any proposed route or segment of the CDNST several miles away from the existing surface mining operations. The temporary relocation of the route or segment of the CDNST located near the existing surface coal mining operations away from the Continental

Divide would minimize the physical dangers to the public travelling on the trail. In addition, the temporary relocation would also minimize visual intrusion that the surface mining operations would have on the trail viewshed and the accompanying trail experience. The temporary trail relocation would conform with typical BLM siting criteria for the CDNST. The trail segment or route may eventually be relocated back to the Continental Divide after all mining and reclamation operations have been completed at the Jim Bridger Mine.

4.9.3 Residual Impacts

There are no developed recreational facilities, wilderness areas, etc., in the TMRT project area, and the majority of the land is seldom used by the public except for limited dispersed recreation (e.g., hunting). Therefore, no residual impacts to recreational opportunities would occur as a result of the Proposed Action.

4.9.4 Cumulative Impacts

There are no developed recreational areas, wilderness areas, etc., in the vicinity of the TMRT, and the majority of the land is seldom used by the public for recreation except for hunting and other dispersed recreational activities. Surface disturbances in the vicinity of the TMRT area include the Jim Bridger Mine, Leucite Hills Mine, Jim Bridger Power Plant, several county and numerous two-track roads, wells and associated facilities, powerlines, and pipelines. Disturbance from these activities are part of the ongoing economic development of the Sweetwater County. None of the current land uses within the vicinity of the TMRT limits the area's ability to support recreational activities including travel on the CDNST.

Therefore, cumulative impacts to recreational opportunities would not be important because there are no past, present, or reasonable foreseeable future actions that, when combined with the Proposed Action, would result in impacts beyond those that already exist or have already been identified and discussed in Chapter 4.0 of this EA.

4.10 SOCIOECONOMICS

4.10.1 Proposed Action

Under the Proposed Action, approximately 10-75 temporary construction workers and possibly approximately 50 miners in addition to those employed at the existing surface mine would be employed at the proposed underground mine. Construction operations would start in approximately mid-2005 and would continue through the end of 2007; however, precise dates would depend upon the overall project schedule, weather conditions, and the approval of all required regulatory permits and authorizations. The additional miners would begin work after construction operations have been completed and the miners needed to meet production requirements would probably be required over the 15- to 20-year life of the operation.

It is likely that most of the specialized temporary construction workers would come from outside of the Sweetwater County area. However, with underground longwall-type mining operations currently being conducted at the trona mines located west of Green River, it is possible that some of the additional miners may be hired from within the existing workforce.

For the purpose of this analysis, it is assumed that 25 (or 50%) of the miners would be hired from the existing Sweetwater County workforce and the remaining 25 (or 50%) of the miners would come from outside of existing Sweetwater County workforce.

Based on the most current housing data available from the U.S. Census Bureau of the year 2000, there are 15,921 housing units in Sweetwater County and 1,816 (11.4%) of these units were vacant. In Rock Springs and Green River, there is a total of 13,524 housing units and 1,301 (9.6%) of these units were vacant. The home ownership rate is 75.1% in Sweetwater County (U.S. Census Bureau 2003). Housing units in Rock Springs and Green River are a mix of new and historic multi- and single-family units and there is a wide variety of multi-family units (including town-homes, condominiums, duplexes, and apartment complexes) available to accommodate the housing needs of singles and families (Sweetwater County Economic

Development 2003). In addition, there are 30 hotels/motels and 11 private campgrounds/mobile home parks in Rock Springs and Green River. Based on this information, there would likely be no shortage of housing units for the 10-75 temporary construction works or the 25 miners that might relocate to the Sweetwater County area. The 25 miners that might relocate from existing operations would not require new housing units since they are already living in the area.

Existing infrastructure in Sweetwater County (e.g., utilities, schools, hospitals, etc.) would be adequate to accommodate the limited additional temporary construction and permanent mining jobs created by Proposed Action.

In 1999, the average annual wage for coal miners in Wyoming (not including benefits) was approximately $58,100. As a result, the 50 additional miners would generate approximately $2,905,000.00 in total annual wages. Assuming a 3.0 multiplier (secondary employment to primary employment), it is estimated that approximately 150 jobs (full-time equivalents) may be potentially created in the area of secondary employment associated, with possibly 50 additional miners that would be employed under the Proposed Action (Borden et al. 1994). These jobs would be in the areas of wholesale and retail trade, local government, services, and other business and would have an estimated average annual wage of between $13,000 to $25,000 (Borden et al. 1994).

Assuming a 70% recovery of in-place coal reserves from underground longwall mining operations, approximately 30.8 million tons of federal coal would be removed and a total of approximately 85 million tons of federal, state, and private coal from the entire TMRT area over the LOM. Projected revenue to the State of Wyoming is estimated at $93.5 million from mining the entire TMRT area, of which $33.9 million would be generated from mining of the federal coal, based on $1.10 per ton of coal sold and including income from severance tax, property and production taxes, sales and use taxes, and Wyoming's share of federal royalty payment (Borden et al. 1994). Locally, mining of coal from the TMRT area would help stabilize municipal, county, and state economies.

4.10.2 No Action Alternative

Under the No Action Alternative, the coal lease sale would not occur, no underground mining operations would be conducted within the TMRT, and there would be no additional development in the proposed project area (beyond the existing mining and other industrial development). As a result, BCC would have to identify, lease, and permit other coal reserves in order stay competitive and to meet coal supply requirements. In addition, none of the financial or employment benefits identified under the Proposed Action would be realized.

If the No Action Alternative were selected, BCC would likely not be able to sustain historic coal production levels because the remaining coal reserves located within the existing lease area would become uneconomical to mine using only surface mining operations. Therefore, it is likely that BCC would have to use a combination of limited surface mining methods along with highwall mining methods to produce coal at some reduced level of production. BCC would continue to produce coal for the Jim Bridger Power Plant as long as the production costs for coal from the Jim Bridger Mine were competitive with market alternatives. 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. However, BCC has not completed a detailed analysis of this scenario and does not have specific information on how long surface and highwall mining operations could continue or how many workers would be required for ongoing mining and reclamation operations under the No Action Alternative.

The coal mined at the Jim Bridger Mine includes minimal transportation costs because the mine is less than 10 mi away from the power plant, and, once it is mined, the coal is transported directly to the power plant via an overland conveyor system. This type of mine-mouth operation helps minimize coal transportation cost to the Jim Bridger Power Plant, thus benefiting the customers of PacifiCorp and Idaho Power Company (PacifiCorp owns two-thirds interest and Idaho Power Company owns one-third interest in the Jim Bridger Power Plant). Coal purchased by the power plant from other suppliers would likely have to be transported to the power plant

by rail and would include increased transportation costs that are not currently incurred on the coal that is produced at the Jim Bridger Mine.

The Jim Bridger Power Plant is capable of gene rating 2,120 MW of electricity and is the largest coal-fired power plant in the joint owner' s pow er generation system s. In addition, the Jim Bridger Power Plant and is connected to the west ern power grid through a series of transm ission lines. The western power grid provides electricity to 13 western states, the provinces of British Columbia and Alberta, and a portion of northern Mexico. If the No Action Alternative were selected, representatives for the Jim Bridger Power Plant would need to secure additional supplies of suitable coal from other mines in the region so that the power plant could continue to operate. There would likely be no disruption of service or decrease in output from the Jim Bridger Power Plant.

4.10.3 Residual Impacts

The Proposed Action would provide continuing em ployment for em ployees of BCC and would generate millions of dollars over the life of the proposed project in wages for em ployees and tax revenue for federal and state governm ents. There would also be no negative im pact on the local infrastructure in Rock Springs, Green River, or the Sweetwater County area. Therefore, there would be no unavoidable adverse im pacts to so cioeconomic condition from either the Proposed Action. The Proposed Action would provide num erous econom ic benefits to Rock Springs, Green River, Sweetwater County, and Wyoming economies.

4.10.4 Cumulative Impacts

The Proposed Action would create 10-75 tem porary construction-related jobs and (possibly) approximately 50 additional m ining jobs. The Proposed Action would be one additional source of jobs in southwestern W yoming, especially Sweetwater County, and another source of tax revenues for the federal, state, county, and m unicipal governments, both of which are desirable outcomes from an economic development perspective. The Proposed Action would also provide

increased economic stability for Rock Springs, Green River, Sweetwater County, and the state of Wyoming. The current infrastructure within Sweetwater County would be capable of accommodating the additional primary and secondary employment created by the Proposed Action without having any adverse socioeconomic impacts.

Therefore, cumulative adverse impacts to socioeconomic resources would not be important because there are no past, present, or reasonable foreseeable future actions that, when combined with the Proposed Action, would result in impacts beyond those that already exist or have already been identified and discussed in Chapter 4.0 of this EA.

4.11 SOIL RESOURCES

4.11.1 Proposed Action

The Proposed Action would result in approximately 28 acres of initial disturbance from the construction of mine support facilities. In addition, an estimated 59 acres, associated with reclamation effort to repair surface cracks due to subsidence (i.e., 1% of the TMRT), would be disturbed over the life of the mine. Direct impacts to soils would include the removal of vegetation, exposure of the soil, mixing of soil horizons, loss of topsoil productivity, soil compaction, and increased susceptibility to wind and water erosion. These impacts may, in turn, result in increased runoff, erosion, and sedimentation to the any receiving water system. Short-term control of surface runoff and sedimentation would be accomplished by implementation of alternate sediment control measures required by the WDEQ/LQD and described in the mine plan portion of the Proposed Action.

In addition, long-term control of surface runoff would be accomplished by successful implementation of the reclamation plan described in the Proposed Action. Reclamation and revegetation procedures would be designed to reduce the susceptibility of disturbed areas to soil erosion in both the short-term and for the life of the project. Implementation of the WDEQ/LQD-approved mine and reclamation plan described in the Proposed Action includes

specific measures to protect soil resources. These mitigation measures include proper construction of topsoil stockpiles (including installation of toe ditches and temporary reclamation), implementation of alternate sediment control measures, and the successful implementation of the reclamation plan for the facilities construction areas and subsidence repair areas within the TMRT.

4.11.2 No Action Alternative

Under the No Action Alternative, the coal lease sale would not occur, no underground mining operations would be conducted within the TMRT, there would be no additional development in the proposed project area (beyond the existing mining and other industrial development), and existing impacts to soil resources in the proposed project area would continue to occur at current rates.

4.11.3 Residual Impacts

The Proposed Action would result in some increased and unavoidable soil loss through wind and water erosion. Productivity of some disturbed soils would be reduced due to the temporary removal of vegetation, exposure of the soils, mixing of soil horizons, and increased susceptibility to wind and water erosion. However, these impacts would be mitigated by implementation of specific operational and reclamation procedures discussed under the Proposed Action.

4.11.4 Cumulative Impacts

Within the CIAA, a total of 6,511 acres have been disturbed; the Jim Bridger Mine and Jim Bridger Power Plant have disturbed approximately 4,828 acres, other human-related disturbance within the CIAA (e.g., roads and wells) has disturbed an additional estimated 381 acres, and minor industrial facilities have disturbed 1,302 acres. Under the Proposed Action, approximately 87 acres would be disturbed by mine facilities and reclamation operations from the repair of surface cracks due to subsidence. Based on these acreages, approximately 9.60% of

the CIAA is currently disturbed and approximately 9.76% of the CIAA would be cumulatively disturbed by the Proposed Action and reasonably foreseeable future actions.

Disturbed surface- and underground-mined lands would eventually (10-20 years) be capable of supporting predisturbance uses once reclamation operations are completed. Soil resources would be protected from long-term impacts by implementation of erosion control measures including in the Proposed Action.

Therefore, cumulative impacts to soil resources would not be important because there are no past, present, or reasonable foreseeable future actions that, when combined with the Proposed Action, would result in impacts beyond those that already exist or have already been identified and discussed in Chapter 4.0 of this EA.

4.12 THREATENED, ENDANGERED, CANDIDATE, PROPOSED, AND SENSITIVE SPECIES

4.12.1 Proposed Action

Federally listed TEC&P species with the potential to occur in the project area are black-footed ferret and bald eagle. Impacts to federally listed TEC&P species due to the Proposed Action likely would occur in direct proportion to the amount of their habitat disturbed.

4.12.1.1 Black-footed Ferrets

The TMRT contains white-tailed prairie dog--the primary food source for black-footed ferrets. Therefore, any impacts to prairie dogs may result in an adverse affect to black-footed ferrets. In order to assess the potential habitat for black-footed ferrets within the TMRT, BCC would inventory and map all white-tailed prairie dog towns within 0.5 mi of the TMRT and would identify any prairie dog towns within the TMRT. Prior to any physical disturbance to the white-tailed prairie dog town within the TMRT, BCC would consult with the BLM and would undertake clearance surveys for black-footed ferrets as directed by the BLM in accordance with USFWS (1989) guidelines. Results of all prairie dog town inventories and black-footed ferret

surveys would be submitted to the BLM and USFWS for review and approval prior to the initiation of ground-disturbing activities. If black-footed ferrets or signs of black-footed ferrets are found, BCC would consult with BLM and USFWS and would undertake appropriate measures as directed by the USFWS that would mitigate any potential impacts to black-footed ferrets.

