

2.0 PROPOSED ACTION AND ALTERNATIVES

This chapter describes the Proposed Action and alternatives for each of the four Lease by Application (LBA)¹ tracts being evaluated by this Environmental Impact Statement (EIS). The four tracts are the Belle Ayr North LBA Tract as applied for by Foundation Coal West (FCW), the West Coal Creek LBA Tract as applied for by Ark Land Company (ALC), the Caballo West LBA Tract as applied for by Caballo Coal Company (CCC), and the Maysdorf II LBA Tract as applied for by Cordero Mining Company (CMC).

For each tract, the Proposed Action is to hold a competitive lease sale and issue a lease for the federal coal lands included in the tract as applied for by the applicant. Under each Proposed Action, the tract as applied for would be offered for lease at one competitive sealed bid lease sale, subject to standard and special lease stipulations developed for the Powder River Basin (PRB) and that tract. The boundaries of each tract would be consistent with the tract configuration proposed by each applicant. Figures 2-1 through 2-4 show the Belle Ayr North, West Coal Creek, Caballo West, and Maysdorf II LBA Tracts, respectively, under each Proposed Action. In each case, the Proposed Action assumes that the applicant would be the successful bidder on each tract, and that the tract would be mined as a maintenance lease for an existing mine.

The National Environmental Policy Act of 1969 (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” 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 other alternatives should represent other means of satisfying the stated purpose and need for the federal action.

The No Action Alternative (Alternative 1) for each tract considered in this EIS is to reject the lease application. Under the No Action Alternative, a tract would not be offered for competitive sale, and the coal contained within the tract would not be mined as proposed. Rejection of an application would not affect currently permitted mining activities on existing leases at any of the applicant mines and selection of the No Action Alternative would not preclude an application to lease any rejected tract in the future. Portions of the surface of each LBA tract would probably be disturbed due to overstripping to allow coal to be removed from the adjacent existing leases.

¹ Refer to page xxii for a list of abbreviations and acronyms used in this document.

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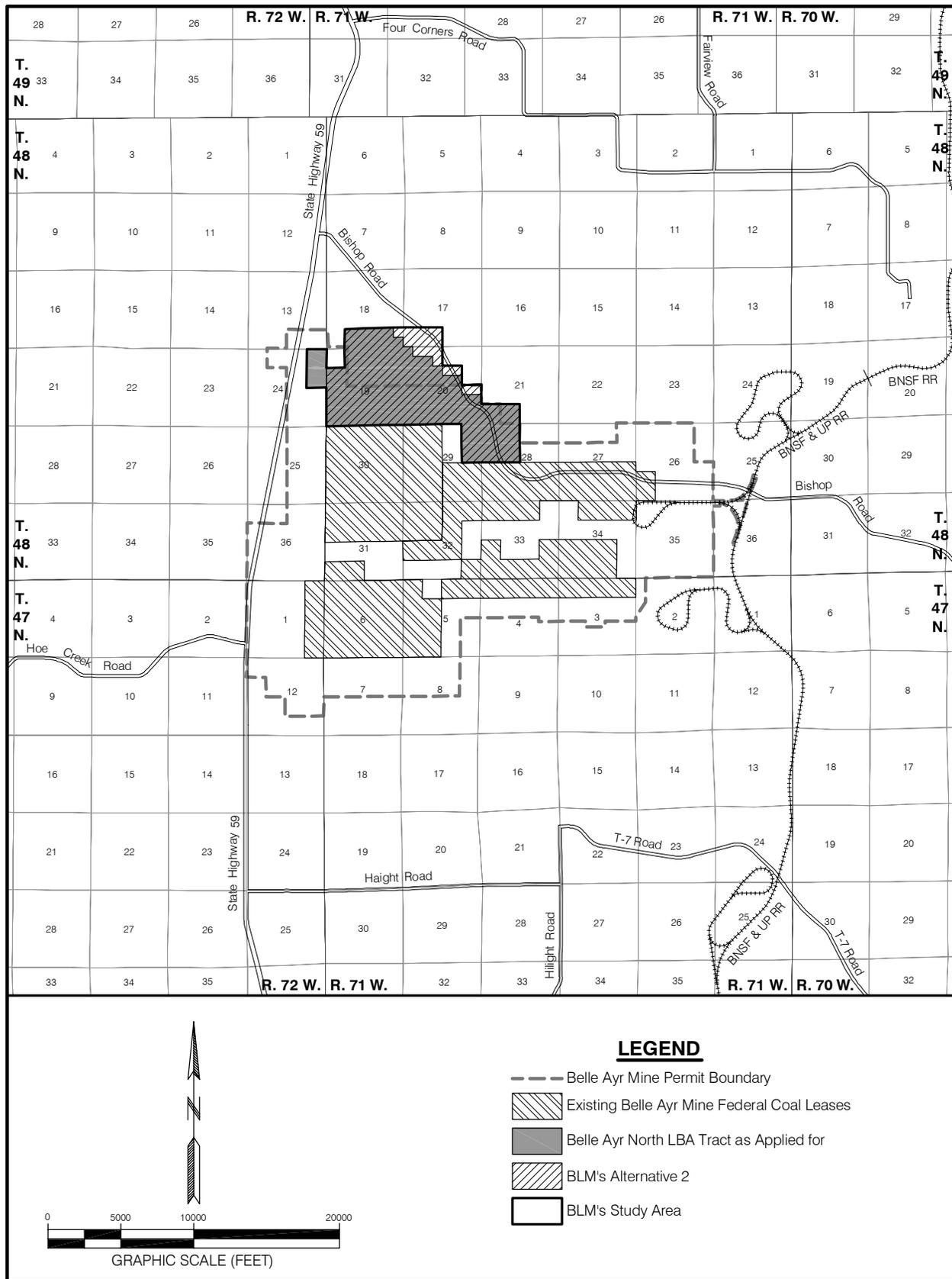


Figure 2-1. Belle Ayr North LBA Tract Alternatives.

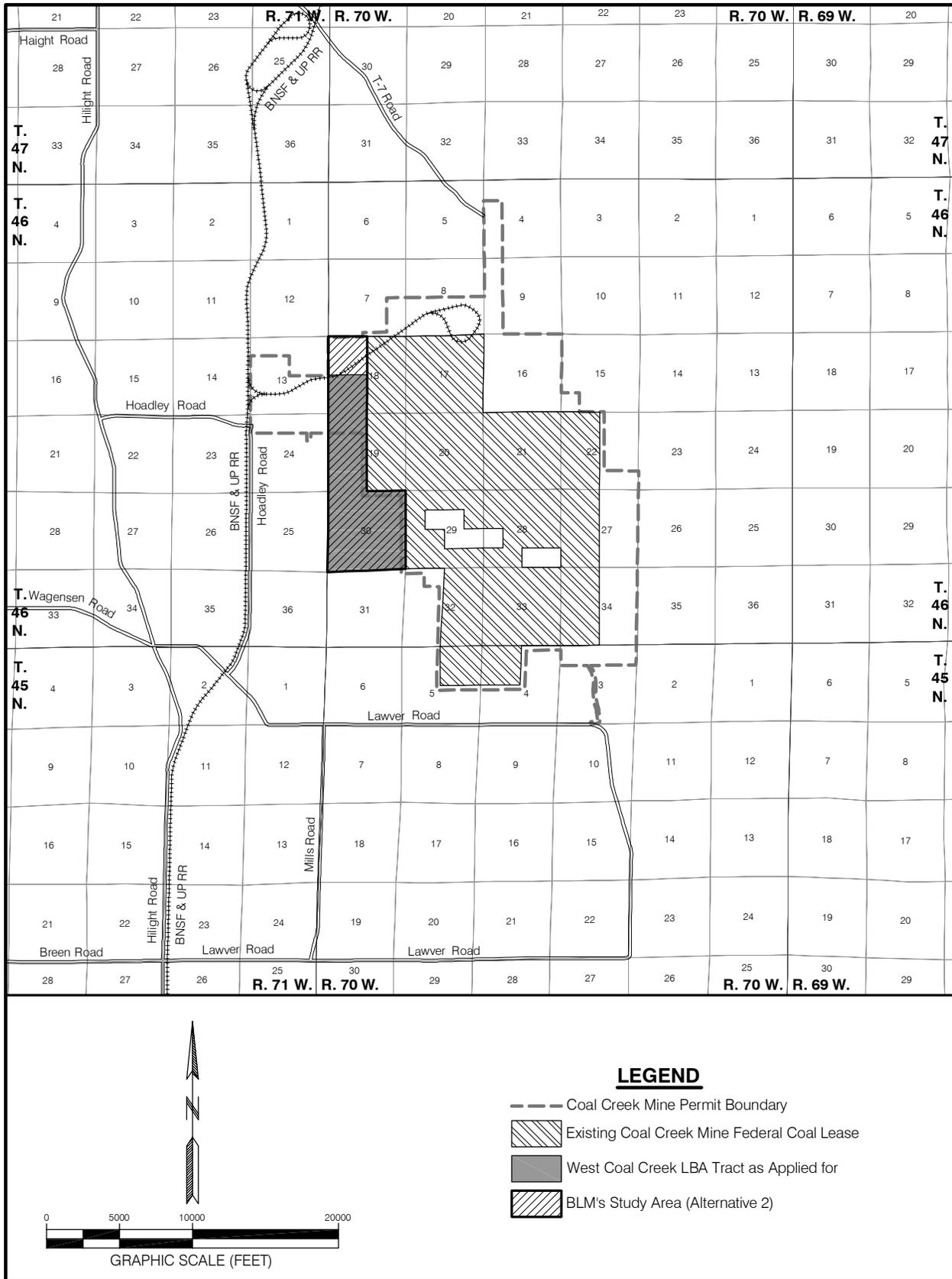


Figure 2-2. West Coal Creek LBA Tract Alternatives.

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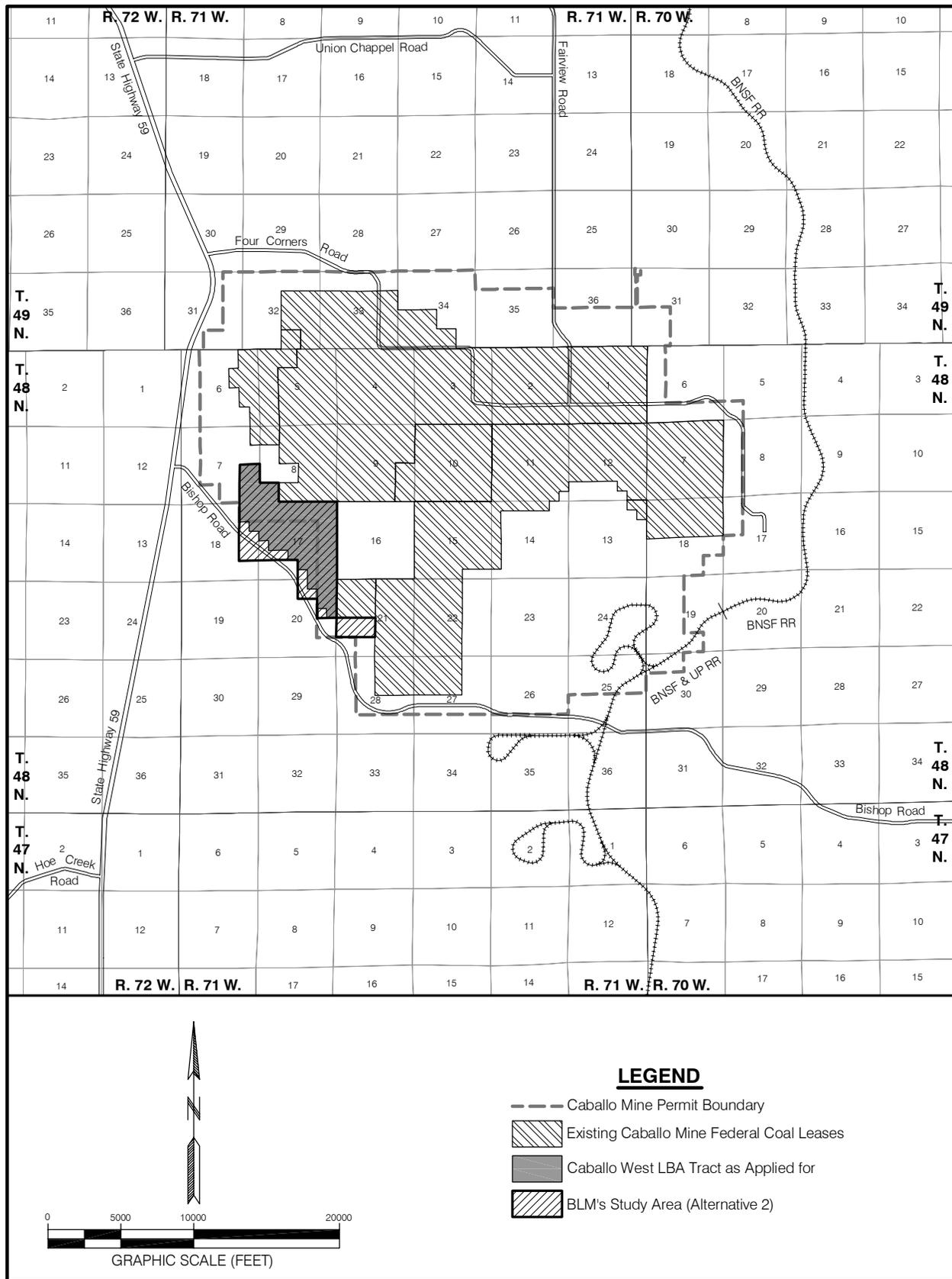


Figure 2-3. Caballo West LBA Tract Alternatives.

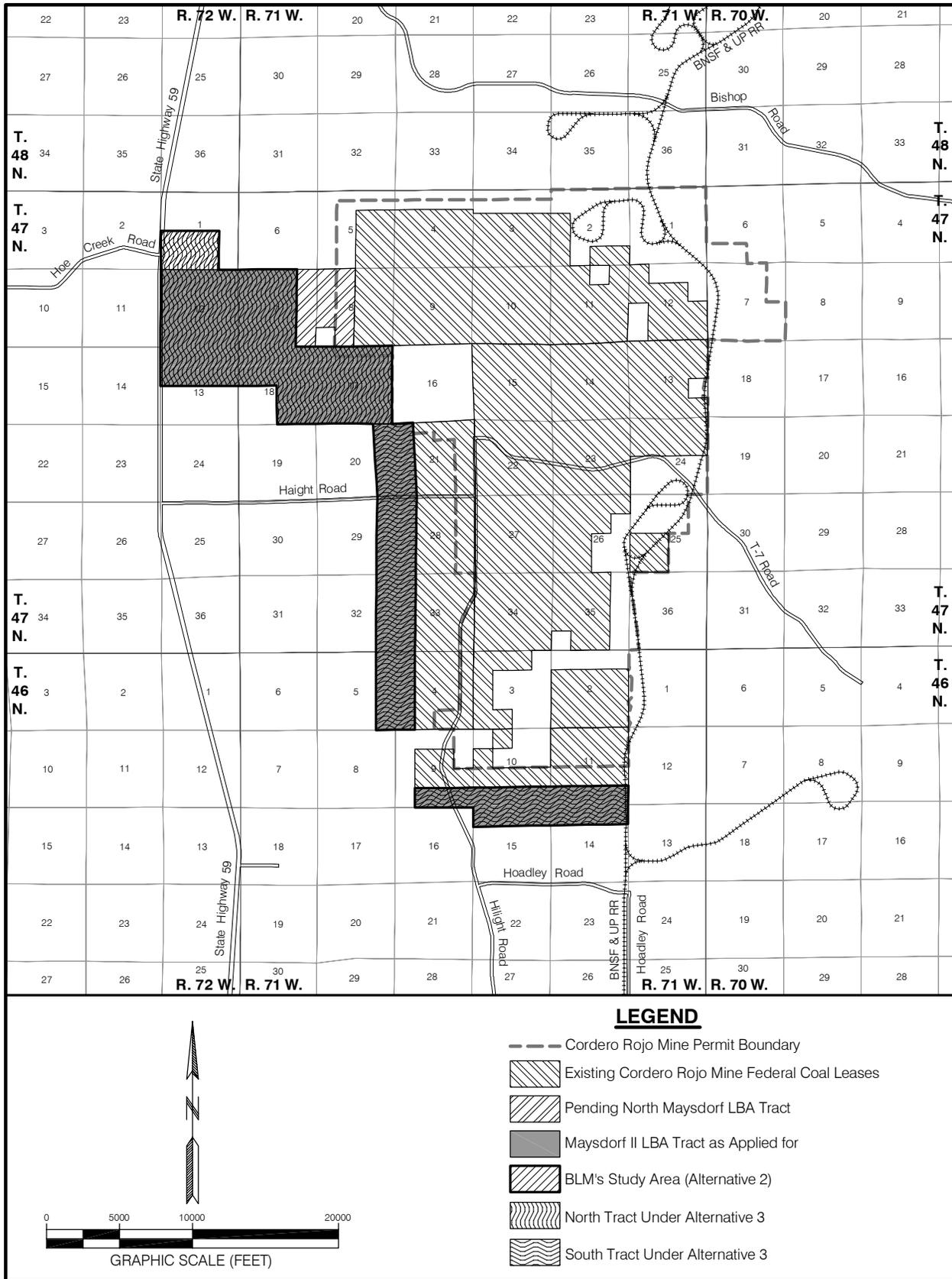


Figure 2-4. Maysdorf II LBA Tract Alternatives.

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The Bureau of Land Management (BLM) Competitive Coal Leasing Manual (BLM Manual 3420-1) requires 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 identifies alternate tract configurations and evaluates them as alternatives to the Proposed Action. BLM has identified a study area for each LBA Tract that includes each tract as applied for and adjacent unleased federal coal. Figures 2-1 through 2-4 show these study areas for the Belle Ayr North, West Coal Creek, Caballo West, and Maysdorf II LBA Tracts, respectively. BLM is evaluating these study areas 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 regulations at 43 CFR 3425.1-9 state 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, in evaluating alternate tract configurations, BLM could either increase or decrease the size of each tract as applied for.

The potential tract configurations, and therefore the potential number of alternatives evaluated for NEPA purposes, can vary for each tract. In this EIS, one alternative, Alternative 2, is evaluated in addition to the Proposed Action and Alternative 1 (the No Action Alternative) for all of the tracts considered in this EIS. Under Alternative 2 for each tract, BLM is evaluating adding all or part of the BLM study area to the tract as applied for and/or reducing the size of the tract as applied for. One competitive sealed bid sale would be held for each tract as modified by BLM. For the Maysdorf II LBA Tract, one additional alternative, Alternative 3 is evaluated. Under Alternative 3 for the Maysdorf II LBA tract, BLM is considering splitting the BLM study area into two tracts (the North Maysdorf II and South Maysdorf II LBA Tracts). The lands included in the two tracts would be the lands included in the tract as modified by BLM. Two separate competitive sealed bid lease sales would be held.

Two other alternatives were considered but not analyzed in detail. They are:

- holding a competitive lease sale and issuing a lease for federal coal lands included in one or more of the LBA tracts (as applied for or as modified by BLM), with the assumption that one or more of the tracts would be developed as a new mine. A company or companies acquiring this coal for one or more new stand-alone mines 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 spurs), extensive baseline data collection, and development of new mining and reclamation plans. If a new mine is required to mine the coal, the environmental impacts would be expected to be greater than if each

tract were mined as an extension of an existing mine. In addition, a company or companies acquiring this coal for one or more new start mines would have to compete for customers with established mines in a competitive market.

