

## **2.0 PROPOSED ACTION AND ALTERNATIVES**

This chapter describes the Proposed Action and alternatives to this action. The Proposed Action is to hold a competitive lease sale and issue a lease for the federal coal lands included in the Eagle Butte West LBA<sup>1</sup> Tract as applied for by FCW. This alternative assumes the tract would be developed as a maintenance tract for the existing Eagle Butte Mine.

Under the Proposed Action, the tract would be offered for lease as applied for at a sealed-bid, competitive lease sale, subject to standard and special lease stipulations developed for the PRB and that tract. The boundaries of the tract would be consistent with the tract configuration proposed by the applicant. The Proposed Action assumes that the applicant would be the successful bidder on the tract and that the tract would be mined as a maintenance lease for an existing mine.

NEPA requires the consideration and evaluation of other reasonable ways to meet proposal objectives while minimizing or avoiding environmental impacts. Thus, NEPA requires the evaluation of a No Action Alternative and a practical range of other “reasonable” action alternatives that may avoid or minimize project impacts. Reasonable alternatives are defined by NEPA as those that are technically, economically, and environmentally practical and feasible. Reasonable alternatives are formulated to address issues and concerns raised by the public and agencies during scoping. These alternatives should represent another means of satisfying the stated purpose and need for the federal action.

BLM Competitive Coal Leasing Manual (BLM Manual 3420-1) requires the BLM to evaluate modifying the configuration of federal coal tracts based on providing for maximum economic recovery of the coal resource, maintaining or increasing the potential for competition, and avoiding future bypass or captive tract situations. For NEPA purposes, BLM evaluates alternate tract configurations as alternatives to the Proposed Action. In evaluating this lease application, BLM has identified a study area for the tract, which includes the tract as applied for and adjacent unleased federal coal, shown in Figure 2-1. Under Alternative 1, the study area is evaluated for the purpose of identifying potential alternate tract configurations to the Proposed Action that would be technically, economically, or environmentally preferable to the Proposed Action.

The Leasing on Application regulation at 43 CFR 3425.1-9 states that: “The authorized officer may add or delete lands from an area covered by an application for any reason he/she determines to be in the public interest.” Accordingly, under Alternative 1, BLM could increase or decrease the size of the tract as applied for.

---

<sup>1</sup> Refer to page xv for a list of abbreviations and acronyms used in this document.

2.0 Proposed Action and Alternatives

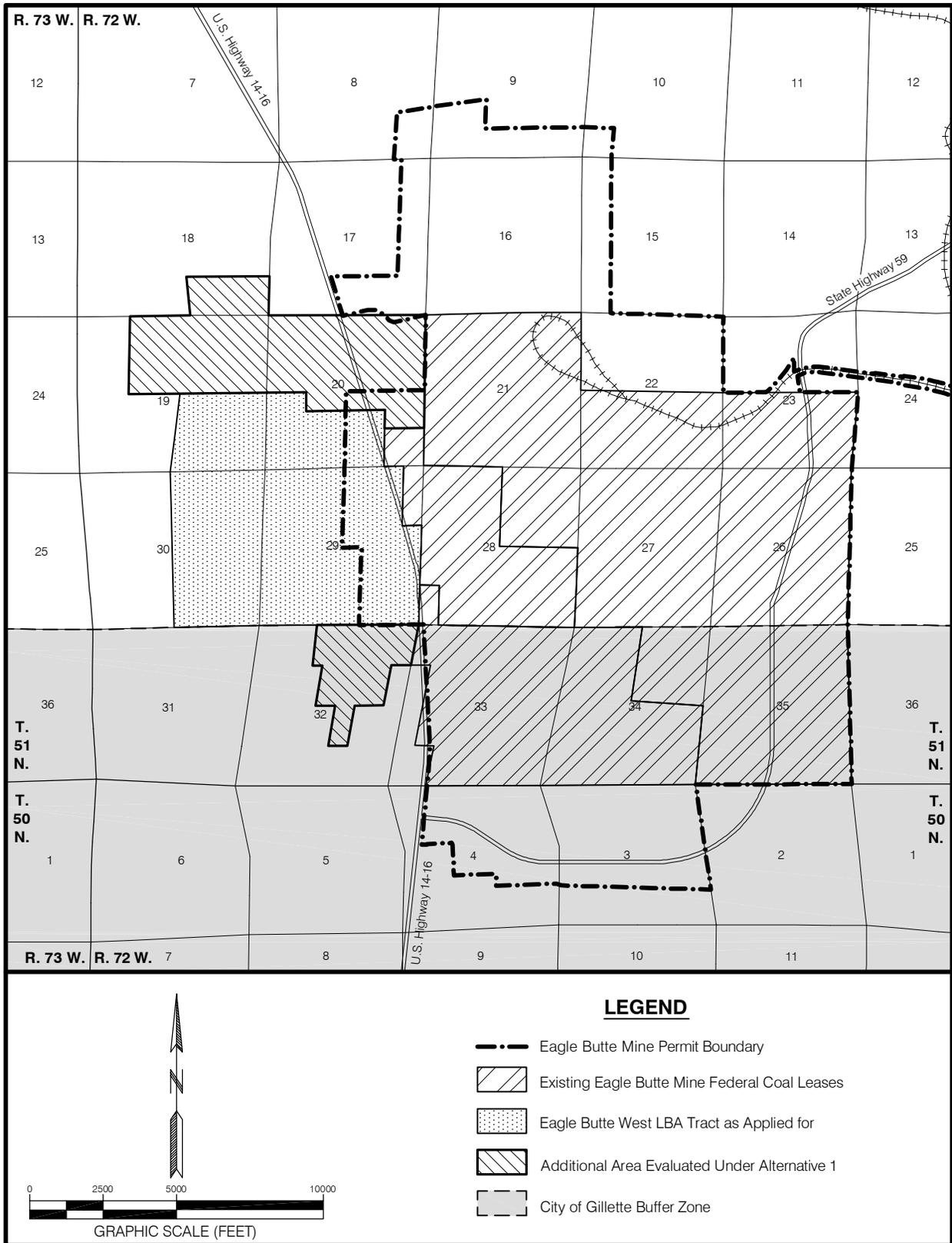


Figure 2-1. Eagle Butte West LBA Tract Alternatives.

The No Action Alternative (Alternative 2) is to reject the Eagle Butte West lease application. Under the No Action Alternative, the tract would not be offered for competitive sale, and the coal contained within the tract would not be mined as proposed. Rejection of the application would not affect currently permitted mining activities on existing leases at the existing Eagle Butte Mine and selection of the No Action Alternative would not preclude an application to lease the rejected tract in the future. Portions of the surface of the LBA tract have been disturbed in connection with mining operations on Eagle Butte Mine's existing leases.

Other alternatives considered but not analyzed in detail include:

- holding a competitive lease sale and issuing a lease for federal coal lands included in the Eagle Butte West LBA Tract (as applied for or as modified by BLM), with the assumption that the tract would be developed as a new mine (Alternative 3); and
- delaying the sale of the Eagle Butte West LBA Tract as applied for in order to take advantage of higher coal prices and/or to allow recovery of the potential CBNG resources in the tract prior to mining (Alternative 4). Under this alternative, it is assumed that the tract could be developed later as a maintenance tract or a new mine start, depending on how long the sale was delayed.

LBA tracts are nominated for leasing by companies with an interest in acquiring them but, as discussed in Chapter 1, the LBA process is, by law and regulation, an open, public, competitive sealed-bid process. If a tract is offered for lease, the applicant for that tract may or may not be the high bidder when the lease sale is held. The Proposed Action and Alternative 1 considered in this EIS assume that FCW would be the successful bidder if the federal coal included in the tract is offered for lease, and that the Eagle Butte West LBA Tract would be mined as a maintenance tract for the permitted Eagle Butte Mine.

If a decision is made to hold a competitive lease sale and a lease is issued, the lessee must obtain a permit to conduct coal mining operations before mining can begin on the tract. As discussed in Chapter 1, Section 1.3, this permit application would undergo detailed review by state and federal agencies as part of the approval process. The detailed permit application could potentially differ from the more general mining plan used to analyze the impacts of the Proposed Action and Alternative 1 in this EIS, but the differences would not be expected to substantially change the impacts described here. These differences would typically be related to the details of mining and reclaiming the tract but major factors, like the approximate number of tons of coal to be mined and yards of overburden to be removed, the acres disturbed, etcetera, would not be substantially different from the plan used in this analysis.

## 2.0 Proposed Action and Alternatives

Under the Proposed Action and Alternative 1, it is assumed that an area larger than the tract would have to be disturbed in order to recover all of the coal in the tract. The disturbances outside the coal removal area would be due to activities like overstripping, matching undisturbed topography, and construction of flood control and sediment control structures.

### **2.1 Proposed Action**

Under the Proposed Action, the Eagle Butte West LBA Tract as applied for by FCW would be offered for lease at a sealed-bid, competitive lease sale, subject to standard and special lease stipulations developed for the PRB (Appendix D). The boundaries of the tract would be consistent with the tract configuration proposed in the Eagle Butte West lease application (Figure 2-1). The Proposed Action assumes that FCW would be the successful bidder on the Eagle Butte West LBA Tract if it is offered for sale.

The legal description of the proposed Eagle Butte West LBA Tract coal lease lands as applied for by FCW under the Proposed Action is as follows:

#### T.51N., R.72W., 6<sup>th</sup> P.M., Campbell County, Wyoming

Section 19: Lots 13, 14, 19, and 20;	187.79 acres
Section 20: Lots 10(S½), 11(S½), and 12 through 15;	201.74 acres
Section 29: Lots 1(W½), 2 through 7, 8(W½ and SE¼), and 9 through 16;	635.45 acres
Section 30: Lots 5, 6, 11 through 14, 19, and 20;	372.66 acres
Total:	<u>1,397.64 acres</u>

The Land description and acreage are based on the BLM Status of Public Domain Land and Mineral Titles approved Coal Plat as of April 4, 2005. The coal estate in the tract described above is federal and the surface estate is owned by FCW. Ownership of the oil and gas estate is discussed in Section 3.11.

A portion of U.S. Highway 14-16 crosses the eastern edge of the Eagle Butte West LBA Tract (Figure 2-1). SMCRA prohibits surface mining operations on lands within 100 ft of the outside line of the ROW for a public highway. As discussed in Chapter 1, Section 1.5, the coal underlying Highway 14-16, its ROW, and a buffer zone extending 100 ft on either side of the ROW has been determined to be unsuitable for mining in accordance with SMCRA and as specified in coal leasing Unsuitability Criterion Number 3 (43 CFR 3461).

There is an exception to this prohibition in the regulations at 30 CFR 761.11(d), which can be applied if the appropriate public road authority (WYDOT) allows the road to be relocated or closed. FCW and WYDOT are working on a plan to relocate U.S. Highway 14-16. If FCW obtains approval from WYDOT to move Highway 14-16, the exception to the prohibition on mining within the highway ROW and buffer zone could be applied and the unsuitability determination could be reconsidered. In that case, FCW would be able to recover the coal underlying the highway ROW and buffer zone. If FCW does not obtain approval to move U.S. Highway 14-16, the coal underlying the highway ROW and buffer zone would remain unsuitable for mining and would not be recovered.

The federal coal underlying Highway 14-16, its ROW, and the adjacent buffer zone is included in the tract because it would allow maximum recovery of the mineable coal adjacent to but outside of the highway ROW and buffer zone if the road is not moved; it would also allow recovery of the coal under the highway if the road is moved. If a lease is issued for this tract, a stipulation will be attached to the lease stating that no mining activity may be conducted in the portion of the lease within the ROW and buffer zone for U.S. Highway 14-16 unless approval is obtained from the appropriate authority to move the highway.

If U.S. Highway 14-16 is moved, FCW estimates that the Eagle Butte West LBA Tract as applied for includes approximately 238 million tons of mineable coal. FCW assumes that about 96 percent of that coal, or about 228 million tons of coal, could be recovered from the Eagle Butte West LBA Tract, based on historical recovery practices. If they acquire the tract and the highway is moved, a total of 568 million tons of coal would be mined after January 1, 2006, with an estimated 228 million tons coming from the LBA tract.

If the highway is not moved, FCW estimates that approximately 211 million tons of coal would be mineable and approximately 203 million tons of coal could be recovered from the Eagle Butte West LBA Tract as applied for. If they acquire the tract and if the highway is not moved, a total of 543 million tons of coal would be mined after January 1, 2006, with an estimated 203 million tons coming from the LBA tract. Based upon this estimate of recoverable reserves, about 15 percent of the in-place coal reserves included within the LBA tract would not be recovered under normal mining practices and due to the presence of the unmineable reserves within the highway ROW and associated buffer zone.