4.12.1.2 Bald Eagle

Underground mining operations would not conflict with normal bald eagle foraging or travel behavior; however, direct impacts to bald eagles may include mortality due to electrocutions and collisions with project-related powerline structures. As described in the Proposed Action, the powerline would be designed, constructed, operated, and maintained in conformance with the *National Electrical Safety Code* and other applicable codes and standards, as well as *Suggested Practices for Raptor Protection on Powerlines: The State of the Art in 1996* (APLIC 1996) and *Mitigating Bird Collisions with Powerlines: The State of the Art in 1994* (APLIC 1994). Implementation of these standards would reduce the risk of raptor electrocutions and collisions with powerline structures.

4.12.1.3 BLM-sensitive Species

All BLM-sensitive species likely to occur within the TMRT and vicinity have been identified in Table 3.5 of this EA. BLM-sensitive species documented in or in the vicinity of the TMRT include white-tailed prairie dog, pygmy rabbit, white-faced ibis, ferruginous hawk, greater sage-grouse, long-billed curlew, burrowing owl, sage thrasher, loggerhead shrike, Brewer's sparrow, mountain plover, northern leopard frog, Great Basin spadefoot, Nelson's milkvetch, and mystery wormwood (WNDD 2003). Most of the BLM-sensitive species likely to occur within the TMRT are mobile enough that they would likely not be affected by the Proposed Action. However, it is also possible that some individuals of BLM-sensitive species may occur and may be adversely affected by the Proposed Action. However, due to the limited amount and dispersed nature of the area that would be disturbed (approximately 87 acres), the impacts would be isolated to the

specific areas that would be disturbed, and the impacts would be important to the specific populations that might occur in the project area.

Several of the BLM-sensitive species likely to occur in or in the vicinity of the TMRT are fossorial in nature (i.e., they live in burrows or underground) (such as white-tailed prairie dogs) or they utilize burrows for a portion of their breeding period (such as burrowing owls). As such, some individuals that might occur in the TMRT may be adversely impacted by the Proposed Action. Potential adverse impacts to white-tailed prairie dogs or burrowing owls that occur in the area directly affected by subsidence include direct mortality, loss of suitable nesting or burrowing habitat, or displacement from the burrow or nesting areas. While it may be possible that individual white-tailed prairie dogs or burrowing owls that live in areas directly affected by mine-related subsidence may be adversely affected by the Proposed Action, the impacts would be limited to few individuals and would not have an adverse impact on their populations. In addition, the Proposed Action would not contribute to the need to list the species under the provisions of the federal *Endangered Species Act*.

4.12.2 No Action Alternative

Under the No Action Alternative, the coal lease sale would not occur, no underground mining operations would be conducted within the TMRT, there would be no additional development in the proposed project area (beyond the existing mining and other industrial development), and impacts on TEC&P and BLM-sensitive species populations would continue at present levels, with fluctuations due primarily to weather, disease, and other natural causes.

4.12.3 Residual Impacts

It is possible that individual bald eagles, black-footed ferrets, and mountain plovers and other individual BLM-sensitive species may be impacted by the Proposed Action; however, there have been no sightings of any bald eagles or black-footed ferrets within the TMRT project area and

appropriate surveys and/or mitigation measures would be implemented. All required species-specific surveys and mitigation measures would also be implemented.

4.12.4 Cumulative Impacts

Cumulative impacts to TEC&P and BLM-sensitive species would likely occur in direct proportion to the amount of physical impacts that occur to habitat of the specific species. Potential impacts to TEC&P species due to the Proposed Action would be minimized by conducting species-specific surveys and the implementation of species-specific mitigation measures if the species are found. In addition, impacts to individual BLM-sensitive species due to the Proposed Action would be isolated to the specific areas that would be disturbed and the impacts would not be detrimental to the specific populations that might occur in the project area. There is also no information that there are or have been any important cumulative impacts to any TEC&P and BLM-sensitive species within the vicinity of the TMRT area.

Therefore, cumulative impacts to TEC&P and BLM-sensitive species would not be important because there are no past, present, or reasonably foreseeable future actions that, when combined with the Proposed Action, would result in impacts beyond those that already exist or have already been identified and discussed in Chapter 4.0 of this EA.

4.13 VEGETATION (INCLUDING INVASIVE SPECIES)

4.13.1 Proposed Action

The Proposed Action would result in approximately 28 acres of new disturbance from the construction of mine facilities and an estimated 59 acres of disturbance associated with reclamation effort to repair surface cracks due to subsidence (i.e., 1% of the TMRT). Direct impacts to vegetation due to the Proposed Action include the removal of existing vegetation community from disturbed area. In turn, vegetation removal would result in increased runoff, erosion, and sedimentation to the any receiving water systems. Short-term control of surface

runoff would be accomplished by implementation of alternate sediment control measures required by the WDEQ/LQD and described in the mine and reclamation plan of the Proposed Action. In addition, long-term control of surface runoff would be accomplished by successful implementation of the reclamation plan described in the Proposed Action. Reclamation and revegetation procedures would be designed to vegetate the disturbed area to a condition comparable to pre-disturbance conditions and to meet post-mining reclamation bond release standards.

Indirect impacts to plant species would occur as a result of the subsidence of the underground mine; however, projected subsidence is expected to be minimal (approximately 6.0 to 9.5 ft in height), and areas that require reclamation are expected to be limited to approximately 1% of the total TMRT area (59 acres). Vegetation is not likely to be directly disturbed unless surface cracks form, and if such cracks form, BCC would revegetate such disturbances as directed by WDEQ/LQD. Indirect impacts would occur because basin and ridge topography would alter local soil moisture regimes, which may gradually affect species distribution. Spots that are lowered may receive more moisture, which would enhance shrub growth, or they may receive too much moisture, thus stunting or precluding shrub growth, but promoting more herbaceous growth. The final postmining topography may also alter snow distribution and thus moisture accumulation patterns, which may also cause gradual permanent changes to vegetation and wildlife distribution. These impacts would be minor and limited to the area directly affected by the subsidence.

As part of the WDEQ/LQD permit to mine, BCC would be responsible for the development of mine subsidence and reclamation plan that would include detailed information concerning the amount of anticipated subsidence, mitigation measures to prevent or minimize the impacts of subsidence, mitigation measures to prevent, lessen, or mitigate material damage or loss of value of physical property in the area, a subsidence monitoring and mitigation plan, and a reclamation plan to address reclamation and revegetation requirements on affected areas. Following the completion of reclamation operations, the revegetated areas would be monitored at least annually for five years by BCC and WDEQ/LQD to assess the subsidence and the adequacy or need for

additional reclamation and revegetation efforts. Subsidence and erosional features would be monitored and appropriate corrective actions instituted if conditions warrant. Additional erosion control features would be employed as needed and as directed by WDEQ/LQD. All mitigation and corrective actions would be conducted in accordance with the approved WDEQ/LQD mine permit.

Invasive species (i.e., weed) control measures would also remain in place during all phases of the mining and reclamation process. Designated or prohibited noxious weeds on disturbed lands within the TMRT area would be controlled. In general, the following procedures would be instituted.

- Land disturbance would be kept to a minimum, wherever possible, during the mining process.
- BCC would 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.

BCC would also be required to post a reclamation performance bond with the State of Wyoming to ensure that they comply with all the requirements of the WDEQ/LQD permit and that reclamation goals and objectives 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 operation, and require that a stable land form exists and that revegetation standards have been met. WDEQ/LQD would release the full reclamation performance bond only after strict reclamation standards have been met and the public has been provided an opportunity to comment.

4.13.2 No Action Alternative

Under the No Action Alternative, the coal lease sale would not occur, no underground mining operations would be conducted within the TMRT, there would be no additional development in the TMRT area by BCC (beyond the existing mining and other industrial development), and existing impacts to vegetation resources in the proposed project area would continue to occur at current rates.

4.13.3 Residual Impacts

The Proposed Action would result in the temporary removal of vegetation from an estimated 87 acres associated with the mine facilities and areas associated with repair of mine-related subsidence. However, once mine operations are completed, reclamation efforts would re-establish the vegetative community that would be similar to pre-mining conditions and would mitigate any long-term impacts to vegetation resources. It could take 10-20 years after reclamation operations have been completed for some of the reclaimed areas to have shrub conditions and vegetation diversity comparable to predisturbance conditions.

4.13.4 Cumulative Impacts

Based on the disturbance calculations presented in Chapter 3, approximately 6,511 acres are currently disturbed within the CIAA. This represents approximately 9.6% of the total area within the CIAA. Reasonably foreseeable future actions (including the Proposed Action) within the CIAA would result in an additional 109 acres of disturbance (which amounts to 6,620 acres of total disturbance due to existing activities, the Proposed Action, and reasonably foreseeable future actions). This represents 0.16% of the total area within the CIAA or 9.76% based on the total disturbance due to existing activities, the Proposed Action, and reasonably foreseeable future actions.

Vegetation resources would be protected from long-term impacts by implementation of reclamation operation included in the Proposed Action, and the vegetation would eventually be capable of supporting pre-disturbance land uses once reclamation operations have and vegetation has become reestablished. The Jim Bridger Power Plant, minor industrial facilities, wells and associated facilities, and roads are part of long-term economic development in Sweetwater County and would not likely be removed or reclaimed in the foreseeable future. Therefore, cumulative impacts to vegetation resources would not be important because there are no past, present, or reasonably foreseeable future actions that, when combined with the Proposed Action, would result in impacts beyond those that already exist or have already been identified and discussed in Chapter 4.0 of this EA.

4.14 WASTES (HAZARDOUS AND SOLID)

4.14.1 Proposed Action

Based on the Proposed Action, BCC does not anticipate that any hazardous waste would be generated during mining or reclamation operations. However, any hazardous substances that are released (leaks, spills, etc.), whether at the surface support facilities or within the underground mining workings, that may no longer be used for its original purpose would be treated as a hazardous waste in accordance with state and federal regulations. Any release of hazardous substances in excess of reportable quantities, established in Title 40 C.F.R. Part 117, would be reported as required by 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.

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 or it would be handled through a septic

system located near the proposed change house. 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 in an approved facility capable of accepting such waste. All nonhazardous material would be disposed of in accordance with appropriate local, state, and federal regulations.

Unanticipated release events (such as spills or leaks) are always possible but unlikely, and BCC would comply with all applicable planning and emergency procedures regarding spill prevention, reporting, and cleanup required by local, state, and federal laws and regulations should an accident occur.

4.14.2 No Action Alternative

Under the No Action Alternative, the coal lease sale would not occur, no underground mining operations would be conducted within the TMRT, there would be no additional development in the proposed project area (beyond the existing mining and other industrial development), and impacts to hazardous and solid waste would remain at existing levels.

4.14.3 Residual Impacts

Impacts to soils, surface water, groundwater, vegetation, and wildlife could result from nonremediated accidental spills, releases, or leaks of hazardous and solid waste. In the event of a hazardous waste spill or leak, it is likely that only a small amount of soil would be contaminated. However, if a spill or leak occurs, the affected area would be cleaned up in a timely manner and in accordance with state and federal rules and regulations.

4.14.4 Cumulative Impacts

Under *Resource Conservation and Recovery Act* regulations, the Jim Bridger Mine and the Jim Bridger Power Plant are both registered as a small-quantity hazardous waste generators. There are two active solid waste disposal sites within the vicinity of the TMRT, one operated by BCC and one operated by the Jim Bridger Power Plant (personal communication, April 18, 2002, with Kathy Brown, WDEQ/SHWD, Lander, Wyoming). As a result, any hazardous or solid waste generated by these facilities are handled in accordance with specific federal and state rules and regulations.

Therefore, cumulative impacts due to hazardous and solid waste would not be important because there are no past, present, or reasonably foreseeable future actions that, when combined with the Proposed Action, would result in impacts beyond those that already exist or have already been identified and discussed in Chapter 4.0 of this EA.

4.15 WATER RESOURCES

4.15.1 Surface Water Resources

4.15.1.1 Proposed Action

The Proposed Action would result in approximately 28 acres of new disturbance from the construction of mine facilities and an estimated 59 acres of disturbance associated with reclamation effort to repair surface cracks due to subsidence (i.e., 1% of the TMRT). Direct impacts to surface water resources would include an increase in runoff, wind and water erosion, and sedimentation to the any receiving system as a result of surface disturbance, removal of vegetation, exposure of the soil to the elements, and soil compaction. Ephemeral channels may also be impacted as a result of subsidence that may cause limited head-cutting or ponding within affected channels. Short-term control of surface runoff would be accomplished by implementation of alternate sediment control measures required by the WDEQ/LQD and

described in the mine plan portion of the Proposed Action. However, there would be no temporary or permanent depletion of surface water resources. In addition, long-term control of surface runoff would be accomplished by successful implementation of the reclamation plan described in the Proposed Action. Reclamation and revegetation procedures would be designed to reduce the susceptibility of disturbed areas to soil erosion in both the short-term and for the life of the project.