- delaying the sale of one or more of the LBA tracts as applied for in order to take advantage of higher coal prices and/or to allow recovery of the potential coal bed natural gas (CBNG) resources in the tract prior to mining. 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 each 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 economically-recoverable CBNG resources on the tracts would be anticipated after lease issuance.

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. For each tract, the Proposed Action and Alternative 2 (and Alternative 3 for the Maysdorf II Tract) considered in this EIS assume that the applicant that applied for the tract would be the successful bidder if the federal coal included in the tract is offered for lease, and that each tract would be mined as a maintenance tract for an existing permitted mine.

If a decision is made to hold a competitive lease sale for a tract of federal coal 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 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 for each tract could potentially differ from the more general mining plan used in this EIS to analyze the impacts of the Proposed Action, Alternative 2 of each tract, and Alternative 3 for the Maysdorf II LBA Tract, 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, etc., would not be substantially different from the plans used in this analysis.

If any of the tracts are leased under the Proposed Action or the alternatives for each tract, 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 such as overstripping, matching undisturbed topography, and construction of flood control and sediment control structures. This is referred to as the general analysis area for that tract.

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BLM has not identified a preferred alternative in this Draft Environmental Impact Statement (DEIS). BLM's coal leasing rules and regulations require that BLM consider comments from the public regarding maximum economic recovery of the coal lands being considered for lease, as well as any comments pertaining to fair market value of the coal lands under consideration in determining the preferred tract configuration alternative. These comments are sought and received in written or oral form during the DEIS review and the public hearing process. Public comments on environmental effects identified in the DEIS as well as fair market value and maximum economic recovery factors, geologic data, and coal data are used to assist in determining the preferred alternative. A preferred alternative will be developed after these processes are concluded and will be identified in the Final Environmental Impact Statement (FEIS).

2.1 Alternatives for the Belle Ayr North LBA Tract

2.1.1 Belle Ayr North LBA Tract Proposed Action

Under the Proposed Action, the Belle Ayr North 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 Belle Ayr North lease application (Figure 2-1). The Proposed Action assumes that FCW would be the successful bidder on the Belle Ayr North LBA Tract if it is offered for sale.

The legal description of the proposed Belle Ayr North LBA Tract coal lease lands as applied for by FCW under the Proposed Action is as follows:

T. 48 N., R. 71 W., 6th P.M., Campbell County, Wyoming

| | |
|--|--------------|
| Section 18: Lots 17, 18, 19(W $\frac{1}{2}$, SE $\frac{1}{4}$); | 113.48 acres |
| Section 19: Lots 5 through 19; | 606.93 acres |
| Section 20: Lots 3 (SW $\frac{1}{4}$), 4 (W $\frac{1}{2}$, SE $\frac{1}{4}$), 5, 6, 7 (S $\frac{1}{2}$), 9 (S $\frac{1}{2}$), 10 through 16; | 450.43 acres |
| Section 21: Lots 13, 14; | 81.52 acres |
| Section 28: Lots 3 through 6; | 161.98 acres |
| Section 29: Lots 1, 6; | 81.63 acres |

T. 48 N., R.72 W., 6th P.M., Campbell County, Wyoming

| | |
|------------------------|--------------------|
| Section 24: Lots 1, 8. | <u>82.77 acres</u> |
|------------------------|--------------------|

| | |
|--------|----------------|
| Total: | 1,578.74 acres |
|--------|----------------|

The land description and acreage are based on the BLM Status of Public Domain Land and Mineral Titles approved Master Title Plat as of April 10, 2006 and Coal

Plat as of March 8, 2006. The coal estate included in the tract described above is federally owned and the surface is owned by FCW. Ownership of the oil and gas estate is discussed in Section 3.11.

Some of the coal in Belle Ayr North LBA Tract under this alternative is not currently considered to be mineable due to the presence of the Bishop Road (County Road 12). A portion the Bishop Road overlies some of the coal included in the tract. As discussed in Section 1.1, the Surface Mining Control and Reclamation Act prohibits mining within 100 ft on either side of the right-of-way of any public road (43 CFR 3461). There would also be a quantity of coal east of the Bishop Road that would be isolated from the mining operations if the coal under the road was not mined. The coal underlying the portion of the Bishop Road, its right-of-way, and the 100 ft buffer zone within the Belle Ayr North LBA Tract could be mined if the Campbell County Board of Commissioners, the authorized agency, determines that the road can be moved [30 CFR 761.11(d)]. FCW is evaluating the feasibility of relocating the road at this time. FCW estimates that approximately 27.2 million tons of mineable coal are included within the right-of-way and associated 100 ft buffer zone that is within the LBA tract and that if the county road is not moved approximately 12.7 million tons of mineable coal would be isolated east of the Bishop Road.

The federal coal lands underlying the county road right-of-way and the adjacent buffer zones are included in the tract because that would allow maximum recovery of the mineable coal adjacent to but outside of the county road and buffer zone if the road is not moved; and would also allow recovery of the coal under the road if it is moved. If a lease is issued for this tract, a stipulation will be attached stating that no mining activity may be conducted within 100 ft of the road right-of-way until permit to move the county road is approved.

If the Bishop Road is moved, FCW estimates that the Belle Ayr North LBA Tract as applied for includes approximately 208.1 million tons of in-place and mineable coal. FCW assumes that about 94 percent of that coal, or about 191.9 million tons of coal, could be recovered from the Belle Ayr North LBA Tract, based on historical recovery practices. FCW estimates that at the projected average annual coal production rate of 30 million tons per year (mmtpy), mining this coal would extend this mine life by about 6.4 years. As a basis for estimating impacts, annual production is assumed to increase to 30 mmtpy by 2015 and hold at that rate through 2020 and to the end of mine life. Future production rates are difficult to estimate since mines must increase or reduce rates in line with annual demand and competition for coal sales. BLM estimated future rates for the purpose of estimating impact using the Powder River Basin Coal Review Task 2 report – Past and Present and Reasonably Foreseeable Development Activities (BLM 2005d). This results in an average production rate from mid 2008 to the end of mine life of 30 mmtpy.

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If the Bishop Road is not moved, FCW estimates that as applied for the Belle Ayr North LBA Tract contains approximately 208.1 million tons of in-place coal reserves. Excluding the federal coal reserves within the Bishop Road right-of-way and buffer zone and the isolated coal, FCW estimates that the Belle Ayr North LBA Tract contains approximately 164.7 million tons of mineable coal reserves. Using FCW's projected recovery factor of 94 percent of the mineable coal reserves included in tract as applied for, the tract would contain about 154.8 million tons of recoverable coal. At the average annual coal production rate of 30 mmtpy, mining this coal would extend mine life by about 5.2 years.

BLM independently evaluates the volume and average quality of the coal resources included in the tract offered for sale as part of the fair market value determination process. BLM's estimate of the mineable federal coal reserves and average quality of the coal included in the tract may not 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 and average quality of coal included in the tract will be published in the sale notice for the tract, if it is offered for sale.

The Belle Ayr North LBA Tract would be mined as an integral part of the Belle Ayr Mine under the Proposed Action. Since the Belle Ayr North LBA Tract would be an extension of the existing Belle Ayr Mine, the facilities and infrastructure would be the same as those identified in the Wyoming Department of Environmental Quality/Land Quality Division (WDEQ/LQD) Mine Permit 214 Term T6, approved November 25, 2003 and the BLM Resource Recovery and Protection Plan (R2P2), which was approved March 8, 2007.

FCW's currently approved air quality permit from the Wyoming Department of Environmental Quality/Air Quality Division (WDEQ/AQD) for the Belle Ayr Mine allows up to 45 million tons of coal per year to be mined. The Belle Ayr Mine produced:

- 11.8 million tons of coal in 2001,
- 17.5 million tons of coal in 2002,
- 17.9 million tons of coal in 2003,
- 18.7 million tons of coal in 2004,
- 19.5 million tons of coal in 2005,
- 24.6 million tons of coal in 2006, and
- 26.6 million tons of coal in 2007

(Wyoming Department of Employment 2001, 2002, 2003, 2004, 2005, 2006, and 2007).

Under the currently approved mining plan (the No Action Alternative), the Belle Ayr Mine would mine its remaining 235.8 million tons of recoverable coal reserves on the existing Belle Ayr leases in nearly 8 years at an average production rate of approximately 30 mmtpy. Under the Proposed Action and if the Bishop Road is moved, FCW estimates that annual coal production would average approximately

30 million tons, mine life would be extended by more than 6 additional years, and coal production at the Belle Ayr Mine would continue for just over 14 years beyond mid 2008. If the road is not moved, FCW estimates that annual coal production would average approximately 30 million tons, mine life would be extended by more than 5 additional years, and coal production at the Belle Ayr Mine would continue for nearly 14 years beyond mid 2008.

If FCW acquires the Belle Ayr North LBA tract as applied for and if the Bishop Road is moved, they estimate that a total of 427.7 million tons of coal would be recovered after July 1, 2008, with an estimated 191.9 million tons coming from the LBA tract. As of June 30, 2008, approximately 544.5 million tons of coal had been mined from within the current permit area of the Belle Ayr Mine.

If FCW acquires the Belle Ayr North LBA tract as applied for and if the Bishop Road is not moved, they estimate that a total of 390.6 million tons of coal would be recovered after July 1, 2008, with an estimated 154.8 million tons coming from the LBA tract.

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. Two telephone lines, one high-pressure gas pipeline, and a portion of the Bishop Road 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 Belle Ayr Mine is one of several mines currently operating in the PRB where the coal seams are notably thick and the overburden is relatively thin. Mining would be conducted as an extension of the one pit located within the current permit 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, graders, 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 Belle Ayr 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.

Replaced (backfilled) overburden is graded to approximate original land surface contour, as required by WDEQ and Office of Surface Mining Reclamation and Enforcement (OSM) rules. Elevations consistent with an approved post-mining topography (PMT) plan would be established as quickly as possible to construct a stable landscape and restore drainage. Backfilled and recontoured overburden is

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sampled and analyzed to verify suitability as subsoil. 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 topsoiling. 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 prepared, vegetation that is consistent with the postmining land use would be reestablished.

Coal would be produced from one coal seam that FCW refers to as the Wyodak-Anderson. The seam averages 72 ft in thickness and ranges from about 66 to 76 ft thick inside the Belle Ayr North LBA Tract. 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. The Belle Ayr Mine utilizes two existing coal crushing facilities located within the FCW Mine permit area, which provide the capacity to produce the permitted production tonnage. All coal crushing operations and conveying, transferring, and storage facilities are equipped with atomizer/fogger systems for dust control. 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. While sufficient storage capacity exists, facilities may be constructed in the future to improve operating efficiency and air quality protection. For example, a stilling shed may be built and a covered overland conveyor and near-pit crusher system may be constructed and moved as the mining operation progresses.

Full-time employment at the Belle Ayr Mine is currently 358. If FCW acquires the Belle Ayr North LBA Tract under the Proposed Action, they anticipate that employment levels would increase to 366 for the additional 5 to 7 years that it would take to mine the coal included in the tract. This is based on the assumption that the annual coal production rate would average approximately 30 mmtpy.

FCW applied for the Belle Ayr North LBA Tract, but the tract is also adjacent to the Caballo Mine, operated by CCC (see Figure 1-2). As a result, CCC is potentially in a position to mine the Belle Ayr North LBA Tract. If a company other than FCW were to acquire 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.

2.1.2 Belle Ayr North LBA Tract Alternative 1

Under the Belle Ayr North LBA Tract Alternative 1, the No Action Alternative, FCW's application to lease the coal included in the Belle Ayr North 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 permitted mining activities or employment on the existing leases at the Belle Ayr Mine. The Belle Ayr Mine currently owns or leases approximately 4,946 acres of federal coal, 760 acres of private coal, and 640 acres of state coal, all of which are within the existing Belle Ayr Mine permit boundaries. A total of approximately 11,621 acres will eventually be affected in mining the current leases. If the Belle Ayr North LBA Tract is not leased, FCW estimates that the annual production at the Belle Ayr Mine would average 30 million tons, and the average full-time employment level is expected to be 358 persons.

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 Belle Ayr North 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 Belle Ayr North 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. This tract 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 unleased federal coal to the west to create a larger tract, which could be mined by a new operation in the future.

2.1.3 Belle Ayr North LBA Tract Alternative 2

Under Alternative 2 for the Belle Ayr North LBA Tract, BLM would reconfigure the tract, hold one 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 2 for the Belle Ayr North 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 as a maintenance lease for the existing Belle Ayr Mine. Assumptions

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concerning mining methods, facilities, hazardous materials, mitigation and monitoring requirements, etc. are the same as described for the Proposed Action.

As applied for, the Belle Ayr North 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 Belle Ayr North 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 edge of the tract as applied for (Figure 2-1). Under this alternative, BLM could add all or part of the adjacent lands to the tract, or BLM could reduce the size of the tract, as discussed in Section 2.0. The original BLM study area was redelineated on June 20, 2007 to describe the tract based on 10-acre aliquot parts rather than physical boundaries (the Bishop Road). FCW was aware of and agreed to the change.

The area BLM is evaluating adding to the tract as applied for includes the following lands:

T. 48 N., R. 71 W., 6th P.M., Campbell County, Wyoming

| | |
|---|--------------------|
| Section 17: Lots 13, 14; | 82.53 acres |
| Section 18: Lots 19 (NE ¹ / ₄); | 10.34 acres |
| Section 20: Lots 3 (E ¹ / ₂ , NW ¹ / ₄), 4 (NE ¹ / ₄), 7 (N ¹ / ₂), and 9 (N ¹ / ₂); | <u>82.19 acres</u> |
| Total Added: | 175.06 acres |

BLM would remove the following as applied for lands from leasing consideration if this alternative is selected:

T. 48 N., R. 72 W., 6th P.M., Campbell County, Wyoming

| | |
|------------------------|---------------------|
| Section 24: Lots 1, 8. | <u>-82.77 acres</u> |
| Total (Net Change): | 92.29 acres |

The legal description of BLM's reconfiguration of the Belle Ayr North LBA Tract under Alternative 2 is as follows:

T. 48 N., R. 71 W., 6th P.M., Campbell County, Wyoming

| | |
|---|--------------|
| Section 17: Lots 13, 14; | 82.53 acres |
| Section 18: Lots 17, 18, 19; | 123.82 acres |
| Section 19: Lots 5 through 19; | 606.93 acres |
| Section 20: Lots 3 through 7, 9 through 16; | 532.62 acres |

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| | |
|-------------------------------|--------------------|
| Section 21: Lots 13, 14; | 81.52 acres |
| Section 28: Lots 3 through 6; | 161.98 acres |
| Section 29: Lots 1, 6. | <u>81.63 acres</u> |
| Total: | 1,671.03 acres |

The land description and acreage are based on the BLM Status of Public Domain Land and Mineral Titles approved Master Title Plat as of April 10, 2006 and Coal Plat as of March 8, 2006. The coal estate in the tract described above is federally owned 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 Belle Ayr North LBA Tract under this alternative is not currently considered to be mineable due to the presence of the Bishop Road (County Road 12). A portion the Bishop Road overlies some of the coal included in the tract. As discussed in Section 1.1, the Surface Mining Control and Reclamation Act prohibits mining within 100 ft on either side of the right-of-way of any public road (43 CFR 3461). There would also be a quantity of coal east of the Bishop Road that would be isolated from the mining operations if the coal under the road was not mined. The coal underlying the portion of the Bishop Road, its right-of-way, and the 100 ft buffer zone within the Belle Ayr North LBA Tract could be mined if the Campbell County Board of Commissioners, the authorized agency, determines that the road can be moved [30 CFR 761.11(d)]. FCW is evaluating the feasibility of relocating the road at this time. FCW estimates that approximately 45 million tons of mineable coal are included within the right-of-way and associated 100 ft buffer zone that is within the LBA tract under Alternative 2 and that if the county road is not moved approximately 13 million tons of mineable coal would be isolated east of the Bishop Road.

The federal coal lands underlying the county road right-of-way and the adjacent buffer zones and the isolated coal are included in the tract because that would allow maximum recovery of the mineable coal adjacent to but outside of the county road and buffer zone if the road is not moved; and would also allow recovery of the coal under the road if it is moved. If a lease is issued for this tract, a stipulation will be attached stating that no mining activity may be conducted within 100 ft of the road right-of-way until permit to move the county road is approved.

If the Bishop Road is moved, FCW estimates that the Belle Ayr North LBA Tract under Alternative 2 includes approximately 221.1 million tons of in-place coal and 217.6 million tons of mineable coal. FCW assumes that about 94 percent of that coal, or about 204.6 million tons of coal, could be recovered from the Belle Ayr North LBA Tract, based on historical recovery practices. FCW estimates that at the projected average annual coal production rate of 30 mmtpy, mining this coal would extend this mine life by just under 7 years.

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If the Bishop Road is not moved, FCW estimates that as applied for the Belle Ayr North LBA Tract contains approximately 221.1 million tons of in-place coal reserves. Excluding the federal coal reserves within the Bishop Road right-of-way and buffer zone and the isolated coal, FCW estimates that the Belle Ayr North LBA Tract contains approximately 159.6 million tons of mineable coal reserves. Using FCW's projected recovery factor of 94 percent of the mineable coal reserves included in tract as applied for, the tract would contain about 150.1 million tons of recoverable coal. FCW estimates that under Alternative 2 that at the estimated average annual coal production rate of 30 mmtpy, mining this coal would extend this mine life by approximately 5 years.

BLM independently evaluates the volume and average quality of the coal resources included in the tract offered for sale as part of the fair market value determination process. BLM's estimate of the mineable federal coal reserves and average quality of the coal included in the tract may not 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 and average quality of coal included in the tract will be published in the sale notice for the tract, if it is offered for sale.

2.2 Alternatives for the West Coal Creek LBA Tract

2.2.1 West Coal Creek LBA Tract Proposed Action

Under the Proposed Action, the West Coal Creek LBA Tract, as applied for by ALC, 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 West Coal Creek lease application (Figure 2-2). The Proposed Action assumes that ALC would be the successful bidder on the West Coal Creek LBA Tract if it is offered for sale.

The legal description of the proposed West Coal Creek LBA Tract coal lease lands as applied for by ALC under the Proposed Action is as follows:

T. 46 N., R. 70 W., 6th P.M., Campbell County, Wyoming

| | |
|---|---------------------|
| Section 18: Lots 14 through 17; | 161.95 acres |
| Section 19: Lots 7 through 10, 15 through 18; | 323.60 acres |
| Section 30: Lots 5 through 20. | <u>665.71 acres</u> |
| Total: | 1,151.26 acres |

The land description and acreage are based on the BLM Status of Public Domain Land and Mineral Titles approved Coal Plat as of August 10, 2006. The ownership of the coal estate in the tract described above is federal and the surface estate is

owned by Dennis Edwards and Thunder Basin Coal Co., LLC. Ownership of the oil and gas estate is discussed in Section 3.11.

ALC estimates that the West Coal Creek LBA Tract includes approximately 63.3 million tons of in-place and mineable coal. Using ALC's projected recovery factor of 90 percent of the mineable coal reserves, the LBA tract as applied for would contain about 57.0 million tons of recoverable coal. At an average annual coal production rate of 13.4 mmtpy, mining would extend mine life by just over 4 years. As a basis for estimating impacts, annual production is assumed to increase to 14 mmtpy by 2015 and hold at that rate through 2020 and to the end of mine life. Future production rates are difficult to estimate since mines must increase or reduce rates in line with annual demand and competition for coal sales. BLM estimated future rates for the purpose of estimating impact using the Powder River Basin Coal Review Task 2 report – Past and Present and Reasonably Foreseeable Development Activities (BLM 2005d). This results in an average production rate from 2008 to the end of mine life of 13.4 mmtpy.