BLM independently evaluates the volume and average quality of the coal resources included in proposed LBA tracts as part of the fair market value determination process. If WYDOT approves the relocation of Highway 14-16, the estimated cost to FCW will be considered by BLM in the fair market value determination for the Eagle Butte West LBA Tract. If the highway is not moved, the fact that the coal within the highway ROW and associated buffer zone cannot be recovered will be considered by BLM in the fair market value determination for the LBA tract. BLM's estimate of the mineable federal coal reserves included in the tract may not

## *2.0 Proposed Action and Alternatives*

---

be in agreement with the mineable coal reserve and coal quality estimates provided by the applicant. BLM's estimate of the mineable federal coal reserves included in the tract under BLM's preferred alternative (Alternative 1) is discussed in Section 2.2 and will be published in the sale notice if the tract is offered for sale. Some coal quality information in the area of the Eagle Butte West LBA Tract is included in Section 3.3 of this document.

The Eagle Butte West LBA Tract would be mined as an integral part of the Eagle Butte Mine under the Proposed Action. Since the Eagle Butte West LBA Tract would be an extension of the existing Eagle Butte Mine, the facilities and infrastructure would be the same as those identified in the WDEQ/LQD Mine Permit 428 Term T5, approved November 1, 2005 and the BLM R2P2, which was approved October 26, 2005.

FCW's currently approved air quality permit from the WDEQ/AQD for the Eagle Butte Mine allows up to 35 million tons of coal per year to be mined. The Eagle Butte Mine produced:

- 18.6 million tons of coal in 2000;
- 24.8 million tons of coal in 2001;
- 24.9 million tons of coal in 2002;
- 24.7 million tons of coal in 2003;
- 23.0 million tons of coal in 2004;
- 24.1 million tons of coal in 2005, and
- 25.3 million tons of coal in 2006

(Wyoming Department of Employment 2001, 2002, 2003, 2004, 2005a, and 2006a).

As of December 31, 2005, approximately 420.4 million tons of coal had been mined from within the current permit area of the Eagle Butte Mine. Under the currently approved mining plan (the No Action Alternative), the Eagle Butte Mine would mine the remaining 340 million tons of recoverable coal reserves on the existing Eagle Butte leases in approximately 13.6 years at an average production rate of approximately 25 million tons per year. Under the Proposed Action and if Highway 14-16 is moved, FCW estimates that average annual coal production would continue to be approximately 25 million tons, mine life would be extended by about 9.1 additional years, and coal production at the Eagle Butte Mine would continue for nearly 23 years beginning in 2006. If U.S. Highway 14-16 is not moved and average annual coal production continues to be approximately 25 million tons, mine life would be extended by about 8.1 additional years and coal production would continue for nearly 22 years beginning in 2006.

Prior to disturbance and in advance of mining, mine support structures such as roads, power lines, substations, and flood and sediment control measures would be built as needed. Little Rawhide Creek runs north-south through the existing mine and the eastern portion of the LBA tract. Approximately 3.5 miles of the

natural channel has been diverted to date within the Eagle Butte Mine's current permit area. FCW would propose another diversion of Little Rawhide Creek if they acquire a lease for the Eagle Butte West LBA Tract. One overhead powerline, one buried telephone line and two buried pipelines would require relocation prior to mining.

Topsoil removal with suitable heavy equipment, such as rubber-tired scrapers, would proceed ahead of overburden removal. Whenever possible, direct haulage to a reclamation area would be done but, due to scheduling, some topsoil would be temporarily stockpiled. As required by the reclamation plan, heavy equipment again would be used to haul and distribute the stockpiled topsoil.

The Eagle Butte Mine has an approved Temporary Cessation of Operations area that is positioned to accommodate mining advancement to the west into the Eagle Butte West LBA Tract area. The Temporary Cessation of Operations area, which consists of an elongated trench running north-south adjacent and parallel to U.S. Highway 14-16, would facilitate placement of initial boxcut overburden material from the LBA tract. Mining would then be conducted in two separate pits; one located within the current permit area and one located within the proposed lease area. Overburden removal has been and would continue to be conducted using trucks and shovels. Other equipment used during overburden removal and backfilling would include dozers, scrapers, excavators, front-end loaders, motorgraders, fuel/lube trucks, and water trucks. Most overburden and all coal have been and would continue to be drilled and blasted to facilitate efficient excavation. The design of the Eagle Butte Mine seeks to confine disturbance to the active mine blocks. As overburden is removed, most would be directly placed into areas where coal has already been removed.

Once the overburden has been replaced, it is sampled and verified to be suitable for reclamation, graded to approximate final contour, ripped, and finally topsoiled. Material that is found to be unsuitable for reclamation (i.e., material that is not suitable for use in reestablishing vegetation or that may affect groundwater quality due to high concentrations of certain constituents, such as selenium, or adverse pH levels) would either be removed and treated, or adequately covered with suitable overburden material prior to grading and topsoiling. Elevations consistent with an approved PMT plan would be established as quickly as possible. Under certain conditions, the PMT may not be immediately achievable. This occurs when there is an excess of material that may require temporary stockpiling, when there is insufficient material available from current overburden removal operations, or when future mining could redisturb an area already mined. Once a seedbed has been formed, vegetation that is consistent with the postmining land use would be reestablished.

Coal would be produced from two seams that FCW refers to as the Roland and Smith. The combined thickness of the two coal seams averages about 110 ft, and ranges from about 33 to 133 ft inside the Eagle Butte West LBA Tract. The

## 2.0 Proposed Action and Alternatives

---

mineable coal seams are referred to as the Anderson and Canyon, Wyodak-Anderson, or Wyodak coal beds at other localities in the eastern PRB. The Roland coal seam is not present on the entire tract; decreasing the total coal thickness in the areas where it is not present. The parting between Roland and Smith coal seams ranges from one to 13 ft where both seams are present. Coal would be mined at several working faces to enable blending of the coal to meet customer quality requirements, to comply with BLM lease requirements for maximum economic recovery of the coal resource, and to optimize coal removal efficiency with available equipment. Coal would be loaded with electric-powered shovels into off-highway haul trucks for transport to crushing facilities. Coal haul roads would be temporary structures built within the mine areas. Currently, a single covered truck dump, or stilling shed, is used for all coal mined at the Eagle Butte Mine. A system of crushers, feeders, and transfer conveyors move the prepared coal to interim storage in four concrete silos located adjacent to the unit train loadout facility. All coal transfer location points and crushing operations are equipped with baghouse-type dust collectors or PECs. While the existing facilities have sufficient capacity at the projected rates of coal production, additional facilities may be constructed in order to improve operating efficiency and air quality protection. For example, a covered overland conveyor and near-pit crushing facility may be constructed on the proposed LBA tract, although no definite plans have been made to do so.

Full-time employment at the Eagle Butte Mine is currently 223. If FCW acquires the Eagle Butte West LBA Tract under the Proposed Action, they anticipate that employment levels would remain the same for the additional eight to nine years that it would take to mine the coal included in the tract. This is based on the assumption that the average annual coal production rate would remain at approximately 25 million tons per year.

As discussed in Chapter 1, the Eagle Butte West LBA Tract is adjacent to existing leases at the Eagle Butte Mine, but is not adjacent to leases at any of the other existing mines in this area (see Figure 1-1). If a company other than FCW acquires the tract, the rate of coal production, mining sequence, equipment, and facilities would be different than if FCW acquired the tract as a maintenance lease, as described above. However, the area of disturbance and the impacts of removing the coal would not be substantially different from the area of disturbance and the impacts of FCW mining the tract.

### 2.1.1 Regulatory Compliance, Mitigation and Monitoring

SMCRA and Wyoming State Law require surface coal mines to collect extensive baseline information and implement extensive monitoring programs and mitigation measures. The currently approved mine permit for the Eagle Butte Mine includes these requirements. Monitoring programs and mitigation measures that are required by regulation are considered to be part of the Proposed Action and Alternative 1 for the Eagle Butte West LBA Tract. These data collection

requirements, mitigation plans, and monitoring commitments are in place for the No Action Alternative, as part of the current approved permit to conduct mining operations for the existing Eagle Butte Mine. These data collection requirements, mitigation plans, and monitoring commitments would be extended to include mining operations on the Eagle Butte West LBA Tract, if it is leased and permitted for mining by the Eagle Butte Mine. A mining and reclamation plan for mining operations on the Eagle Butte West LBA Tract would have to be approved before mining operations could be conducted on the tract, regardless of who acquires it. The major mitigation and monitoring measures that are required by state or federal regulation are summarized in Table 2-1. More specific information about some of these mitigation and monitoring measures and their results at the Eagle Butte Mine are described in Chapter 3.

If impacts are identified during the leasing process that are not addressed by the existing required mitigation measures, BLM can require additional mitigation measures, in the form of stipulations on the new lease, within the limits of its regulatory authority. In general, the levels of mitigation and monitoring required for surface coal mining by SMCRA and Wyoming State law are more extensive than those required for other surface disturbing activities; however, concerns may periodically be identified that are not monitored or mitigated under existing procedures.

### 2.1.2 Hazardous and Solid Waste

Under the Proposed Action and Alternative 1, the procedures and requirements for handling of hazardous and solid wastes would be the same as the procedures and requirements for the existing mining operation. Solid waste that is produced at the existing Eagle Butte Mine consists of floor sweepings, shop rags, lubricant containers, welding rod ends, metal shavings, worn tires, packing material, used filters, and office and food wastes. A portion of the solid wastes produced at the Eagle Butte Mine is disposed of within the mine's permit boundary in accordance with WDEQ-approved solid waste disposal plans. Solid waste is also disposed of at the Campbell County landfill. Sewage is handled by WDEQ-permitted sewage treatment system present on the existing mine facilities. Maintenance and lubrication of most of the equipment takes place at existing shop facilities at the Eagle Butte Mine.

Major lubrication, oil changes, etcetera, of most equipment are performed inside the service garage and lubrication building at the Eagle Butte Mine, where used oil and grease are currently contained and deposited in storage tanks. All of the collected used oils and grease are then beneficially recycled off site. These practices would not change if the applicant acquires the LBA tract.

FCW has reviewed the EPA's *Consolidated List of Chemicals Subject to Reporting Under Title III of the Superfund Amendments and Re-authorization Act (SARA) of 1986* (as amended) and EPA's *List of Extremely Hazardous Substances* as defined

## 2.0 Proposed Action and Alternatives

**Table 2-1. Regulatory Compliance, Mitigation and Monitoring Measures for Surface Coal Mining Operations Required by SMCRA and State Law for all Alternatives.**

<b>Resource</b>	<b>Regulatory Compliance or Mitigation Required by Stipulations, State or Federal Law<sup>1</sup></b>	<b>Monitoring<sup>1</sup></b>
Topography & Physiography	Restoring to approximate original contour or other approved topographic configuration.	LQD checks as-built vs. approved topography with each annual report.
Geology & Minerals	Identifying & selectively placing or mixing chemically or physically unsuitable overburden materials to minimize adverse effects to vegetation or groundwater.	LQD requires monitoring in advance of mining to detect unsuitable overburden.
Soil	Salvaging soil suitable to support plant growth for use in reclamation; Protecting soil stockpiles from disturbance and erosional influences; Selectively placing at least four ft of suitable overburden on the graded backfill surface below replaced topsoil to meet guidelines for vegetation root zones.	Monitoring vegetation growth on reclaimed areas to determine need for soil amendments; Sampling regraded overburden for compliance with root zone criteria.
Air Quality	Dispersion modeling of mining plans for annual average particulate pollution impacts on ambient air; Using particulate pollution control technologies; Using work practices designed to minimize fugitive particulate emissions; Using EPA- or state-mandated BACT, including: Fabric filtration or wet scrubbing of coal storage silo and conveyor vents, Watering or using chemical dust suppression on haul roads and exposed soils, Containment of truck dumps and primary crushers, Covering of conveyors, Prompt revegetation of exposed soils, High efficiency baghouse dust collection systems or PECs, or atomizers/foggers on the crusher, conveyor transfer, storage bin and train loadout, meeting a standard of 0.01 grains per dry standard cubic foot (dscf) of exit volume, Watering of active work areas, Reclamation plan to minimize surface disturbances subject to wind erosion, Paving of access roads, Haul truck speed limits, Limited material drop heights for shovels and draglines.	On-site air quality monitoring for PM <sub>10</sub> or TSP; Off-site ambient monitoring for PM <sub>10</sub> or TSP; On-site compliance inspections.

<sup>1</sup> These requirements, mitigation plans, and monitoring plans are in place for the existing Eagle Butte Mine in its current approved mining and reclamation plan (the No Action Alternative). If the Eagle Butte West LBA Tract were leased, these requirements, mitigation plans, and monitoring plans would be part of a mining and reclamation plan revision covering the Eagle Butte West LBA Tract that must be approved before mining can occur on the tract under the Proposed Action or Alternative 1.