In addition, excess mine water not needed for dust suppression would be pumped into an existing WDEQ/LQD- and WDEQ/WQD-approved holding pond where the water would be monitored and discharged into the Deadman Wash drainage channel after it meets 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.

No perennial streams would be directly impacted by the underground mining activities, and there would be no depletion of surface water resources. Therefore, no additional mitigation measures beyond those already included in the Proposed Action would be required.

None of the drainages within the TMRT or the CIAA are included in the WDEQ/WQD 303(d) list of water bodies with water quality impairments (WDEQ/WQD 2000). This list includes rivers, streams, creeks, or any water bodies of water for which effluent limitations required by the federal *Clean Water Act*, as amended, are not stringent enough to implement any water quality standards applicable to such waters.

4.15.1.2 No Action Alternative

Under the No Action Alternative, the coal lease sale would not occur, no underground mining operations would be conducted within the TMRT, there would be no additional development in the project area (beyond the existing mining and other industrial development), and impacts to surface water resources would continue at current rates.

4.15.1.3 Residual Impacts

There would be an unavoidable minor increase (87 acres) in the disturbance in the watersheds under the Proposed Action and the potential for some increase in runoff and sediments that would likely reach local waterways. In addition, some ephemeral channels may be impacted as a result of subsidence. However, implementation of sediment control measures required by the WDEQ/WQD and WDEQ/LQD would minimize these impacts. There would also be temporary and limited loss of surface water due to the utilization of the alternative sediment control measures. Following the successful completion of permanent reclamation operations, surface water flow and quality would eventually mimic predisturbance conditions.

4.15.1.4 Cumulative Impacts

Based on the disturbance calculations presented in Chapter 3, approximately 6,308 acres are currently disturbed within the CIAA. This represents 8.07% of the total area within the CIAA. reasonably foreseeable future actions (including the Proposed Action) within the CIAA would result in an additional 109 acres of disturbance (6,417 acres of total disturbance due to existing activities, the Proposed Action, and reasonably foreseeable future actions). This represents 0.14% of the total area within the CIAA or 8.21% based on the total disturbance due to existing activities and reasonably foreseeable future actions.

Existing surface mining operations at the Jim Bridger Mine would likely result in more cumulative impacts to surface water resources than any other activity within the CIAA. Impacts include the temporary reduction of surface water flow and potential impacts to surface water quality. However, all mining operations, including the Proposed Action, are regulated by the WDEQ/LQD and WDEQ/WQD, which requires the implementation of specific mitigation measures to reduce and limit impacts to surface water resources. As a result, these operations would have no important impacts on surface water flow and quality.

Therefore, cumulative impacts to surface water resources would not be important because there are no past, present, or reasonable foreseeable future actions that, when combined with the

Proposed Action, would result in impacts beyond those that already exist or have already been identified and discussed in Chapter 4.0 of this EA.

4.15.2 Groundwater Resources

4.15.2.1 Proposed Action

Under the Proposed Action, BCC would require approximately 100,000 to 500,000 gallons of water per day from the Deadman coal zone for dust suppression and equipment washdown and at the surface support facilities. In addition, approximately 5,915 acres of coal aquifer (the same one that would be mined) would be temporarily removed during mining.

Underground coal mining within the TMRT would be expected to have little, if any, short-term or long-term effect on the regional hydrologic regime. It is anticipated that mining operations would intercept groundwater resource contained within the Deadman coal zone of the Fort Union Formation. Groundwater intersected by mining operations would be pumped out of the mine portal. If the water is not needed for dust suppression or equipment washdown, it would be eventually discharged into Deadman Wash drainage in accordance with the BCC's existing and approved NPDES permit.

Drawdown of the coal aquifer would occur throughout the life of the mine and would likely mimic groundwater drawdown patterns currently observed as a result of BCC's surface coal mining operation. The drawdown limit of the Deadman coal zone would likely continue to extend northwest of the existing surface mine operation. In addition, a limited amount of drawdown would also occur in the Lance Formation and Fort Union Formation overburden. The amount of drawdown would depend upon numerous hydrogeologic factors including the amount of hydraulic connectivity between the various formations. Prior to the initiation of underground mining operations, BCC would apply for and obtain groundwater rights from the WSEO for the groundwater resource that would be impacted. There are no known groundwater appropriations within the vicinity of the TMRT, except those currently held by BCC. However, in accordance with WSEO regulations and Wyoming state law, if it is determined that groundwater drawdown

from mining operations has affected any pre-existing appropriated groundwater right, BCC would be required to provide said water right holder(s) with an alternative source of water.

After mining operations have been completed and subsidence has begun, there might be changes in the Fort Union Formation overburden aquifer, the replaced Deadman coal zone aquifer, and the Lance Formation aquifer due to interruption and deformation of strata located near the mined out longwall panels. The amount and extent of aquifer changes would depend upon numerous hydrogeologic factors including the extent of fractures and their ability to seal themselves. For western underground coal mines, the relationship of fracture height is predicted to be equal to 30 times the height of the coal that was removed (Kadnuck 1994). Assuming approximately 7 to 11 ft of coal would be removed during mining, this relationship predicts that a majority of the fracturing would occur approximately 210 to 330 ft above the mined longwall panels within the project area. Above this interval, continuous bending of strata generally occurs and pre-existing fractures can dilate (i.e., swell or expand) and would likely result in limited groundwater flow variations to the natural system (Kadnuck 1994).

In addition, after mining operations are completed, affected aquifers would be physically replaced with existing overburden material as subsidence occurs and the void created by longwall mining is eliminated. Affected aquifers would then begin to resaturate as postminng potentiometric elevations recover in the surrounding undisturbed aquifers. The recharge rate would depend on the specific physical characteristics of the replaced aquifer (Deadman coal zone) and the indirectly impacted aquifers (the Fort Union Formation overburden and the Lance Formation). While it may require 100 years or more for postmine groundwater levels to recharge to premine levels (BLM 2003), aquifer drawdown (due to the Proposed Action) would not be permanent and the affected aquifers would eventually be reestablished.

Groundwater quality in the postmining subsidence aquifer would likely contain higher levels of calcium, sulfate, magnesium, manganese, and TDS than premining waters because infiltrating water would flow across relatively fresh-cut rock faces where newly exposed minerals would be readily dissolved (Rahn 1976; Van Voast 1978). Premining groundwater quality is moderate and

suitable only for agricultural use, livestock and wildlife watering, and industrial purposes. Postmining groundwater quality would be similar to premining conditions and may, in some situations, change from Class II (agricultural use) water to Class III (livestock and wildlife watering use) water.

The closest surface expression of groundwater to the TMRT is at Radar Springs, approximately 1 mi northwest of the TMRT. However, based upon the slope of the coal beds that would be impacted by the Proposed Action and knowledge gained at the existing Jim Bridger Mine and local geologic maps, the proposed underground mine would be located down-gradient of Radar Springs and most likely is not connected to Radar Springs and would not impact Radar Springs (personal communication, February 4, 2002, with Dennis Doncaster, BLM hydrologist).

4.15.2.2 No Action Alternative

Under the No Action Alternative, the coal lease sale would not occur, no underground mining operations would be conducted within the TMRT, there would be no additional development in the proposed project area (beyond the existing mining and other industrial development), and impacts to groundwater resources would continue at current rates.

4.15.2.3 Residual Impacts

Under the Proposed Action, approximately 100,000 to 500,000 gallons of water per day for approximately 15 to 20 years would be utilized, and approximately 5,915 acres of coal aquifer would be removed from the TMRT area. Water quality may be slightly altered by the Proposed Action; however, any impacts to groundwater quality would be similar to what is occurring within the current mining operations at the Jim Bridger Mine and water quality would still meet either Class II or III standards for use. It may require 100 years or more for postmining groundwater levels to recharge to premining levels; however, these impacts would not be permanent. In addition, it is possible that some groundwater resources would be temporarily altered by the Proposed Action; however, there are no known legally appropriated groundwater

sources (i.e., water rights), besides those held by BCC, within the TMRT or the general vicinity. Under Wyoming state law, if needed, BCC would also be required to mitigate any impacts to pre-existing water rights.

4.15.2.4 Cumulative Impacts

Surface mining operations at the Jim Bridger Mine likely result in more impacts to groundwater resources than any other human-related activity within the CIAA. Impacts similar to those discussed above, include removing groundwater, replacing the existing water-bearing zones, potentially impacting groundwater quality, and altering groundwater recharge rates (BCC 2003). However, these impacts are not expected to be permanent.

As a result of ongoing surface coal mining operations by BCC, portions of the TMRT have likely already been impacted to some extent by groundwater drawdown northeast of the current Jim Bridger Mine permit boundary (BCC 2003). The Leucite Hills surface coal mine removes coal from the Almond Formation located geologically below the Fort Union Formation. Within the CIAA, the Fort Union and Almond Formations are hydrologically isolated from each other. Therefore, groundwater drawdown in the Fort Union Formation is not affected by mining and groundwater removal operations conducted in the Almond Formation and would not result in cumulative impacts between the two formations (BCC 2003). The addition of the Proposed Action would likely result in the limited cumulative groundwater drawdown in the Fort Union Formation farther to the northeast of the TMRT area. WDEQ/LQD requires all coal mining companies to determine the predicted extent of the 5-ft drawdown contour prior to the approval of the mine and reclamation permit. Therefore, BCC would conduct necessary groundwater studies to determine the predicted 5-ft drawdown levels during the mine permitting phase of the project. Based on information presented in BCC's existing mine and reclamation permit, the 5-ft groundwater level would likely be limited within the CIAA and would have no important impact on regional groundwater resources.

All mining operations, including the Proposed Action, would be regulated by the WDEQ/LQD and WDEQ/WQD, which would require the implementation of appropriate mitigation measures to reduce and limit impacts to groundwater resources. Existing appropriated groundwater rights would also be protected. As a result, BCC has existing permits from regulatory agencies in accordance with applicable federal and state laws.

Therefore, cumulative impacts to groundwater resources would not be important because there are no past, present, or reasonable foreseeable future actions that, when combined with the Proposed Action, would result in impacts beyond those that already exist or have already been identified and discussed in Chapter 4.0 of this EA.

4.16 WETLANDS AREAS

4.16.1 Proposed Action

The Proposed Action would result in approximately 28 acres of new disturbance from the construction of mine support facilities and an estimated 59 acres of disturbance associated with reclamation effort to repair surface cracks due to subsidence (i.e., 1% of the TMRT). Based on the results of a wetland inventory, there are no jurisdictional wetlands located within the TMRT project area (Intermountain Resources 2002). Therefore, the Proposed Action would not be expected to have any impacts on wetland resources.

However, during the mine permitting process, the U.S. Army Corps of Engineers would complete a review of the wetlands inventory report and would make a formal determination as to the jurisdictional status of any potential wetland resource. Only the U.S. Army Corps of Engineers has the legal responsibility and authority to make any such legal determinations for jurisdictional wetland areas. No additional permitting requirements or mitigation measures would be necessary if the U.S. Army Corps of Engineers formally determines that there are no jurisdictional wetlands within the project area. On the other hand, if the U.S. Army Corps of Engineers determines that jurisdictional wetlands are present within the TMRT project area,

BCC would prepare the appropriate inform ation and would likely obtain coverage under an existing nationwide perm it from the U.S. Arm y Corps of Engineers. It is unlikely that an individual wetland perm it would be necessary for the Proposed Action. BCC would also incorporate any necessary and appropriate wetland reclamation plans for this area into their mine and reclam ation perm it application that would be reviewed and approved by W DEQ/LQD. Therefore, if jurisdictional wetland areas are identified, permitted, and impacted by the Proposed Action, proper reclam ation procedures would ensure that these areas are reclaim ed and revegetated in accordance with W DEQ/LQD and U.S. Arm y Corp of Engineers rules and regulations.

4.16.2 No Action Alternative

Under the No Action Alternative, the coal lease sale would not occur, no underground m ining operations would be conducted within the TMRT (beyond the existing m ining and other industrial development), there would be no additional developm ent in the proposed project area, and impacts to wetlands areas would continue at current rates

4.16.3 Residual Impacts

There would be no residual impacts to wetland areas.

4.16.4 Cumulative Impacts

Based on the disturbance calculations presented in Chapter 3, approxim ately 6,511 acres are currently disturbed within the CIAA. This represents approxim ately 9.60% of the total area within the CIAA. reasonably foreseeable future actions (including the Proposed Action) within the CIAA would result in an additional 109 acres of disturbance (which equals 6,620 acres of total disturbance due to existing activities, the Proposed Action, and reasonably foreseeable future actions). This represents 0.16% of the total area within the CIAA or 9.76% based on the total disturbance due to existing activities and reasonably foreseeable future actions.