BLM independently evaluates the volume and average quality of the coal resources included in the tract offered for sale as part of the fair market value determination process. BLM's estimate of the mineable federal coal reserves and average quality of the coal included in the tract may not 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 and average quality of coal included in the tract will be published in the sale notice for the tract, if it is offered for sale.

The West Coal Creek LBA Tract would be mined as an integral part of the Coal Creek Mine under the Proposed Action. Since the West Coal Creek LBA Tract would be an extension of the existing Coal Creek Mine, the facilities and infrastructure would be the same as those identified in the WDEQ/LQD Mine Permit 483 Term T5, approved September 7, 2005 and the BLM R2P2, which was approved April 15, 2004.

ALC's currently approved air quality permit from the WDEQ/AQD for the Coal Creek Mine allows up to 25 million tons of coal per year to be mined. The Coal Creek Mine produced:

- no coal in 2001,
- no coal in 2002,
- no coal in 2003,
- no coal in 2004,
- no coal in 2005,
- 3.1 million tons of coal in 2006, and
- 10.2 million tons of coal in 2007

(Wyoming Department of Employment 2001, 2002, 2003, 2004, 2005, and 2006 and TBCC 2007).

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Under the currently approved mining plan (the No Action Alternative), the Coal Creek Mine would mine its remaining 217.5 million tons of recoverable coal reserves on the existing Coal Creek leases in nearly 17 years at an average production rate of approximately 13.4 mmtpy. Under the Proposed Action ALC estimates that annual coal production would average approximately 13.4 million tons, mine life would be extended by just more than 4 additional years, and coal production at the Coal Creek Mine would continue for just over 20 years beyond mid 2008.

If ALC acquires the West Coal Creek LBA tract as applied for, they estimate that a total of 274.5 million tons of coal would be recovered after July 1, 2008, with an estimated 57.0 million tons coming from the LBA tract. As of June 30, 2008, approximately 68.9 million tons of coal had been mined from within the current permit area of the Coal Creek Mine.

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. Three overhead powerlines, one buried telephone line, and three 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 outlined in the reclamation plan, heavy equipment again would be used to haul and distribute the stockpiled topsoil.

The Coal Creek Mine is one of several mines currently operating in the PRB where the coal seams are notably thick and the overburden is relatively thin. Mining would be conducted in four separate, semi-independent pits; three located within the current permit area and one located within the proposed lease area. The multi-pit concept has been and would be utilized to reduce operating costs by blending production from areas having different stripping ratios and coal quality, and also to help stabilize manpower requirements. Overburden removal has been and would continue to be conducted using trucks and shovels or loaders, draglines, and direct cast blasting. Other equipment used during overburden removal and backfilling would include dozers, scrapers, excavators, front-end loaders, graders, 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 Coal Creek 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.

Replaced (backfilled) overburden is graded to approximate original land surface contour, as required by WDEQ and OSM rules. Elevations consistent with an approved PMT plan would be established as quickly as possible to construct a stable landscape and restore drainage. Backfilled and recontoured overburden is

sampled and analyzed to verify suitability as subsoil. 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 topsoiling. 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 prepared, vegetation that is consistent with the postmining land use would be reestablished.

Coal would be produced from one coal zone that Thunder Basin Coal Company (TBCC) refers to as the Wyodak-Anderson. The seam averages 36 ft in thickness inside the West Coal Creek LBA Tract. The Wyodak-Anderson zone is split into two mineable seams: locally referred to as the R1 and the R3 coal seams. 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 shovels, loaders, or backhoes into off-highway haul trucks for transport to crushing facilities. Coal haul roads would be temporary structures built within the mine areas. The Coal Creek Mine utilizes two existing coal crushing facilities located within the Coal Creek Mine permit area, which provides the capacity to produce at the permitted level. All coal crushing operations and conveying, transferring, and storage facilities are equipped with baghouses or passive control equipment for dust control. There are two existing coal storage silos. A covered overland conveyor and near-pit crusher system have been constructed and will be moved as the mining operation progresses. While sufficient storage capacity exists, future changes in facilities may be constructed to improve operating efficiency and air quality protection. For example, a covered slot storage barn, covered dome, or other appropriate storage structure may be built.

Full-time employment at the Coal Creek Mine is currently 150 persons. If ALC acquires the West Coal Creek LBA Tract under the Proposed Action, they anticipate that employment levels would increase to 160 for the additional 4 years that it would take to mine the coal included in the tract. This is based on the assumption that the annual coal production rate would average approximately 13.4 mmpy.

As discussed in Chapter 1, the West Coal Creek LBA Tract is adjacent to existing leases at the Coal Creek Mine, but is not adjacent to leases at any of the other existing mines in this area (see Figure 1-3). If a company other than ALC were to acquire the tract, the rate of coal production, mining sequence, equipment, and facilities would be different than if ALC acquired the tract as a maintenance lease, as described above. However, the area of disturbance and the impacts of

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removing the coal would not be substantially different from the area of disturbance and the impacts of TBCC mining the tract.

2.2.2 West Coal Creek LBA Tract Alternative 1

Under the West Coal Creek LBA Tract Alternative 1, the No Action Alternative, ALC's application to lease the coal included in the West Coal Creek 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 permitted mining activity and employment on the existing leases at the Coal Creek Mine. The Coal Creek Mine currently owns or leases approximately 5,918.0 acres of federal coal, 120.1 acres of private coal, and 805.7 acres of state coal; all of which are within the existing Coal Creek Mine permit boundary. A total of approximately 8,355 acres will eventually be affected in mining the current leases. If the West Coal Creek LBA Tract is not leased, ALC estimates that the annual production at the Coal Creek Mine would average 13.4 million tons, and the average full-time employment level is expected to remain at 150 persons.

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 West Coal Creek 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 West Coal Creek 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. This tract 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 unleased federal coal to the west and south to create a larger tract, which could be mined by a new operation in the future.

2.2.3 West Coal Creek LBA Tract Alternative 2

Under Alternative 2 for the West Coal Creek LBA Tract, BLM would reconfigure the tract, hold one 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 this tract if it is offered for sale (Appendix D).

Alternative 2 for the West Coal Creek LBA Tract assumes that ALC would be the successful bidder on the tract if a lease sale is held and that the federal coal would be mined as a maintenance lease for the Coal Creek Mine. Assumptions

concerning mining methods, facilities, hazardous materials, mitigation and monitoring requirements, etc. are the same as described for the Proposed Action.

As applied for, the West Coal Creek LBA Tract consists of a single block of federal coal (Figure 1-3). 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 West Coal Creek 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, which includes the tract as applied for and unleased federal coal adjacent to the northern edge of the tract as applied for (Figure 2-2). 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.

The area BLM is evaluating in addition to the tract as applied for includes the following lands:

T.46N., R.70W., 6th P.M., Campbell County, Wyoming

Section 18: Lots 7 through 10; 162.00 acres

The legal description of BLM's reconfiguration of the West Coal Creek LBA Tract under Alternative 2 is as follows:

T.46N., R.70W., 6th P.M., Campbell County, Wyoming

Section 18: Lots 7 through 10, 14 through 17; 323.95 acres
Section 19: Lots 7 through 10, 15 through 18; 323.60 acres
Section 30: Lots 5 through 20. 665.71 acres

Total: 1,313.26 acres

The land description and acreage are based on the BLM Status of Public Domain Land and Mineral Titles approved Coal Plat as of August 8, 2006. The coal estate in the tract described above is federal and the surface estate is owned by Dennis Edwards and Thunder Basin Coal Co., LLC. Ownership of the oil and gas estate is discussed in Section 3.11.

The coal in West Coal Creek LBA Tract that was added under this alternative is not currently considered to be recoverable by ALC due to the presence of the Coal Creek Mine railroad spur right-of-way (ROW). The coal adjacent to and underlying the ROW is not considered to be recoverable at this time because the cost that would be associated with moving the railroad spur would make it economically unfeasible to recover the underlying coal. There would also be a quantity of coal north of the railroad spur that would be isolated from the mining operations if the coal under the railroad was not mined. Although these lands would likely not be

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mined, they are included in the BLM study area to allow maximum recovery of all the mineable coal that is adjacent to but outside of the railroad spur ROW.

ALC estimates that the West Coal Creek LBA Tract under Alternative 2 contains approximately 63.3 million tons of mineable coal reserves. Using ALC's projected recovery factor of 90 percent of the mineable coal reserves included in BLM's tract reconfiguration, the tract would contain about 57.0 million tons of recoverable coal. ALC estimates that at the projected average annual coal production rate of 13.4 mmtpy, mining this coal would extend this mine life by just over 4 years. As a basis for estimating impacts, annual production is assumed to increase to 14 mmtpy by 2015 and hold at that rate through 2020 and to the end of mine life.

BLM independently evaluates the volume and average quality of the coal resources included in the tract offered for sale as part of the fair market value determination process. BLM's estimate of the mineable federal coal reserves and average quality of the coal included in the tract may not 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 and average quality of coal included in the tract will be published in the sale notice for the tract, if it is offered for sale.

2.3 Alternatives for the Caballo West LBA Tract

2.3.1 Caballo West LBA Tract Proposed Action

Under the Proposed Action, the Caballo West LBA Tract as applied for by CCC 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 Caballo West lease application (Figure 2-3). The Proposed Action assumes that CCC would be the successful bidder on the Caballo West LBA Tract if it is offered for sale.

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

T. 48 N., R. 71 W., 6th P.M., Campbell County, Wyoming

| | |
|---|--------------------|
| Section 7: Lots 12, 19; | 81.88 acres |
| Section 8: Lot 10; | 39.67 acres |
| Section 17: Lots 1 through 10, 11 (N $\frac{1}{2}$, SE $\frac{1}{4}$), 12 (NE $\frac{1}{4}$), 15 (N $\frac{1}{2}$, SE $\frac{1}{4}$), 16; | 521.76 acres |
| Section 18: Lot 5, 12 (NE $\frac{1}{4}$); | 52.32 acres |
| Section 20: Lots 1, 2 (NE $\frac{1}{4}$), 8 (N $\frac{1}{2}$, SE $\frac{1}{4}$). | <u>81.86 acres</u> |
| Total: | 777.49 acres |

The land description and acreage are based on the BLM Status of Public Domain Land and Mineral Titles approved Coal Plat as of March 8, 2006. The ownership of the coal estate in the tract described above is federal and the surface estate is owned by the Paul D. Rourke Trust; James F. Rourke, et al.; and FCW. Ownership of the oil and gas estate is discussed in Section 3.11.

CCC estimates that the Caballo West LBA Tract includes approximately 98.2 million tons of in-place coal and that approximately 87.5 million tons of those in-place coal reserves are mineable. Using CCC's projected recovery factor of 93.5 percent of the mineable coal reserves, the tract as applied for would contain about 81.8 million tons of recoverable coal. At the estimated annual average coal production rate of 37.8 mmtpy, mining this coal would extend this mine life by just over 2 years. As a basis for estimating impacts, annual production is assumed to reach 39 mmtpy by 2015 and hold at that rate through 2020 to end of mine life. Future production rates are difficult to estimate since mines must increase or reduce rates in line with annual demand and competition for coal sales. BLM estimated future rates for the purpose of estimating impact using the Powder River Basin Coal Review Task 2 report – Past and Present and Reasonably Foreseeable Development Activities (BLM 2005d). This results in an average production rate from 2008 to the end of mine life of 37.8 mmtpy.

BLM independently evaluates the volume and average quality of the coal resources included in the tract offered for sale as part of the fair market value determination process. BLM's estimate of the mineable federal coal reserves and average quality of the coal included in the tract may not 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 and average quality of coal included in the tract will be published in the sale notice for the tract, if it is offered for sale.

The Caballo West LBA Tract would be mined as an integral part of the Caballo Mine under the Proposed Action. Since the Caballo West LBA Tract would be an extension of the existing Caballo Mine, the facilities and infrastructure would be the same as those identified in the WDEQ/LQD Mine Permit 433 Term T5, approved July 23, 2003 and the BLM R2P2, which was approved May 26, 2006.

CCC's currently approved air quality permit from the WDEQ/AQD for the Caballo Mine allows up to 50 million tons of coal per year to be mined. The Caballo Mine produced:

- 27.1 million tons of coal in 2001,
- 26.0 million tons of coal in 2002,
- 22.7 million tons of coal in 2003,
- 26.5 million tons of coal in 2004,
- 30.5 million tons of coal in 2005,
- 32.7 million tons of coal in 2006, and
- 31.2 million tons of coal in 2007,

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(Wyoming Department of Employment 2001, 2002, 2003, 2004, 2005, and 2006, CCC 2007).

Under the currently approved mining plan (the No Action Alternative), the Caballo Mine would mine its remaining 584.8 million tons of recoverable coal reserves on the existing Caballo leases in approximately 15.4 years at an average production rate of approximately 37.8 mmtpy. CCC estimates that annual coal production would average approximately 37.8 million tons, mine life would be extended by about 2.2 additional years, and coal production at the Caballo Mine would continue for nearly 18 years beyond mid 2008.

If CCC acquires the Caballo West LBA tract as applied for they estimate that a total of 666.6 million tons of coal would be recovered after July 1, 2008, with an estimated 81.8 million tons coming from the LBA tract. As of June 30, 2008 approximately 510.4 million tons of coal had been mined from within the current permit area of the Caballo Mine.

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. An estimated four overhead powerlines, one buried telephone line and eight 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 outlined in the reclamation plan, heavy equipment again would be used to haul and distribute the stockpiled topsoil.

The Caballo Mine is one of several mines currently operating in the PRB where the coal seams are notably thick and the overburden is relatively thin. Mining would be conducted in two separate, semi-independent pits; one located primarily within the current permit area and one located primarily within the proposed lease area. The multi-pit concept has been and would be utilized to reduce operating costs by blending production from areas having different stripping ratios and coal quality, and could also help stabilize manpower requirements. Overburden removal has been and would continue to be conducted using trucks and shovels, draglines, and/or direct cast blasting. Other equipment used during overburden removal and backfilling would include dozers, scrapers, excavators, front-end loaders, graders, 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 Caballo 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.

Replaced (backfilled) overburden is graded to approximate original land surface contour, as required by WDEQ and OSM rules. Elevations consistent with an

approved PMT plan would be established as quickly as possible to construct a stable landscape and restore drainage. Backfilled and recontoured overburden is sampled and analyzed to verify suitability as subsoil. 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 topsoiling. 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 prepared, vegetation that is consistent with the postmining land use would be reestablished.

Coal would be produced from one coal seam that CCC refers to as the Wyodak inside the CCC mine permit area. The seam averages 62 ft in thickness inside the Caballo West LBA Tract. 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. The Caballo Mine utilizes one existing coal crushing facility located within the CCC Mine permit area, which provides the capacity to produce at the permitted level. The truck dump is covered by a stilling shed for control of fugitive emissions. All coal crushing operations and conveying, transferring, and storage facilities are equipped with atomizer/fogger systems or baghouses for dust control. A system of transfer conveyors moves the prepared coal to interim storage in four concrete silos located adjacent to the unit train loadout facility. While sufficient storage capacity exists, future changes in facilities may be constructed to improve operating efficiency and air quality protection. For example, a covered slot storage barn, covered dome, or other appropriate storage structure may be built. A covered overland conveyor and near-pit crusher system may be constructed and moved as the mining operation progresses.

Full-time employment at the Caballo Mine is currently 549. If CCC acquires the Caballo West LBA Tract under the Proposed Action, employment levels would remain the same for the additional 2 years that it would take to mine the coal included in the tract. This is based on the assumption that the annual coal production rate would average approximately 37.8 mmtpy.

CCC applied for the Caballo West LBA Tract, but the tract is also adjacent to the Belle Ayr Mine, operated by FCW (see Figure 1-4). As a result, FCW is potentially in a position to mine the Caballo West LBA Tract. If a company other than CCC were to acquire the tract, the rate of coal production, mining sequence, equipment, and facilities would be different than if CCC acquired the tract as a

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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 CCC mining the tract.

2.3.2 Caballo West LBA Tract Alternative 1

Under the Caballo West LBA Tract Alternative 1, the No Action Alternative, CCC's application to lease the coal included in the Caballo 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 permitted mining activity and employment on the existing leases at the Caballo Mine. The Caballo Mine currently owns or leases approximately 11,704.5 acres of federal coal, 1,308.0 acres of private coal, and 160.1 acres of state coal; all of which are within the existing CCC Mine permit boundary. A total of approximately 16,898.0 acres will eventually be affected in mining the current leases. If the Caballo West LBA Tract is not leased, CCC estimates that the annual production at the Caballo Mine after July 1, 2008 will average 37.8 million tons, and the average full-time employment level is expected to remain near 549 persons.

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 Caballo 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 Caballo 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. This tract 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 unleased federal coal to the west to create a larger tract, which could be mined by a new operation in the future.

2.3.3 Caballo West LBA Tract Alternative 2

Under Alternative 2 for the Caballo West LBA Tract, BLM would reconfigure the tract, hold one 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 this tract if it is offered for sale (Appendix D).

Alternative 2 for the Caballo West LBA Tract assumes that CCC would be the successful bidder on the tract if a lease sale is held and that the tract would be mined as a maintenance lease for the Caballo Mine. Assumptions concerning

mining methods, facilities, hazardous materials, mitigation and monitoring requirements, etc. are the same as described for the Proposed Action.

As applied for, the Caballo West LBA Tract consists of a single block of federal coal (Figure 1-4). 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 Caballo 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 southwestern edge of the tract as applied for (Figure 2-3). 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. The original BLM study area was redelineated on June 20, 2007 to describe the tract based on 10-acre aliquot parts rather than physical boundaries (the Bishop Road). CCC was aware of and agreed to the change.

The area BLM is evaluating in addition to the tract as applied for includes the following lands:

T. 48 N., R. 71 W., 6th P.M., Campbell County, Wyoming

| | |
|--|--------------------|
| Section 17: Lots 11 (SW ¹ / ₄), 12 (NW ¹ / ₄ , S ¹ / ₂), 15 (SW ¹ / ₄); | 51.42 acres |
| Section 18: Lot 12 (NW ¹ / ₄ , S ¹ / ₂), 13; | 72.82 acres |
| Section 20: Lots 2 (NW ¹ / ₄ , S ¹ / ₂), 8 (SW ¹ / ₄); | 41.02 acres |
| Section 21: Lots 11, 12. | <u>81.25 acres</u> |
| Total: | 246.51 acres |

The legal description of BLM's reconfiguration of the Caballo West LBA Tract under Alternative 2 is as follows:

T. 48 N., R. 71 W., 6th P.M., Campbell County, Wyoming

| | |
|--|--------------------|
| Section 7: Lots 12, 19; | 81.88 acres |
| Section 8: Lot 10; | 39.67 acres |
| Section 17: Lots 1 through 12, 15, 16; | 573.18 acres |
| Section 18: Lot 5, 12, 13; | 125.14 acres |
| Section 20: Lots 1, 2, 8; | 122.88 acres |
| Section 21: Lots 11, 12. | <u>81.25 acres</u> |
| Total: | 1,024.00 acres |

The land description and acreage are based on the BLM Status of Public Domain Land and Mineral Titles approved Coal Plat as of March 8, 2006. The coal estate in the tract described above is federal and the surface estate is owned by the Paul

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D. Rourke Trust; James F. Rourke, et al.; and FCW. Ownership of the oil and gas estate is discussed in Section 3.11.