**Table 2-1. Regulatory Compliance, Mitigation and Monitoring Measures for Surface Coal Mining Operations Required by SMCRA and State Law for all Alternatives (Continued).**

<b>Resource</b>	<b>Regulatory Compliance or Mitigation Required by Stipulations, State or Federal Law<sup>1</sup></b>	<b>Monitoring<sup>1</sup></b>
Air Quality (continued)	Following voluntary and required measures to avoid exposing the public to NO <sub>2</sub> from blasting clouds, including: Phone notification of neighbors and workers prior to blasting, Monitoring weather and atmospheric conditions prior to decisions to blast, Timing blasts to avoid temperature inversions and to minimize inconvenience to neighbors, Closing public roads when appropriate to protect the public, Minimizing blast sizes, Posting signs on major public roads.	
Surface Water	Building and maintaining sediment control ponds or other devices during mining; Restoring approximate original drainage patterns during reclamation; Restoring stock ponds and playas during reclamation.	Monitoring storage capacity in sediment ponds; Monitoring quality of discharges; Monitoring streamflow and water quality.
Groundwater Quantity	Evaluating cumulative impacts to water quantity associated with proposed mining; Replacing existing water rights that are interrupted, discontinued, or diminished by mining with water of equivalent quantity.	Monitoring wells track water levels in overburden, coal, interburden, underburden, and backfill.
Groundwater Quality	Evaluating cumulative impacts to water quality associated with proposed mining; Replacing existing water rights that are interrupted, discontinued, or diminished by mining with water of equivalent quality.	Monitoring wells track water quality in overburden, coal, interburden, underburden, and backfill.
Alluvial Valley Floors	Identifying all AVFs that would be affected by mining; Determining significance to agriculture of all identified AVFs affected by mining (WDEQ); Protecting downstream AVFs during mining; Restoring essential hydrologic function of all AVFs affected by mining.	Monitoring to determine restoration of essential hydrologic functions of any declared AVF.
Wetlands	Identifying all wetlands that would be affected by mining; Identifying jurisdictional wetlands (COE); Replacing all jurisdictional wetlands that would be disturbed by mining; Replacing functional wetlands as required by surface managing agency, surface landowner, or WDEQ/LQD.	Monitoring of reclaimed wetlands using same procedures used to identify pre-mining jurisdictional wetlands.

<sup>1</sup> These requirements, mitigation plans, and monitoring plans are in place for the existing Eagle Butte Mine in its current approved mining and reclamation plan (the No Action Alternative). If the Eagle Butte West LBA Tract were leased, these requirements, mitigation plans, and monitoring plans would be part of a mining and reclamation plan revision covering the Eagle Butte West LBA Tract that must be approved before mining can occur on the tract under the Proposed Action or Alternative 1.

2.0 Proposed Action and Alternatives

Table 2-1. Regulatory Compliance, Mitigation and Monitoring Measures for Surface Coal Mining Operations Required by SMCRA and State Law for all Alternatives (Continued).

Resource	Regulatory Compliance or Mitigation Required by Stipulations, State or Federal Law <sup>1</sup>	Monitoring <sup>1</sup>
Vegetation	Permanently revegetating reclaimed areas according to a comprehensive revegetation plan using approved permanent reclamation seed mixtures consisting predominantly of species native to the area; Reclaiming 20 percent of reclaimed area with native shrubs at a density of one per square meter; Controlling erosion on reclaimed lands prior to seeding with final seed mixture using mulching, cover crops, or other approved measures; Chemically and mechanically controlling weed infestation; Direct hauling of topsoil; Selectively planting shrubs in riparian areas; Planting sagebrush; Creating depressions and rock piles; Using special planting procedures around rock piles; Posting reclamation bond covering the cost of reclamation.	Monitoring of revegetation growth & diversity until release of final reclamation bond (minimum 10 years); Monitoring of erosion to determine need for corrective action during establishment of vegetation; Use of controlled grazing during revegetation evaluation to determine suitability for post-mining land uses.
Wildlife	Restoring pre-mining topography to the maximum extent possible; Planting a diverse mixture of grasses, forbs, and shrubs in configurations beneficial to wildlife; Designing fences to permit wildlife passage; Raptor-proofing power transmission poles; Creating artificial raptor nest sites; Increasing habitat diversity by creating rock clusters and shallow depressions on reclaimed land; Cottonwood plantings along reclaimed drainages; Replacing drainages, wetlands, and AVFs disturbed by mining; Reducing vehicle speed limits to minimize mortality; Instructing employees not to harass or disturb wildlife; Following approved raptor mitigation plans.	Baseline and annual wildlife monitoring surveys; Monitoring for Migratory Bird Species of Management Concern in Wyoming.
Threatened, Endangered, Proposed, and Candidate Species	Avoiding bald eagle disturbance; Restoring bald eagle foraging areas disturbed by mining; Restoring mountain plover habitat disturbed by mining; Using raptor safe power lines; Surveying for Ute ladies'-tresses;	Baseline and annual wildlife monitoring surveys.

<sup>1</sup> These requirements, mitigation plans, and monitoring plans are in place for the existing Eagle Butte Mine in its current approved mining and reclamation plan (the No Action Alternative). If the Eagle Butte West LBA Tract were leased, these requirements, mitigation plans, and monitoring plans would be part of a mining and reclamation plan revision covering the Eagle Butte West LBA Tract that must be approved before mining can occur on the tract under the Proposed Action or Alternative 1.

**Table 2-1. Regulatory Compliance, Mitigation and Monitoring Measures for Surface Coal Mining Operations Required by SMCRA and State Law for all Alternatives (Continued).**

<b>Resource</b>	<b>Regulatory Compliance or Mitigation Required by Stipulations, State or Federal Law<sup>1</sup></b>	<b>Monitoring<sup>1</sup></b>
Threatened, Endangered, Proposed, and Candidate Species (continued)	Surveying for mountain plover; Searching for black-footed ferrets if prairie dog colonies are on or move onto tract; Surveying for black-tailed prairie dog; Same as Wildlife Resource above.	Baseline and annual wildlife monitoring surveys.
Land Use	Suitably restoring reclaimed area for historic uses (grazing and wildlife);	Monitoring of controlled grazing prior to bond release evaluation.
Cultural Resources	Conducting Class I & III surveys to identify cultural properties on all state and federal lands and on private lands affected by federal undertakings; Consulting with SHPO to evaluate eligibility of cultural properties for the NRHP; Avoiding or recovering data from significant cultural properties identified by surveys, according to an approved plan; Notifying appropriate federal personnel if historic or prehistoric materials are uncovered during mining operations; Instructing employees of the importance of and regulatory obligations to protect cultural resources.	Monitoring of mining activities during topsoil stripping; cessation of activities and notification of authorities if unidentified sites are encountered during topsoil removal.
Native American Concerns	Notifying Native American tribes with known interest in this area of leasing action and request for help in identifying potentially significant religious or cultural sites.	No specific monitoring program.
Paleontological Resources	Notifying appropriate federal personnel if potentially significant paleontological sites are discovered during mining.	No specific monitoring program.
Visual Resources	Restoring landscape character during reclamation through return to approximate original contour and revegetation with native species.	No specific monitoring program.
Noise	Protecting employees from hearing loss.	MSHA inspections.
Transportation Facilities	Relocating existing pipelines, if necessary, in accordance with specific agreement between pipeline owner and coal lessee.	No specific monitoring program.
Socioeconomics	Paying royalty and taxes as required by federal, state, and local regulations. No mitigation measures are proposed.	Surveying and reporting to document volume of coal removed.

<sup>1</sup> These requirements, mitigation plans, and monitoring plans are in place for the existing Eagle Butte Mine in its current approved mining and reclamation plan (the No Action Alternative). If the Eagle Butte West LBA Tract were leased, these requirements, mitigation plans, and monitoring plans would be part of a mining and reclamation plan revision covering the Eagle Butte West LBA Tract that must be approved before mining can occur on the tract under the Proposed Action or Alternative 1.

*2.0 Proposed Action and Alternatives*

---

**Table 2-1. Regulatory Compliance, Mitigation and Monitoring Measures for Surface Coal Mining Operations Required by SMCRA and State Law for all Alternatives (Continued).**

<b>Resource</b>	<b>Regulatory Compliance or Mitigation Required by Stipulations, State or Federal Law<sup>1</sup></b>	<b>Monitoring<sup>1</sup></b>
Hazardous & Solid Waste	Disposing of solid waste and sewage within permit boundaries according to approved plans; Storing and recycling waste oil; Maintaining of files containing Material Safety Data Sheets for all chemicals, compounds, and/or substances used during course of mining; Ensuring that all production, use, storage, transport, and disposal of hazardous materials is in accordance with applicable existing or hereafter promulgated federal, state, and government requirements; Complying with emergency reporting requirements for releases of hazardous materials as established in CERCLA, as amended; Preparing and implementing spill prevention control and countermeasure plans, spill response plans, inventories of hazardous chemical categories pursuant to Section 312 of SARA, as amended; Preparing emergency response plans.	No specific monitoring other than required by these other regulations and response plans.

---

<sup>1</sup> These requirements, mitigation plans, and monitoring plans are in place for the existing Eagle Butte Mine in its current approved mining and reclamation plan (the No Action Alternative). If the Eagle Butte West LBA Tract were leased, these requirements, mitigation plans, and monitoring plans would be part of a mining and reclamation plan revision covering the Eagle Butte West LBA Tract that must be approved before mining can occur on the tract under the Proposed Action or Alternative 1.

---

in 40 CFR 355 (as amended) for hazardous substances used at the Eagle Butte Mine. FCW maintains files containing Material Safety Data Sheets for all chemicals, compounds, and/or substances that are or would be used during the course of mining.

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

FCW must comply with emergency reporting requirements for releases of hazardous materials. Any release of hazardous or extremely hazardous substances in excess of the reportable quantity, as established in 40 CFR 117, is reported as required by CERCLA, as amended. The materials for which such notification must be given are the extremely hazardous substances listed in Section 302 of the *Emergency Planning and Community Right to Know Act* and the hazardous substances designated under Section 102 of CERCLA, as amended. If a reportable quantity of a hazardous or extremely hazardous substance is released, immediate notice must be given to the WDEQ Solid and Hazardous Waste Division, WDEQ Water Quality Division, and all other appropriate federal and state agencies.

Each mining company is expected to prepare and implement several plans and/or policies to ensure environmental protection from hazardous and extremely hazardous materials. These plans/policies include:

- Spill Prevention Control and Countermeasure Plans;
- Spill Response Plans;
- Stormwater Pollution Prevention Plans;
- Inventories of Hazardous Chemical Categories Pursuant to Section 313 of SARA, as Amended; and
- Emergency Response Plans.

All mining operations are also required to be in compliance with regulations promulgated under the Resource Conservation and Recovery Act, Federal Water Pollution Control Act (Clean Water Act), Safe Drinking Water Act, Toxic Substances Control Act, Mine Safety and Health Act, Department of Transportation, and the Federal Clean Air Act. In addition, mining operations must comply with all attendant state rules and regulations relating to hazardous material reporting, transportation, management, and disposal.

Compliance with these rules is the current practice at the Eagle Butte Mine. Acquisition of the Eagle Butte West LBA Tract by FCW would not change these

## 2.0 Proposed Action and Alternatives

current practices nor the type and quantity of any wastes generated and disposed of by the mine.

### **2.2 Alternative 1**

Under Alternative 1 for the Eagle Butte West LBA Tract, BLM would reconfigure the tract and hold a competitive coal sale for the lands included in the reconfigured tract and issue a lease to the successful bidder. The modified tract would be subject to standard and special lease stipulations developed for the PRB and for this tract if it is offered for sale (Appendix D). Alternative 1, holding a competitive coal sale for a modified tract, is the BLM's Preferred Alternative.

Alternative 1 for the Eagle Butte West LBA Tract assumes that FCW would be the successful bidder on the tract if a lease sale is held and that the federal coal would be mined to extend the life of existing Eagle Butte Mine. Other assumptions are the same as for the Proposed Action.

As applied for, the Eagle Butte West LBA Tract consists of a single block of federal coal (Figure 1-2). In order to evaluate the potential that an alternate configuration of the tract would provide for more efficient recovery of the federal coal, increase competitive interest in the Eagle Butte West LBA Tract, and/or reduce the potential that some of the remaining unleased federal coal in this area would be bypassed in the future, BLM identified a study area. The BLM study area includes the tract as applied for and unleased federal coal adjacent to the northern and southern edges of the tract as applied for (Figure 2-1). Under this alternative, BLM could add some or all of the adjacent lands to the tract, or BLM could reduce the size of the tract, as discussed in Section 2.0. Under Alternative 1, the area BLM is evaluating in addition to the tract as applied for includes the following lands:

#### T.51N., R.72W., 6<sup>th</sup> P.M., Campbell County, Wyoming

Section 18: Lots 19 and 20;	83.89 acres
Section 19: Lots 6 through 8 and 10 through 12;	290.46 acres
Section 20: Lots 1 through 9, 10(N½), and 11(N½);	399.90 acres
Section 32: Lots 1, 2, 3(E½), 6(E½E½), 7, 8(W½), and 10(W½E½ and E½W½);	200.66 acres
Total:	<u>974.91 acres</u>

Land descriptions and acreage are based on the BLM Status of Public Domain Land and Mineral Titles approved Coal Plat as of April 4, 2005.