Existing surface mining operations at the Jim Bridger Mine have likely resulted in more impacts to wetland or riparian areas than any other current activity within the CIAA. Existing impacts include the temporary removal of wetland and riparian areas. However, these impacts are not expected to be permanent, and wetland and riparian areas would be replaced or reclaimed.

The Proposed Action would result in no additional impacts to wetland resources. Therefore, there would be no cumulative impacts to wetlands because there are no past, present, or reasonable foreseeable future actions that, when combined with the Proposed Action, would result in impacts beyond those that already exist or have already been identified and discussed in Chapter 4.0 of this EA.

4.17 WILD HORSES

4.17.1 Proposed Action

Direct impacts to wild horse populations would result from the temporary loss of 87 acres of habitat due to vegetation removal; displacement of wild horses due to disturbance by project-related activities; direct mortality due to construction-related activities; and an increased likelihood of vehicle/animal collisions due to increased vehicle traffic. Impacts to vegetation due to disturbance would be limited in part due to the fact that the 87 acres of disturbance would be spread over a larger area and would not occur in a single block of disturbance. In addition, the population of wild horses within the GDBW HMA is within the BLM management level for this area. No impacts to the local wild horse population would be expected due to the Proposed Action.

Individual wild horses may also be injured if they trip in surface cracks created by subsidence. The temporary loss of wild horse habitat due to vegetation removal and danger of injury to wild horses would be mitigated with appropriate and timely reclamation and revegetation measures included in the Proposed Action and required for the WDEQ/LQD permit. However, once reclamation and revegetation operations have been completed and suitable vegetation habitat re-established, wild horses would likely re-occupy the impacted portion of the TMRT area. The direct removal of wild horse habitat would be minimal.

The potential for vehicle/wild horse collisions during project-related construction activities would be mitigated by imposing speed limits on all roads. Noise from traffic, surface-related activities, and the underground mining operation would be minimal; therefore, displacement of wild horses from the project area is expected to be limited.

4.17.2 No Action Alternative

Under the No Action Alternative, the coal lease sale would not occur, no underground mining operations would be conducted within the TMRT, there would be no additional development in the proposed project area (beyond the existing mining and other industrial development), and impacts on wild horse populations would continue at present levels, with fluctuations due primarily to weather, disease, and other natural causes.

4.17.3 Residual Impacts

The Proposed Action would result in the temporary removal of vegetation from an estimated 59 acres associated with reclamation of subsidence areas within the TMRT and 28 acres associated with the mine facilities. However, once mine operations are completed, reclamation efforts would re-establish the vegetative habitat and would mitigate any long-term impacts to wild horse populations. There would also be the potentially unavoidable impact to wild horses due to possible collisions with vehicles; however, posting of speed limits on public and BCC roads would mitigate impacts. The Proposed Action may temporary displacement of some wild horses from active areas of the mine; however, displacement would likely be no more than is currently occur with the existing surface mine operation.

4.17.4 Cumulative Impacts

Based on the disturbance calculations presented in Chapter 3, approximately 18,360 acres are currently disturbed within the CIAA. This represents approximately 2.36% of the total area within the CIAA. Reasonably foreseeable future actions (including the Proposed Action) within

the CIAA would result in an additional 877 acres of disturbance (which equals 19,237 acres of total disturbance due to existing activities, the Proposed Action, and reasonably foreseeable future actions). This represents 0.11% of the total area within the CIAA or 2.47% based on the total disturbance due to existing activities, the Proposed Action, and reasonably foreseeable future actions.

Once reclamation operations have been completed, disturbed surface-mined lands would eventually be capable of supporting pre-disturbance levels of livestock grazing uses including wild horses. Disturbance from the Jim Bridger Power Plant and roads are part of the long-term economic development within the CIAA and would no longer be available for wild horse habitat. None of the current land uses within the CIAA limits the area's ability to support wild horse grazing.

Therefore, cumulative impacts to wild horse populations would not be important because there are no past, present, or reasonably foreseeable future actions that, when combined with the Proposed Action, would result in impacts beyond those that already exist or have already been identified and discussed in Chapter 4.0 of this EA.

4.18 WILDLIFE

4.18.1 Proposed Action

4.18.1.1 Big Game

Direct impacts to big game would result from the loss of habitat due to vegetation removal; displacement of wildlife due to disturbance by project-related activities; direct mortality due to construction-related activities; increased mortality due to poaching and harassment; and an increased likelihood of vehicle/animal collisions due to increased traffic in the area. Due to the depth of the mining operations, noise from the underground mining operations would be

minimal; therefore, no big game would be expected to be displaced from within the TMRT due to noise.

Construction and reclamation activities would likely cause some big game that currently utilize the area--the proposed conveyor, road, and powerline ROW areas and areas within the TMRT that would impacted by subsidence (i.e., reclamation operations)--to temporarily vacate the immediate vicinity (up to 0.5 mi or more) around the active area before construction and revegetation operations have been completed. However, once construction activities are completed, most of the big game animals in the area would be expected to become acclimated to the traffic and noise along the ROWs and to return to areas located within 0.5 mi of the roads, powerline, and conveyor. The temporary loss of 87 acres of big game habitat for individual animals due to vegetation loss would be mitigated with measures included in the Proposed Action to minimize surface disturbance and to ensure timely reclamation and revegetation of all disturbed areas. It could take 10-20 years after reclamation operations have been completed for some of the reclaimed areas to have shrub conditions and vegetation diversity comparable to pre-disturbance conditions. However, once reclamation and revegetation operations are completed and suitable vegetation habitat re-established, big game would likely re-occupy the disturbed ROWs and mine areas within the TMRT. In addition, the mine-related disturbance would be scattered over a large area and would have little or no impact on big game populations in the area.

Pronghorn Antelope. Approximately 1,726 acres or 30% of the TMRT area would be located within crucial winter/yearlong pronghorn antelope range (refer to Figure 3.12). However, a majority of the TMRT area (70%) would be located in winter/yearlong habitat. Impacts to pronghorn antelope due to vegetation removal would be limited due in part to the fact that the 87 acres of project-related disturbance would occur in small amounts over a large area. In addition, only 30 acres of the disturbance would occur within crucial winter/yearlong range. The population of pronghorn antelope within the Red Desert herd unit is currently at 93% of the population objective for the herd unit. Therefore, there would be no impacts to the population of pronghorn antelope within the Red Desert herd unit due to the Proposed Action.

In accordance with WGFD recommendations, construction activities and reclamation operations would not be conducted on crucial winter/yearlong range from November 15 to March 30. However, if necessary, BCC would request a waiver of the seasonal restriction stipulation from the BLM. Depending upon specific weather conditions at the time of the request, the BLM would evaluate the request on a case-by-case basis and would inform BCC if the waiver can be granted. The small amount of habitat disturbed and the timely implementation of reclamation and revegetation procedures that would be followed would minimize long-term impacts to the pronghorn antelope population.

Mule Deer and Elk. The TMRT does not contain any crucial winter mule deer or elk range. Once construction activities and reclamation operations are completed and suitable vegetation habitat is re-established, mule deer and elk would likely reoccupy the ROWs and areas within the TMRT that are impacted by subsidence. Therefore, there would be no impacts to mule deer or elk populations due to the Proposed Action.

4.18.1.2 Other Mammals

Impacts to other mammals due to the Proposed Action would include direct mortality during construction activities and reclamation operations, especially to those that may take refuge in burrows that would be destroyed by areas of subsidence and required reclamation and revegetation operations, and a potential increase in mortality from vehicle/animal collisions. Generally, the dispersed and relatively small amount of wildlife habitat physically impacted by the Proposed Action (estimated at 87 acres) would limit impacts to all wildlife species. Most small mammal populations are relatively tolerant of human activity and would likely experience reduced populations in direct proportion to the amount of habitat removed. This would most likely be true for species with relatively small home ranges (rodents, lagomorphs, etc.) and would be less applicable to more wide-ranging species such as coyote, badgers, etc. Project-related impacts to small mammals would likely be masked by natural variations in populations due to weather, disease, and other natural factors. Impacts to rare habitats (e.g., wetlands areas) would be minimal, and measures included in the Proposed Action to minimize impacts to

wildlife would mitigate and reduce impacts to other animals. In addition, the temporary loss of habitat for other mammals due to vegetation loss would be mitigated with measures included in the Proposed Action to minimize surface disturbance and to ensure timely reclamation and revegetation of all disturbed areas.

4.18.1.3 Raptors

Direct impacts to raptors include mortality due to electrocutions and collisions with powerline structures. Other potential indirect impacts to nesting raptors include decreased raptor reproductive success due to the physical disturbance of the nest or to increased human activities near the nest; destruction of nest, egg, and/or young; increased predation of the eggs or young; and impacts to hunting, foraging, and roosting habitat (National Wildlife Federation 1987). It is unlikely that raptor populations would be impacted by the Proposed Action; however, individual birds may be impacted. Several raptor nests are located in the TMRT area; however, no raptor nests were documented within the ROW areas.

Prior to the initiation of mining operations, BCC would be required by WDEQ/LQD to conducted raptor nest surveys for occupancy and production of the TMRT area and a 1-mi buffer. Monitoring information would be submitted to the appropriate regulatory agencies, and if necessary, a raptor mitigation plan would be developed and implemented with the concurrence of the WDEQ/LQD, BLM, USFWS, and the WGFD. The raptor mitigation plan would identify appropriate mitigation techniques described in the *Raptor Mitigation Handbook* (Wyoming Cooperative Fishery and Wildlife Research Unit 1994) and the *Raptor Management Techniques Manual* (National Wildlife Federation 1987). The raptor mitigation plan would protect all raptor species from unauthorized disturbance or other activities that may adversely affect individual raptors.

As described in the Proposed Action, the mine facilities (i.e., powerline and electric substation modifications) would be designed, constructed, operated, and maintained in conformance with the *National Electrical Safety Code* and other applicable codes and standards, as well as

Suggested Practices for Raptor Protection on Powerlines: The State of the Art in 1996 (APLIC 1996) and *Mitigating Bird Collisions with Powerlines: The State of the Art in 1994* (APLIC 1994). Implementation of these standards would reduce the risk of raptor electrocutions and collisions with powerline structures.

The construction of the mine support facilities would disturb approximately new 28 acres, and approximately 59 acres may be disturbed as a result of reclamation operations to repair cracks due to subsidence. Reductions in prey species abundance are not anticipated to adversely affect raptor populations because physical disturbance would be minimal (87 acres total). Foraging habitat for raptors within the proposed project area would be reduced until revegetation successfully attracts small mammals and birds that serve as the prey base for the raptors. In addition, the temporary loss of foraging habitat for raptors due to vegetation loss would be mitigated with measures included in the Proposed Action to minimize surface disturbance and to ensure timely reclamation and revegetation of all disturbed areas.

4.18.1.4 Upland Game Birds

Direct impacts to greater sage-grouse and other upland game birds include loss of breeding and nesting habitat, wintering areas, and possibly strutting grounds (leks); displacement due to increased human activity; and collisions with vehicles and/or powerlines. Indirect impacts include the displacement due to noise, ground vibrations, and/or subsidence. The BLM requires special mitigation measures if greater sage-grouse leks are located within 0.25 mi of any proposed surface disturbance. Typical mitigation measures utilized to reduce impacts to greater sage-grouse include the following:

- avoiding surface disturbance and high-profile structures (e.g., powerline structures, etc.) within 0.25 mi of active greater sage-grouse leks;
- avoiding disturbance activities during the male greater sage-grouse strutting period (March 1 to May 15) within 1.0 mi of active leks; and
- restricting surface-disturbing activities in occupied greater sage-grouse nesting habitat within 2.0 mi of active leks during the nesting season (April 1 to July 31).

Only approximately 1% (59 acres) within the TMRT may be physically disturbed as a result of reclamation operations to repair cracks due to subsidence, and it is possible, but unlikely, that one or more of the two greater sage-grouse leks within the TMRT would be physically impacted by these operations. In order to minimize potential impacts to greater sage-grouse within the TMRT, reclamation operations would be conducted in accordance with standard BLM mitigation measures described above and WDEQ/LQD requirements specified in the mine and reclamation permit application prepared by BCC. BLM, WDEQ/LQD, and WGFD would carefully evaluate the need for and extent of any surface-disturbing activity that would occur within 1 mi of any greater sage-grouse lek. Priority would be given to minimizing any physical disturbance to greater sage-grouse leks.

Bird/vehicle and bird/powerline collisions may also result in direct impacts on greater sage-grouse. However, the overland conveyor (which would account for most of the construction-related disturbance) would not be located within 1 mi of any the greater sage-grouse leks. In addition, no new powerlines would be constructed within the TMRT near any of the greater sage-grouse leks.