Some of the coal in Caballo West LBA Tract under this alternative is not currently considered to be mineable due to the presence of the Bishop Road (County Road 12). A portion the Bishop Road overlies some of the coal included in the tract under Alternative 2. As discussed in Section 1.1, the Surface Mining Control and Reclamation Act prohibits mining within 100 ft on either side of the right-of-way of any public road (43 CFR 3461). There would also be a quantity of coal south of the Bishop Road that would be isolated from the mining operations if the coal under the road was not mined. The coal underlying the portion of the Bishop Road, its right-of-way, and the estimated layback needed on both sides of the county road to safely recover the coal (including the 100 ft buffer zone) within the Caballo West LBA Tract under Alternative 2 could be mined if the Campbell County Board of Commissioners, the authorized agency, determines that the road can be moved [30 CFR 761.11(d)]. CCC is evaluating the feasibility of relocating the road at this time. CCC estimates that approximately 33.3 million tons of mineable coal is included within and south of the right-of-way and associated layback on both sides of the county road, that is within the LBA tract under Alternative 2.

The federal coal lands underlying the county road right-of-way the adjacent buffer zones are included in the tract because that would allow maximum recovery of the mineable coal adjacent to but outside of the road rights-of-way and adjacent buffer zones if the road; and would also allow recovery of the coal under the road it is moved. If a lease is issued for this tract, stipulations will be attached stating that no mining activity may be conducted within 100 ft of the road right-of-way until a permit to move the road is approved.

If the Bishop Road is moved, CCC estimates that the Caballo West LBA Tract under Alternative 2 includes approximately 131.4 million tons of in-place coal. CCC estimates that the Caballo West LBA Tract contains approximately 105.5 million tons of mineable coal reserves. CCC assumes that about 93.5 percent of that coal, or about 98.6 million tons of coal, could be recovered from the Caballo West LBA Tract, based on historical recovery practices. As a basis for estimating impacts, annual production is assumed to reach 39 mmtpy by 2015 and hold at that rate through 2020 to end of mine life. This results in an average production rate from 2008 to the end of mine life of 37.8 mmtpy.

If the Bishop Road is not moved, CCC estimates that the Caballo West LBA Tract under Alternative 2 includes approximately 131.4 million tons of in-place coal reserves. Excluding the federal coal reserves within and south of the Bishop Road right-of-way and buffer zone and the coal within the layback area, CCC estimates that the Caballo West LBA Tract under Alternative 2 contains approximately 98.1 million tons of mineable coal reserves. Using CCC's projected recovery factor of 93.5 percent of the mineable coal reserves included in BLM's tract reconfiguration,

the tract would contain about 91.7 million tons of recoverable coal. CCC estimates that under Alternative 2 that at the estimated average annual coal production rate of 37.8 mmtpy, mining this coal would extend this mine life by nearly 3 years.

BLM independently evaluates the volume and average quality of the coal resources included in the tract offered for sale as part of the fair market value determination process. BLM's estimate of the mineable federal coal reserves and average quality of the coal included in the tract may not 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 and average quality of coal included in the tract will be published in the sale notice for the tract, if it is offered for sale.

2.4 Alternatives for the Maysdorf II LBA Tract

2.4.1 Maysdorf II LBA Tract Proposed Action

Under the Proposed Action, the Maysdorf II LBA Tract as applied for by CMC 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 Maysdorf II lease application (Figure 2-4). The Proposed Action assumes that CMC would be the successful bidder on the Maysdorf II LBA Tract if it is offered for sale.

The Maysdorf LBA II Tract is divided into two discrete parcels hereafter referred to as the northern and southern blocks. The legal description of the proposed Maysdorf II LBA Tract coal lease lands as applied for by CMC under the Proposed Action is as follows:

T. 46 N., R. 71 W., 6th P.M., Campbell County, Wyoming

| | |
|---------------------------------|--------------|
| Section 4: Lots 8, 9, 16, 17; | 163.79 acres |
| Section 5: Lots 5, 12, 13, 20; | 165.03 acres |
| Section 9: Lots 6 through 8; | 122.86 acres |
| Section 10: Lots 7 through 10; | 162.62 acres |
| Section 11: Lots 13 through 16; | 161.87 acres |
| Section 14: Lots 1 through 4; | 161.69 acres |
| Section 15: Lots 1 through 4; | 162.59 acres |

T. 47 N., R. 71 W., 6th P.M., Campbell County, Wyoming

| | |
|--|--------------|
| Section 7: Lots 6 through 11, 14 through 19; | 490.18 acres |
| Section 17: Lots 1 through 15, and SW ¹ / ₄ NW ¹ / ₄ ; | 639.73 acres |
| Section 18: Lots 5 through 14, 19, 20; | 481.50 acres |
| Section 20: Lots 1, 8, 9, 16; | 154.31 acres |

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| | |
|--------------------------------|--------------|
| Section 21: Lots 4, 5, 12, 13; | 157.69 acres |
| Section 28: Lots 4, 5, 12, 13; | 165.80 acres |
| Section 29: Lots 1, 8, 9, 16; | 164.45 acres |
| Section 32: Lots 1, 8, 9, 16; | 162.94 acres |
| Section 33: Lots 4, 5, 12, 13; | 164.64 acres |

T. 47 N., R. 72 W., 6th P.M., Campbell County, Wyoming

| | |
|--------------------------------|---------------------|
| Section 12: Lots 1 through 16; | 647.10 acres |
| Section 13: Lots 1 through 8. | <u>325.04 acres</u> |
| Total: | 4,653.83 acres |

The land description and acreage are based on the BLM Status of Public Domain Land and Mineral Titles approved Coal Plats as of June 9, 2005, August 18, 2005, and April 10, 2006. The coal estate in the tract described above is federally owned and the surface estate is owned by the United States of America (administered by BLM); CMC; Cordero Rojo, Inc. (CRI); the Norma Duvall Trust; Earl Thrush, et al.; Western Railroad Properties, Inc.; Tony Hayden; Keidel Family LP; Campbell County Cemetery District; and Foundation Wyoming Land Company. Ownership of the oil and gas estate is discussed in Section 3.11.

Some of the coal in the Maysdorf II LBA Tract as applied for is not currently considered to be mineable for various reasons. CMC estimates that approximately 1.6 million tons of in-place coal reserves included in the Maysdorf II LBA Tract are located under the Burlington Northern Santa Fe and Union Pacific (BNSF & UP) railroad right-of-way and an appropriate mining related offset. The coal underlying the right-of-way and offset is not considered to be mineable at this time because the cost that would be associated with moving the railroad would make it economically unfeasible to recover the underlying coal.

A portion of Wyoming State Highway 59 and portions of the Haight Road (County Road 44) and the Hilight Road (County Road 52) overlie portions of the coal included in the tract. As discussed in Section 1.1, the Surface Mining Control and Reclamation Act prohibits mining within 100 ft on either side of the right-of-way of any public road (43 CFR 3461). The coal underlying the portion of Highway 59, the Haight and Hilight county roads, and their rights-of-way, and the 100 ft buffer zones within the Maysdorf II LBA Tract could be mined if Wyoming Department of Transportation (WYDOT) and the Campbell County Board of Commissioners, the authorized agencies, determine that the road can be moved [30 CFR 761.11(d)]. CMC does not have plans to relocate the highway at this time but CMC is evaluating the feasibility of relocating the county roads. CMC estimates that approximately 3.0 million tons of mineable coal are included within the right-of-way of Highway 59 and associated 100 ft buffer zone that is within the LBA tract. CMC estimates that approximately 17 million tons of mineable coal are included within the rights-of-way of the Haight and Hilight roads and associated 100 ft

buffer zones that are within the LBA tract. This amount also includes coal that would be isolated from mining if the county roads are not moved.

The Maysdorf Point Cemetery, a small rural cemetery owned by the Campbell County Cemetery District, overlies some of the coal included in the tract. The Surface Mining Control and Reclamation Act prohibits mining within 100 ft of a cemetery [30 CFR 761.11(g) and 43 CFR 3461.5(c)(1)]. The coal underlying the cemetery and the buffer zone could be mined if the cemetery is relocated in accordance with all applicable laws and regulations. CMC, the Campbell County Cemetery District, and representative for the Haight Family are working on a plan to relocate the remains currently located in the cemetery. CMC estimates that approximately 0.2 million tons of in-place coal are included within 100 ft of the cemetery.

The federal coal lands underlying the railroad right-of-way, underlying Highway 59 and the Haight and Hilight roads, their rights-of-way and the adjacent buffer zones, and the Maysdorf Point Cemetery and the adjacent buffer zone are included in the tract because that would allow maximum recovery of the mineable coal adjacent to but outside of the railroad right-of-way, road rights-of-way and adjacent buffer zones, and the cemetery and associated buffer zone if the railroad, roads, and cemetery are not moved; and would also allow recovery of the coal under the railroad, roads, and cemetery if they are moved. If a lease is issued for this tract, stipulations will be attached stating that no mining activity may be conducted within 100 ft of the road rights-of-way and the cemetery until permits to move the highway or cemetery are approved.

In addition, a small portion of the Maysdorf II tract is located within a “no-coal” zone, where coal-forming sediments were either not deposited or were eroded away after deposition.

If the county roads and the cemetery are moved, CMC estimates that the Maysdorf II LBA Tract as applied for includes approximately 504.0 million tons of in-place coal. CMC estimates that the Maysdorf II LBA Tract contains approximately 499.5 million tons of mineable coal reserves. CMC assumes that about 90 percent of that coal, or about 449.6 million tons of coal, could be recovered from the Maysdorf II LBA Tract, based on historical recovery practices. As a basis for estimating impacts, annual production is assumed to reach 48 mmtpy by 2015 and hold at that rate through 2020 to end of mine life. Future production rates are difficult to estimate since mines must increase or reduce rates in line with annual demand and competition for coal sales. BLM estimated future rates for the purpose of estimating impact using the Powder River Basin Coal Review Task 2 report – Past and Present and Reasonably Foreseeable Development Activities (BLM 2005d). This results in an average production rate from 2008 to the end of mine life of 46.3 mmtpy.

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If the county roads and the cemetery are not moved, CMC estimates that the Maysdorf II LBA Tract as applied for contains approximately 482.5 million tons of mineable coal reserves. CMC assumes that about 90 percent of that coal, or about 434.3 million tons of coal, could be recovered from the Maysdorf II LBA Tract. CMC estimates that at the projected average annual coal production rate of 46.3 mmpy, mining this coal would extend this mine life by just over 9 years.

BLM independently evaluates the volume and average quality of the coal resources included in the tract offered for sale as part of the fair market value determination process. BLM's estimate of the mineable federal coal reserves and average quality of the coal included in the tract may not 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 and average quality of coal included in the tract will be published in the sale notice for the tract, if it is offered for sale.

Cordero Rojo Mine is comprised of the former Cordero Mine and the contiguous former Caballo Rojo Mine. CMC worked with WDEQ/LQD to consolidate the Cordero and Caballo Rojo mining permits into a single mining permit for the Cordero Rojo Mine. WDEQ/LQD approved the permit consolidation (Permit 237-T8) on March 26, 2007.

The Maysdorf II LBA Tract would be mined as an integral part of the Cordero Rojo Mine under the Proposed Action. Since the Maysdorf II LBA Tract would be an extension of the existing Cordero Rojo Mine, the facilities and infrastructure would be the same as those identified in the WDEQ/LQD Mine Permit 237-T8 and the BLM R2P2, which was approved April 24, 2003.

CMC's currently approved air quality permit from the WDEQ/AQD for the Cordero Rojo Mine allows up to 65 million tons of coal per year to be mined. The Cordero Rojo Complex (Cordero and Caballo Rojo combined) produced:

- 43.5 million tons of coal in 2001,
- 38.2 million tons of coal in 2002,
- 36.1 million tons of coal in 2003,
- 38.7 million tons of coal in 2004,
- 37.8 million tons of coal in 2005,
- 39.7 million tons of coal in 2006, and
- 40.5 million tons of coal in 2007

(Wyoming Department of Employment 2001, 2002, 2003, 2004, 2005, and 2006, CRM 2008).

Under the currently approved mining plan (the No Action Alternative), the Cordero Rojo Mine would mine its remaining 525.9 million tons of recoverable coal reserves on the existing Cordero Rojo leases in over 5 years at an average production rate of approximately 46.3 mmpy. Under the Proposed Action and if the roads and the cemetery are moved, CMC estimates that annual coal

production would average approximately 46.3 million tons, mine life would be extended by nearly 10 additional years, and coal production at the Cordero Rojo Mine would continue for over 21 years beyond mid 2008. If the road is not moved, CMC estimates that annual coal production would average approximately 46.3 million tons, mine life would be extended by just over 9 additional years, and coal production at the Cordero Rojo Mine would continue for nearly 21 years beyond mid 2008.

If CMC acquires the Maysdorf II LBA Tract as applied for and if the roads and cemetery are moved, they estimate that a total of 975.5 million tons of coal would be recovered after July 1, 2008, with an estimated 449.6 million tons coming from the LBA tract. As of June 30, 2008, approximately 769.3 million tons of coal had been mined from within the current permit area of the Cordero Rojo Mine.

If CMC acquires the Maysdorf II LBA Tract as applied for and if the roads and cemetery are not moved, they estimate that a total of 960.2 million tons of coal would be recovered after July 1, 2008, with an estimated 434.3 million tons coming from the LBA tract.

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. The Belle Fourche River runs south to north through the existing Cordero Rojo Mine and through a small portion of the southern block of the LBA tract. Approximately 6 miles of the natural channel have been diverted to date within the Cordero Rojo Mine's current permit area. CMC would propose another diversion of the Belle Fourche River if they acquire a lease for the Maysdorf II LBA Tract. It is assumed that overhead powerlines, buried telephone line and buried pipelines will require relocation prior to mining. Site inventories are being performed to identify the significance of these structures.

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 outlined in the reclamation plan, heavy equipment again would be used to haul and distribute the stockpiled topsoil.

The Cordero Rojo Mine is one of several mines currently operating in the PRB where the coal seams are notably thick and the overburden is relatively thin. Mining would be conducted in three separate, semi-independent pits; all three are currently located within the current permit boundary and would progress into the proposed lease area. The multi-pit concept has been and would be utilized to reduce operating costs by blending production from areas having different stripping ratios and coal quality, and also to help stabilize manpower requirements. Overburden removal has been and would continue to be conducted using trucks and shovels, draglines, and/or direct cast blasting. Other equipment used during overburden removal and backfilling would include dozers, scrapers,

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excavators, front-end loaders, graders, 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 Cordero Rojo 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.

Replaced (backfilled) overburden is graded to approximate original land surface contour, as required by WDEQ and OSM rules. Elevations consistent with an approved PMT plan would be established as quickly as possible to construct a stable landscape and restore drainage. Backfilled and recontoured overburden is sampled and analyzed to verify suitability as subsoil. 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 topsoiling. 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 prepared, vegetation that is consistent with the postmining land use would be reestablished.

Coal would be produced from one coal seam that CMC refers to as the Wyodak or the Wyodak-Anderson inside the CMC mine permit area. Up to five noncoal splits or partings occur within the seam and they are typically local, discontinuous lenses of carbonaceous clay or shale that are less than 1 ft thick. The northern block of the Maysdorf II LBA Tract has a coal thickness of approximately 65 ft. The coal in the southern block is divided by a 2 ft parting with approximately 10 ft of coal above and 40 ft of coal below the parting.

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. The Cordero Rojo Mine utilizes two existing coal crushing facilities located within the CMC Mine permit area; the north pit facility located within the old CRI Mine permit area and the south plant facility located within the old CMC Mine permit area, which provides the capacity to produce at the permitted level. A haulroad was permitted and constructed in 1997 to provide a direct route between the two coal processing plant facilities. All coal crushing operations and conveying, transferring, and storage facilities are equipped with atomizer/fogger systems for dust control. There are four existing coal storage silos and a covered storage slot. While sufficient storage capacity exists, future changes in facilities may be constructed to improve operating efficiency and air quality protection. For example, a covered

slot storage barn, covered dome, or other appropriate storage structures may be built. In addition, a covered overland conveyor and near-pit crusher system may be constructed and moved as the mining operation progresses.

Full-time employment at the Cordero Rojo Mine is currently 510. If CMC acquires the Maysdorf II LBA Tract under the Proposed Action, they anticipate that employment levels would increase to 573 over the 10 additional years that it would take to mine the coal included in the tract. This is based on the assumption that the annual coal production rate would average approximately 46.3 mmtpy.

CMC applied for the Maysdorf II LBA Tract, but the tract is also adjacent to the Belle Ayr Mine, operated by FCW (see Figure 1-5). As a result, FCW is potentially in a position to mine a portion of the Maysdorf II LBA Tract. If a company other than CMC were to acquire the tract, the rate of coal production, mining sequence, equipment, and facilities would be different than if CMC 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.

2.4.2 Maysdorf II LBA Tract Alternative 1

Under the Maysdorf II LBA Tract Alternative 1, the No Action Alternative, CMC's application to lease the coal included in the Maysdorf II 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 permitted mining activity and employment on the existing leases at the Cordero Rojo Mine. The Cordero Rojo Mine currently leases approximately 10,629 acres of federal coal, 2,000 acres of private coal, and 640 acres of state coal; all of which are within the existing CMC mine permit boundaries. A total of approximately 14,694 acres will eventually be affected in mining the current leases. If the Maysdorf II LBA Tract is not leased, CMC estimates that the annual production at the Cordero Rojo Mine after January 1, 2008 will average 46.3 million tons, and the average full-time employment level is expected to remain near 510 persons.

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 Maysdorf II 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 Maysdorf II 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. This tract is at the lower limits of having

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enough coal reserves to economically justify mining by a new operation; however, the coal reserves included in the tract could potentially be combined with unleased federal coal to the west and south to create a larger tract, which could be mined by a new operation in the future.

2.4.3 Maysdorf II LBA Tract Alternative 2

Under Alternative 2 for the Maysdorf II LBA Tract, BLM would reconfigure the tract, hold one 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 this tract if it is offered for sale (Appendix D).

Alternative 2 for the Maysdorf II LBA Tract assumes that CMC would be the successful bidder on the tract if a lease sale is held and that the tract would be mined as a maintenance lease for the Cordero Rojo Mine. Assumptions concerning mining methods, facilities, hazardous materials, mitigation and monitoring requirements, etc. are the same as described for the Proposed Action.

As applied for, the Maysdorf II LBA Tract consists of a two non-contiguous blocks of federal coal (Figure 1-5). 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 Maysdorf II 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 edge of the tract as applied for (Figure 2-4). Under this alternative, BLM could add some or all of the adjacent land to the tract or BLM could reduce the size of the tract, as discussed in Section 2.0.