FCW estimates that these 974.91 additional acres contain approximately 148.7 million tons of in-place, mineable coal.

As originally applied for, in 2001, the Eagle Butte West LBA Tract included additional coal north and south of the current application area. In 2003, FCW modified their application area by adding coal to the west of their original application and subtracting coal from the northern and southern portions of their original application. The northern boundary of the modified Eagle Butte West LBA Tract was configured by FCW to allow the mine to maintain the setback distance from occupied dwellings and the Rawhide School that is required by WDEQ/LQD for conducting blasting operations, while the current location of the southern boundary was modified to reflect potential concerns with the location of the Gillette-Campbell County Airport. In identifying a study area, BLM included additional federal coal resources north and south of the current application area, as shown in Figure 2-1. BLM wanted to evaluate that federal coal in order to determine if it would be possible to safely recover additional coal in these areas because this coal will likely be bypassed if it is not leased at this time. After evaluating the tract configuration, BLM concluded that regulatory and safety considerations preclude extending the Eagle Butte West LBA Tract in either a north or a south direction due to the presence of the occupied dwellings, school, and airport. BLM did not reduce the size of the tract because the modified tract was configured to allow recovery of the federal coal while maintaining the setback distances for conducting blasting operations established by WDEQ/LQD for safety purposes. BLM did make a decision to add approximately 30 acres to the northeast corner of the tract. Although most of the coal included in this addition to the tract would not be recoverable due to the required setback distances, including this coal in the tract would potentially allow more efficient recovery of the coal up to the required setback distance.

BLM's preferred tract configuration is to add approximately 30 acres to the northeast corner of the tract as applied for (Figure 2-2). Under Alternative 1, BLM would add the following lands to the Eagle Butte West LBA Tract as applied for:

T.51N., R.72W., 6<sup>th</sup> P.M., Campbell County, Wyoming

Section 20: Lot 10(NW $\frac{1}{4}$ ) and Lot 11 (N $\frac{1}{2}$ ); 30.13 acres

The legal description of BLM's preferred configuration of the Eagle Butte West LBA Tract under Alternative 1 is as follows:

T.51N., R.72W., 6<sup>th</sup> P.M., Campbell County, Wyoming

Section 19: Lots 13, 14, 19, and 20; 187.79 acres

Section 20: Lots 10(NW $\frac{1}{4}$ , S $\frac{1}{2}$ ) and 11 through 15; 231.87 acres

## 2.0 Proposed Action and Alternatives

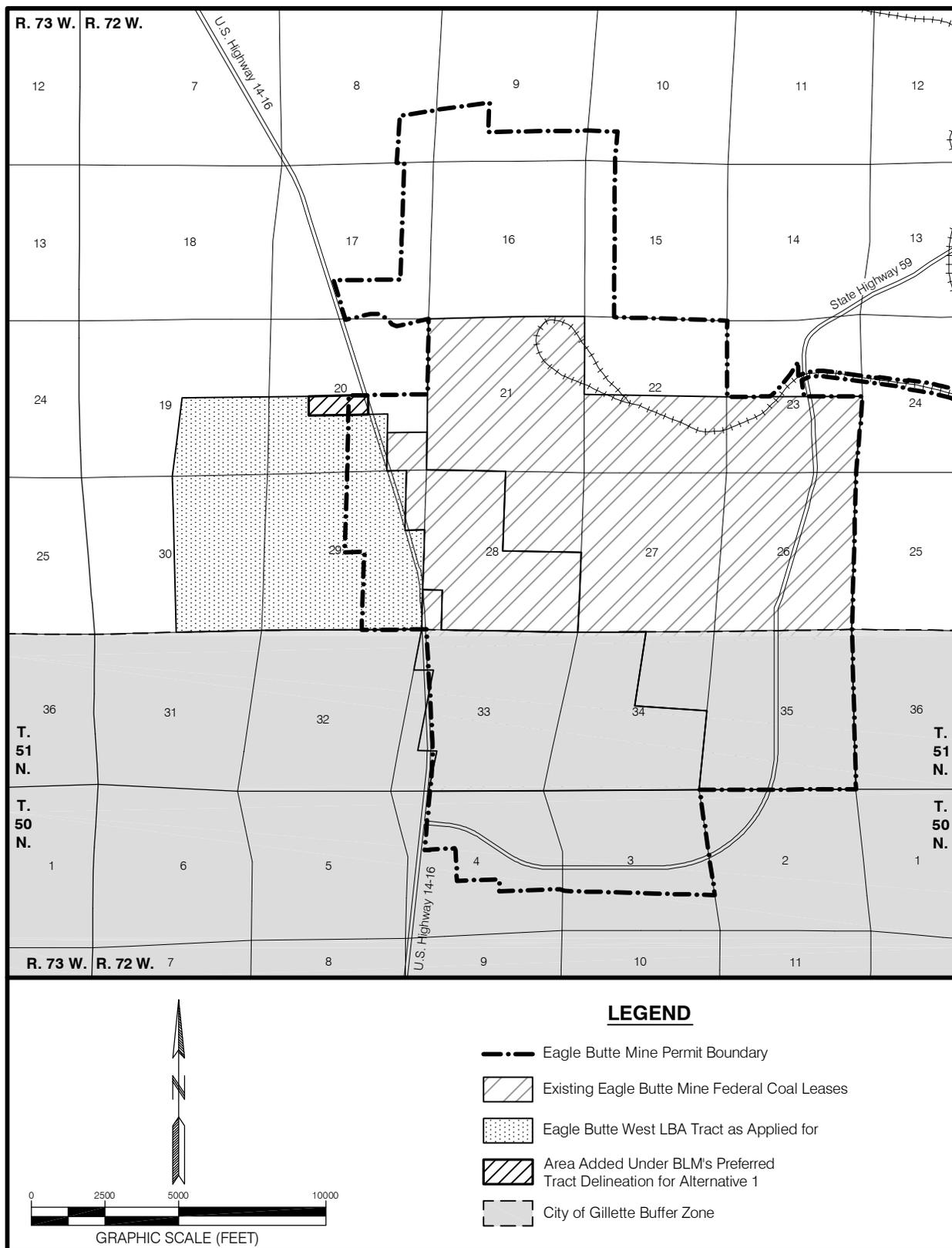


Figure 2-2. Eagle Butte West LBA Preferred Alternative Tract Configuration.

## 2.0 Proposed Action and Alternatives

---

Section 29: Lots 1(W½), 2 through 7, 8(W½ and SE¼), and 9 through 16;	635.45 acres
Section 30: Lots 5, 6, 11 through 14, 19, and 20;	372.66 acres
Total:	<u>1,427.77 acres</u>

The land description and acreage are based on the BLM Status of Public Domain Land and Mineral Titles approved Coal Plat as of April 4, 2005. The coal estate in the tract described above is federal and the surface estate is owned by FCW. Ownership of the oil and gas estate is discussed in Section 3.11.

Some of the coal in the Eagle Butte West LBA Tract under this alternative is overlain by U.S. Highway 14-16 and SMCRA prohibits surface mining operations on lands within 100 ft of the outside line of the ROW for a public highway [SMCRA Section 522(e)(4) and 30 CFR 761.11(d)]. As discussed in Sections 1.5 and 2.1, the coal underlying the highway, its ROW, and a buffer zone extending 100 ft on either side of the ROW has been determined to be unsuitable for mining in accordance with SMCRA and as specified in coal leasing Unsuitability Criterion Number 3 (43 CFR 3461).

As discussed in Section 2.1, there is an exception to this prohibition against mining the coal underlying the highway ROW and associated buffer zone that can be applied if the appropriate public road authority allows the road to be relocated or closed [SMCRA Section 522(e)(4) and 30 CFR 761.11(d)(2)]. FCW and WYDOT are working on a plan to relocate U.S. Highway 14-16. If FCW obtains approval from WYDOT to move Highway 14-16, the exception to the prohibition on mining within the highway ROW and buffer zone could be applied and the unsuitability determination could be reconsidered. In that case, FCW would be able to recover the coal underlying the highway ROW and buffer zone. If FCW does not obtain approval to move U.S. Highway 14-16, the coal underlying the highway ROW and buffer zone would remain unsuitable for mining and would not be recovered.

The federal coal underlying Highway 14-16, its ROW, and the adjacent buffer zone is included in the tract because it would allow maximum recovery of the mineable coal adjacent to but outside of the highway ROW and buffer zone if the road is not moved; it would also allow recovery of the coal under the highway if the road is moved. If a lease is issued for this tract, a stipulation will be attached to the lease stating that no mining operations may be conducted in the portion of the lease within the highway ROW and buffer zone unless approval is obtained from the appropriate authority to move U.S. Highway 14-16.

Section 522(e)(5) of SMCRA and the regulations at 30 CFR 761.11 (e), (f), and (g), which are the basis for Unsuitability Criterion Number 3 [43 CFR 3461.5(c)(1)], also prohibit mining within 300 ft of any public building, school, church, community or institutional building, or public park; or within 300 ft of an

## *2.0 Proposed Action and Alternatives*

---

occupied dwelling. A public school, the public road to the school, and several occupied dwellings are located in the north half (N½) of Section 20, T.51N., R.72W., within the northern portion of the additional area evaluated under Alternative 1 for the Eagle Butte West LBA Tract (Figure 2-1). Specifically, the Rawhide Elementary School is located in the NE¼NW¼NW¼ of Section 20, T.51N., R.72W., and there are occupied residences in a subdivision located in the NE¼ of Section 20, T.51N., R.72W. The coal underlying the school and occupied dwellings was included in the BLM study area for geological evaluation purposes because it is unmined federal coal that will likely be bypassed if it is not leased at this time, but this coal is unsuitable for mining, based on the regulatory requirements discussed above. The federal coal underlying the school and the occupied dwellings in the N½ of Section 20, T.51N., R.72W. is not included in the tract under BLM's preferred tract configuration (Figure 2-2). This area is still considered to be part of the BLM study area and is included in the following discussions.

The southern portion of the additional area evaluated under Alternative 1, lies within the City of Gillette Buffer Zone (Figure 2-1) and is also adjacent to facilities at the Gillette-Campbell County Airport. BLM included this coal in the study area for geological evaluation purposes because it is unmined federal coal that will likely be bypassed if it is not leased at this time. The BLM's preferred tract configuration does not include any coal located within the City of Gillette Buffer Zone (Figure 2-2), but the area is still considered to be part of the BLM study area in the following discussions.

If U.S. Highway 14-16 is not moved, FCW estimates that the Eagle Butte West LBA Tract under BLM's preferred tract configuration (Figure 2-2) includes approximately 214.2 million tons of mineable coal reserves. Using FCW's projected recovery factor of 96 percent of the mineable coal reserves, about 206.1 million tons of the mineable coal would be recoverable. At the average annual coal production rate of 25 million tons per year, mining this coal would extend the life of the mine by about 8.2 additional years.

If the highway is moved, FCW estimates that the Eagle Butte West LBA Tract includes approximately 241.2 million tons of mineable coal reserves and that approximately 231.1 million tons of that coal would be recoverable. At the average annual coal production rate of 25 million tons per year, mining this coal would extend mine life by about 9.2 additional years.

BLM independently evaluates the volume and average quality of the coal resources included in any federal coal lands that are considered for leasing. BLM's evaluation indicates that the Eagle Butte West LBA Tract includes approximately 255 million tons of mineable coal under BLM's preferred tract configuration, assuming that Highway 14-16 is moved. Additional information from BLM's evaluation will be published in the sale notice for the tract, if it is offered for sale.

If WYDOT approves the relocation of U.S. Highway 14-16, the estimated cost to FCW will be considered by BLM in the fair market value determination for the LBA tract under Alternative 1. If the highway is not moved, the fact that the coal within the highway ROW and the associated buffer zone cannot all be recovered will be considered by BLM in the fair market value determination for the Eagle Butte West LBA Tract under Alternative 1.

### **2.3 Alternative 2**

Under Eagle Butte West LBA Tract Alternative 2, the No Action Alternative, FCW's application to lease the coal included in the Eagle Butte West LBA Tract would be rejected, the tract would not be offered for competitive sale at this time, and the coal included in the tract would not be mined.