Due to the depth of underground mining operations (i.e., 200 ft to 1,000 ft below the surface) and the limited amount of blasting, noise and/or ground vibrations at the surface within the TMRT due to mining operation would be minimal compared to nearby surface coal mining operations. Subsidence would also occur within the longwall coal panel areas. However, there is no documented or anecdotal evidence of impacts of noise, ground vibration, or subsidence from underground mining operations on greater sage-grouse behavior (personal communications, February 21, 2001, with Stan Anderson, Wyoming Cooperative Fisheries and Wildlife Research Unit, University of Wyoming; April 18, 2002, with Steve Platt, WDEQ/LQD, Lander, Wyoming; and April 18, 2002, with Bill Hogg, WDEQ/LQD, Cheyenne, Wyoming). Therefore, the extent, if any, of potential displacement of greater sage-grouse due to the Proposed Action within the TMRT is unknown. However, since only a limited portion of the TMRT may experience subsidence at any one time, it is likely that any greater sage-grouse that might be affected by indirect impacts would temporarily relocate and utilize adjacent suitable habitats (e.g., leks,

nesting areas, etc.) (Remington and Braun 1991; Phillips et al. 1985). It is also be possible that impacted greater sage-grouse would be temporarily displaced from traditional important habitats and would not breed during those seasons that the habitats would be unsuitable. If displacement occurs, greater sage-grouse would be expected to eventually recolonize any suitable habitats that might have been temporarily abandoned. Therefore, the Proposed Action would not have any permanent long-term impacts on greater sage-grouse.

In addition, BCC would continue to monitor all greater sage-grouse leks within the TMRT and a 2-mi buffer. Annual monitoring of greater sage-grouse leks would document direct impacts due to physical disturbance and indirect impacts due to noise, ground vibration, and/or subsidence. Results of this monitoring would be reported annually to WDEQ/LQD, WGFD, and BLM.

Mourning dove populations would likely not be impacted by the Proposed Action because of their inherent mobility and the availability of other suitable habitats on undisturbed lands adjacent to the TMRT area.

4.18.1.5 Other Birds

Other birds may be adversely affected by increased human activity under the Proposed Action. The primary impacts would probably occur in direct proportion to the amount of a species' habitat that would be temporarily disturbed. Some increased mortality would be likely from bird collisions as a result of increased vehicle traffic and collisions with powerline structures. Total new disturbance associated with the Proposed Action would be approximately 87 acres, and measures already described above to mitigate surface disturbances and project-related activities would minimize impacts to other bird species as well. Impacts to waterfowl and shorebirds would be minimal because few wetland areas of suitable habitat would be affected and because these birds would temporarily move to adjacent habitats undisturbed by project-related activities. Songbirds would also likely move to other suitable adjacent habitats. As described in the Proposed Action, the associated powerline would be designed, constructed, operated, and maintained in conformance with the *National Electrical Safety Code* and other applicable codes

and standards, as well as *Suggested Practices for Raptor Protection on Powerlines: The State of the Art in 1996* (APLIC 1996) and *Mitigating Bird Collisions with Powerlines: The State of the Art in 1994* (APLIC 1994). Implementation of these standards would reduce the risk of bird electrocutions and collisions with powerline structures.

4.18.1.6 Amphibians, Reptiles, and Fish

Few if any amphibians or reptiles are found within the TMRT or associated ROW areas, and no fish are found within these areas. Potential adverse impacts to amphibians, reptiles, and fish (if they even occur in the area) as a result of the Proposed Action include direct mortality as a result of surface disturbance, loss of suitable habitat, and displacement of individuals from the area. Impacts to amphibians and reptiles due to the Proposed Action likely would occur in direct proportion to the amount of suitable habitat disturbed. No impacts to fish would be expected due to the implementation of the Proposed Action. Mitigation measures described in the Proposed Action to minimize surface disturbance and to ensure timely reclamation and stabilization would minimize project-related impacts to amphibians and reptiles.

4.18.2 No Action Alternative

Under the No Action Alternative, the coal lease sale would not occur, no underground mining operations would be conducted within the TMRT, there would be no additional development in the proposed project area (beyond the existing mining and other industrial development), and impacts on wildlife populations would continue at present levels, with fluctuations due primarily to weather, disease, and other natural causes.

4.18.3 Residual Impacts

The Proposed Action would result in the temporary loss of approximately 87 acres of vegetation and wildlife habitat. Some species such as big game, large mammals, upland game birds, and raptors would be temporarily displaced and some individual wildlife species (e.g., small

mammals, small birds, amphibian or reptile species) may be destroyed by construction and reclamation operations, especially those that may take refuge in burrows. However, once mining operations are completed, reclamation efforts would re-establish the vegetative habitat and would mitigate any long-term impacts to all wildlife populations. There would also be a potential increase in mortality of wildlife from vehicle/animal collisions.

Two greater sage-grouse leks located within the TMRT may be directly and/or indirectly impacted by the Proposed Action. However, implementation of appropriate BLM and WDEQ/LQD monitoring and mitigation measures would document and reduce potential impacts to greater sage-grouse populations.

While the BCC has committed to constructing powerline structures in accordance with applicable raptor protection design standards, it is possible but unlikely that individual raptors or other birds that utilize the project area may be killed or injured as a result of electrocution or collision with powerline structures.

4.18.4 Cumulative Impacts

Pronghorn Antelope. Approximately 32,983 acres (or 1.52%) of the entire CIAA for pronghorn antelope is currently disturbed (refer to Table 4.1). Of that total, approximately 14,101 acres (or 5.17%) of crucial winter/yearlong range for pronghorn antelope within the CIAA is currently disturbed by roads, major industrial facilities, minor industrial facilities, wells, and associated facilities. Total proposed disturbance due to the Proposed Action would account for an additional 87 acres (0.004% of the total CIAA), and reasonably foreseeable future actions would account for an additional 809 acres (0.04% of the total CIAA). Approximately 630 acres of disturbance would be associated with wells and related facilities, and 179 acres would be associated with minor industrial facilities. Approximately 30 acres of the disturbance associated with the Proposed Action would occur with crucial winter/yearlong range for pronghorn antelope. This represents 0.01% of the entire crucial winter/yearlong range within the CIAA.

Table 4.1 Acres of Disturbance by CIAA for Big Game Species.

	Total Existing Disturbance (acres) (% of unit)	Disturbance Due to Proposed Action (acres) (% of unit)	Disturbance Due to Reasonably Foreseeable Future Actions (acres) (% of unit)	Total Existing, Proposed Action, and Reasonably Foreseeable Future Actions (acres) (% of unit)
Pronghorn Antelope				
CIAA (2,167,479 acres)	32,983 (1.52%)	87 (0.004%)	809 (0.04%)	33,879 (1.56%)
Crucial winter/ yearlong (272,512 acres)	14,101 (5.17%)	30 (0.01%)	176 (0.06%)	14,307 (5.25%)
Mule Deer				
CIAA (2,553,133 acres)	44,168 (1.73%)	87 (0.003%	2,365 (0.09%)	46,620 (1.83%)
Crucial winter/ yearlong (205,242 acres)	3,503 (1.71%)	0 (0.00%)	25 (0.01%)	3,528 (1.72%)
Elk				
CIAA (2,649,306 acres)	43,356 (1.64%)	87 (0.003%)	2,372 (0.09%)	45,815 (1.73%)
Crucial winter/yearlong (279,791 acres)	1,873 (0.67%)	15 (0.005%)	98 (0.035%)	1,986 (0.71%)

An additional 176 acres of reasonably foreseeable future actions would occur in crucial winter/yearlong range for pronghorn antelope. This represents 0.06% of the entire crucial winter/yearlong range within the CIAA.

Total existing, Proposed Action, and reasonably foreseeable future actions disturbance within the CIAA would be approximately 33,879 acres (or 1.56% of the total CIAA). Approximately 14,307 acres of existing, Proposed Action, and reasonably foreseeable future actions disturbance would occur within pronghorn antelope crucial winter/yearlong range. This represents 5.25% of the total pronghorn crucial winter/yearlong range in the CIAA.

Under the Proposed Action, approximately 87 acres would be disturbed by mine facilities and reclamation operations from the repair of surface cracks due to subsidence. Once reclamation operations have been completed, disturbed lands would eventually be capable of supporting predisturbance levels of wildlife uses. In addition, the 5-year (1997-2001) average population for the pronghorn antelope population in the CIAA is approximately 93% of the herd unit

objectives (WGFD 2003). Despite these values, fawn production has been below production objectives and is most likely a result of drought conditions. Based on this information, human-related activities and the condition of important range types within the CIAA does not appear to be having a limiting affect or adverse impact on the population of pronghorn antelope within the CIAA.

Disturbance from the Jim Bridger Power Plant, Jim Bridger Mine, Leucite Hills Mine, roads, and wells and associated facilities are part of the long-term economic development within the CIAA and would not be available for wildlife habitat until the specific facility is removed and the land revegetated. None of the current land uses within the CIAA appear to limit the area's ability to support pronghorn antelope populations. Therefore, cumulative impacts to pronghorn antelope would not be important because there are no past, present, or reasonably foreseeable future actions that, when combined with the Proposed Action, would result in impacts beyond those that already exist or have already been identified and discussed in Chapter 4.0 of this EA.

Mule Deer. Approximately 44,168 acres (or 1.73%) of the entire CIAA for mule deer is currently disturbed (refer to Table 4.1). Of that total, approximately 3,503 acres (or 1.71%) of crucial winter/yearlong range for mule deer within the CIAA is currently disturbed by roads, major industrial facilities, minor industrial facilities, wells, and associated facilities. Total proposed disturbance due to the Proposed Action would account for an additional 87 acres (0.003% of the total CIAA), and reasonably foreseeable future actions would account for an additional 2,365 acres (0.09% of the total CIAA). Approximately 1,875 acres of disturbance would be associated with wells and related facilities, 490 acres would be associated with minor industrial facilities. None of the disturbance associated with the Proposed Action would occur with crucial winter/yearlong range for mule deer. An additional 25 acres of disturbance due to reasonably foreseeable future actions would occur in crucial winter/yearlong range for mule deer. This represents 0.01% of the entire crucial winter/yearlong range within the CIAA.

Total existing, Proposed Action, and reasonably foreseeable future actions disturbance within the CIAA would be approximately 46,620 acres (or 1.83% of the total CIAA). Approximately

3,528 acres of existing, Proposed Action, and reasonably foreseeable future actions disturbance would occur within mule deer crucial winter/yearlong range. This represents 1.72% of the total mule deer crucial winter/yearlong range in the CIAA.

Under the Proposed Action, approximately 87 acres would be disturbed by mine facilities and reclamation operations from the repair of surface cracks due to subsidence. Once reclamation operations have been completed, disturbed lands would eventually be capable of supporting predisturbance levels of wildlife uses. The 5-year (1997-2001) average population for the mule deer population in the CIAA is approximately 78% of the herd unit objectives. According to the WGFD, the herd unit area primarily contains marginal desert habitat for mule deer; however, the herd unit population has grown slowly but steadily since 1993. In 2002, the mule deer population declined over 10% presumably due to drought-induced mortality to fawns (WGFD 2003). Based on this information, human-related activities and the disturbance of crucial winter/yearlong range within the CIAA does not appear to be having a limiting or adverse impact on the population of mule deer within the CIAA.

Disturbance from the Jim Bridger Power Plant, Jim Bridger Mine, Leucite Hills Mine, roads, and wells and associated facilities are part of the long-term economic development within the CIAA and would not be available for wildlife habitat until the specific facility is removed and the land revegetated. None of the current land uses within the CIAA appear to limit the area's ability to support mule deer populations. Therefore, cumulative impacts to pronghorn antelope would not be important because there are no past, present, or reasonably foreseeable future actions that, when combined with the Proposed Action, would result in impacts beyond those that already exist or have already been identified and discussed in Chapter 4.0 of this EA.

Elk. Approximately 43,356 acres (or 1.64%) of the entire CIAA for elk is currently disturbed (refer to Table 4.1). Of that total, approximately 1,873 acres (or 0.67%) of crucial winter/yearlong range for elk within the CIAA is currently disturbed by roads, major industrial

facilities, minor industrial facilities, wells and associated facilities. Total disturbance due to the Proposed Action would account for an additional 87 acres (0.003% of the total CIAA) and reasonably foreseeable future actions would account for an additional 2,372 acres (0.09% of the total CIAA). Approxim ately 1,880 acres of distur bance would be associated with wells and related facilities, and 492 acres would be associated with m inor industrial facilities. Approximately 15 acres of the disturbance associated with the Proposed Action would occur with crucial winter/yearlong range for elk. This represents 0.005% of the entire crucial winter/yearlong range within the CIAA. An additional 98 acres of reasonably foreseeable future actions would occur in crucial winter/yearlong range for elk. This represents 0.035% of the entire crucial winter/yearlong range within the CIAA.