The area BLM is evaluating in addition to the tract as applied for includes the following lands:

T.47N., R.72W., 6th P.M., Campbell County, Wyoming

Section 1: Lots 9 through 13, and NW $\frac{1}{4}$ SE $\frac{1}{4}$; 241.80 acres

The legal description of BLM's reconfiguration of the Maysdorf II LBA Tract under Alternative 2 is as follows:

T. 46 N., R. 71 W., 6th P.M., Campbell County, Wyoming

Section 4: Lots 8, 9, 16, 17; 163.79 acres
Section 5: Lots 5, 12, 13, 20; 165.03 acres
Section 9: Lots 6 through 8; 122.86 acres
Section 10: Lots 7 through 10; 162.62 acres

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| | |
|---------------------------------|--------------|
| Section 11: Lots 13 through 16; | 161.87 acres |
| Section 14: Lots 1 through 4; | 161.69 acres |
| Section 15: Lots 1 through 4; | 162.59 acres |

T. 47 N., R. 71 W., 6th P.M., Campbell County, Wyoming

| | |
|--|--------------|
| Section 7: Lots 6 through 11, 14 through 19; | 490.18 acres |
| Section 17: Lots 1 through 15, and SW $\frac{1}{4}$ NW $\frac{1}{4}$; | 639.73 acres |
| Section 18: Lots 5 through 14, 19, 20; | 481.50 acres |
| Section 20: Lots 1, 8, 9, 16; | 154.31 acres |
| Section 21: Lots 4, 5, 12, 13; | 157.69 acres |
| Section 28: Lots 4, 5, 12, 13; | 165.80 acres |
| Section 29: Lots 1, 8, 9, 16; | 164.45 acres |
| Section 32: Lots 1, 8, 9, 16; | 162.94 acres |
| Section 33: Lots 4, 5, 12, 13; | 164.64 acres |

T. 47 N., R. 72 W., 6th P.M., Campbell County, Wyoming

| | |
|---|---------------------|
| Section 1: Lots 9 through 13, and NW $\frac{1}{4}$ SE $\frac{1}{4}$; | 241.80 acres |
| Section 12: Lots 1 through 16; | 647.10 acres |
| Section 13: Lots 1 through 8. | <u>325.04 acres</u> |

Total: 4,895.63 acres

The land description and acreage are based on the BLM Status of Public Domain Land and Mineral Titles approved Coal Plats as of June 9, 2005, August 18, 2005, and April 10, 2006. The coal estate in the tract described above is federal and the surface estate is owned by the United States of America (administered by BLM); CMC; CRI; the Norma Duvall Trust; Earl Thrush, et al.; Western Railroad Properties, Inc.; Tony Hayden; Keidel Family LP; Campbell County Cemetery District; and Foundation Wyoming Land Company. Ownership of the oil and gas estate is discussed in Section 3.11.

Some of the coal in the Maysdorf II LBA Tract under this alternative is not currently considered to be mineable for various reasons. CMC estimates that approximately 1.6 million tons of in-place coal reserves included in the Maysdorf II LBA Tract are located under the BNSF & UP railroad right-of-way and an appropriate safety offset. The coal underlying the right-of-way and offset is not considered to be mineable at this time because the cost that would be associated with moving the railroad would make it economically unfeasible to recover the underlying coal.

A portion Wyoming State Highway 59 and portions of the Haight Road (County Road 44) and the Hilight Road (County Road 52) overlie some of the coal included in the tract. As discussed in Section 1.1, the Surface Mining Control and Reclamation Act prohibits mining within 100 ft on either side of the right-of-way of

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any public road (43 CFR 3461). The coal underlying the portions of Highway 59, the Haight and Hilight roads, and their rights-of-way, and the 100 ft buffer zones within the Maysdorf II LBA Tract could be mined if WYDOT and the Campbell County Board of Commissioners, the authorized agencies, determine that the road can be moved [30 CFR 761.11(d)]. CMC does not have plans to relocate the highway at this time but CMC is evaluating the feasibility of relocating the county roads. CMC estimates that approximately 3.9 million tons of mineable coal are included within the right-of-way of Highway 59 and associated 100 ft buffer zone that is within the LBA tract. CMC estimates that approximately 17 million tons of mineable coal are included within the rights-of-way of the Haight and Hilight roads and associated 100 ft buffer zones that are within the LBA tract.

The Maysdorf Point Cemetery, a small rural cemetery owned by the Campbell County Cemetery District, overlies some of the coal included in the tract. Surface Mining Control and Reclamation Act prohibits mining within 100 ft of a cemetery [30 CFR 761.11(g) and 43 CFR 3461.5(c)(1)]. The coal underlying the cemetery and the buffer zone could be mined if the cemetery is relocated in accordance with all applicable laws and regulations. CMC, the Campbell County Cemetery District, and representatives for the Haight Family are working on a plan to relocate the remains currently located in the cemetery. CMC estimates that approximately 0.2 million tons of in-place coal are included within 100 ft of the cemetery.

The federal coal lands underlying the railroad right-of-way, underlying Highway 59 and the Haight and Hilight roads, their rights-of-way and the adjacent buffer zones, and the Maysdorf Point Cemetery and the adjacent buffer zone are included in the tract because that would allow maximum recovery of the mineable coal adjacent to but outside of the railroad right-of-way, the road rights-of-way and adjacent buffer zones, and the cemetery and associated buffer zone if the railroad, roads, and cemetery are not moved; and would also allow recovery of the coal under the railroad, roads, and cemetery if they are moved. If a lease is issued for this tract, stipulations will be attached stating that no mining activity may be conducted within 100 ft of road rights-of-way and the cemetery until permits to move the highway or cemetery are approved.

In addition, a small portion of the Maysdorf II tract is located within a “no-coal” zone, where coal-forming sediments were either not deposited or were eroded away after deposition.

If the county roads and the cemetery are moved, CMC estimates that under Alternative 2 the Maysdorf II LBA Tract includes approximately 533.0 million tons of in-place coal. CMC estimates that the Maysdorf II LBA Tract contains approximately 527.3 million tons of mineable coal reserves. CMC assumes that about 90 percent of that coal, or about 474.5 million tons of coal, could be recovered from the Maysdorf II LBA Tract, based on historical recovery practices. As a basis for estimating impacts, annual production is assumed to reach 48 mmtpy by 2015 and hold at that rate through 2020 to end of mine life. This

results in an average production rate from 2008 to the end of mine life of 46.3 mmtpy.

If the county roads and the cemetery are not moved, CMC estimates that under Alternative 2 the Maysdorf II LBA Tract includes approximately 533.0 million tons of in-place coal. CMC estimates that the Maysdorf II LBA Tract contains approximately 510.3 million tons of mineable coal reserves. CMC assumes that about 90 percent of that coal, or about 459.3 million tons of coal, could be recovered from the Maysdorf II LBA Tract, based on historical recovery practices. CMC estimates that at the projected average annual coal production rate of 46.3 mmtpy, mining this coal would extend this mine life by nearly 10 years.

BLM independently evaluates the volume and average quality of the coal resources included in the tract offered for sale as part of the fair market value determination process. BLM's estimate of the mineable federal coal reserves and average quality of the coal included in the tract may not 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 and average quality of coal included in the tract will be published in the sale notice for the tract, if it is offered for sale.

In addition to those described in the Proposed Action, sediment control measures needed under Alternative 2 would include measures for Caballo Creek. While Caballo Creek is outside of the BLM study area, it would likely be disturbed due to overstripping to allow coal to be removed from the north block. Approximately 3.6 miles of the natural channel have been diverted to date by FCW within the Belle Ayr Mine's current permit area. CMC would propose another diversion of Caballo Creek if they acquire a lease for the Maysdorf II LBA Tract.

2.4.4 Maysdorf II LBA Tract Alternative 3

Under Alternative 3 for the Maysdorf II LBA Tract, BLM is considering dividing the tract into two tracts and offering one or both of those tracts for sale. A separate, competitive sealed bid sale would be held for each tract that is offered for sale, and each tract would be subject to standard and special lease stipulations developed for the PRB and for that tract (Appendix D).

If one or both of the tracts are offered for lease, Alternative 3 for the Maysdorf II LBA Tract assumes that CMC would be the successful bidder and that the federal coal would be mined to extend the life of the existing Cordero Rojo Mine. Assumptions concerning mining methods, facilities, hazardous materials, mitigation and monitoring requirements, etc. would be the same as described for the Maysdorf II LBA Tract Proposed Action.

As discussed under the Proposed Action and Alternative 2, the Maysdorf II LBA Tract consists of two non-contiguous blocks of federal coal. Under Alternative 3, the North Maysdorf II LBA Tract would consist of the northernmost one-half of the

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northern block of coal and the South Maysdorf II LBA Tract would consist of the southern one-half of the northern block plus the southern block of coal, as shown in Figure 2-4.

As previously discussed, BLM has identified a study area which includes the tract as applied for and unleased federal coal adjacent to the northern edge of the tract as applied for (Figure 2-4). BLM is evaluating the potential that adding some or all of these lands to the area offered for lease would provide for more efficient recovery of the federal coal, increase competitive interest in the Maysdorf II LBA Tract, and/or reduce the potential that some of the remaining unleased federal coal in this area would be bypassed in the future. Under this alternative, BLM could add all, part, or none of the adjacent lands to the tract or BLM could reduce the size of the tract, as discussed in Section 2.0. The lands that would be included in the north tract under BLM's Alternative 3 are:

T. 47 N., R. 71 W., 6th P.M., Campbell County, Wyoming

| | |
|--|--------------|
| Section 7: Lots 6 through 11, 14 through 19; | 490.18 acres |
| Section 17: Lots 1 through 15, and SW $\frac{1}{4}$ NW $\frac{1}{4}$; | 639.73 acres |
| Section 18: Lots 5 through 14, 19, 20; | 481.50 acres |

T. 47 N., R. 72 W., 6th P.M., Campbell County, Wyoming

| | |
|---|---------------------|
| Section 1: Lots 9 through 13, and NW $\frac{1}{4}$ SE $\frac{1}{4}$; | 241.80 acres |
| Section 12: Lots 1 through 16; | 647.10 acres |
| Section 13: Lots 1 through 8; | <u>325.04 acres</u> |

Total: 2,825.35 acres

The lands that would be included in the south tract under BLM's Alternative 3 are:

T. 47 N., R. 71 W., 6th P.M., Campbell County, Wyoming

| | |
|--------------------------------|--------------|
| Section 20: Lots 1, 8, 9, 16; | 154.31 acres |
| Section 21: Lots 4, 5, 12, 13; | 157.69 acres |
| Section 28: Lots 4, 5, 12, 13; | 165.80 acres |
| Section 29: Lots 1, 8, 9, 16; | 164.45 acres |
| Section 32: Lots 1, 8, 9, 16; | 162.94 acres |
| Section 33: Lots 4, 5, 12, 13; | 164.64 acres |

T. 46 N., R. 71 W., 6th P.M., Campbell County, Wyoming

| | |
|--------------------------------|--------------|
| Section 4: Lots 8, 9, 16, 17; | 163.79 acres |
| Section 5: Lots 5, 12, 13, 20; | 165.03 acres |
| Section 9: Lots 6 through 8; | 122.86 acres |

2.0 Proposed Action and Alternatives

| | |
|---------------------------------|---------------------|
| Section 10: Lots 7 through 10; | 162.62 acres |
| Section 11: Lots 13 through 16; | 161.87 acres |
| Section 14: Lots 1 through 4; | 161.69 acres |
| Section 15: Lots 1 through 4. | <u>162.59 acres</u> |

Total: 2,070.28 acres

The land description and acreage are based on the BLM Status of Public Domain Land and Mineral Titles approved Coal Plats as of June 9, 2005, August 18, 2005, and April 10, 2006. The coal estate in the tracts described above is federally owned and the surface estate is owned by the United States of America (administered by BLM); CMC; CRI; the Norma Duvall Trust; Earl Thrush, et al.; Western Railroad Properties, Inc.; Tony Hayden; Keidel Family LP; Campbell County Cemetery District; and Foundation Wyoming Land Company. Ownership of the oil and gas estates is discussed in Section 3.11.

Some of the coal in the North Maysdorf II LBA Tract under this alternative is not currently considered to be mineable for various reasons. A portion Wyoming State Highway 59 overlies some of the coal included in the north tract. As discussed in Section 1.1, Surface Mining Control and Reclamation Act prohibits mining within 100 ft on either side of the ROW of any public road (43 CFR 3461). The coal underlying the portion of Highway 59, its ROW, and the 100 ft buffer zone within the North Maysdorf II LBA Tract study area could be mined if WYDOT, the authorized agency, determines that the road can be moved [30 CFR 761.11(d)]. CMC does not have plans to relocate the highway. CMC estimates that within the ROW and associated 100 ft buffer zone, the North Maysdorf II LBA Tract under Alternative 3 contains approximately 3.9 million tons of mineable coal.

Although these lands would not be mined, the federal coal lands underlying Highway 59, its ROW, and the adjacent buffer zone are included in the tract because that would allow maximum recovery of the mineable coal adjacent to but outside of the highway and buffer zone if the highway is not moved; and would also allow recovery of the coal under the highway if it is moved. If a lease is issued for this tract, a stipulation stating that no mining activity may be conducted within 100 ft of the Highway 59 ROW until a permit to move the highway is approved will be attached.

CMC estimates that the North Maysdorf II LBA Tract under Alternative 3 contains approximately 326.4 million tons of in-place coal and that approximately 322.5 million tons of those in-place coal reserves are mineable. Using CMC's projected recovery factor of 90 percent of the mineable coal reserves, the BLM study area would contain about 290.2 million tons of recoverable coal. CMC estimates that at the projected average annual coal production rate of 46.3 mmtpy, mining this coal would extend this mine life by just over 6 years.

2.0 Proposed Action and Alternatives

Some of the coal in South Maysdorf II LBA Tract under this alternative is not currently considered to be mineable at this time. Under Alternative 3, CMC estimates that within the BNSF & UP railroad right-of-way, the South Maysdorf II LBA Tract contains approximately 1.6 million tons of the mineable coal reserves. The coal underlying the right-of-way is not considered to be recoverable at this time because the cost that would be associated with moving the railroad would make it economically unfeasible to recover the underlying coal.

Portions of the Haight Road (County Road 44) and the Hilight Road (County Road 52) overlie some of the coal included in the South Maysdorf II LBA Tract. As discussed in Chapter 1, Section 1.1, the Surface Mining Control and Reclamation Act prohibits mining within 100 ft on either side of the right-of-way of any public road (43 CFR 3461). The coal underlying the portion of the Haight and Hilight roads, and their rights-of-way, and the 100 ft buffer zones within the South Maysdorf II LBA Tract could be mined if the Campbell County Board of Commissioners, the authorized agency, determine that the road can be moved [30 CFR 761.11(d)]. CMC is evaluating the feasibility of relocating the county roads. CMC estimates that approximately 17 million tons of mineable coal are included within the rights-of-way of the Haight and Hilight roads and associated 100 ft buffer zones that are within the South Maysdorf II LBA Tract.

The Maysdorf Point Cemetery, a small rural cemetery owned by the Campbell County Cemetery District, overlies some of the coal included in the South Maysdorf II LBA study area. The Surface Mining Control and Reclamation Act prohibits mining within 100 ft of a cemetery [30 CFR 761.11(g) and 43 CFR 3461.5(c)(1)]. The coal underlying the cemetery and the buffer zone could be mined if the cemetery is relocated in accordance with all applicable laws and regulations. CMC, the Campbell County Cemetery District, and representatives for the Haight Family are working on a plan to relocate the remains currently located in the cemetery. CMC estimates that approximately 0.2 million tons of mineable coal are included within 100 ft of the cemetery.

The federal coal lands underlying the railroad right-of-way, and the Haight and Hilight roads, their rights-of-way and the adjacent buffer zones, and the Maysdorf Point Cemetery and the adjacent buffer zone are included in the tract because that would allow maximum recovery of the mineable coal adjacent to but outside of the railroad right-of-way, the road rights-of-way and adjacent buffer zones, and the cemetery and associated buffer zone if the railroad, roads, and cemetery are not moved; and would also allow recovery of the coal under the railroad, roads, and cemetery if they are moved. If a lease is issued for this tract, stipulations will be attached stating that no mining activity may be conducted within 100 ft of road rights-of-way and the cemetery until permits to move the roads or cemetery are approved.

In addition, a small portion of the South Maysdorf II study area under Alternative 3 is located within a “no-coal” zone, where coal-forming sediments were either not deposited or were eroded away after deposition.

If the county roads and the cemetery are moved, CMC estimates that the South Maysdorf II LBA Tract includes approximately 206.6 million tons of in-place coal. CMC estimates that the South Maysdorf II LBA Tract contains approximately 204.8 million tons of mineable coal reserves. CMC assumes that about 90 percent of that coal, or about 184.3 million tons of coal, could be recovered from the South Maysdorf II LBA Tract, based on historical recovery practices. CMC estimates that at the projected average annual coal production rate of 46.3 mmtpy, mining this coal would extend this mine life by nearly 4 years.

If the county roads and the cemetery are not moved, CMC estimates that the South Maysdorf II LBA Tract under Alternative 3 includes approximately 206.6 million tons of in-place coal. CMC estimates that the Maysdorf II LBA Tract contains approximately 187.8 million tons of mineable coal reserves. CMC assumes that about 90 percent of that coal, or about 169.1 million tons of coal, could be recovered from the South Maysdorf II LBA Tract, based on historical recovery practices. CMC estimates that at the projected average annual coal production rate of 46.3 mmtpy, mining this coal would extend this mine life by nearly 4 years.

Under Alternative 3, CMC estimates that the annual coal production would average approximately 46.3 million tons, regardless of whether CMC acquires the North Tract, the South Tract, or both as maintenance leases for the Cordero Rojo Mine. The life of the Cordero Rojo Mine would be extended by approximately 8 years, and the average number of employees would be approximately 518 persons if CMC acquires only the North Tract as a maintenance lease. The life of the Cordero Rojo Mine would be extended by approximately 2 years, and the average number of employees would be approximately 512 persons if CMC acquires only the South Tract as a maintenance lease.

BLM independently evaluates the volume and average quality of the coal resources included in the tracts offered for sale as part of the fair market value determination process. BLM’s estimate of the mineable federal coal reserves and average quality of the coal included in the tracts may not 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 and average quality of coal included in the tracts will be published in the sale notice for the tract, if it is offered for sale.

Mine support structures needed under Alternative 3 would be similar to those needed under Alternative 2.

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2.5 Alternatives Considered but Not Analyzed in Detail

2.5.1 New Mine Start

Under this alternative, as under the Proposed Actions and Alternatives 2 and 3, BLM would hold a separate, competitive, sealed-bid sale for the lands included in each LBA tract. This alternative assumed, however, that the successful qualified bidder for a tract would be someone other than the applicant and that this bidder would plan to open a new mine to develop the coal resources in one or more of the LBA tracts (Belle Ayr North, West Coal Creek, Caballo West, and Maysdorf II).

A company or companies acquiring this coal for one or more new stand-alone mines 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 spurs), extensive baseline data collection, and development of new mining and reclamation plans. In addition, a company or companies acquiring this coal for one or more new start mines 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 need to 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, the Belle Ayr North, West Coal Creek, and Caballo West LBA Tracts do not include sufficient coal resources to consider opening a new mine and it is unlikely that a company or companies would lease these LBA tracts in order to open a new mine. Even though the Maysdorf II LBA Tract contains more than the estimated tons of coal to attract an interested buyer, it is unlikely that a company would undertake the expense of opening a new mine in the area.

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>. From 2001 through 2006, there were

29 monitored exceedances of the 24-hour PM₁₀ standard at seven operating mines in the Wyoming PRB. Nineteen of these exceedances occurred in 2001 and 2002, while two, three, and five exceedances occurred in 2003, 2004, and 2005, respectively. There were no exceedances in 2006 (Shamley 2007). In the first months of 2007, there were nine exceedances at five mines. None of the exceedances to date have occurred at the Belle Ayr, Coal Creek, Caballo, or Cordero Rojo Mines. Although many of these exceedances have been attributed to high winds, concerns about future potential exceedances of the Nation Ambient Air Quality Standards (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 mines on one or more of the LBA tracts included in this EIS is considered unlikely and this alternative is not analyzed in detail in this EIS.

The environmental impacts of developing one or more new mines to recover the coal resources in one or more of these LBA tracts would be greater than under the Proposed Action, the No Action Alternative, or Alternatives 2 or 3 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 one or more lease sales are held and the applicants are not the successful bidder(s), the successful bidder(s) would be required to submit detailed mining and reclamation plans for approval before any of the tract(s) could be mined, and this NEPA analysis would be reviewed and supplemented as necessary prior to approval of those mining and reclamation plans.

2.5.2 Delaying the Sale

Under this alternative, BLM would delay the sale of an LBA tract as applied for. The prices received for coal from the PRB have generally been increasing 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 one or more of the tracts would allow CBNG resources to be more completely recovered prior to mining. Under this alternative, it is assumed that a 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 or a higher bonus bid. 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 in coal prices in 2005. Rail capacity increased in 2006 and prices have moderated in 2006 and 2007.