Rejection of the application would not affect already permitted mining activities and employment on the existing leases at the Eagle Butte Mine. The Eagle Butte Mine currently leases approximately 4,884 acres of federal coal and 640 acres of state coal; all of which are within the existing mine permit boundary. A total of approximately 6,076 acres will eventually be affected in mining the current leases. If the Eagle Butte West LBA Tract is not leased, FCW estimates that the average annual production at the Eagle Butte Mine after January 1, 2006 will continue to be approximately 25 million tons, and the average full-time employment level is projected to be 223 persons. FCW may scale back the average annual production at the Eagle Butte Mine to 12 million tons from 2011 through 2028; if employment is reduced in proportion to production, approximately half of the workforce (113 persons) would be lost during those years.

In order to compare the economic and environmental consequences of mining these lands versus not mining them, this EIS was prepared under the assumption that the Eagle Butte West LBA Tract would not be mined in the foreseeable future if the No Action Alternative is selected. However, selection of the No Action Alternative would not preclude leasing and mining of this tract in the future. If the decision is made to reject the Eagle Butte West lease application at this time, the tract could be leased as a maintenance lease in the future while the adjacent mine is in operation. If it is not leased while the existing adjacent mine is in operation, it may or may not be leased in the future. The tract being evaluated in this EIS does not include enough coal reserves to economically justify mining by a new operation; however, the coal reserves included in the tract could potentially be combined with adjacent unleased federal coal in this area to create a larger tract, which could be mined by a new operation in the future.

### **2.4 Alternative 3**

Under this alternative, as under the Proposed Action and Alternative 1, the BLM would hold a separate, competitive, sealed-bid sale for the lands included in the Eagle Butte West LBA Tract. Alternative 3 assumes, however, that the successful

## *2.0 Proposed Action and Alternatives*

---

qualified bidder would be someone other than the applicant and that this bidder would plan to open a new mine to develop the coal resources included in the Eagle Butte West coal lease application.

A company or companies acquiring this coal for a new stand-alone mine would require considerable initial capital expenses, including the construction of new surface facilities (i.e., offices, shops, warehouses, coal processing facilities, coal loadout facilities, and rail spur), extensive baseline data collection, and development of new mining and reclamation plans. In addition, a company or companies acquiring this coal for a new start mine would have to compete for customers with established mines in a competitive market.

BLM currently estimates that a tract would potentially need to include as much as 500 to 600 million tons of coal in order to attract a buyer interested in opening a new mine in the Wyoming PRB. This is based on several assumptions. First, it is assumed that an operator would construct facilities capable of producing 30 mmtpy, in order to take advantage of the economies of scale offered by the coal deposits in the PRB. Secondly, it is assumed that 20 to 30 years of coal reserves would be needed to justify the expense of building the facilities described above. Given these assumptions, under the Proposed Action or Alternative 1, the tract does not include sufficient coal resources to consider opening a new mine. Therefore, it is unlikely that a company or companies would lease the Eagle Butte West LBA Tract in order to open a new mine.

The potential difficulty in obtaining an air quality permit is another issue that could discourage new mine starts in the PRB. A new mine would create a new source of air quality impacts. As discussed in Chapter 3, the WDEQ/AQD administers a permitting program to assist the agency in managing the state's air resources. Under this program, anyone planning to construct, modify, or use a facility capable of emitting designated pollutants into the atmosphere must obtain an air quality permit to construct. Coal mines fall into this category.

In order to obtain a construction permit, an operator may be required to demonstrate that the proposed activities will not increase air pollutant levels above annual standards established by the Wyoming Air Quality Standards and Regulations, which can be found on the internet at <http://deq.state.wy.us/aqd/standards.asp>. There were no exceedances of the 24-hour PM<sub>10</sub> standards anywhere in the PRB through year 2000. From 2001 through 2005, there were 29 monitored exceedances of the 24-hour PM<sub>10</sub> standard at seven operating mines in the Wyoming PRB. Nineteen of these exceedances occurred in 2001 and 2002, while two, three, and five violations occurred in 2003, 2004, and 2005, respectively (Shamley 2006). In the first months of 2007, there were nine exceedances at five mines. Although none of the exceedances occurred at the Eagle Butte Mine, three of the exceedances occurred in the group of mines located north and east of Gillette that includes the Eagle Butte Mine (Figure 1-1). Although many of these exceedances have been attributed to high winds, concerns

about future potential exceedances of the NAAQS may make it more difficult for an operator planning on opening a new mine to demonstrate that new operations would not result in air pollution levels that are above annual Wyoming standards.

In view of the issues discussed above, development of new mine on the Eagle Butte West LBA Tract is considered unlikely and this alternative is not analyzed in detail in this EIS.

The environmental impacts of developing a new mine to recover the coal resources in the Eagle Butte West LBA Tract would be greater than under the Proposed Action, Alternative 1, or the No Action Alternative because of the need for new facilities, new rail lines, new employment, and the creation of additional sources of particulates (dust). In the event that a lease sale is held and the applicant is not the successful bidder, the successful bidder would be required to submit a detailed mining and reclamation plan for approval before any of the tract could be mined, and this NEPA analysis would be reviewed and supplemented as necessary prior to approval of that mining and reclamation plan.

## **2.5 Alternative 4**

Under Alternative 4, the BLM would delay the sale of the Eagle Butte West LBA Tract as applied for. The prices received for coal from the PRB have generally increased in recent years. If that trend continues, the bonus and royalty payments to the government might be higher if the tract is offered for sale at a later date. Also, delaying the sale of the tract would allow CBNG resources to be more completely recovered prior to mining. Under this alternative, it is assumed that the tract could be developed later as either a maintenance tract or a new start mine, depending on how long the sale was delayed.

There is no assurance at this time that delaying the sale would result in a higher coal price when the coal is leased or mined. Damage to railroad tracks in Wyoming and other states limited coal shipments during much of 2005. These shipping constraints combined with increasing world energy demands and natural disasters in other parts of the country led to large increases coal prices in 2005. Rail capacity increased in 2006 and prices moderated somewhat.

There are two major sources of revenue to state and federal governments from the leasing and mining of federal coal: 1) the competitive bonus bid paid at the time the coal is leased, and 2) federal and state royalties and taxes collected when the coal is sold.

If coal prices do increase, the fair market value of the coal resources in the LBA tract could potentially increase, which could result in an increased bonus bid when the coal is leased. However, postponing a lease sale would not necessarily lead to higher royalty or tax income to the state or federal governments. Royalty and tax payments are the larger of the two revenue sources and they increase

## *2.0 Proposed Action and Alternatives*

---

automatically when coal prices increase, because they are collected at the time the coal is sold. They cannot be collected until the coal is leased and permitted, which takes several years. If leasing is delayed, then by the time the coal is mined, the higher coal prices may or may not persist. If the higher coal prices do persist, they may enable the coal lessee to negotiate longer term contracts at higher prices, which would result in longer term, higher royalty and tax revenues. On the other hand, if an existing mine runs out of coal reserves before prices rise, it would potentially have to shut down before additional coal could be leased and permitted for mining. Under that scenario, the fair market value of the coal could actually decrease because the added expense of reopening a mine or starting a new mine would have to be factored into the fair market value.

Other considerations include the value of leaving the mineable coal for future development versus the value of making low-sulfur coal available now, in anticipation of cleaner fuel sources being developed in the future. Continued leasing of PRB coal enables coal-fired power plants to meet CAA requirements without constructing new plants, revamping existing plants, or switching to existing alternative fuels, which may significantly increase power costs for individuals and businesses. If cleaner fuel sources are developed in the future, they could be phased in with less economic impact to the public.

A range of the potential future economic benefits of delaying leasing until coal prices rise could be quantified in an economic analysis, but the benefits would have to be discounted to the present, which would make them similar to the Proposed Action and Alternative 1.

CBNG resources are currently being recovered from oil and gas leases on the Eagle Butte West LBA Tract and there are several mechanisms in place that can be used to allow continuing recovery of the CBNG resources prior to mining if the federal coal in the tract is leased now. These include:

- BLM can attach a Multiple Mineral Development stipulation to the lease, which states that BLM has the authority to withhold approval of coal mining operations that would interfere with the development mineral leases issued prior to the coal lease.
- Mining of the Eagle Butte West LBA Tract cannot occur until the coal lessee has a permit to mine the tract approved by the WDEQ/LQD and a MLA mining plan approved by the Secretary of the Interior. Before the MLA mining plan can be approved, BLM must approve the R2P2 for mining the tract. Prior to approving the R2P2, BLM can review the status of CBNG development on the tract and the mining sequence proposed by the coal lessee. The permit approval process generally takes the coal lessee several years. This would allow time for a large portion of the CBNG resources to be recovered from the tract.

- BLM has a policy in place on CBNG-coal conflicts (BLM Instruction Memorandum No. 2006-153) that directs BLM decision makers to optimize the recovery of both resources and ensure that the public receives a reasonable return (BLM 2006a).

This alternative was not analyzed in detail because it would not produce substantially different impacts from other alternatives analyzed in detail. Rental and royalty provisions in the proposed lease provide for the U.S. to benefit if coal prices increase by the time of mining. Moreover, recovery of a large portion of the remaining economically-recoverable CBNG resources on the tract would be anticipated after lease issuance because of the mechanisms discussed above. The environmental impacts of mining the coal later as part of an existing mine would be expected to be similar and about equal to the Proposed Action and Alternative 1. If a new mine start is required to mine the coal, the environmental impacts would be expected to be greater than if it were mined as an extension of an existing mine.

## **2.6 Summary of Alternatives and Environmental Consequences**

### **2.6.1 Background**

The decision-making process for public lands in Wyoming is conducted in compliance with NEPA, which requires all federal agencies to involve interested publics in their decision making, consider reasonable alternatives to the proposed actions, develop measures to mitigate environmental impacts, and prepare environmental documents that disclose the impacts of proposed actions and alternatives.

This final EIS analyzes three different alternatives for the Eagle Butte West LBA Tract described in the discussion above.

### **2.6.2 Summary of Alternatives**

The Eagle Butte West LBA Tract under the Proposed Action and BLM's preferred tract configuration under Alternative 1 are shown on Figures 2-1 and 2-2, respectively. Summary comparisons of projected coal production, surface disturbance, mine life, and federal and state revenues for the Proposed Action, BLM's preferred tract configuration under Alternative 1, and the No Action Alternative for the Eagle Butte West LBA Tract are presented in Tables 2-2 and 2-3. Table 2-2 presents the comparisons assuming that Highway 14-16 is moved and the underlying coal is recovered. Table 2-3 presents the comparisons assuming that Highway 14-16 is not moved and the underlying coal is not recovered.

Table 2-4 presents a comparative summary of the direct and indirect environmental impacts of implementing each alternative as compared to the No

## *2.0 Proposed Action and Alternatives*

---

Action Alternative. The No Action Alternative assumes completion of currently permitted mining at the Eagle Butte Mine for comparison to anticipated mining if the Eagle Butte West LBA Tract is leased. Table 2-5 presents a comparative summary of cumulative environmental impacts of implementing each alternative. The environmental consequences of the Proposed Action and Alternatives 1 and 2 are analyzed in Chapter 3. These summary impact tables are derived from the following explanation of impacts and magnitude. NEPA requires all agencies of the federal government to include, in every recommendation or report on proposals for legislation and other major federal actions significantly affecting the quality of the human environment, a detailed statement by the responsible official on:

- (i) the environmental impact of the Proposed Action,
- (ii) any adverse environmental effects which cannot be avoided should the proposal be implemented,
- (iii) alternatives to the Proposed Action,
- (iv) the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and
- (v) any irreversible and irretrievable commitments of resources which would be involved in the Proposed Action should it be implemented [42 USC § 4332(C)].

Impacts can be beneficial or adverse, and they can be a primary result of an action (direct) or a secondary result (indirect). They can be permanent, long-term (persisting beyond the end of mine life and reclamation) or short-term (persisting during mining and reclamation and through the time the reclamation bond is released). Impacts also vary in terms of significance. The basis for conclusions regarding significance are the criteria set forth by the Council on Environmental Quality (40 CFR 1508.27) and the professional judgment of the specialists doing the analyses. Impact significance may range from negligible to substantial; impacts can be significant during mining but be reduced to insignificance following completion of reclamation.

Table 2-2. Summary Comparison of Coal Production, Surface Disturbance, Mine Life, and Revenues for Eagle Butte West LBA Tract and Eagle Butte Mine – Assuming Highway 14-16 is Moved and the Underlying Coal is Recovered.