Total existing, Proposed Action, and reasonably foreseeable future actions disturbance within the CIAA would be approxim ately 45,815 acres (or 1.73% of the total CIAA). Approxim ately 1,986 acres of existing, Proposed Action, and reasonably foreseeable future actions disturbance would occur within elk crucial winter/yearlong range. This represents 0.71% of the total elk crucial winter/yearlong range in the CIAA.

Under the Proposed Action, approxim ately 87 acres would be disturbed by m ine facilities and reclamation operations from the repair of surface cracks due to subsidence. Once reclam ation operations have been com pleted, disturbed lands would eventually be capable of supporting predisturbance levels of wildlife uses. In addition, the 5-year (1997-2001) average population for the elk population in the CIAA is approxim ately 138% of the herd unit objectives (W GFD 2003). Based on this inform ation, human-related activities and the condition of im portant range types within the CIAA does not appear to be having a lim iting affect or adverse im pact on the population of elk within the CIAA.

Disturbance from the Jim Bridger Power Plant, Jim Bridger Mine, Leucite Hills Mine, roads, and wells and associated facilities are part of the long-term economic development within the CIAA and would not be available for wildlife habitat until the specific facility is rem oved and the land revegetated. None of the current land uses within the CIAA appears to lim it the area's ability to

support elk populations. Therefore, cumulative impacts to elk would not be important because there are no past, present, or reasonably foreseeable future actions that, when combined with the Proposed Action, would result in impacts beyond those that already exist or have already been identified and discussed in Chapter 4.0 of this EA.

Other Mammals. Within the CIAA, approximately 3,537 acres (11.65% of the CIAA) are currently disturbed by major facilities, minor industrial facilities, and roads. Total existing, Proposed Action, and reasonably foreseeable future actions disturbance in the CIAA is estimated at 3,646 acres (12.01% of the CIAA). Disturbance from the major industrial facilities, minor industrial facilities, and roads are part of the long-term economic development within the CIAA. None of the current land uses within the CIAA limits the area's ability to support various mammal populations. As described above, the cumulative impacts of the Proposed Action would be similar to the potential impacts of the Proposed Action and would result in limited impacts to populations of other mammal species. Therefore, cumulative impacts to other mammals would not be important because there are no past, present, or reasonably foreseeable future actions that, when combined with the Proposed Action, would result in impacts beyond those that already exist or have already been identified and discussed in Chapter 4.0 of this EA.

Raptors. The CIAA contains 31 known raptor nests. Approximately 3,536 acres (11.65% of the CIAA) is currently disturbed by major industrial facilities, minor industrial facilities, and roads within the CIAA. Total existing, Proposed Action, and reasonably foreseeable future actions disturbance in the CIAA is estimated at 3,646 acres (12.01% of the CIAA). Prior to the initiation of any federal action (including the Proposed Action and reasonably foreseeable future actions), the company undertaking the action would be required to document and assess potential impacts to raptors that are nesting within 1-mi of the proposed project area and to undertake mitigation measures to protect all nesting raptors. In addition, mitigation measures would include requirements to minimize disturbance to raptor nesting habitat (i.e., rock outcrops, bluffs, etc.). These raptor mitigation measures would protect all nesting raptor species from unauthorized disturbance or other activities that may adversely affect individual raptors.

Disturbance from the major industrial facilities, minor industrial facilities, and roads are part of the long-term economic development within the CIAA. None of the current land uses within the CIAA limits the area's ability to support various nesting raptors. In addition, mitigation measures would minimize potential impacts to nesting raptors. Therefore, cumulative impacts to raptors would not be important because there are no past, present, or reasonably foreseeable future actions that, when combined with the Proposed Action, would result in impacts beyond those that already exist or have already been identified and discussed in Chapter 4.0 of this EA.

Upland Game Birds. The CIAA contains 43 known greater sage-grouse leks (WGFD 2003). However, only 36 were monitored in 2003 and of those only 16 (44% of the monitored leks) contained birds in 2003 (WGFD Green River District n.d.). Within the CIAA, approximately 20,899 acres (2.21% of the CIAA) is currently disturbed by major industrial facilities, minor industrial facilities, roads, and wells and associated facilities. Total existing, Proposed Action, and reasonably foreseeable future actions disturbance in the CIAA is estimated at 21,151 acres (2.23% of the CIAA), an increase of 252 acres. The Proposed Action would account for 87 acres, wells and associated facilities would account for 115 acres, and other minor industrial facilities would account for an additional 50 acres of proposed disturbance. Prior to the initiation of any federal action (including the Proposed Action and reasonably foreseeable future actions), the company undertaking the action would be required to document and assess potential impacts to greater sage-grouse leks that are located within 2 mi of the proposed project area and to undertake mitigation measures to protect breeding greater sage-grouse. These mitigation measures would protect all breeding greater sage-grouse from unauthorized disturbance or other activities that may adversely affect individual greater sage-grouse.

Disturbance from the major industrial facilities, minor industrial facilities, and roads are part of the long-term economic development within the CIAA. None of the current land uses within the CIAA limits the area's ability to support various upland game bird species. In addition, mitigation measures would minimize potential impacts to nesting raptors. Therefore, cumulative impacts to raptors would not be important because there are no past, present, or reasonably foreseeable future actions that, when combined with the Proposed Action, would result in

impacts beyond those that already exist or have already been identified and discussed in Chapter 4.0 of this EA.

Other Birds. Within the CIAA, approximately 6,308 acres (8.07% of the CIAA) is currently disturbed by major facilities, minor industrial facilities, and roads. Total existing, Proposed Action, and reasonably foreseeable future actions disturbance in the CIAA is estimated at 6,417 acres (8.21% of the CIAA). Disturbance from the major industrial facilities, minor industrial facilities, and roads are part of the long-term economic development within the CIAA. None of the current land uses within the CIAA limits the area's ability to support various other bird species. As described above, the cumulative impacts of the Proposed Action would be similar to the potential impacts of the Proposed Action and would result in limited impacts to populations of other birds. Therefore, cumulative impacts to other birds would not be important because there are no past, present, or reasonably foreseeable future actions that, when combined with the Proposed Action, would result in impacts beyond those that already exist or have already been identified and discussed in Chapter 4.0 of this EA.

Amphibians, Reptiles, and Fish. Within the CIAA, approximately 6,308 acres (8.07% of the CIAA) of existing disturbances occur as major industrial facilities, minor industrial facilities, and roads. Total existing, Proposed Action, and reasonably foreseeable future actions disturbance in the CIAA is estimated at 6,417 acres (8.21% of the CIAA). Under the Proposed Action, approximately 87 acres would be disturbed by mine facilities and reclamation operations from the repair of surface cracks due to subsidence. Once reclamation operations have been completed, disturbed surface-mined lands would eventually be capable of supporting predisturbance levels of wildlife uses. Disturbance from the Jim Bridger Power Plant, Jim Bridger Mine, Leucite Hills Mine, and roads are part of the long-term economic development within the CIAA and would no longer be available for wildlife habitat. None of the current land uses within the CIAA limits the area's ability to support various wildlife populations.

Therefore, cumulative impacts to amphibians, reptiles, or fish would not be important because there are no past, present, or reasonable foreseeable future actions that, when combined with the

Proposed Action, would result in impacts beyond those that already exist or have already been identified and discussed in Chapter 4.0 of this EA.

4.19 MITIGATION MEASURES

Mitigation measures identified in this section have been summarized from materials presented in Chapter 2 and Appendix A. Mitigation measures were developed by BCC during the project planning process and NEPA scoping process. Mitigation measures describe how project-related activities wold be implemented to ensure compliance with federal, state, and local laws and regulations and resource management goals and objectives for the project area. Under the Proposed Action, BCC (if the successful bidder) would implement all of the mitigation measures identified in this section.

Permitting and other Administrative Requirements. Under the Proposed Action, BCC (if the successful bidder) would collect and analyze very detailed baseline environmental information for the TMRT and associated ROW areas. The mine permit amendment application would be prepared in accordance with WDEQ/LQD rules, regulations, and guidelines. The application would also include site-specific 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/plans 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. All subsequent construction, mining, and reclamation operations and activities would be conducted in accordance with the applicable permits, approvals, plans, laws, regulations, stipulations, and guidelines.

BCC (if the successful bidder) would also prepare a detailed 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 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.

Air Quality and Noise. BCC (if the successful bidder) would conduct mining operations and use and maintain all equipment according to manufacturers recommendations to minimize air quality emissions and limit noise. This would include, for example, appropriate use of water or dust suppressant spray and use of equipment covers, shields, or mufflers. In addition, all unpaved roads utilized by BCC would be properly maintained and treated with water or other suitable dust suppressant chemical to minimize particulate emissions.

Cultural Resources. In order to protect and mitigate potential impacts to NRHP-eligible sites (including the Point of Rocks to South Pass wagon road) within the TMRT area, BCC would enter into a cultural resource programmatic agreement with BLM, OSMRE, WDEQ/LQD, and Wyoming State Historic Preservation Officer. This agreement would identify specific survey, testing, protection, and mitigation measures that would be implemented by BCC to address and protect NRHP-eligible historic and prehistoric sites within the TMRT area. The programmatic agreement would demonstrate compliance with all applicable cultural resource laws and regulations.

Under the Proposed Action, 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 Officer.

The Proposed Action, among other things, includes a commitment that if any cultural resources are discovered during construction or reclamation operations, work in the area of the discovery would be halted and the appropriate regulatory agency would be notified and appropriate treatment plans implemented. BCC employees would also 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.

Geology and Geologic Hazards. BCC would be responsible for repairing and revegetating all areas affected by disturbance related to the repair of surface cracks due to subsidence within the TMRT.

Health and Safety (Transportation). 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. In addition, BCC would also maintain appropriate speed limit signs and instruct all employees to not exceed posted speed limits.

Land Resource and Use. No additional mitigation measures would be necessary.

Minerals (Solid and Fluid). BCC (if the successful bidder) would negotiate in good faith with other m ineral lessees to resolve any developm ent conflicts and achieve the three principal management goals specified in BLM Instruction Memorandum No. 2000-081.

Native American Religious Concerns. If sites or localities of native Am erican religious concern are identified, they would taken into consideration by BLM and would be addressed in accordance with applicable rules, regulations, and policies.

Rangeland and Livestock Grazing. To m itigate potential im pacts to livestock grazing, BCC would ensure the tim ely repair and revegetation of all areas directly affected by construction activities and subsidence-related disturbance within the project area.

Recreation. To m itigate potential im pacts to th e individuals using the TMRT areas, BCC (as directed by W DEQ/LQD) would ensure the tim ely repair of all m ajor subsidence-related disturbance.

Socioeconomics. No additional mitigation measures would be necessary.

Soil Resources. To m itigate im pacts to soils resources, BCC (if the successful bidder) would ensure the proper construction of topsoil stockpiles (including installation of toe ditches and temporary reclamation), and implementation of alternate sediment control measures. In addition, BCC would ensure the successful im plementation of the reclam ation plan for the facility construction areas and subsidence repair areas within the project area.

Threatened, Endangered, Candidate, Proposed, and Sensitive Species. To m itigate im pacts to bald eagles and all raptor species, BCC (if the successful bidder) would ensure that all the powerlines would be designed, constructed, operated, and m aintained in conform ance with the *National Electrical Safety Code* and other applicable codes and standards, as well as *Suggested Practices for Raptor Protection on Powerlines: The State of the Art in 1996* (APLIC 1996) and *Mitigating Bird Collisions with Powerlines: The State of the Art in 1994* (APLIC 1994). BCC

would also ensure timely the repair and revegetation of all areas directly affected by construction activities and subsidence-related disturbance within the project area.

Vegetation (including Invasive Species). To mitigate potential impacts to vegetation, BCC would be responsible for reclaiming and revegetating all area affected by construction activities and subsidence-related disturbance within the project area in accordance with the WDEQ/LQD-approved permit and applicable rules and regulations.

Wastes (Hazarous and Solid). BCC (if the successful bidder) would be responsible for ensuring that all hazardous substances that are released (leaks, spills, etc.) that may no longer be used for its original purpose, would be treated as a hazardous waste in accordance with state and federal regulations. Any release of hazardous substances in excess of reportable quantities, established in Title 40 C.F.R. Part 117, would be reported as required by 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. All nonhazardous solid wastes would also be disposed of in accordance with appropriate local, state, and federal regulations. BCC would also comply with all applicable planning and emergency procedures regarding spill prevention, reporting, and cleanup required by local, state, and federal laws and regulations should an accident occur.

Water Resources. Mitigation of short-term impacts to surface water runoff would be accomplished by implementation of alternate sediment control measures required by the WDEQ/LQD and described in the mine plan portion of the Proposed Action. In addition, mitigation of long-term impacts to surface water runoff would be accomplished by successful implementation of the reclamation plan described in the Proposed Action. Reclamation and revegetation procedures would be designed to reduce the susceptibility of disturbed areas to soil erosion in both the short-term and for the life of the project. In addition, excess mine water not needed for dust suppression would be pumped into an existing WDEQ/LQD- and WDEQ/WQD-

approved holding pond where the water would be monitored and discharged into the Deadman Wash drainage channel after it meets 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. BCC would also implement all necessary and appropriate wetland reclamation measures for this area as directed by WDEQ/LQD and the U.S. Army Corps of Engineers.