2.0 Proposed Action and Alternatives

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 tracts could potentially increase, which could result in an increased bonus bid if the coal is leased at a later date. However, postponing a lease sale would not necessarily lead to higher royalty or tax income to the state and federal governments. Royalty and tax payments are the larger of the two revenue sources and they increase 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 this 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 Alternatives 2 and 3.

CBNG resources are currently being recovered from oil and gas leases on all four LBA tracts. 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 tracts is leased now. These include:

- BLM can attach a Multiple Mineral Development stipulation to each 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 each LBA tract cannot occur until the coal lessee has a permit to mine the tract approved by the WDEQ/LQD and a Mineral Leasing Act of 1920 (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 each 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 2006d).

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 each 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 economically-recoverable CBNG resources on the tracts 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 Alternatives 2 and 3 for each LBA tract. If a new mine is required to mine the coal, the environmental impacts would be expected to be greater than if each tract were mined as an extension of an existing mine.

2.6 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 permits to conduct mining operations for the Belle Ayr, Coal Creek, Caballo, and Cordero Rojo Mines include these requirements. Monitoring programs and mitigation measures that are required by regulation are considered to be part of the Proposed Action and the Action Alternatives considered in this EIS for the Belle Ayr North, West Coal Creek, Caballo West, and Maysdorf II LBA tracts. These data collection requirements, mitigation plans, and monitoring plans are in place for the No Action Alternative as part of the current approved permit to conduct mining operations for the existing Belle Ayr, Coal Creek, Caballo, and Cordero Rojo Mines. These data collection requirements, mitigation plans, and monitoring commitments would be extended to include mining operations on the Belle Ayr North, West Coal Creek, Caballo West, and Maysdorf II LBA Tracts if they are leased and permitted for mining. A mining and reclamation plan would have to be approved for each tract before mining would be permitted, regardless of who acquires the tract. The major mitigation and monitoring measures that are

2.0 Proposed Action and Alternatives

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 Belle Ayr, Coal Creek, Caballo, and Cordero Rojo Mines are described in Chapter 3.

If impacts are identified during the leasing process that are not mitigated by 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 are periodically identified that are not monitored or mitigated under existing procedures.

2.7 Hazardous and Solid Waste

Under the Proposed Action and Action Alternatives for each LBA tract, the procedures and requirements for handling of hazardous and solid wastes would be the same as the procedures and requirements for the existing mining operations. Solid waste that is produced at the existing Belle Ayr, Coal Creek, Caballo, and Cordero Rojo Mines consists of floor sweepings, shop rags, empty 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 Belle Ayr, Coal Creek, Caballo, and Cordero Rojo Mines is disposed of within the mines' permit boundaries in accordance with WDEQ-approved solid waste disposal plans. Solid waste from the Belle Ayr, Caballo, and Cordero Rojo Mines is also disposed of at the Campbell County landfill. Sewage is handled by WDEQ-permitted sewage systems present on the existing mine facilities. Maintenance and lubrication of most of the equipment takes place at existing shop facilities at the mines. Major lubrication, oil changes, etc. of most equipment are performed inside the service building lubrication bays at the Belle Ayr, Coal Creek, Caballo, and Cordero Rojo Mines, where used oil and grease are currently contained and deposited in storage tanks. All of the collected used oils and grease are then recycled off site or used for energy recovery, including, at some of the mines, blending with diesel fuel oil for use as equipment fuel. These practices would not change if the applicants acquire the LBA tracts.

FCW, TBCC, CCC, CMC and have 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 in 40 CFR 355 (as amended) for hazardous substances used at their mining operations.

FCW, TBCC, CCC, and CMC maintain 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, TBCC, CCC, and CMC are responsible for

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

| Resource | Regulatory Compliance or Mitigation Required by Stipulations, State or Federal Law¹ | Monitoring¹ |
|---------------------------|---|--|
| Topography & Physiography | Restoring to approximate original contour or other approved topographic configuration. | WDEQ/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. | WDEQ/LQD requires monitoring in advance of mining to detect unsuitable overburden. |
| Soils | 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 ₁₀ and/or TSP; Off-site ambient monitoring for PM ₁₀ and/or TSP; On-site compliance inspections. |

¹ These requirements, mitigation plans, and monitoring plans are in place for the existing Belle Ayr, Coal Creek, Caballo, and Cordero Rojo Mines in their current approved mining and reclamation plans (the No Action Alternatives). If the Belle Ayr North, West Coal Creek, Caballo West, and Maysdorf II LBA Tracts were leased, these requirements, mitigation plans, and monitoring plans would be part of mining plan revisions covering the Belle Ayr North, West Coal Creek, Caballo West, and Maysdorf II LBA Tracts that must be approved before mining can occur on the tracts under the Proposed Action and Alternatives.

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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 Law¹ | Monitoring¹ |
|-------------------------|--|---|
| Air Quality (continued) | Following voluntary and required measures to avoid exposing the public to NO ₂ 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. |

¹ These requirements, mitigation plans, and monitoring plans are in place for the existing Belle Ayr, Coal Creek, Caballo, and Cordero Rojo Mines in their current approved mining and reclamation plans (the No Action Alternatives). If the Belle Ayr North, West Coal Creek, Caballo West, and Maysdorf II LBA Tracts were leased, these requirements, mitigation plans, and monitoring plans would be part of mining plan revisions covering the Belle Ayr North, West Coal Creek, Caballo West, and Maysdorf II LBA Tracts that must be approved before mining can occur on the tracts under the 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 Law¹ | Monitoring¹ |
|--------------------------------|---|--|
| 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 and Sensitive Species | 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; Using raptor-safe power lines 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. Avoiding bald eagle disturbance; Restoring bald eagle foraging areas disturbed by mining; Restoring mountain plover habitat disturbed by mining; Surveying for mountain plover; Surveying for black-tailed prairie dog. | Baseline and annual wildlife monitoring surveys; Monitoring for Migratory Bird Species of Management Concern in Wyoming. |

¹ These requirements, mitigation plans, and monitoring plans are in place for the existing Belle Ayr, Coal Creek, Caballo, and Cordero Rojo Mines in their current approved mining and reclamation plans (the No Action Alternatives). If the Belle Ayr North, West Coal Creek, Caballo West, and Maysdorf II LBA Tracts were leased, these requirements, mitigation plans, and monitoring plans would be part of mining plan revisions covering the Belle Ayr North, West Coal Creek, Caballo West, and Maysdorf II LBA Tracts that must be approved before mining can occur on the tracts under the Action Alternatives.

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 Law¹ | Monitoring¹ |
|---|---|---|
| Threatened, Endangered, Proposed, and Candidate Species | Surveying for Ute ladies'-tresses; Searching for black-footed ferrets if prairie dog colonies are on or move onto tract; Same as Wildlife Resource and Sensitive Species 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 requesting 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. |

¹ These requirements, mitigation plans, and monitoring plans are in place for the existing Belle Ayr, Coal Creek, Caballo, and Cordero Rojo Mines in their current approved mining and reclamation plans (the No Action Alternatives). If the Belle Ayr North, West Coal Creek, Caballo West, and Maysdorf II LBA Tracts were leased, these requirements, mitigation plans, and monitoring plans would be part of mining plan revisions covering the Belle Ayr North, West Coal Creek, Caballo West, and Maysdorf II LBA Tracts that must be approved before mining can occur on the tracts under the Action 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 ¹ | Monitoring ¹ |
|-------------------------|---|--|
| 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 special monitoring other than required by these other regulations and response plans. |

¹ These requirements, mitigation plans, and monitoring plans are in place for the existing Belle Ayr, Coal Creek, Caballo, and Cordero Rojo Mines in their current approved mining and reclamation plans (the No Action Alternatives). If the Belle Ayr North, West Coal Creek, Caballo West, and Maysdorf II LBA Tracts were leased, these requirements, mitigation plans, and monitoring plans would be part of mining plan revisions covering the Belle Ayr North, West Coal Creek, Caballo West, and Maysdorf II LBA Tracts that must be approved before mining can occur on the tracts under the Action Alternatives.

2.0 Proposed Action and Alternatives

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, TBCC, CCC, and CMC must comply with emergency reporting requirements for release 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 Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (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 Belle Ayr, Coal Creek, Caballo, and Cordero Rojo Mines. Acquisition of the LBA tracts by the applicants would not change these current practices nor the type and quantity of any wastes generated and disposed of by the mines.

2.8 Summary of Alternatives and Environmental Consequences

2.8.1 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 draft EIS analyzes in detail different alternatives for the Belle Ayr North, West Coal Creek, Caballo West, and Maysdorf II LBA Tracts described in the discussion above.

2.8.2 Summary of Alternatives

The Belle Ayr North, West Coal Creek, Caballo West, and Maysdorf II LBA Tracts under the Action Alternatives are shown on Figures 2-1 through 2-4, respectively. A summary comparison of projected coal production, surface disturbance, mine life, and federal and state revenues for the Action Alternatives for the Belle Ayr North, West Coal Creek, Caballo West, and the Maysdorf II LBA Tracts are presented in Tables 2-2 through 2-8, respectively.

Table 2-9 presents a comparative summary for all four LBA tracts of the direct and indirect environmental impacts of implementing each alternative as compared to the No Action Alternative. Each No Action Alternative assumes completion of currently permitted mining at the applicant mine for comparison to anticipated mining if the associated LBA tract is leased. Table 2-10 presents a comparative summary for the four LBA tracts regarding the cumulative environmental impacts of implementing each alternative for each tract. The environmental consequences of the Proposed Action and Alternatives 2 and 3 are analyzed in Chapters 3 and 4. 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

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Table 2-2. Summary Comparison of Coal Production, Surface Disturbance, Mine Life, and Revenues for Belle Ayr North LBA Tract and Belle Ayr Mine if the Bishop Road (County Road 12) is Moved and the Underlying Coal is Recovered.

| Item | No Action Alternative (Existing Belle Ayr Mine) | Added by Proposed Action | Added by Alternative 2 |
|---|--|-------------------------------------|-----------------------------------|
| In-Place Coal (as of 6/30/08) | 250.9 mmt | 208.1 mmt | 221.1 mmt |
| Mineable Coal (as of 6/30/08) | 250.9 mmt | 204.2 mmt | 217.6 mmt |
| Recoverable Coal (as of 6/30/08) ¹ | 235.8 mmt | 191.9 mmt | 204.6 mmt |
| Coal Mined (as of 6/30/08) | 544.5 mmt | — | — |
| Lease Area ² | 4,945.5 ac | 1,578.7 ac | 1,669.3 ac |
| Total Area To Be Disturbed ² | 11,621 ac | 1,936.6 ac | 1,947.0 ac |
| Permit Area ² | 11,935 ac | 1,727 ac | 1,818 ac |
| Current Air Quality Permitted Production | 45.0 mmt | 0 mmt | 0 mmt |
| Average Annual Post-2007 Coal Production | 30.0 mmt | 0 mmt | 0 mmt |
| Remaining Life of Mine (post-2007) | 8.3 yrs | 6.4 yr | 6.8 yr |
| Average Number of Employees | 358 | 8 | 8 |
| Total Projected State Revenues (post-2007) ³ | \$382.9 million | \$342.2 – \$410.7 million | \$364.9 - \$437.8 million |
| Total Projected Federal Revenues (post-2007) ⁴ | \$283.6 million | \$261.5 – \$329.9 million | \$278.7 - \$351.6 million |

¹ Assumes 94 percent recovery of mineable coal.

² The lease area includes federal coal leases only and does not include state and private coal within the permit boundary. The disturbed area exceeds the leased area (total federal, state and private) 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.

³ Revenues to the State of Wyoming include severance taxes, property and production (Ad Valorum) taxes, sales and use taxes, and Wyoming's share of federal royalty payments, AML fees, and bonus bids. State revenues are based on \$0.4312 per ton estimate for severance taxes × amount of recoverable coal, plus \$0.372 per ton estimate for Ad Valorum taxes × amount of recoverable coal, plus \$0.0569 per ton estimate for sales and use taxes × amount of recoverable coal, plus \$9.98 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 \$0.28 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 made for the last 6 LBAs sold in 2004 and 2005) × amount of mineable coal minus federal's 50 percent share. These figures could change based on the outcome of recent legislation that changed the percent of distribution to states.

⁴ Federal revenues include black lung taxes and the federal government's share of federal royalty payments, AML fees, and bonus bids. Federal revenues are based on \$9.98 per ton (projected for 8,400-Btu coal) price × amount of recoverable coal × black lung tax of 4.40 percent, plus \$9.98 per ton (for 8,400-Btu coal) price × amount of recoverable coal × federal royalty of 12.5 percent minus state's 50 percent share, plus \$0.28 per ton for AML fees × amount of recoverable coal minus state'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 made for the last 6 LBAs sold in 2004 and 2005) × amount of mineable coal minus state's 50 percent share. These figures could change based on the outcome of recent legislation that changed the percent of distribution to the federal government.

Table 2-3. Summary Comparison of Coal Production, Surface Disturbance, Mine Life, and Revenues for Belle Ayr North LBA Tract and Belle Ayr Mine if the Bishop Road (County Road 12) is Not Moved and the Underlying Coal is Not Recovered.

| Item | No Action Alternative (Existing Belle Ayr Mine) | Added by Proposed Action | Added by Alternative 2 |
|---|--|-------------------------------------|-----------------------------------|
| In-Place Coal (as of 6/30/08) | 250.9 mmt | 208.1 mmt | 221.1 mmt |
| Mineable Coal (as of 6/30/08) | 250.9 mmt | 164.7 mmt | 159.6 mmt |
| Recoverable Coal (as of 6/30/08) ¹ | 235.8 mmt | 154.8 mmt | 150.1 mmt |
| Coal Mined (as of 6/30/08) | 544.5 mmt | — | — |
| Lease Area ² | 4,945.5 ac | 1,578.7 ac | 1,669.3 ac |
| Total Area To Be Disturbed ² | 11,621 ac | 1,274.9 ac | 1,658.4 ac |
| Permit Area ² | 11,935 ac | 1,727 ac | 1,818 ac |
| Current Air Quality Permitted Production | 45.0 mmt | 0 mmt | 0 mmt |
| Average Annual Post-2007 Coal Production | 30.0 mmt | 0 mmt | 0 mmt |
| Remaining Life of Mine (post-2007) | 8.3 yrs | 5.2 yr | 5.0 yr |
| Average Number of Employees | 358 | 8 | 8 |
| Total Projected State Revenues (post-2007) ³ | \$382.9 million | \$276.1 – \$331.3 million | \$267.7 - \$321.1 million |
| Total Projected Federal Revenues (post-2007) ⁴ | \$283.6 million | \$210.9 – \$266.1 million | \$204.5 - \$258.0 million |

¹ Assumes 94 percent recovery of mineable coal. This table excludes all coal that is beneath the Bishop County Road right-of-way.

² The lease area includes federal coal leases only and does not include state and private coal within the permit boundary. The disturbed area exceeds the leased area (total federal, state and private) 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.

³ Revenues to the State of Wyoming include severance taxes, property and production (Ad Valorum) taxes, sales and use taxes, and Wyoming's share of federal royalty payments, AML fees, and bonus bids. State revenues are based on \$0.4312 per ton estimate for severance taxes × amount of recoverable coal, plus \$0.372 per ton estimate for Ad Valorum taxes × amount of recoverable coal, plus \$0.0569 per ton estimate for sales and use taxes × amount of recoverable coal, plus \$9.98 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 \$0.28 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 made for the last 6 LBAs sold in 2004 and 2005) × amount of mineable coal minus federal's 50 percent share. These figures could change based on the outcome of recent legislation that changed the percent of distribution to states.

⁴ Federal revenues include black lung taxes and the federal government's share of federal royalty payments, AML fees, and bonus bids. Federal revenues are based on \$9.98 per ton (projected for 8,400-Btu coal) price × amount of recoverable coal × black lung tax of 4.40 percent, plus \$9.98 per ton (for 8,400-Btu coal) price × amount of recoverable coal × federal royalty of 12.5 percent minus state's 50 percent share, plus \$0.28 per ton for AML fees × amount of recoverable coal minus state'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 made for the last 6 LBAs sold in 2004 and 2005) × amount of mineable coal minus state's 50 percent share. These figures could change based on the outcome of recent legislation that changed the percent of distribution to the federal government.

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Table 2-4. Summary Comparison of Coal Production, Surface Disturbance, Mine Life, and Revenues for West Coal Creek LBA Tract and Coal Creek Mine.

| Item | No Action Alternative (Existing Coal Creek Mine) | Added by Proposed Action | Added by Alternative 2 |
|---|---|-------------------------------------|-----------------------------------|
| In-Place Coal (as of 6/30/08) | 241.7 mmt | 63.3 mmt | 69.3 mmt |
| Mineable Coal (as of 6/30/08) | 241.7 mmt | 63.3 mmt | 63.3 mmt |
| Recoverable Coal (as of 6/30/08) ¹ | 217.5 mmt | 57.0 mmt | 57.0 mmt |
| Coal Mined (as of 6/30/08) | 68.9 mmt | — | — |
| Lease Area ² | 5,918.0 ac | 1,151.3 ac | 1,313.3 ac |
| Total Area To Be Disturbed ² | 8,354.9 ac | 1,925.4 ac | 2,210.1 ac |
| Permit Area ² | 9,722.7 ac | 3,162 ac | 3,162 ac |
| Current Air Quality Permitted Production | 25.0 mmt | 0 mmt | 0 mmt |
| Average Annual Post-2007 Coal Production | 13.4 mmt | 0 mmt | 0 mmt |
| Remaining Life of Mine (post-2007) | 16.2 yrs | 4.3 yr | 4.3 yr |
| Average Number of Employees | 150 | 10 | 10 |
| Total Projected State Revenues (post-2007) ³ | \$353.2 million | \$102.1 – \$123.3 million | \$102.1 - \$123.3 million |
| Total Projected Federal Revenues (post-2007) ⁴ | \$261.6 million | \$78.1 - \$99.3 million | \$78.1 - \$99.3 million |

¹ Assumes 90 percent recovery of mineable coal.

² The lease area includes federal coal leases only and does not include state and private coal within the permit boundary. The disturbed area exceeds the leased area (total federal, state and private) 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.

³ Revenues to the State of Wyoming include severance taxes, property and production (Ad Valorem) taxes, sales and use taxes, and Wyoming's share of federal royalty payments, AML fees, and bonus bids. State revenues are based on \$0.4312 per ton estimate for severance taxes × amount of recoverable coal, plus \$0.372 per ton estimate for Ad Valorem taxes × amount of recoverable coal, plus \$0.0569 per ton estimate for sales and use taxes × amount of recoverable coal, plus \$9.98 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 \$0.28 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 made for the last 6 LBAs sold in 2004 and 2005) × amount of mineable coal minus federal's 50 percent share. These figures could change based on the outcome of recent legislation that changed the percent of distribution of mineral royalties to states.

⁴ Federal revenues include black lung taxes and the federal government's share of federal royalty payments, AML fees, and bonus bids. Federal revenues are based on \$9.98 per ton (projected for 8,400-Btu coal) price × amount of recoverable coal × black lung tax of 4.40 percent, plus \$9.98 per ton (for 8,400-Btu coal) price × amount of recoverable coal × federal royalty of 12.5 percent minus state's 50 percent share, plus \$0.28 per ton for AML fees × amount of recoverable coal minus state'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 made for the last 6 LBAs sold in 2004 and 2005) × amount of mineable coal minus state's 50 percent share. These figures could change based on the outcome of recent legislation that changed the percent of distribution of mineral royalties to the federal government.