<b>Item</b>	<b>No Action Alternative (Existing Eagle Butte Mine)</b>	<b>Added by Proposed Action</b>	<b>Added by Alternative 1 (Preferred Tract Configuration)</b>
In-Place Coal (as of 1/1/06)	374.0 mmt	238.0 mmt	243.7 mmt
Mineable Coal (as of 1/1/06)	354.0 mmt	238.0 mmt	241.2 mmt
Recoverable Coal (as of 1/1/06) <sup>1</sup>	340.0 mmt	228.0 mmt	231.1 mmt
Coal Mined Through 2005	420.4 mmt	--	--
Lease Area <sup>2</sup>	4,884.0 ac	1,397.6 ac	1,427.8 ac
Total Area To Be Disturbed <sup>2</sup>	6,076.0 ac	2,460.0 ac	2,460.0 ac
Permit Area <sup>2</sup>	7,471.0 ac	2,460.0 ac	2,460.0 ac
Average Annual Post-2005 Coal Production	25.0 mmt	0 mmt	0 mmt
Remaining Life of Mine (post-2005)	13.6 yrs	9.1 yrs	9.2 yrs
Average Number of Employees	223	0	0
Total Projected State Revenues (post-2005) <sup>3</sup>	\$ 384.4 million	\$ 293.5 – \$ 373.2 million	\$ 297.4 – \$ 378.2 million
Total Projected Federal Revenues (post-2005) <sup>4</sup>	\$ 261.6 million	\$ 211.1 – \$ 290.9 million	\$ 214.0 – \$ 294.8 million

<sup>1</sup> Assumes 96 percent recovery of mineable coal. The estimated tons of recoverable coal added under the Proposed Action and Alternative 1 are based on the assumptions that the coal beneath the north half of Section 20 (under Alternative 1) would not be mined, and that the coal beneath U.S. Highway 14-16 ROW and associated buffer zone would be mined.

<sup>2</sup> The lease area includes federal coal leases only and does not include state coal within the permit boundary. The disturbed area exceeds the leased area (total federal and state) because of the need for highwall reduction, topsoil removal, and other mine support activities outside the lease boundaries. The permit area is larger than the leased or disturbed area to assure that all disturbed lands are within the permit boundary and to allow an easily defined legal land description.

<sup>3</sup> Revenues to the State of Wyoming include income from severance tax, property and production taxes, sales and use taxes, and Wyoming's share of federal royalty payments, bonus bids, and AML fees. State revenues are based on \$5.80 per ton (projected for 8,400-Btu coal) price × amount of recoverable coal × federal royalty of 12.5 percent minus federal's 50 percent share, plus \$0.35 per ton for AML fees × amount of recoverable coal minus federal's 50 percent share, plus bonus payment on LBA leased coal of \$0.30 to \$0.97 per ton (based on the range of bonus payments for the last 6 LBAs sold in 2004 and 2005) × amount of mineable coal minus federal's 50 percent share, plus \$0.023 per ton estimate for sales and use taxes × amount of recoverable coal, plus \$0.26 per ton estimate for Ad Valorem taxes × amount of recoverable coal, plus \$0.31 per ton estimate for severance taxes × amount of recoverable coal.

<sup>4</sup> Federal revenues are based on \$5.80 per ton (projected for 8,400-Btu coal) price × amount of recoverable coal × federal royalty of 12.5 percent minus state's 50 percent share, plus \$0.35 per ton for AML fees × amount of recoverable coal minus state's 50 percent share, plus \$5.80 per ton (for 8,400-Btu coal) price × amount of recoverable coal × black lung tax of 4.0 percent, plus bonus payment on LBA leased coal of \$0.30 to \$0.97 per ton (based on the range of bonus payments for the last 6 LBAs sold in 2004 and 2005) × amount of mineable coal minus state's 50 percent share.

Table 2-4. Summary Comparison of Magnitude<sup>1</sup> and Duration of Direct and Indirect Impacts for the Proposed Action, Alternative 1, and the No Action Alternative for the Eagle Butte West LBA Tract<sup>2</sup>.

<b>DESCRIPTION OF POTENTIAL IMPACT BY RESOURCE</b>	<b>MAGNITUDE AND DURATION OF IMPACT</b>	
	<b>NO ACTION ALTERNATIVE</b>	<b>PROPOSED ACTION and ALTERNATIVE 1</b>
<b>TOPOGRAPHY &amp; PHYSIOGRAPHY</b>		
Lower surface elevation	Moderate, permanent on existing mine area	Same as No Action on expanded mine area
Permanent topographic moderation, which could result in:		
Microhabitat reduction	Moderate, long term on existing mine area	Same as No Action on expanded mine area
Habitat diversity reduction	Moderate, long term on existing mine area	Same as No Action on expanded mine area
Big game carrying capacity reduction	Moderate, long term on existing mine area	Same as No Action on expanded mine area
Reduction in water runoff and peak flows	Moderate, beneficial, long term on existing mine area	Same as No Action on expanded mine area
Increased precipitation infiltration	Moderate, beneficial, long term on existing mine area	Same as No Action on expanded mine area
Reduction in erosion	Moderate, beneficial, long term on existing mine area	Same as No Action on expanded mine area
Potential enhanced vegetative productivity	Moderate, beneficial, long term on existing mine area	Same as No Action on expanded mine area
Potential acceleration of groundwater recharge	Moderate, beneficial, long term on existing mine area	Same as No Action on expanded mine area
Diversion of Little Rawhide Creek during mining	Moderate, short term on existing mine area	Same as No Action on expanded mine area
<b>GEOLOGY AND MINERALS</b>		
Removal of coal	Moderate, permanent on existing mine area	Same as No Action on expanded mine area
Removal and replacement of topsoil and overburden	Moderate, permanent on existing mine area	Same as No Action on expanded mine area
Physical characteristic alterations in replaced overburden	Moderate, permanent on existing mine area	Same as No Action on expanded mine area
Loss of unrecovered CBNG through venting and/or depletion of hydrostatic pressure	Minor to moderate, permanent on existing mine area	Same as No Action on expanded mine area
Loss of access for development of sub-coal oil and gas resources and other minerals	Moderate, short term on existing mine area	Same as No Action on expanded mine area
Destruction of paleontological resources that are not exposed on the surface	Moderate, permanent on the existing mine area	Same as No Action on expanded mine area
<b>AIR QUALITY</b>		
<u>Particulate Emissions:</u>		
Elevated concentrations associated with projected average production of 25 mmtpy in compliance with ambient standard	Moderate, short term for existing approved mining operations	Same as No Action for from 8 to 9 additional years
Potential for public exposure to particulate emissions along U.S Highway 14-16 and in occupied dwellings, businesses and school located in area	Minor to moderate, short term for existing approved mining operations	Same as No Action for from 8 to 9 additional years
Potential for human health impacts as a result of exposure to particulate emissions	Minor to moderate, short term for existing approved mining operations	Same as No Action for from 8 to 9 additional years
<u>NO<sub>x</sub> Emissions from Machinery:</u>		
Elevated concentrations associated with projected average production of 25 mmtpy in compliance with ambient standard	Moderate, short term for existing approved mining operations	Same as No Action for from 8 to 9 additional years

<sup>1</sup> Refer to Chapter 3 for a discussion on magnitude of impacts.

<sup>2</sup> All impacts are assumed to be adverse unless noted otherwise.

## 2.0 Proposed Action and Alternatives

Table 2-4. Summary Comparison of Magnitude<sup>1</sup> and Duration of Direct and Indirect Impacts for the Proposed Action, Alternative 1, and the No Action Alternative for the Eagle Butte West LBA Tract<sup>2</sup> (Continued).

<b>DESCRIPTION OF POTENTIAL IMPACT BY RESOURCE</b>	<b>MAGNITUDE AND DURATION OF IMPACT</b>	
<b>RESOURCE NAME</b>	<b>NO ACTION ALTERNATIVE</b>	<b>PROPOSED ACTION and ALTERNATIVE 1</b>
<b>AIR QUALITY (Continued)</b>		
Potential for public exposure to NO <sub>x</sub> emissions from machinery along U.S. Highway 14-16 and for occupied dwellings, airport, businesses and school located in area	Moderate, short term for existing approved mining operations	Same as No Action for from 8 to 9 additional years
Potential for human health impacts as a result of exposure to NO <sub>x</sub> emissions	Minor to moderate, short term for existing approved mining operations	Same as No Action for from 8 to 9 additional years
<u>NO<sub>x</sub> Emissions from Blasting in Compliance with Eagle Butte Mine permit Blasting Conditions :</u>		
Potential for public exposure	No projected events	Same as No Action for from 8 to 9 additional years
Potential for human health impacts as a result of exposure to NO <sub>x</sub> emissions	No projected events	Same as No Action for from 8 to 9 additional years
<u>Visibility:</u>		
Elevated concentrations of fine particulate matter associated with projected average coal production of 25 mmtpy	Moderate, short term for existing approved mining operations	Same as No Action for from 8 to 9 additional years
<u>Acidification of Lakes:</u>		
SO <sub>2</sub> emissions derived from burning Eagle Butte coal to produce power	Moderate, short term in vicinity of power plants	Same as No Action on expanded mine for from 8 to 9 additional years
<b>WATER RESOURCES</b>		
<u>Groundwater</u>		
Removal of coal and overburden aquifers	Moderate, short term on existing mine area	Same as No Action on expanded mine area
Replacement of existing coal and overburden with unconsolidated backfill material	Moderate, permanent on existing mine area	Same as No Action on expanded mine area
Depressed water levels in overburden and coal aquifers adjacent to mine	Moderate, short to long term on existing mine and surrounding area	Same as No Action on expanded mine and surrounding area
Change in hydraulic properties in backfilled areas	Negligible, long term on existing mine area	Same as No Action on expanded mine area
Increase in TDS concentrations in backfilled areas	Moderate, long term on existing mine area	Same as No Action on expanded mine area
Use of subcoal aquifers for water supply	Negligible, short term for existing approved mining operations	Same as No Action for from 8 to 9 additional years
<u>Surface Water</u>		
Diversion and disruption of a portion of the Little Rawhide Creek drainage basin and associated reservoirs	Moderate, short term on existing mine area	Same as No Action on expanded mine area
Reconstruction of surface drainage systems	Permanent on existing mine areas	Same as No Action on expanded mine area
Increased runoff and erosion rates on disturbed lands due to vegetation removal	Moderate, short term on existing mine area	Same as No Action on expanded mine area
Increased infiltration on reclaimed lands due to topographic moderation	Moderate, beneficial, long term on existing mine area	Same as No Action on expanded mine area

<sup>1</sup> Refer to Chapter 3 for a discussion on magnitude of impacts.

<sup>2</sup> All impacts are assumed to be adverse unless noted otherwise.

Table 2-4. Summary Comparison of Magnitude<sup>1</sup> and Duration of Direct and Indirect Impacts for the Proposed Action, Alternative 1, and the No Action Alternative for the Eagle Butte West LBA Tract<sup>2</sup> (Continued).

<b>DESCRIPTION OF POTENTIAL IMPACT BY RESOURCE</b>	<b>MAGNITUDE AND DURATION OF IMPACT</b>	
<b>RESOURCE NAME</b>	<b>NO ACTION ALTERNATIVE</b>	<b>PROPOSED ACTION and ALTERNATIVE 1</b>
<b>WATER RESOURCES (Continued)</b>		
Increased runoff on reclaimed lands due to loss of soil structure	Moderate, long term on existing mine area	Same as No Action on expanded mine area
Potential for adverse downstream effects as a result of sediment produced by large storms	Moderate, long term for existing approved mining operations	Same as No Action for extended mining operations
<u>Water Rights</u>		
Disruption of water supply for water-rights holders with wells completed in the coal or overburden aquifer within the five-foot drawdown area or with surface water rights within the disturbance area	Minor to moderate, long term on existing mine and surrounding area	Same as No Action on expanded mine and surrounding area
<b>ALLUVIAL VALLEY FLOORS</b>		
Little Rawhide Creek within the existing mine permit area, including the portion of the creek within the LBA tract, has been declared an AVF non-significant to agriculture. Based on evaluation, it is believed that the portion of Prong Draw within the tract does not include an AVF.		
Removal and restoration of AVFs determined not to be significant to agriculture	Moderate, short term on existing leases	Same as No Action on expanded mine area
Disruptions to streamflows supplying downstream AVFs	Negligible, short term on existing leases	Same as No Action on expanded mine area
<b>WETLANDS</b>		
Removal of jurisdictional wetlands and loss of wetland function until reclamation occurs	Moderate, short term on existing leases; jurisdictional wetlands would be replaced as required under Section 404 of the Clean Water Act	Same as No Action on expanded mine area
Removal of non-jurisdictional wetlands	Negligible on existing leases; non-jurisdictional wetlands would be replaced as required by the surface land owner or WDEQ/LQD	Same as No Action on expanded mine area
<b>SOILS</b>		
<u>Changes in physical properties after reclamation:</u>		
Increased near-surface bulk density and decreased soil infiltration rate resulting in increased potential for soil erosion	Moderate, long term on existing mine area	Same as No Action on expanded mine area
More uniformity in soil type, thickness, and texture	Moderate, beneficial, long term on existing mine area	Same as No Action on expanded mine area

<sup>1</sup> Refer to Chapter 3 for a discussion on magnitude of impacts.