Wild Horses. To mitigate potential impacts to wild horses, BCC would be responsible for reclaiming and revegetating all area affected by construction activities and subsidence-related disturbance within the project area in accordance with the WDEQ/LQD-approved permit and applicable rules and regulations.

Wildlife. To mitigate potential impacts to wildlife, BCC would be responsible for reclaiming and revegetating all area affected by construction activities and subsidence-related disturbance within the project area in accordance with the WDEQ/LQD-approved permit and applicable rules and regulations. BCC (as directed by the BLM) would also implement appropriate seasonal construction restriction for wintering pronghorn antelope (i.e., within crucial winter range), nesting raptors, and breeding greater sage-grouse.

4.20 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

An irreversible and irretrievable commitment of resources is defined as a permanent reduction or loss of a resource that, once lost, cannot be regained. The primary irreversible and irretrievable commitment of resources due to the Proposed Action would be the removal and use of the coal reserves within the Deadman coal zone of the TMRT, groundwater used during mining, and the energy used to extract the coal. Other irreversible and irretrievable commitments of resources would also include soil lost through wind and water erosion; inadvertent or accidental destruction of cultural resources; loss of animals due to mortality during topsoil salvage operations or by collisions with vehicles; and labor and materials expended during the mining and reclamation activities associated with the Proposed Action.

4.21 SHORT-TERM USE OF THE ENVIRONMENT VERSUS LONG-TERM PRODUCTIVITY

For purposes of this EA, short-term use of the environment is that use during the life of the project, whereas long-term productivity refers to the period of time after the project has been completed and the area is completely revegetated to premining conditions. Short-term use of environment would not affect the long-term productivity of the proposed project area. Only approximately 1.5% of the proposed TMRT area and ROW areas would be physically disturbed by the Proposed Action. After the Proposed Action is completed and all disturbed areas have been reclaimed, the same resources that were present prior to the project would be available, and reclamation efforts would re-establish the vegetation habitat and would mitigate any long-term impacts to the environment, except for the underground coal that would be removed. However, it may take 10-20 years after the reclamation and revegetation efforts have been completed for the disturbed reclaimed areas to have vegetation conditions and biodiversity comparable to premining conditions and much longer for groundwater aquifers to become re-established. However, reclamation would provide conditions to support pre-mining wildlife, livestock, and recreation resources. It may also take more than 100 years for groundwater resources in fully recharge the aquifer zone within the Deadman Wash coal zone. The use of the TMRT area and associated ROW areas during the life of the project would not preclude some ongoing uses of the area (e.g., livestock grazing, fluid mineral development, etc.) and the subsequent long-term use of the area for any purpose for which it was suitable prior to the project.

5.0 RECORD OF PERSONS, GROUPS, AND GOVERNMENTAL AGENCIES CONTACTED

Table 5.1 Record of Persons, Groups, and Governmental Agencies Contacted.[1]

Company/Agency	Individual	Discipline/Position
PacifiCorp	Scott Child	Manager of Lands and Regulatory Affairs
	Jerry Maio	Planning Engineer
Bridger Coal Company	Norm Hargis	Manager of Environmental Affairs
U.S. Army Corps of Engineers, Wyoming Regulatory Office	Matthew A. Bilodeau	Program Manager
U.S. Fish and Wildlife Service, Wyoming Office	Kathleen Erwin	Staff Biologist
State of Wyoming, Wyoming Business Council	John Robitaille	WBC Minerals, Energy, and Transportation Division
Wyoming Department of Parks and Cultural Resources	Judy Wolf	Deputy State Historic Preservation Office
Wyoming Department of Environmental Quality	Kathy Brown	Solid and Hazardous Waste Division
	John Wagner	Land Quality Division
	Amy Boil	Land Quality Division
	Bill Hogg	Land Quality Division
	Steve Platt	Land Quality Division
Wyoming Game and Fish Department		
Cheyenne	Bill Wichers	Deputy Director
Green River	Rob Keith	Biologist
Wyoming Office of Federal Land Policy	Tracy Williams	Planning Consultant
Wyoming State Geological Survey	James Case	Staff Geologist - Geologic Hazards
Wyoming Natural Diversity Database	Rebekah Smith	Data and Biological Assistant

[1] Additional individuals, groups, and agencies were contacted during scoping.

Table 5.2 List of Preparers.

Organization	Name	EA Responsibility
TRC Mariah Associates Inc.	Scott Kamber	Project Management, EA Preparation - Biological and Physical Resources, and Quality Control
	Jan Hart	EA Preparation - Biological and Physical Resource
	Marcus Grant	EA Preparation - Cultural Resources
	Susan Connell	EA Preparation - Air Quality Resource
	Roger Schoumacher	EA Preparation - Quality Assurance
	Genial DeCastro	Document Production/Quality Control
	Tamara Linse	Technical Editing, Document Production
	Suzanne Luhr	Drafting

Table 5.3 List of Contributors and Reviewers.

Organization	Name	EA Responsibility
Bureau of Land Management, Interdisciplinary Team		
Rock Springs Field Office	Teri Deakins	Environmental Protection Specialist, Project Lead
	Ted Murphy	Acting Field Manager, Minerals & Lands
	Jeff Clawson	Mining Engineer
	Jim Procarione	Mining Engineer
	Steve Wigg	Geologist
	George Schoenfeld	Surface Compliance
	Dennis Doncaster	Hydrologist
	Kevin Lloyd	Range Conservationist/Wild Horse Specialist
	Jo Foster	Recreation/Visual Resource Specialist
	Terry Del Bene	Cultural Resources Specialist
	Jim Dunder	Wildlife and T&E Specialist
	Jim Glennon	Botanist
Wyoming State Office	Darwin McGarry	Geologist, Reservoir Management Group
	Janet Kurman	Environmental Protection Specialist
	Julie Weaver	Land Law Examiner
	Phil Perlewitz	Supervisory Mining Engineer
	Robert Janssen	Regional Coal Coordinator
Office of Surface Mining Reclamation and Enforcement	Floyd McMullen	EA Project Manager

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APPENDIX A:

STANDARD COAL LEASE FORM
AND SPECIAL LEASE STIPULATIONS

Standard Coal Lease Form

Form 3400-12
(August 2002)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

COAL LEASE

FORM APPROVED
OMB NO. 1004-0073
Expires: December 31, 2003

Serial Number

PART 1. LEASE RIGHTS GRANTED

This lease, entered into by and between the UNITED STATES OF AMERICA, hereinafter called lessor, through the Bureau of Land Management (BLM), and *(Name and Address)*

hereinafter called lessee, is effective *(date)* / / , for a period of 20 years and for so long thereafter as coal is produced in commercial quantities from the leased lands, subject to readjustment of lease terms at the end of the 20th lease year and each 10-year period thereafter.

Sec. 1. This lease is issued pursuant and subject to the terms and provisions of the:

☐ Mineral Lands Leasing Act of 1920, Act of February 25, 1920, as amended, 41 Stat. 437, 30 U.S.C. 181-287, hereinafter referred to as the Act;
☐ Mineral Leasing Act for Acquired Lands, Act of August 7, 1947, 61 Stat. 913, 30 U.S.C. 351-359;

and to the regulations and formal orders of the Secretary of the Interior which are now or hereafter in force, when not inconsistent with the express and specific provisions herein.

Sec. 2. Lessor, in consideration of any bonuses, rents, and royalties to be paid, and the conditions and covenants to be observed as herein set forth, hereby grants and leases to lessee the exclusive right and privilege to drill for, mine, extract, remove, or otherwise process and dispose of the coal deposits in, upon, or under the following described lands:

containing acres, more or less, together with the right to construct such works, buildings, plants, structures, equipment and appliances and the right to use such on-lease rights-of-way which may be necessary and convenient in the exercise of the rights and privileges granted, subject to the conditions herein provided.

PART II. TERMS AND CONDITIONS

Sec. 1. (a) RENTAL RATE - Lessee must pay lessor rental annually and in advance for each acre or fraction thereof during the continuance of the lease at the rate of $ for each lease year.

(b) RENTAL CREDITS - Rental will not be credited against either production or advance royalties for any year.

Sec. 2. (a) PRODUCTION ROYALTIES - The royalty will be percent of the value of the coal as set forth in the regulations. Royalties are due to lessor the final day of the month succeeding the calendar month in which the royalty obligation accrues.

(b) ADVANCE ROYALTIES - Upon request by the lessee, the BLM may accept, for a total of not more than 10 years, the payment of advance royalties in lieu of continued operation, consistent with the regulations. The advance royalty will be based on a percent of the value of a minimum number of tons determined in the manner established by the advance royalty regulations in effect at the time the lessee requests approval to pay advance royalties in lieu of continued operation.

Sec. 3. BONDS - Lessee must maintain in the proper office a lease bond in the amount of $. The BLM may require an increase in this amount when additional coverage is determined appropriate.

Sec. 4. DILIGENCE - This lease is subject to the conditions of diligent development and continued operation, except that these conditions are excused when operations under the lease are interrupted by strikes, the elements, or casualties not attributable to the lessee. The lessor, in the public interest, may suspend the condition of continued operation upon payment of advance royalties in accordance with the regulations in existence at the time of the suspension. Lessee's failure to produce coal in commercial quantities at the end of 10 years will terminate the lease. Lessee must submit an operation and reclamation plan pursuant to Section 7 of the Act not later than 3 years after lease issuance.

The lessor reserves the power to assent to or order the suspension of the terms and conditions of this lease in accordance with, inter alia, Section 39 of the Mineral Leasing Act, 30 U.S.C. 209.

Sec. 5. LOGICAL MINING UNIT (LMU) - Either upon approval by the lessor of the lessee's application or at the direction of the lessor, this lease will become an LMU or part of an LMU, subject to the provisions set forth in the regulations.

The stipulations established in an LMU approval in effect at the time of LMU approval will supersede the relevant inconsistent terms of this lease so long as the lease remains committed to the LMU. If the LMU of which this lease is a part is dissolved, the lease will then be subject to the lease terms which would have been applied if the lease had not been included in an LMU.

(Continued on page 2)

Sec. 6. DOCUMENTS, EVIDENCE AND INSPECTION - At such times and in such form as lessor may prescribe, lessee must furnish detailed statements showing the amounts and quality of all products removed and sold from the lease, the proceeds therefrom, and the amount used for production purposes or unavoidably lost.

Lessee must keep open at all reasonable times for the inspection by BLM the leased premises and all surface and underground improvements, works, machinery, ore stockpiles, equipment, and all books, accounts, maps, and records relative to operations, surveys, or investigations on or under the leased lands.

Lessee must allow lessor access to and copying of documents reasonably necessary to verify lessee compliance with terms and conditions of the lease.

While this lease remains in effect, information obtained under this section will be closed to inspection by the public in accordance with the Freedom of Information Act (5 U.S.C. 552).

Sec. 7. DAMAGES TO PROPERTY AND CONDUCT OF OPERATIONS - Lessee must comply at its own expense with all reasonable orders of the Secretary, respecting diligent operations, prevention of waste, and protection of other resources.

Lessee must not conduct exploration operations, other than casual use, without an approved exploration plan. All exploration plans prior to the commencement of mining operations within an approved mining permit area must be submitted to the BLM.

Lessee must carry on all operations in accordance with approved methods and practices as provided in the operating regulations, having due regard for the prevention of injury to life, health, or property, and prevention of waste, damage or degradation to any land, air, water, cultural, biological, visual, and other resources, including mineral deposits and formations of mineral deposits not leased hereunder, and to other land uses or users. Lessee must take measures deemed necessary by lessor to accomplish the intent of this lease term. Such measures may include, but are not limited to, modification to proposed siting or design of facilities, timing of operations, and specification of interim and final reclamation procedures. Lessor reserves to itself the right to lease, sell, or otherwise dispose of the surface or other mineral deposits in the lands and the right to continue existing uses and to authorize future uses upon or in the leased lands, including issuing leases for mineral deposits not covered hereunder and approving easements or rights-of-way. Lessor must condition such uses to prevent unnecessary or unreasonable interference with rights of lessee as may be consistent with concepts of multiple use and multiple mineral development.

Sec. 8. PROTECTION OF DIVERSE INTERESTS, AND EQUAL OPPORTUNITY - Lessee must: pay when due all taxes legally assessed and levied under the laws of the State or the United States; accord all employees complete freedom of purchase; pay all wages at least twice each month in lawful money of the United States; maintain a safe working environment in accordance with standard industry practices; restrict the workday to not more than 8 hours in any one day for underground workers, except in emergencies; and take measures necessary to protect the health and safety of the public. No person under the age of 16 years should be employed in any mine below the surface. To the extent that laws of the State in which the lands are situated are more restrictive than the provisions in this paragraph, then the State laws apply.