Table 2-5. Summary Comparison of Coal Production, Surface Disturbance, Mine Life, and Revenues for Caballo West LBA Tract and Caballo Mine if the Bishop Road (County Road 12) is Moved and the Underlying Coal is Recovered.

| Item | No Action Alternative (Existing Caballo Mine) | Added by Proposed Action | Added by Alternative 2 |
|---|--|-------------------------------------|-----------------------------------|
| In-Place Coal (as of 6/30/08) | 893.7 mmt | 98.2 mmt | 131.4 mmt |
| Mineable Coal (as of 6/30/08) | 687.8 mmt | 87.5 mmt | 105.5 mmt |
| Recoverable Coal (as of 6/30/08) ¹ | 584.8 mmt | 81.8 mmt | 98.6 mmt |
| Coal Mined (as of 6/30/08) | 510.4 mmt | — | — |
| Lease Area ² | 11,704.5 ac | 777.5 ac | 1,024.0 ac |
| Total Area To Be Disturbed ² | 16,898.0 ac | 1,349.9 ac | 1,390.4 ac |
| Permit Area ² | 19,974.7 ac | 1,294.1 ac | 1,518.4 ac |
| Current Air Quality Permitted Production | 50.0 mmt | 0 mmt | 0 mmt |
| Average Annual Post-2007 Coal Production | 37.8 mmt | 0 mmt | 0 mmt |
| Remaining Life of Mine (post-2007) | 15.4 yrs | 2.2 yr | 2.6 yr |
| Average Number of Employees | 549 | 0 | 0 |
| Total Projected State Revenues (post-2007) ³ | \$949.6 million | \$146.0 – \$175.3 million | \$175.9 - \$211.3 million |
| Total Projected Federal Revenues (post-2007) ⁴ | \$703.4 million | \$111.5 - \$140.8 million | \$134.4 - \$169.8 million |

¹ Assumes 93.5 percent recovery of mineable coal.

² The lease area includes federal coal leases only and does not include state and private coal within the permit boundary. The disturbed area exceeds the leased area (total federal, state and private) 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.

³ Revenues to the State of Wyoming include severance taxes, property and production (Ad Valorum) taxes, sales and use taxes, and Wyoming's share of federal royalty payments, AML fees, and bonus bids. State revenues are based on \$0.4312 per ton estimate for severance taxes × amount of recoverable coal, plus \$0.372 per ton estimate for Ad Valorum taxes × amount of recoverable coal, plus \$0.0569 per ton estimate for sales and use taxes × amount of recoverable coal, plus \$9.98 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 \$0.28 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 made for the last 6 LBAs sold in 2004 and 2005) × amount of mineable coal minus federal's 50 percent share. These figures could change based on the outcome of recent legislation that changed the percent of distribution of mineral royalties to states.

⁴ Federal revenues include black lung taxes and the federal government's share of federal royalty payments, AML fees, and bonus bids. Federal revenues are based on \$9.98 per ton (projected for 8,400-Btu coal) price × amount of recoverable coal × black lung tax of 4.40 percent, plus \$9.98 per ton (for 8,400-Btu coal) price × amount of recoverable coal × federal royalty of 12.5 percent minus state's 50 percent share, plus \$0.28 per ton for AML fees × amount of recoverable coal minus state'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 made for the last 6 LBAs sold in 2004 and 2005) × amount of mineable coal minus state's 50 percent share. These figures could change based on the outcome of recent legislation that changed the percent of distribution of mineral royalties to the federal government.

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Table 2-6. Summary Comparison of Coal Production, Surface Disturbance, Mine Life, and Revenues for Caballo West LBA Tract and Caballo Mine if the Bishop Road (County Road 12) is Not Moved and the Underlying Coal is Not Recovered.

| Item | No Action Alternative (Existing Caballo Mine) | Added by Proposed Action | Added by Alternative 2 |
|---|--|-------------------------------------|-----------------------------------|
| In-Place Coal (as of 6/30/08) | 893.7 mmt | 98.2 mmt | 131.4 mmt |
| Mineable Coal (as of 6/30/08) | 687.8 mmt | 87.5 mmt | 98.1 mmt |
| Recoverable Coal (as of 6/30/08) ¹ | 584.8 mmt | 81.8 mmt | 91.7 mmt |
| Coal Mined (as of 6/30/08) | 510.4 mmt | — | — |
| Lease Area ² | 11,704.5 ac | 777.5 ac | 1,024.0 ac |
| Total Area To Be Disturbed ² | 16,898.0 ac | 1,213.0 ac | 1,253.6 ac |
| Permit Area ² | 19,974.7 ac | 1,294.1 ac | 1,518.4 ac |
| Current Air Quality Permitted Production | 50.0 mmt | 0 mmt | 0 mmt |
| Average Annual Post-2007 Coal Production | 37.8 mmt | 0 mmt | 0 mmt |
| Remaining Life of Mine (post-2007) | 15.4 yrs | 2.2 yr | 2.4 yr |
| Average Number of Employees | 549 | 0 | 0 |
| Total Projected State Revenues (post-2007) ³ | \$949.6 million | \$146.0 – \$175.3 million | \$163.6 - \$196.5 million |
| Total Projected Federal Revenues (post-2007) ⁴ | \$703.4 million | \$111.5 - \$140.8 million | \$125.0 - \$157.9 million |

¹ Assumes 93.5 percent recovery of mineable coal. This table excludes all coal beneath the Bishop County Road right-of-way.

² The lease area includes federal coal leases only and does not include state and private coal within the permit boundary. The disturbed area exceeds the leased area (total federal, state and private) 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.

³ Revenues to the State of Wyoming include severance taxes, property and production (Ad Valorum) taxes, sales and use taxes, and Wyoming's share of federal royalty payments, AML fees, and bonus bids. State revenues are based on \$0.4312 per ton estimate for severance taxes × amount of recoverable coal, plus \$0.372 per ton estimate for Ad Valorum taxes × amount of recoverable coal, plus \$0.0569 per ton estimate for sales and use taxes × amount of recoverable coal, plus \$9.98 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 \$0.28 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 made for the last 6 LBAs sold in 2004 and 2005) × amount of mineable coal minus federal's 50 percent share. These figures could change based on the outcome of recent legislation that changed the percent of distribution of mineral royalties to states.

⁴ Federal revenues include black lung taxes and the federal government's share of federal royalty payments, AML fees, and bonus bids. Federal revenues are based on \$9.98 per ton (projected for 8,400-Btu coal) price × amount of recoverable coal × black lung tax of 4.40 percent, plus \$9.98 per ton (for 8,400-Btu coal) price × amount of recoverable coal × federal royalty of 12.5 percent minus state's 50 percent share, plus \$0.28 per ton for AML fees × amount of recoverable coal minus state'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 made for the last 6 LBAs sold in 2004 and 2005) × amount of mineable coal minus state's 50 percent share. These figures could change based on the outcome of recent legislation that changed the percent of distribution of mineral royalties to the federal government.

Table 2-7. Summary Comparison of Coal Production, Surface Disturbance, Mine Life, and Revenues for Maysdorf II LBA Tract, Assuming Wyoming Highway 59 and the BNSF & UP Railroad are Not Moved and the Underlying Coal is Not Recovered and if the Haight and Hilight Roads and the Maysdorf Point Cemetery are Moved and the Underlying Coal is Recovered.

| Item | No Action Alternative (Existing Cordero Rojo Mine) | Added by Proposed Action | Added by Alternative 2 | Added by Alternative 3 (North Tract) | Added by Alternative 3 (South Tract) |
|---|---|-------------------------------------|-----------------------------------|---|---|
| In-Place Coal (as of 6/30/08) | 572.9 mmt | 504.0 mmt | 533.0 mmt | 326.4 mmt | 206.6 mmt |
| Mineable Coal (as of 6/30/08) | 571.5 mmt | 499.5 mmt | 527.3 mmt | 322.5 mmt | 204.8 mmt |
| Recoverable Coal (as of 6/30/08) ¹ | 525.9 mmt | 449.6 mmt | 474.5 mmt | 290.2 mmt | 184.3 mmt |
| Coal Mined (as of 6/30/08) | 769.3 mmt | — | — | — | — |
| Lease Area ² | 13,529.31 ac | 4,653.8 ac | 4,895.6 ac | 2,825.4 ac | 2,070.3 ac |
| Total Area To Be Disturbed ² | 14,694.0 ac | 6,675.0 ac | 6,917.3 ac | 3,429.6 ac | 3,487.7 ac |
| Permit Area ² | 16,910.6 ac | 16,832.4 ac | 16,832.4 ac | 6,850.3 ac | 10,683.4 ac |
| Current Air Quality Permitted Production | 65.0 mmt | 0 mmt | 0 mmt | 0 mmt | 0 mmt |
| Average Annual Post-2007 Coal Production | 46.3 mmt | 0 mmt | 0 mmt | 0 mmt | 0 mmt |
| Remaining Life of Mine (post-2007) | 11.4 yrs | 9.7 yr | 10.3 yr | 6.3 yr | 3.9 yr |
| Average Number of Employees | 510 | 63 | 63 | 8 | 2 |
| Total Projected State Revenues (post-2007) ³ | \$854.0 million | \$805.0 – \$972.3 million | \$849.7 - \$1026.5 million | \$519.6 - \$627.7 million | \$330.0 – \$398.6 million |
| Total Projected Federal Revenues (post- 2007) ⁴ | \$632.6 million | \$615.7 - \$783.1 million | \$649.9 - \$826.7 million | \$397.4 - \$505.5 million | \$252.4 - \$321.0 million |

¹ Assumes 90 percent recovery of mineable coal. This table excludes all coal that would not be mined beneath the Wyoming Highway 59 right-of-way and BNSF & UP railroad right-of-way.

² The lease area includes federal coal leases only and does not include state and private coal within the permit boundary. The disturbed area exceeds the leased area (total federal, state and private) 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.

³ Revenues to the State of Wyoming include severance taxes, property and production (Ad Valorem) taxes, sales and use taxes, and Wyoming's share of federal royalty payments, AML fees, and bonus bids. State revenues are based on \$0.4312 per ton estimate for severance taxes × amount of recoverable coal, plus \$0.372 per ton estimate for Ad Valorem taxes × amount of recoverable coal, plus \$0.0569 per ton estimate for sales and use taxes × amount of recoverable coal, plus \$9.98 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 \$0.28 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 made for the last 6 LBAs sold in 2004 and 2005) × amount of mineable coal minus federal's 50 percent share. These figures could change based on the outcome of recent legislation that changed the percent of distribution of mineral royalties to states.

⁴ Federal revenues include black lung taxes and the federal government's share of federal royalty payments, AML fees, and bonus bids. Federal revenues are based on \$9.98 per ton (projected for 8,400-Btu coal) price × amount of recoverable coal × black lung tax of 4.40 percent, plus \$9.98 per ton (for 8,400-Btu coal) price × amount of recoverable coal × federal royalty of 12.5 percent minus state's 50 percent share, plus \$0.28 per ton for AML fees × amount of recoverable coal minus state'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 made for the last 6 LBAs sold in 2004 and 2005) × amount of mineable coal minus state's 50 percent share. These figures could change based on the outcome of recent legislation that changed the percent of distribution of mineral royalties to the federal government.

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Table 2-8. Summary Comparison of Coal Production, Surface Disturbance, Mine Life, and Revenues for Maysdorf II LBA Tract, Assuming Wyoming Highway 59, the Haight and Hilight Roads, the Maysdorf Point Cemetery, and the BNSF & UP Railroad are Not Moved and the Underlying Coal is Not Recovered.

| Item | No Action Alternative (Existing Cordero Rojo Mine) | Added by Proposed Action | Added by Alternative 2 | Added by Alternative 3 (North Tract) | Added by Alternative 3 (South Tract) |
|---|---|-------------------------------------|-----------------------------------|---|---|
| In-Place Coal (as of 6/30/08) | 572.9 mmt | 504.0 mmt | 533.0 mmt | 326.4 mmt | 206.6 mmt |
| Mineable Coal (as of 6/30/08) | 571.5 mmt | 482.5 mmt | 510.3 mmt | 322.5 mmt | 187.8 mmt |
| Recoverable Coal (as of 6/30/08) ¹ | 525.9 mmt | 434.3 mmt | 459.3 mmt | 290.2 mmt | 169.1 mmt |
| Coal Mined (as of 6/30/08) | 769.3 mmt | — | — | — | — |
| Lease Area ² | 13,529.31 ac | 4,653.8 ac | 4,895.6 ac | 2,825.4 ac | 2,070.3 ac |
| Total Area To Be Disturbed ² | 14,694.0 ac | 6,200.8 ac | 6,422.5 ac | 3,353.9 ac | 3,068.6 ac |
| Permit Area ² | 16,910.6 ac | 16,832.4 ac | 16,832.4 ac | 6,850.3 ac | 10,683.4 ac |
| Current Air Quality Permitted Production | 65.0 mmt | 0 mmt | 0 mmt | 0 mmt | 0 mmt |
| Average Annual Post-2007 Coal Production | 46.3 mmt | 0 mmt | 0 mmt | 0 mmt | 0 mmt |
| Remaining Life of Mine (post-2007) | 11.4 yrs | 9.4 yr | 9.9 yr | 6.3 yr | 3.7 yr |
| Average Number of Employees | 510 | 60 | 63 | 8 | 2 |
| Total Projected State Revenues (post-2007) ³ | \$854.0 million | \$777.6 - \$939.3 million | \$822.4 - \$993.3 million | \$519.6 - \$627.7 million | \$302.8 - \$365.7 million |
| Total Projected Federal Revenues (post-2007) ⁴ | \$632.6 million | \$594.8 - \$756.4 million | \$629.0 - \$800.0 million | \$397.4 - \$505.5 million | \$231.6 - \$294.5 million |

¹ Assumes 90 percent recovery of mineable coal. This table excludes all coal that would not be mined beneath the Wyoming Highway 59 right-of-way, BNSF & UP railroad right-of-way, Maysdorf Point Cemetery buffer zone, and the Haight and Hilight Roads rights-of-way.

² The lease area includes federal coal leases only and does not include state and private coal within the permit boundary. The disturbed area exceeds the leased area (total federal, state and private) 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.

³ Revenues to the State of Wyoming include severance taxes, property and production (Ad Valorem) taxes, sales and use taxes, and Wyoming's share of federal royalty payments, AML fees, and bonus bids. State revenues are based on \$0.4312 per ton estimate for severance taxes × amount of recoverable coal, plus \$0.372 per ton estimate for Ad Valorem taxes × amount of recoverable coal, plus \$0.0569 per ton estimate for sales and use taxes × amount of recoverable coal, plus \$9.98 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 \$0.28 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 made for the last 6 LBAs sold in 2004 and 2005) × amount of mineable coal minus federal's 50 percent share. These figures could change based on the outcome of recent legislation that changed the percent of distribution of mineral royalties to states.

⁴ Federal revenues include black lung taxes and the federal government's share of federal royalty payments, AML fees, and bonus bids. Federal revenues are based on \$9.98 per ton (projected for 8,400-Btu coal) price × amount of recoverable coal × black lung tax of 4.40 percent, plus \$9.98 per ton (for 8,400-Btu coal) price × amount of recoverable coal × federal royalty of 12.5 percent minus state's 50 percent share, plus \$0.28 per ton for AML fees × amount of recoverable coal minus state'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 made for the last 6 LBAs sold in 2004 and 2005) × amount of mineable coal minus state's 50 percent share. These figures could change based on the outcome of recent legislation that changed the percent of distribution of mineral royalties to the federal government.

Table 2-9. Summary Comparison of Magnitude and Duration of Direct and Indirect Impacts for the Proposed Action and Alternatives 2 and 3 and the No Action Alternative for the Belle Ayr North, West Coal Creek, Caballo West, and Maysdorf II LBA Tract².

| DESCRIPTION OF POTENTIAL IMPACT BY RESOURCE | MAGNITUDE AND DURATION OF IMPACT | |
|--|---|---|
| | NO ACTION ALTERNATIVE | PROPOSED ACTION and ALTERNATIVES 2 & 3 |
| RESOURCE NAME | | |
| TOPOGRAPHY & PHYSIOGRAPHY (Applicable for all four tracts) | | |
| Lower surface elevation | Moderate, permanent on existing mine areas | Same as No Action on expanded mine areas |
| Permanent topographic moderation, which could result in: | | |
| Microhabitat reduction | Moderate, long term on existing mine areas | Same as No Action on expanded mine areas |
| Habitat diversity reduction | Moderate, long term on existing mine areas | Same as No Action on expanded mine areas |
| Big game carrying capacity reduction | Moderate, long term on existing mine areas | Same as No Action on expanded mine areas |
| Reduction in water runoff and peak flows | Moderate, beneficial, long term on existing mine areas | Same as No Action on expanded mine areas |
| Increased precipitation infiltration | Moderate, beneficial, long term on existing mine areas | Same as No Action on expanded mine areas |
| Reduction in erosion | Moderate, beneficial, long term on existing mine areas | Same as No Action on expanded mine areas |
| Potential enhanced vegetative productivity | Moderate, beneficial, long term on existing mine areas | Same as No Action on expanded mine areas |
| Potential acceleration of groundwater recharge | Moderate, beneficial, long term on existing mine areas | Same as No Action on expanded mine areas |
| Diversion of the Belle Fourche River and Caballo Creek during mining | Moderate, beneficial, long term on existing mine areas | Same as No Action on expanded mine areas |
| GEOLOGY AND MINERALS (Applicable for all four tracts) | | |
| Removal of coal | Moderate, permanent on existing mine areas | Same as No Action on expanded mine areas |
| Removal and replacement of topsoil and overburden | Moderate, permanent on existing mine areas | Same as No Action on expanded mine areas |
| Physical characteristic alterations in replaced overburden | Moderate, permanent on existing mine areas | Same as No Action on expanded mine areas |
| Loss of unrecovered CBNG through venting and/or depletion of hydrostatic pressure | Minor to moderate, permanent on existing mine areas | Same as No Action on expanded mine areas |
| Loss of access for development of sub-coal oil and gas resources and other minerals | Moderate, short term on existing mine areas | Same as No Action on expanded mine areas |
| Destruction of paleontological resources that are not exposed on the surface | Moderate, permanent on the existing mine areas | Same as No Action on expanded mine areas |
| AIR QUALITY (Applicable for all four tracts) | | |
| <u>Particulate Emissions:</u> | | |
| Elevated concentrations associated with projected average production of 13 to 46 mmtpy in compliance with ambient standard | Moderate, short term for existing approved mining operations | Same as No Action for from 2 to 10 additional years |
| Potential for public exposure to particulate emissions along Wyo Highway 59 and in occupied dwellings and businesses in area | Minor to moderate, short term for existing approved mining operations | Same as No Action for from 2 to 10 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 2 to 10 additional years |

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Table 2-9. Summary Comparison of Magnitude and Duration of Direct and Indirect Impacts for the Proposed Action and Alternatives 2 and 3 and the No Action Alternative for the Belle Ayr North, West Coal Creek, Caballo West, and Maysdorf II LBA Tract² (Continued).