<sup>2</sup> All impacts are assumed to be adverse unless noted otherwise.

## 2.0 Proposed Action and Alternatives

Table 2-4. Summary Comparison of Magnitude<sup>1</sup> and Duration of Direct and Indirect Impacts for the Proposed Action, Alternative 1, and the No Action Alternative for the Eagle Butte West LBA Tract<sup>2</sup> (Continued).

DESCRIPTION OF POTENTIAL IMPACT BY RESOURCE	MAGNITUDE AND DURATION OF IMPACT	
	NO ACTION ALTERNATIVE	PROPOSED ACTION and ALTERNATIVE 1
<b>SOILS (Continued)</b>		
Decreased runoff due to topographic modification	Moderate, beneficial, long term on existing mine area	Same as No Action on expanded mine area
<u>Changes in biological properties in soils that are stockpiled before placement:</u>		
Reduction in organic matter	Moderate, long term on existing mine area	Same as No Action on expanded mine area
Reduction in microorganism population	Moderate, long term on existing mine area	Same as No Action on expanded mine area
Reduction in seeds, bulbs, rhizomes and live plant parts	Moderate, long term on existing mine area	Same as No Action on expanded mine area
<u>Changes in chemical properties:</u>		
More uniform soil nutrient distribution	Moderate, beneficial, long term on existing mine area	Same as No Action on expanded mine area
<b>VEGETATION</b>		
<u>During mining:</u>		
Progressive removal of existing vegetation	Moderate, short term on existing mine area	Same as No Action on expanded mine area
Increased erosion	Moderate, short term on existing mine area	Same as No Action on expanded mine area
Wildlife and livestock habitat loss	Moderate, short term on existing mine area	Same as No Action on expanded mine area
<u>After revegetation:</u>		
Changes in vegetation patterns	Negligible, long term on existing mine area	Same as No Action on expanded mine area
Reduction in vegetation diversity	Negligible, long term on existing mine area	Same as No Action on expanded mine area
Reduction in shrub density	Moderate, long term on existing mine area	Same as No Action on expanded mine area
Decreased big game habitat carrying capacity	Moderate, long term on existing mine area	Same as No Action on expanded mine area
Decreased habitat for shrub dependent species	Moderate, long term on existing mine area	Same as No Action on expanded mine area
Potential invasion of non-native plant species	Moderate, short term on existing mine area	Same as No Action on expanded mine area
<b>WILDLIFE</b>		
Displacement of all wildlife from active mining areas	Moderate, short term on existing mine area	Same as No Action on expanded mine area
Increased competition on adjacent undisturbed or reclaimed lands, especially big game	Moderate, short term on adjacent area	Same as No Action on adjacent area
Restriction of wildlife movement, especially big game	Moderate, short term on existing mine area	Same as No Action on expanded mine area
Increased mortality of small mammals	Moderate, short term on existing mine area	Same as No Action on expanded mine area
Surface and noise disturbance of active sage-grouse leks	Moderate, short to long term on existing mine area	Same as No Action on expanded mine area
Disturbance of sage-grouse nesting and winter habitat during mining	Moderate, short term on existing mine area	Same as No Action on expanded mine area
Loss of sage-grouse nesting habitat after reclamation	Moderate, long term on existing mine area	Same as No Action on expanded mine area
Abandonment of raptor nests	Negligible, short term on existing mine area	Same as No Action on expanded mine area
Loss of foraging habitat for raptors	Negligible, short to long term on existing mine area	Same as No Action on expanded mine area
Loss of nesting and foraging habitat for Migratory Birds of Management Concern	Negligible, short to long term on existing mine area	Same as No Action on expanded mine area

<sup>1</sup> Refer to Chapter 3 for a discussion on magnitude of impacts.

<sup>2</sup> All impacts are assumed to be adverse unless noted otherwise.

Table 2-4. Summary Comparison of Magnitude<sup>1</sup> and Duration of Direct and Indirect Impacts for the Proposed Action, Alternative 1, and the No Action Alternative for the Eagle Butte West LBA Tract<sup>2</sup> (Continued).

DESCRIPTION OF POTENTIAL IMPACT BY RESOURCE	MAGNITUDE AND DURATION OF IMPACT	
	NO ACTION ALTERNATIVE	PROPOSED ACTION and ALTERNATIVE 1
<b>WILDLIFE (Continued)</b>		
Reduction in waterfowl resting and feeding habitat	Negligible, short term on existing mine area	Same as No Action on expanded mine area
Loss of habitat for aquatic species, amphibians and reptiles during mining	Negligible, short term on existing mine area	Same as No Action on expanded mine area
Road kills by mine-related traffic	Moderate, long term on existing mine area	Same as No Action on expanded mine area
Reduction in habitat carrying capacity and habitat diversity on reclaimed lands	Moderate, long term on existing mine area	Same as No Action on expanded mine area
Potential reduction in microhabitats on reclaimed lands	Moderate, long term on existing mine area	Same as No Action on expanded mine area
Localized avoidance of foraging areas by big game	Minor, short term on existing mine area	Same as No Action on expanded mine area
<b>THREATENED, ENDANGERED, PROPOSED, AND CANDIDATE SPECIES (See Appendix E)</b>		
Black-footed ferret	As determined by previous consultation with USFWS for all species	No effect
Bald eagle		May affect, not likely to adversely affect
Ute ladies'-tresses		May affect, not likely to adversely affect
<b>LAND USE AND RECREATION</b>		
Reduction of livestock grazing	Moderate, long term on existing mine area	Same as No Action on expanded mine area
Loss of wildlife habitat	Moderate, long term on existing mine area	Same as No Action on expanded mine area
Loss of access for sub-coal oil and gas development	Moderate, short term on existing mine area	Same as No Action on expanded mine area
Removal of oil and gas production facilities	Moderate, short term on existing mine area	Same as No Action on expanded mine area
<b>CULTURAL RESOURCES</b>		
Sites that are not eligible for NRHP	Ineligible sites may be destroyed without further work on existing mine area	Same as No Action on expanded mine area
Sites that are eligible for NRHP	Impacts to sites that are eligible for the NHRP are not permitted; eligible sites would be avoided or mitigated through data recovery prior to mining on existing mine area	Same as No Action on expanded mine area
Sites that are unevaluated for eligibility	Impacts to unevaluated sites are not permitted; unevaluated sites would be evaluated prior to mining on existing mine area	Same as No Action on expanded mine area
<b>NATIVE AMERICAN CONCERNS</b>	No impact identified on existing mine area	Same as No Action on expanded mine area

<sup>1</sup> Refer to Chapter 3 for a discussion on magnitude of impacts.

<sup>2</sup> All impacts are assumed to be adverse unless noted otherwise.

## 2.0 Proposed Action and Alternatives

Table 2-4. Summary Comparison of Magnitude<sup>1</sup> and Duration of Direct and Indirect Impacts for the Proposed Action, Alternative 1, and the No Action Alternative for the Eagle Butte West LBA Tract<sup>2</sup> (Continued).

DESCRIPTION OF POTENTIAL IMPACT BY RESOURCE	MAGNITUDE AND DURATION OF IMPACT	
	NO ACTION ALTERNATIVE	PROPOSED ACTION and ALTERNATIVE 1
<b>VISUAL RESOURCES</b>		
<u>During mining:</u>		
Alteration of landscape by mining facilities and operations	Moderate, short term on existing mine area	Same as No Action on expanded mine area
Visibility of mining operations from highway	Moderate, short term on existing mine area	Same as No Action on expanded mine area
<u>Following reclamation:</u>		
Smoother sloped terrain	Negligible, long term on existing mine area	Same as No Action on expanded mine area
Reduction in sagebrush density	Moderate, short to long term on existing mine area	Same as No Action on expanded mine area
<b>NOISE</b>		
Increased noise levels as a result of mining activities	Moderate to substantial, short term noise impacts to occupied dwellings, school, businesses, and airport located within 2,500 feet of mining activities	Same as No Action on expanded mine area
<b>TRANSPORTATION FACILITIES</b>		
Use of rail systems and existing Eagle Butte Mine rail infrastructure to ship coal	Moderate, for duration of existing approved mining operations	Same as No Action for from 8 to 9 additional years
Employee and service contractor use of highways to and from mine sites	Moderate, for duration of existing approved mining operations	Same as No Action for from 8 to 9 additional years
Relocation of pipelines	Negligible, short to long term on existing mine area	Same as No Action on expanded mine area
Relocation of utility lines	Negligible, short to long term on existing mine area	Same as No Action on expanded mine area
Relocation of Highway 14-16, if approved by WYDOT, to allow recovery of coal under lease	No impact at this time	Moderate to substantial, long term to permanent
Mining operations near Highway 14-16, with or without approval of relocation	Moderate for duration of existing approved mining operations	Same as No Action for from 8 to 9 additional years
Mining operations near Gillette-Campbell County Airport	Moderate for duration of existing approved mining operations	Moderate (Proposed Action) to substantial (Alternative 1) for up to 12 additional years
Mining operations impacting future airport expansion plans	No Impact	Delayed for from 8 to 9 years
<b>HAZARDOUS AND SOLID WASTE</b>		
Waste generated by mining operations	Negligible for duration of existing approved mining operations	Same as No Action for from 8 to 9 additional years

<sup>1</sup> Refer to Chapter 3 for a discussion on magnitude of impacts.

<sup>2</sup> All impacts are assumed to be adverse unless noted otherwise.

Table 2-4. Summary Comparison of Magnitude<sup>1</sup> and Duration of Direct and Indirect Impacts for the Proposed Action, Alternative 1, and the No Action Alternative for the Eagle Butte West LBA Tract<sup>2</sup> (Continued).

<b>DESCRIPTION OF POTENTIAL IMPACT BY RESOURCE</b>	<b>MAGNITUDE AND DURATION OF IMPACT</b>	
<b>RESOURCE NAME</b>	<b>NO ACTION ALTERNATIVE</b>	<b>PROPOSED ACTION and ALTERNATIVE 1</b>
<b>SOCIOECONOMICS</b>		
Employment	Moderate, beneficial short term for existing approved mining operations	Same as No Action for from 8 to 9 additional years
Revenues from royalties and taxes to the state government	Moderate, beneficial short term for existing approved mining operations	Same as No Action for from 8 to 9 additional years
Revenues from royalties and taxes to the federal government	Moderate, beneficial short term for existing approved mining operations	Same as No Action for from 8 to 9 additional years
Revenues from taxes to local economy	Moderate, beneficial short term for existing approved mining operations	Same as No Action for from 8 to 9 additional years
Additional housing and infrastructure needs	No impact related to existing approved mining operations	Same as No Action for from 8 to 9 additional years

<sup>1</sup> Refer to Chapter 3 for a discussion on magnitude of impacts.  
<sup>2</sup> All impacts are assumed to be adverse unless noted otherwise.

## 2.0 Proposed Action and Alternatives

Table 2-5. Summary Comparison of Magnitude and Duration of Cumulative Impacts<sup>1, 2</sup>.

<b>DESCRIPTION OF POTENTIAL IMPACT BY RESOURCE</b>	<b>MAGNITUDE, TYPE, AND DURATION OF IMPACT</b>	
<b>RESOURCE NAME</b>	<b>NO ACTION ALTERNATIVE</b>	<b>PROPOSED ACTION and ALTERNATIVE 1</b>
<b>TOPOGRAPHY &amp; PHYSIOGRAPHY</b>		
Alteration of topography following reclamation of coal disturbance areas	Permanent topographic moderation following reclamation	Same as No Action
Alteration of topography to accommodate coal-related, oil and gas, and oil- and gas-related facilities	Long term to permanent limited changes in discrete, scattered areas	Same as No Action
<b>GEOLOGY AND MINERALS</b>		
Recovery of coal resulting in reduction in coal resources and disturbance and replacement of overburden and topsoil	Moderate, long term to permanent	Same as No Action
Surficial disturbance and reclamation on oil and gas well sites and associated facilities	Moderate, long term to permanent	Same as No Action
<b>PALEONTOLOGY</b>		
Coal, coal-related, oil and gas, and oil- and gas-related development disturbance of PFYC Class 5 Wasatch and Class 3 Fort Union Formations	Permanent potential adverse effects to scientifically significant fossils that are present but not visible prior to disturbance	Same as No Action
<b>AIR QUALITY</b>		
<u>Impacts to Montana near-field receptors</u>		
24-hour PM <sub>10</sub>	A maximum modeled impact in one area above NAAQS for the baseline year and both coal production scenarios for 2010	Same as No Action
All other parameters	Modeled impacts in compliance with NAAQS and Montana AAQS	Same as No Action
<u>Impacts to Wyoming near-field receptors</u>		
24-hour PM <sub>10</sub>	Modeled impact above NAAQS at some receptors for both coal production scenarios for 2010	Same as No Action
Annual PM <sub>10</sub>	Maximum modeled impact above WAAQS at one receptor for the upper production scenario for 2010	Same as No Action
All other parameters	Modeled impacts in compliance with NAAQS and WAAQS	Same as No Action

<sup>1</sup> Cumulative impact discussion in this table and in Chapter 4 is based on the PRB Coal Review analyses (BLM 2005a-g, 2006b, and in preparation).