Lessee will comply with all provisions of Executive Order No. 11246 of September 24, 1965, as amended, and the rules, regulations, and relevant orders of the Secretary of Labor. Neither lessee nor lessee's subcontractors should maintain segregated facilities.

Sec. 9. (a) TRANSFERS

☐ This lease may be transferred in whole or in part to any person, association or corporation qualified to hold such lease interest.

☐ This lease may be transferred in whole or in part to another public body or to a person who will mine the coal on behalf of, and for the use of, the public body or to a person who for the limited purpose of creating a security interest in favor of a lender agrees to be obligated to mine the coal on behalf of the public body.

☐ This lease may only be transferred in whole or in part to another small business qualified under 13 CFR 121.

Transfers of record title, working or royalty interest must be approved in accordance with the regulations.

(b) RELINQUISHMENT - The lessee may relinquish in writing at any time all rights under this lease or any portion thereof as provided in the regulations. Upon lessor's acceptance of the relinquishment, lessee will be relieved of all future obligations under the lease or the relinquished portion thereof, whichever is applicable.

Sec. 10. DELIVERY OF PREMISES, REMOVAL OF MACHINERY, EQUIPMENT, ETC. - At such time as all portions of this lease are returned to lessor, lessee must deliver up to lessor the land leased, underground timbering, and such other supports and structures necessary for the preservation of the mine workings on the leased premises or deposits and place all workings in condition for suspension or abandonment. Within 180 days thereof, lessee must remove from the premises all other structures, machinery, equipment, tools, and materials that it elects to or as required by the BLM. Any such structures, machinery, equipment, tools, and materials remaining on the leased lands beyond 180 days, or approved extension thereof, will become the property of the lessor, but lessee may either remove any or all such property or continue to be liable for the cost of removal and disposal in the amount actually incurred by the lessor. If the surface is owned by third parties, lessor will waive the requirement for removal, provided the third parties do not object to such waiver. Lessee must, prior to the termination of bond liability or at any other time when required and in accordance with all applicable laws and regulations, reclaim all lands the surface of which has been disturbed, dispose of all debris or solid waste, repair the offsite and onsite damage caused by lessee's activity or activities incidental thereto, and reclaim access roads or trails.

Sec.11. PROCEEDINGS IN CASE OF DEFAULT - If lessee fails to comply with applicable laws, existing regulations, or the terms, conditions and stipulations of this lease, and the noncompliance continues for 30 days after written notice thereof, this lease will be subject to cancellation by the lessor only by judicial proceedings. This provision will not be construed to prevent the exercise by lessor of any other legal and equitable remedy, including waiver of the default. Any such remedy or waiver will not prevent later cancellation for the same default occurring at any other time.

Sec. 12. HEIRS AND SUCCESSORS-IN-INTEREST - Each obligation of this lease will extend to and be binding upon, and every benefit hereof will inure to, the heirs, executors, administrators, successors, or assigns of the respective parties hereto.

Sec.13. INDEMNIFICATION - Lessee must indemnify and hold harmless the United States from any and all claims arising out of the lessee's activities and operations under this lease.

Sec. 14. SPECIAL STATUTES - This lease is subject to the Clean Water Act (33 U.S.C. 1252 et seq.), the Clean Air Act (42 U.S.C. 4274 et seq.), and to all other applicable laws pertaining to exploration activities, mining operations and reclamation, including the Surface Mining Control and Reclamation Act of 1977 (30 U.S.C. 1201 et seq.).

Sec. 15. SPECIAL STIPULATIONS

See attached special stipulations.

(Continued on Page 3)

Sec. 15. SPECIAL STIPULATIONS (Cont'd.) -

The Privacy Act of 1974 and the regulation in 43 CFR 2.48(d) provide that you be furnished with the following information in connection with information required by this application.

AUTHORITY: 30 U.S.C. 181-287 and 30 U.S.C. 351-359.

PRINCIPAL PURPOSE: BLM will use the information you provide to process your application and determine if you are eligible to hold a lease on BLM Land.

ROUTINE USES: BLM will only disclose the information according to the regulations at 43 CFR 2.56(d).

EFFECT OF NOT PROVIDING INFORMATION: Disclosing the information is necessary to receive a benefit. Not disclosing the information may result in BLM's rejecting your request for a lease.

The Paperwork Reduction Act of 1995 (44 U.S.C. 3501, et seq.) requires us to inform you that:

This information is being collected to authorize and evaluate proposed exploration and mining operations on public lands.

Response to the provisions of this lease form is mandatory for the types of activities specified.

BLM would like you to know that you do not have to respond to this or any other Federal agency-sponsored information collection unless it displays a currently valid OMB control number.

BURDEN HOURS STATEMENT

Public reporting burden for this form is estimated to average one hour per response including the time for reading the instructions and provisions, and completing and reviewing the form. Direct comments regarding the burden estimate or any other aspect of this form to: U.S. Department of the Interior, Bureau of Land Management (1004-0073), Bureau Information Collection Clearance Officer (WO-630), Mail Stop 401 LS, Washington, D.C. 20240.

THE UNITED STATES OF AMERICA

_____	By _____
(Company or Lessee Name)	
_____	_____
(Signature of Lessee)	(BLM)
_____	_____
(Title)	(Title)
_____	_____
(Date)	(Date)

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

SPECIAL STIPULATIONS

In addition to observing the general obligations and standards of performance set out in the current regulations, the lessee shall comply with and be bound by the following special stipulations.

These stipulations are also imposed upon the lessee's agents and employees. The failure or refusal of any of these persons to comply with these stipulations shall be deemed a failure of the lessee to comply with the terms of the lease. The lessee shall require his agents, contractors and subcontractors involved in activities concerning this lease to include these stipulations in the contracts between and among them. These stipulations may be revised or amended, in writing, by the mutual consent of the lessor and the lessee at any time to adjust to changed conditions or to correct an oversight.

(a) ***CULTURAL RESOURCES***

(1) Before undertaking any activities that may disturb the surface of the leased lands, the lessee shall conduct a cultural resource intensive field inventory in a manner specified by the Authorized Officer of the BLM or of the surface managing agency, if different, on portions of the mine plan area and adjacent areas, or exploration plan area, that may be adversely affected by lease-related activities and which were not previously inventoried at such a level of intensity. The inventory shall be conducted by a qualified professional cultural resource specialist (i.e., archeologist, historian, historical architect, as appropriate), approved by the Authorized Officer of the surface managing agency (BLM, if the surface is privately owned), and a report of the inventory and recommendations for protecting any cultural resources identified shall be submitted to the Assistant Director of the Western Support Center of the Office of Surface Mining, the Authorized Office of the BLM, if activities are associated with coal exploration outside an approved mining permit area (hereinafter called Authorized Officer), and the Authorized Officer of the surface managing agency, if different. The lessee shall undertake measures, in accordance with instructions from the Assistant Director, or Authorized Officer, to protect cultural resources on the leased lands. The lessee shall not commence the surface disturbing activities until permission to proceed is given by the Assistant Director or Authorized Officer.

(2) The lessee shall protect all cultural properties that have been determined eligible to the National Register of Historic Places within the lease area from lease-related activities until the cultural resource mitigation measures can be implemented as part of an approved mining and reclamation or exploration plan unless modified by mutual agreement in consultation with the SHPO.

(3) The cost of conducting the inventory, preparing reports, and carrying out mitigation measures shall be borne by the lessee.

(4) If cultural resources are discovered during operations under this lease, the lessee shall immediately bring them to the attention of the Assistant Director or Authorized Officer, or the Authorized Officer of the surface managing agency, if the Assistant Director is not available. The lessee shall not disturb such resources except as may be subsequently authorized by the Assistant Director or Authorized Officer.

Within two (2) working days of notification, the Assistant Director or Authorized Officer will evaluate or have evaluated any cultural resources discovered and will determine if any action may be required to protect or preserve such discoveries. The cost of data recovery for cultural resources discovered during lease operations shall be borne by the lessee unless otherwise specified by the Authorized Officer of the BLM or of the surface managing agency, if different.

(5) All cultural resources shall remain under the jurisdiction of the United States until ownership is determined under applicable law.

(b) ***PALEONTOLOGICAL RESOURCES*** - If paleontological resources, either large and conspicuous, and/or of significant scientific value are discovered during mining operations, the find will be reported to the Authorized Officer immediately. Mining operations will be suspended within 250 feet of said find. An evaluation of the paleontological discovery will be made by a BLM approved professional paleontologist within five (5) working days, weather permitting, to determine the appropriate action(s) to prevent the potential loss of any significant paleontological value. Operations within 250 feet of such discovery will not be resumed until written authorization to proceed is issued by the Authorized Officer. The lessee will bear the cost of any required paleontological appraisals, surface collection of fossils, or salvage of any large conspicuous fossils or significant scientific interest discovered during the operations.

(c) ***THREATENED, ENDANGERED, CANDIDATE, or OTHER SPECIAL STATUS PLANT and ANIMAL SPECIES*** - The lease area may contain habitat for threatened, endangered, candidate, or other special status plant and animal species. If surveys performed during the permit application process of future permit revisions indicate that any threatened, endangered, candidate, or other special status plant/animal species could be impacted by proposed coal mining and reclamation operations located on this lease and the potential impacts to the species cannot be satisfactorily resolved through coordination with the USFWS, the proposed coal mining and reclamation operations could be restricted or constrained by the State regulatory authority.

(d) ***MULTIPLE MINERAL DEVELOPMENT*** - Operations will not be approved which, in the opinion of the Authorized Officer, would unreasonably interfere with the orderly development and/or production from a valid existing mineral lease issued prior to this one for the same lands.

(e) ***OIL AND GAS/COAL RESOURCES*** - The BLM realizes that coal mining operations conducted on Federal coal leases issued within producing oil and gas fields may interfere with the economic recovery of oil and gas; just as Federal oil and gas leases issued in a Federal coal lease area may inhibit coal recovery. BLM retains the authority to alter and/or modify the resource recovery and protection plans for coal operations and/or oil and gas operations on those lands covered by Federal mineral leases so as to obtain maximum resource recovery.

(f) ***RESOURCE RECOVERY AND PROTECTION*** - Notwithstanding the approval of a resource recovery and protection plan (R2P2) by the BLM, lessor reserves the right to seek damages against the operator/lessee in the event (i) the operator/lessee fails to achieve maximum economic recovery (MER) (as defined at 43 CFR 3480.0-5(21)) of the recoverable coal reserves or (ii) the operator/lessee is determined to have caused a wasting of recoverable coal reserves. Damages shall be measured on the basis of the royalty that would have been payable on the wasted or unrecoverable coal.

The parties recognize that under an approved R2P2, conditions may require a modification by the operator/lessee of that plan. In the event a coal bed or portion thereof is not to be mined or is rendered unmineable by the operation, the operator/lessee shall submit appropriate justification to obtain approval by the Authorized Officer to leave such reserves unmined. Upon approval by the Authorized Officer, such coal beds or portions thereof shall not be subject to damages as described above. Further, nothing in this section shall prevent the operator/lessee from exercising its right to relinquish all or portion of the lease as authorized by statute and regulation.

In the event the Authorized Officer determines that the R2P2, as approved, will not attain MER as the result of changed conditions, the Authorized Officer will give proper notice to the operator/lessee as required under applicable regulations. The Authorized Office will order a modification if necessary, identifying additional reserves to be mined in order to attain MER. Upon a final administrative or judicial ruling upholding such an ordered modification, any reserves left unmined (wasted) under that plan will be subject to damages as described in the first paragraph under this section.

Subject to the right to appeal hereinafter set forth, payment of the value of the royalty on such unmined recoverable coal reserves shall become due and payable upon determination by the Authorized Officer that the coal reserves have been rendered unmineable or at such time that the operator/lessee had demonstrated an unwillingness to extract the coal.

The BLM may enforce this provision either by issuing a written decision requiring payment of the MMS demand for such royalties, or by issuing a notice of non-compliance. A decision or notice of non-compliance issued by the lessor that payment is due under this stipulation is appealable as allowed by law.

(g) ***PUBLIC LAND SURVEY PROTECTION*** - The lessee will protect all survey monuments, witness corners, reference monuments, and bearing trees against destruction, obliteration, or damage during operations on the lease areas. If any monuments, corners or accessories are destroyed, obliterated, or damaged by this operation, the lessee will hire an appropriate county surveyor or registered land surveyor to reestablish or restore the monuments, corners, or accessories at the same locations, using the surveying procedures in accordance with the "Manual of Surveying Instructions for the Survey of the Public Lands of the United States." The survey will be recorded in the appropriate county records, with a copy sent to the Authorized Officer.

(h) ***BIOLOGICAL RESOURCES*** – Surface uses such as core hole drilling or subsidence reclamation shall be subject to season-of-use restrictions depending upon the species.