| DESCRIPTION OF POTENTIAL IMPACT BY RESOURCE | MAGNITUDE AND DURATION OF IMPACT | |
|---|--|---|
| | NO ACTION ALTERNATIVE | PROPOSED ACTION and ALTERNATIVES 2 & 3 |
| RESOURCE NAME | | |
| AIR QUALITY (Continued) | | |
| <u>NO_x Emissions from Machinery:</u> | | |
| Elevated concentrations associated with average production of 13 to 46 mmtpy in compliance with ambient standard | Moderate, short term for existing approved mining operations | Same as No Action for from 2 to 10 additional years |
| Potential for public exposure to NO _x emissions from machinery along Wyo Highway 59, various county roads, and for occupied dwellings and businesses located in area | Moderate, short term for existing approved mining operations a | Same as No Action for from 2 to 10 additional years |
| Potential for human health impacts as a result of exposure to NO _x emissions | Moderate, short term for existing approved mining operations | Same as No Action for from 2 to 10 additional years |
| <u>NO_x Emissions from Blasting in Compliance with Belle Ayr, Coal Creek, Caballo, and Cordero Rojo Mine Permit Blasting Conditions:</u> | | |
| Potential for public exposure | No projected events | Same as No Action for from 2 to 10 additional years |
| Potential for human health impacts as a result of exposure to NO _x emissions | No projected events | Same as No Action for from 2 to 10 additional years |
| <u>Visibility:</u> | | |
| Elevated concentrations of fine particulate matter associated with average production of 13 to 46 mmtpy | Moderate, short term for existing approved mining operations | Same as No Action for from 2 to 10 additional years |
| <u>Acidification of Lakes:</u> | | |
| SO ₂ emissions derived from burning Belle Ayr, Caballo, Coal Creek, and Cordero Rojo coal to produce power | Moderate, short term in vicinity of power plants | Same as No Action on expanded mine area for from 2 to 10 additional years |
| WATER RESOURCES | | |
| (Applicable for all four tracts) | | |
| <u>Groundwater</u> | | |
| Removal of coal and overburden aquifers | Moderate, short term on existing mine areas | Same as No Action on expanded mine areas |
| Replacement of existing coal and overburden with unconsolidated backfill material | Moderate, permanent on existing mine areas | Same as No Action on expanded mine areas |
| 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 areas | Same as No Action on expanded mine areas |
| Increase in TDS concentrations in backfilled areas | Moderate, long term on existing mine areas | Same as No Action on expanded mine areas |
| Use of subcoal aquifers for water supply | Negligible, short term on existing mine and surrounding area | Same as No Action for from 2 to 10 additional years |

Table 2-9. Summary Comparison of Magnitude and Duration of Direct and Indirect Impacts for the Proposed Action and Alternatives 2 and 3 and the No Action Alternative for the Belle Ayr North, West Coal Creek, Caballo West, and Maysdorf II LBA Tract² (Continued).

| DESCRIPTION OF POTENTIAL IMPACT BY RESOURCE | MAGNITUDE AND DURATION OF IMPACT | |
|--|---|--|
| | NO ACTION ALTERNATIVE | PROPOSED ACTION and ALTERNATIVES 2 & 3 |
| RESOURCE NAME | | |
| WATER RESOURCES (Continued) | | |
| <u>Surface Water</u> | | |
| Diversion and disruption of surface drainage systems, particularly to a portion of the Belle Fourche River | Moderate, short term on existing mine areas | Same as No Action on expanded mine areas |
| Reconstruction of surface drainage systems | Permanent on existing mine areas | Same as No Action on expanded mine areas |
| Increased runoff and erosion rates on disturbed lands due to vegetation removal | Moderate, short term on existing mine areas | Same as No Action on expanded mine areas |
| Increased infiltration on reclaimed lands due to topographic moderation | Moderate, beneficial, long term on existing mine areas | Same as No Action on expanded mine areas |
| Increased runoff on reclaimed lands due to loss of soil structure | Moderate, long term on existing mine areas | Same as No Action on expanded mine areas |
| 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 on expanded 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 areas |
| ALLUVIAL VALLEY FLOORS | | |
| (Applicable for all four tracts) | | |
| While final determinations have not been made by WDEQ/LQD, it is believed that there are no AVFs significant to agriculture on the proposed lease tracts | | |
| 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 areas |
| Disruptions to streamflows supplying downstream AVFs | Negligible, short term on existing leases | Same as No Action on expanded mine areas |
| WETLANDS | | |
| (Applicable for all four tracts) | | |
| 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 areas |
| Removal of non-jurisdictional wetlands and loss of wetland function until reclamation occurs | Moderate, short term to long term 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 areas |

2.0 Proposed Action and Alternatives

Table 2-9. Summary Comparison of Magnitude and Duration of Direct and Indirect Impacts for the Proposed Action and Alternatives 2 and 3 and the No Action Alternative for the Belle Ayr North, West Coal Creek, Caballo West, and Maysdorf II LBA Tract² (Continued).

| DESCRIPTION OF POTENTIAL IMPACT BY RESOURCE | MAGNITUDE AND DURATION OF IMPACT | |
|--|--|--|
| | NO ACTION ALTERNATIVE | PROPOSED ACTION and ALTERNATIVES 2 & 3 |
| SOILS | | |
| (Applicable for all four tracts) | | |
| <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 areas | Same as No Action on expanded mine areas |
| More uniformity in soil type, thickness, and texture | Moderate, beneficial, long term on existing mine areas | Same as No Action on expanded mine areas |
| Decreased runoff due to topographic modification | Moderate, beneficial, long term on existing mine areas | Same as No Action on expanded mine areas |
| <u>Changes in biological properties in soils that are stockpiled before reclamation:</u> | | |
| Reduction in organic matter | Moderate, long term on existing mine areas | Same as No Action on expanded mine areas |
| Reduction in microorganism population | Moderate, long term on existing mine areas | Same as No Action on expanded mine areas |
| Reduction in seeds, bulbs, rhizomes, and live plant parts | Moderate, long term on existing mine areas | Same as No Action on expanded mine areas |
| <u>Changes in chemical properties:</u> | | |
| More uniform soil nutrient distribution | Moderate, beneficial, long term on existing mine areas | Same as No Action on expanded mine areas |
| VEGETATION | | |
| (Applicable for all four tracts) | | |
| <u>During mining:</u> | | |
| Progressive removal of existing vegetation | Moderate, short term on existing mine areas | Same as No Action on expanded mine areas |
| Increased erosion | Moderate, short term on existing mine areas | Same as No Action on expanded mine areas |
| Wildlife habitat and livestock grazing loss | Moderate, short term on existing mine areas | Same as No Action on expanded mine areas |
| <u>After revegetation:</u> | | |
| Changes in vegetation patterns | Negligible, long term on existing mine areas | Same as No Action on expanded mine areas |
| Reduction in vegetation diversity | Negligible, long term on existing mine areas | Same as No Action on expanded mine areas |
| Reduction in shrub density | Moderate, long term on existing mine areas | Same as No Action on expanded mine areas |
| Decreased big game habitat carrying capacity | Moderate, long term on existing mine areas | Same as No Action on expanded mine areas |
| Decreased habitat for shrub dependent species | Moderate, long term on existing mine areas | Same as No Action on expanded mine areas |
| Potential invasion of non-native plant species | Moderate, short term on existing mine areas | Same as No Action on expanded mine areas |
| WILDLIFE | | |
| (Applicable for all four tracts) | | |
| Displacement of all wildlife from active mining areas | Moderate, short term on existing mine areas | Same as No Action on expanded mine areas |
| Increased competition on adjacent undisturbed or reclaimed lands, especially big game | Moderate, short term on adjacent areas | Same as No Action on adjacent areas |
| Restriction of wildlife movement, especially big game | Moderate, short term on existing mine areas | Same as No Action on expanded mine areas |
| Increased mortality of small mammals | Moderate, short term on existing mine areas | Same as No Action on expanded mine areas |

Table 2-9. Summary Comparison of Magnitude and Duration of Direct and Indirect Impacts for the Proposed Action and Alternatives 2 and 3 and the No Action Alternative for the Belle Ayr North, West Coal Creek, Caballo West, and Maysdorf II LBA Tract² (Continued).

| DESCRIPTION OF POTENTIAL IMPACT BY RESOURCE | MAGNITUDE AND DURATION OF IMPACT | |
|---|---|---|
| | NO ACTION ALTERNATIVE | PROPOSED ACTION and ALTERNATIVES 2 & 3 |
| RESOURCE NAME | | |
| WILDLIFE (Continued) (Applicable for all four tracts) | | |
| Surface and noise disturbance of active sage-grouse leks | Moderate, short to long term on existing mine areas | Same as No Action on expanded mine areas |
| Disturbance of sage-grouse nesting and wintering habitat during mining | Moderate, short term on existing mine areas | Same as No Action on expanded mine areas |
| Loss of sage-grouse nesting habitat after reclamation | Moderate, long term on existing mine areas | Same as No Action on expanded mine areas |
| Alteration of plant and animal communities after reclamation | Negligible, short term on existing mine areas | Same as No Action on expanded mine areas |
| Abandonment of raptor nests | Negligible, short term on existing mine areas | Same as No Action on expanded mine areas |
| Loss of foraging habitat for raptors | Negligible, short to long term on existing mine areas | Same as No Action on expanded mine areas |
| Loss of nesting and foraging habitat for Migratory Birds of Management Concern | Negligible, short to long term on existing mine areas | Same as No Action on expanded mine areas |
| Reduction in waterfowl resting and feeding habitat | Negligible, short term on existing mine areas | Same as No Action on expanded mine areas |
| Loss of habitat for aquatic species, amphibians, and reptiles during mining | Negligible, short term on existing mine areas | Same as No Action on expanded mine areas |
| Road kills by mine-related traffic | Moderate, long term on existing mine areas | Same as No Action on expanded mine areas |
| Reduction in habitat carrying capacity and habitat diversity on reclaimed lands | Moderate, long term on existing mine areas | Same as No Action on expanded mine areas |
| Potential reduction in microhabitats on reclaimed lands | Moderate, long term on existing mine areas | Same as No Action on expanded mine areas |
| Localized avoidance of foraging areas by big game | Moderate, short term on existing mine areas | Same as No Action on expanded mine areas |
| THREATENED, ENDANGERED, PROPOSED, AND CANDIDATE SPECIES | | |
| Belle Ayr North-(See Appendix F) | | |
| Black-footed ferrets | As determined by previous consultation with USFWS for all species | No effect |
| Ute ladies'-tresses | | May affect, not likely to adversely affect |
| West Coal Creek-(See Appendix G) | | |
| Black-footed ferrets | As determined by previous consultation with USFWS for all species | No effect |
| Ute ladies'-tresses | | May affect, not likely to adversely affect |
| Caballo West-(See Appendix H) | | |
| Black-footed ferrets | As determined by previous consultation with USFWS for all species | No effect |
| Ute ladies'-tresses | | May affect, not likely to adversely affect |
| Maysdorf II-(See Appendix I) | | |
| Black-footed ferrets | As determined by previous consultation with USFWS for all species | No effect |
| Ute ladies'-tresses | | May affect, not likely to adversely affect |

2.0 Proposed Action and Alternatives

Table 2-9. Summary Comparison of Magnitude and Duration of Direct and Indirect Impacts for the Proposed Action and Alternatives 2 and 3 and the No Action Alternative for the Belle Ayr North, West Coal Creek, Caballo West, and Maysdorf II LBA Tract² (Continued).

| DESCRIPTION OF POTENTIAL IMPACT BY RESOURCE | MAGNITUDE AND DURATION OF IMPACT | |
|---|--|--|
| | NO ACTION ALTERNATIVE | PROPOSED ACTION and ALTERNATIVES 2 & 3 |
| RESOURCE NAME | | |
| LAND USE AND RECREATION (Applicable for all four tracts) | | |
| Reduction of livestock grazing | Moderate, long term on existing mine areas | Same as No Action on expanded mine areas |
| Loss of wildlife habitat | Moderate, long term on existing mine areas | Same as No Action on expanded mine areas |
| Loss of access for sub-coal oil and gas development | Moderate, short term on existing mine areas | Same as No Action on expanded mine areas |
| Removal of oil and gas production facilities | Moderate, short term on existing mine areas | Same as No Action on expanded mine areas |
| Loss of access to public land available for recreation and grazing (Maysdorf II Tract only) | Moderate, short term on existing Cordero Rojo mine area | Same as No Action on expanded Cordero Rojo mine area |
| CULTURAL RESOURCES (Applicable for all four tracts) | | |
| Sites that are not eligible for NRHP | Ineligible sites may be destroyed without further work on expanded mine areas | Same as No Action on expanded mine areas |
| 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 expanded mine areas | Same as No Action on expanded mine areas |
| Sites that are unevaluated for eligibility | Impacts to unevaluated sites are not permitted; unevaluated sites would be evaluated prior to mining on expanded mine areas | Same as No Action on expanded mine areas |
| NATIVE AMERICAN CONCERNS (Applicable for all four tracts) | | |
| | No impact identified on existing mine areas | Same as No Action on expanded mine areas |
| VISUAL RESOURCES (Applicable for all four tracts) | | |
| <u>During mining:</u> | | |
| Alteration of landscape by mining facilities and operations | Moderate, short term on existing mine areas | Same as No Action on expanded mine areas |
| Visibility of mining operations from highway? | Moderate, short term on existing mine areas | Same as No Action on expanded mine areas |
| <u>Following reclamation:</u> | | |
| Smoother sloped terrain | Negligible, long term on existing mine areas | Same as No Action on expanded mine areas |
| Reduction in sagebrush density | Moderate, short to long term on existing mine areas | Same as No Action on expanded mine areas |
| NOISE (Applicable for all four tracts) | | |
| Increased noise levels | Moderate to substantial, short term on existing mines, surrounding areas, and occupied dwellings within 2,500 feet of mining activities | Same as No Action on expanded mine areas |

Table 2-9. Summary Comparison of Magnitude and Duration of Direct and Indirect Impacts for the Proposed Action and Alternatives 2 and 3 and the No Action Alternative for the Belle Ayr North, West Coal Creek, Caballo West, and Maysdorf II LBA Tract² (Continued).

| DESCRIPTION OF POTENTIAL IMPACT BY RESOURCE | MAGNITUDE AND DURATION OF IMPACT | |
|--|---|---|
| | NO ACTION ALTERNATIVE | PROPOSED ACTION and ALTERNATIVES 2 & 3 |
| TRANSPORTATION FACILITIES | | |
| (Applicable for all four tracts) | | |
| Use of railroads and existing Belle Ayr, Coal Creek, Caballo, and Cordero Rojo mine rail infrastructure to ship coal | Moderate, for duration of existing approved mining operations | Same as No Action for from 2 to 10 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 2 to 10 additional years |
| Relocation of pipelines | Negligible, short to long term on existing mine areas | Same as No Action on expanded mine areas |
| Relocation of utility lines | Negligible, short to long term on existing mine areas | Same as No Action on expanded mine areas |
| Relocation of county roads to recover coal under lease | Moderate, long term to permanent on existing mine areas | Same as No Action on expanded mine areas |
| HAZARDOUS AND SOLID WASTE | | |
| (Applicable for all four tracts) | | |
| Waste generated by mining operations | Negligible for duration of existing approved mining operations | Same as No Action for from 2 to 10 additional years |
| SOCIOECONOMICS | | |
| (Applicable for all four tracts) | | |
| Employment | Moderate, beneficial short term for existing approved mining operations | Same as No Action for from 2 to 10 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 2 to 10 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 2 to 10 additional years |
| Revenues from taxes to local economy | Moderate, beneficial short term for existing approved mining operations | Same as No Action for from 2 to 10 additional years |
| Additional housing and infrastructure needs | No new impact related to existing mine areas | Same as No Action for from 2 to 10 additional years |

¹ Refer to Chapter 3 for a discussion on magnitude of impacts.

² All impacts are assumed to be adverse unless noted otherwise.

2.0 Proposed Action and Alternatives

Table 2-10. Summary Comparison of Magnitude and Duration of Cumulative Impacts^{1, 2}

| DESCRIPTION OF POTENTIAL IMPACT BY RESOURCE | MAGNITUDE, TYPE, AND DURATION OF IMPACT | |
|---|--|--|
| | NO ACTION ALTERNATIVE | PROPOSED ACTION and ALTERNATIVES 2 & 3 |
| TOPOGRAPHY & PHYSIOGRAPHY | | |
| 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 |
| GEOLOGY AND MINERALS | | |
| 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 |
| PALEONTOLOGY | | |
| 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 |
| AIR QUALITY | | |
| <u>Impacts to Montana near-field receptors</u> | | |
| - 24-hour PM ₁₀ | 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 ₁₀ | Modeled impact above NAAQS at some receptors for both coal production scenarios for 2010 | Same as No Action |
| - Annual PM ₁₀ | Maximum modeled impact above NAAQS at one receptor for the upper production scenario for 2010 | Same as No Action |
| - All other parameters | Modeled impacts in compliance with NAAQS and Wyoming AAQS | Same as No Action |
| <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 ₁₀ , annual PM ₁₀ , 24-hour SO ₂ , 3-hour SO ₂ for baseline year and both coal production scenarios for 2010; above Class I increment for annual NO ₂ 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 ₁₀ 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 |

Table 2-10. Summary Comparison of Magnitude and Duration of Cumulative Impacts^{1, 2} (Continued).

| DESCRIPTION OF POTENTIAL IMPACT BY RESOURCE | MAGNITUDE, TYPE, AND DURATION OF IMPACT | |
|--|---|---|
| | NO ACTION ALTERNATIVE | PROPOSED ACTION and ALTERNATIVES 2 & 3 |
| RESOURCE NAME | | |
| <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 | 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 |
| GROUNDWATER RESOURCES | | |
| 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 | Additive, long term in area immediately west of surface coal mines | Same as No Action |
| Overlapping drawdown in the coal aquifer caused by surface mining and CBNG development | | |
| SURFACE WATER RESOURCES | | |
| 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 |
| ALLUVIAL VALLEY FLOORS | | |
| 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 mining | AVFs disturbed by mining must be restored to essential hydrologic function. No cumulative impacts anticipated | Same as No Action |
| SOILS | | |
| 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 |

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Table 2-10. Summary Comparison of Magnitude and Duration of Cumulative Impacts^{1, 2} (Continued).

| DESCRIPTION OF POTENTIAL IMPACT BY RESOURCE | MAGNITUDE, TYPE, AND DURATION OF IMPACT | |
|--|--|-----------------------|
| | RESOURCE NAME | NO ACTION ALTERNATIVE |
| VEGETATION | | |
| 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 of alteration of potential of 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 |
| WETLAND AND RIPARIAN VEGETATION | | |
| 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 |
| WILDLIFE | | |
| 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 |
| FISHERIES | | |
| 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 |
| SPECIAL STATUS SPECIES | | |
| 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 |

Table 2-10. Summary Comparison of Magnitude and Duration of Cumulative Impacts^{1, 2} (Continued).

| DESCRIPTION OF POTENTIAL IMPACT BY RESOURCE | MAGNITUDE, TYPE, AND DURATION OF IMPACT | |
|--|---|---|
| | NO ACTION ALTERNATIVE | PROPOSED ACTION and ALTERNATIVES 2 & 3 |
| LAND USE AND RECREATION | | |
| 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 areas | Same as No Action |
| CULTURAL RESOURCES | | |
| Disturbance of cultural resource sites | Moderate, permanent | Same as No Action |
| TRANSPORTATION AND UTILITIES | | |
| 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 |
| TRANSPORTATION AND UTILITIES | | |
| 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 |
| SOCIOECONOMICS | | |
| 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 |
| 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 |

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Table 2-10. Summary Comparison of Magnitude and Duration of Cumulative Impacts^{1, 2} (Continued).

| DESCRIPTION OF POTENTIAL IMPACT BY RESOURCE | MAGNITUDE, TYPE, AND DURATION OF IMPACT | |
|--|--|---|
| RESOURCE NAME | NO ACTION ALTERNATIVE | PROPOSED ACTION and ALTERNATIVES 2 & 3 |
| SOCIOECONOMICS (Continued) | | |
| 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 |

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

² All impacts are assumed to be adverse unless noted otherwise.

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- (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 508.27) 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 insignificant following completion of reclamation.