<sup>2</sup> All impacts are assumed to be adverse unless noted otherwise.

Table 2-5. Summary Comparison of Magnitude and Duration of Cumulative Impacts<sup>1, 2</sup> (Continued).

<b>DESCRIPTION OF POTENTIAL IMPACT BY RESOURCE</b>	<b>MAGNITUDE, TYPE, AND DURATION OF IMPACT</b>	
<b>RESOURCE NAME</b>	<b>NO ACTION ALTERNATIVE</b>	<b>PROPOSED ACTION and ALTERNATIVE 1</b>
<b>AIR QUALITY (Continued)</b>		
<u>Non-regulatory PSD Impacts at Class I and Sensitive Class II Areas</u>		
Class I Northern Cheyenne Indian Reservation	Modeled impacts above Class I increment levels for 24-hour PM <sub>10</sub> , annual PM <sub>10</sub> , 24-hour SO <sub>2</sub> , 3-hour SO <sub>2</sub> for baseline year and both coal production scenarios for 2010; above Class I increment for annual NO <sub>2</sub> for upper coal production scenario for 2010	Same as No Action
Class I Washakie Wilderness Area and Wind Cave National Park and Class II Crow Indian Reservation	Modeled impacts above Class I increment levels for 24-hour PM <sub>10</sub> for baseline year and both coal production scenarios for 2010	Same as No Action
All other Class I and Sensitive Class II modeled receptors	Modeled impacts within Class I increment levels for baseline year and both coal production scenarios for 2010	Same as No Action
<u>Visibility Impacts</u>		
	199 or more days with a change of 1.0 dv or greater at three Class I areas and seven sensitive Class II areas for the baseline year and both coal productions scenarios for 2010	Same as No Action
<u>Acid deposition Impacts</u>		
	All modeled impacts below the depositions threshold values for nitrogen and sulfur compounds	Same as No Action
Florence Lake	Modeled impact above 10 percent ANC	Same as No Action
Upper Frozen Lake	Modeled impact above 1 µeq/L	Same as No Action
All other modeled sensitive lakes	Modeled impact below threshold values	Same as No Action
<b>GROUNDWATER RESOURCES</b>		
Removal of coal aquifer and replacement with backfill material	Moderate, permanent for mining areas	Same as No Action
Lowering of water levels in aquifers around the mines	Moderate, long term in area immediately west of mines	Same as No Action
Water level decline in sub-coal aquifers as a result of all development	No cumulative impacts anticipated	Same as No Action
Change in groundwater quality as a result of all development	No cumulative impacts anticipated	Same as No Action
Overlapping drawdown in the coal aquifer caused by surface mining and CBNG development	Additive, long term in area immediately west of surface coal mines	Same as No Action

<sup>1</sup> Cumulative impact discussion in this table and in Chapter 4 is based on the PRB Coal Review analyses (BLM 2005a-g, 2006b, and in preparation).

<sup>2</sup> All impacts are assumed to be adverse unless noted otherwise.

## 2.0 Proposed Action and Alternatives

Table 2-5. Summary Comparison of Magnitude and Duration of Cumulative Impacts<sup>1, 2</sup> (Continued).

<b>DESCRIPTION OF POTENTIAL IMPACT BY RESOURCE</b>	<b>MAGNITUDE, TYPE, AND DURATION OF IMPACT</b>	
<b>RESOURCE NAME</b>	<b>NO ACTION ALTERNATIVE</b>	<b>PROPOSED ACTION and ALTERNATIVE 1</b>
<b>SURFACE WATER RESOURCES</b>		
Surface disturbance of intermittent and ephemeral streams and scattered ponds and reservoirs as a result of coal mining, coal-related, oil and gas, and oil- and gas-related development	Moderate, short term	Same as No Action
Discharge of coal mining and CBNG produced waters into intermittent and ephemeral streams	Moderate, short term	Same as No Action
Sediment input into intermittent and ephemeral streams and scattered ponds and reservoirs as a result of coal mining, coal-related, oil and gas, and oil- and gas-related development	Moderate, short term	Same as No Action
<b>ALLUVIAL VALLEY FLOORS</b>		
Coal mining disturbance of AVFs determined to be significant to agriculture	Not permitted by regulation	Same as No Action
Coal mining disturbance of AVFs determined not to be significant to agriculture	AVFs disturbed by mining must be restored to essential hydrologic function No cumulative impacts anticipated	Same as No Action
<b>SOILS</b>		
Coal mining, coal-related, oil and gas, and oil- and gas-related disturbance and replacement of soil resources	Moderate, short term and long term impacts through accelerated wind or water erosion, declining soil quality factors through compaction, reduced microbial populations and organic matter, and potential mixing of soil zones	Same as No Action
CBNG water disposal impacts to soil resources	Potential increase in soil alkalinity depending on SAR levels in water and method of water disposal	Same as No Action
<b>VEGETATION</b>		
Coal mining, coal-related, oil and gas, and oil- and gas-related removal and replacement of native vegetation	Moderate, short to long term impacts due to potential differences in species composition and presence and size of woody species on reclaimed lands	Same as No Action
Coal mining, coal-related, oil and gas, and oil- and gas-related impacts to Special Status Plant Species	Potential incremental loss or alteration of potential or known habitat	Same as No Action
Coal mining, coal related, oil and gas, and oil- and gas-related dispersal of noxious and invasive species	Potential displacement of native species and changes in species composition	Same as No Action

<sup>1</sup> Cumulative impact discussion in this table and in Chapter 4 is based on the PRB Coal Review analyses (BLM 2005a-g, 2006b, and in preparation).

<sup>2</sup> All impacts are assumed to be adverse unless noted otherwise.

Table 2-5. Summary Comparison of Magnitude and Duration of Cumulative Impacts<sup>1, 2</sup> (Continued).

<b>DESCRIPTION OF POTENTIAL IMPACT BY RESOURCE</b>	<b>MAGNITUDE, TYPE, AND DURATION OF IMPACT</b>		
	<b>RESOURCE NAME</b>	<b>NO ACTION ALTERNATIVE</b>	<b>PROPOSED ACTION and ALTERNATIVE 1</b>
<b>WETLAND AND RIPARIAN VEGETATION</b>			
CBNG-related discharge of produced water	Moderate, short to long term creation of wetlands in areas that previously supported upland vegetation	Same as No Action	
<b>WILDLIFE</b>			
Direct and indirect coal mining, coal-related, oil and gas, and oil- and gas-related development impacts to game and non-game species, including direct mortality, habitat fragmentation, animal displacement, noise and increased human presence	Moderate, short term	Same as No Action	
Coal mining, coal-related, oil and gas, and oil- and gas-related disturbance of game and nongame species habitat during project development and operation	Moderate, short term loss of all types of habitat present in disturbed areas	Same as No Action	
Coal mining, coal related, oil and gas, and oil- and gas-related habitat changes after reclamation	Moderate, long term change in habitat with potential changes in associated wildlife populations	Same as No Action	
<b>FISHERIES</b>			
Alteration or loss of habitat due to coal mining, coal-related, oil and gas, and oil- and gas-related development	Moderate, short to long term	Same as No Action	
Changes in water quality as a result of surface disturbance or introduction of contaminants into drainages caused by coal mining, coal-related, oil and gas, and oil- and gas-related development	Moderate, short to long term	Same as No Action	
Changes in available habitat as a result of water withdrawals or discharges related to coal mining, coal-related, oil and gas, and oil- and gas-related development	Moderate, short term	Same as No Action	
<b>SPECIAL STATUS SPECIES</b>			
Direct and indirect coal mining, coal-related, oil and gas, and oil- and gas-related development impacts, including direct mortality, breeding area, nest or burrow abandonment, noise and increased human presence	Moderate, short term	Same as No Action	
Coal mining, coal-related, oil and gas, and oil- and gas-related disturbance of habitat during project development and operation	Moderate, short term loss of all types of special status species habitat present in disturbed areas	Same as No Action	
Coal mining, coal related, oil and gas, and oil- and gas-related habitat changes after reclamation	Moderate, long term change in habitat with potential changes in associated populations of special status species	Same as No Action	

<sup>1</sup> Cumulative impact discussion in this table and in Chapter 4 is based on the PRB Coal Review analyses (BLM 2005a-g, 2006b, and in preparation).

<sup>2</sup> All impacts are assumed to be adverse unless noted otherwise.

## 2.0 Proposed Action and Alternatives

Table 2-5. Summary Comparison of Magnitude and Duration of Cumulative Impacts<sup>1, 2</sup> (Continued).

<b>DESCRIPTION OF POTENTIAL IMPACT BY RESOURCE</b>	<b>MAGNITUDE, TYPE, AND DURATION OF IMPACT</b>	
	<b>NO ACTION ALTERNATIVE</b>	<b>PROPOSED ACTION and ALTERNATIVE 1</b>
<b>LAND USE AND RECREATION</b>		
Loss of forage and range improvements and restriction of livestock movement due to coal mining, coal-related, oil and gas, and oil- and gas-related development	Moderate, short term	Same as No Action
Disturbance of developed recreation sites by coal mining, coal-related, oil and gas, and oil- and gas-related development	Negligible, short term	Same as No Action
Reduction or degradation of opportunities for dispersed recreation activities related to coal mining, coal-related, oil and gas, and oil- and gas-related development	Moderate, short term on existing mine area	Same as No Action
<b>CULTURAL RESOURCES</b>		
Disturbance of cultural resource sites	Moderate, permanent	Same as No Action
<b>TRANSPORTATION AND UTILITIES</b>		
Movement of segments of existing highways, pipelines, transmission lines, or railroads to accommodate coal mining development	Moderate, long term to permanent, disruptive effects would be minimized	Same as No Action
Increased vehicular traffic on roads and highways due to coal mining, coal-related, oil and gas, and oil- and gas-related development, and associated impacts including traffic accidents, road wear, air emissions, dust, noise, and vehicle collisions with wildlife and livestock	Moderate, short term	Same as No Action
Construction and operation of additional railroad and pipeline facilities and transmission lines to transport coal, oil and gas, and electricity	Moderate, short to long term	Same as No Action
<b>SOCIOECONOMICS</b>		
Increases in employment related to coal mining, coal-related, oil and gas, and oil- and gas-related development	Significant, short to long term	Same as No Action
Increases in personal income due to employment increases related to coal mining, coal-related, oil and gas, and oil- and gas-related development	Significant, beneficial, short to long term	Same as No Action
Increase in population due to employment increases related to coal mining, coal-related, oil and gas, and oil- and gas-related development	Significant, short to long term	Same as No Action
Expansion of housing supply due to employment increases related to coal mining, coal-related, oil and gas, and oil- and gas-related development	Significant, short to long term	Same as No Action

<sup>1</sup> Cumulative impact discussion in this table and in Chapter 4 is based on the PRB Coal Review analyses (BLM 2005a-g, 2006b, and in preparation).

<sup>2</sup> All impacts are assumed to be adverse unless noted otherwise.

Table 2-5. Summary Comparison of Magnitude and Duration of Cumulative Impacts<sup>1, 2</sup> (Continued).

<b>DESCRIPTION OF POTENTIAL IMPACT BY RESOURCE</b>	<b>MAGNITUDE, TYPE, AND DURATION OF IMPACT</b>	
<b>RESOURCE NAME</b>	<b>NO ACTION ALTERNATIVE</b>	<b>PROPOSED ACTION and ALTERNATIVE 1</b>
<b>SOCIOECONOMICS (Continued)</b>		
Increases in school enrollment due to employment increases related to coal mining, coal-related, oil and gas, and oil- and gas-related development	Moderate, short term	Same as No Action
Need for additional local government facilities and services due to employment increases related to coal mining, coal-related, oil and gas, and oil- and gas-related development	Moderate, short to long term	Same as No Action
Increased federal state and local revenues related to coal mining, coal-related, oil and gas, and oil- and gas-related development	Significant, beneficial, short to long term	Same as No Action
<sup>1</sup> Cumulative impact discussion in this table and in Chapter 4 is based on the PRB Coal Review analyses (BLM 2005a-g, 2006b, and in preparation). <sup>2</sup> All impacts are assumed to be adverse unless noted otherwise.		