

2.0 PROPOSED ACTION AND ALTERNATIVES

This chapter describes the regulations and documents that guide the identification of alternatives to the Proposed Action, explains how the alternatives were developed and how a final tract configuration will be determined, and, finally, provides detailed descriptions of the Proposed Action, alternatives, and tract configurations considered in this EIS¹.

This draft EIS analyzes three alternatives: the Proposed Action, Alternative 1 (No Action), and Alternative 2 (additional lands added by the BLM). Two additional alternatives were considered but were not analyzed further in this EIS because they were not logistically feasible (Alternative 3 - new mine start) or substantially different (Alternative 4 – delay the lease sale) than analyzed alternatives. Supporting information for excluding these alternatives is provided in section 2.3.

In response to direction from the Department of Interior, the BLM has identified Alternative 2 as the preliminary Preferred Alternative in this draft EIS. However, the final Preferred Alternative cannot be developed until the BLM has considered all of the input received on the draft EIS from individuals, agencies, and other interested parties during the public comment period. The comment period begins when the BLM has issued a notice of availability of the draft EIS and lasts for 60 days. This process offers the public sector an opportunity to submit written input during the comment period and oral comments at a public hearing that occurs during that period. The BLM will consider comments on the environmental effects identified in the draft EIS, as well as fair market value and maximum economic recovery factors, geologic data, and coal data. The ultimate Preferred Alternative will be described and analyzed in the final EIS. The ROD will be issued and, if the decision is to offer the tract for lease, then a sale will be held. If a sale is held, the bidding would be open to any qualified bidder.

2.1. Background

To process an LBA, the BLM must evaluate the quantity, quality, maximum economic recovery, and fair market value of the federal coal, and fulfill the requirements of NEPA by evaluating the environmental impacts of leasing that coal. NEPA also requires that the BLM consider and evaluate “reasonable alternatives” to meet the objectives of the Proposed Action while avoiding or minimizing environmental impacts. Reasonable alternatives are defined by NEPA as those that are technically, economically, and environmentally practical and feasible to satisfy the stated purpose and need for the proposed federal action. NEPA also requires the analysis of a “no action” alternative (i.e., the consequence of continuing ongoing activities without a new leasing action).

In addition to NEPA requirements, the BLM must meet the requirements contained in the *Competitive Coal Leasing Manual* (BLM 1989) and follow the regulations for federal coal leasing by application under 43 CFR 3425.1–9. Like NEPA, the *Competitive Coal Leasing*

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

Manual requires that the BLM evaluate other potential boundaries for federal coal tracts that include and/or are near the proposed tract.

In its consideration of alternative tract boundaries, the BLM must meet the following goals: 1) achieve maximum economic recovery of the coal resource; 2) maintain or increase the potential for competition; and 3) avoid future bypass or captive tract situations (i.e., stranding an isolated tract and hindering future recovery of those coal resources). In accordance with these goals, the BLM has identified an area encompassing the proposed tract and adjacent unleased federal coal reserves. This area is referred to as the BLM study area (map 2-1). Based on federal regulations (43 CFR 3425.1-9)², the BLM could decrease the size of the proposed tract or increase it to include some or all of the federal coal reserves in the BLM study area.

2.2. Description of the Proposed Action and Alternatives

Under the Proposed Action, the BLM would hold a competitive sale and issue a lease for the federal coal reserves included in the proposed tract, which is a contiguous block of federal coal reserves adjacent to existing coal leases at the Buckskin Mine (map 2-1). Two alternatives to the Proposed Action are analyzed in this EIS:

1. Alternative 1 (No Action): Reject the application to lease federal coal reserves in the proposed tract and not offer a tract for sale at this time.
2. Alternative 2 (the BLM preliminary Preferred Alternative): Hold a competitive sale and issue a lease for the federal coal reserves included in an alternative tract configuration that would be delineated from some or all of the BLM study area.

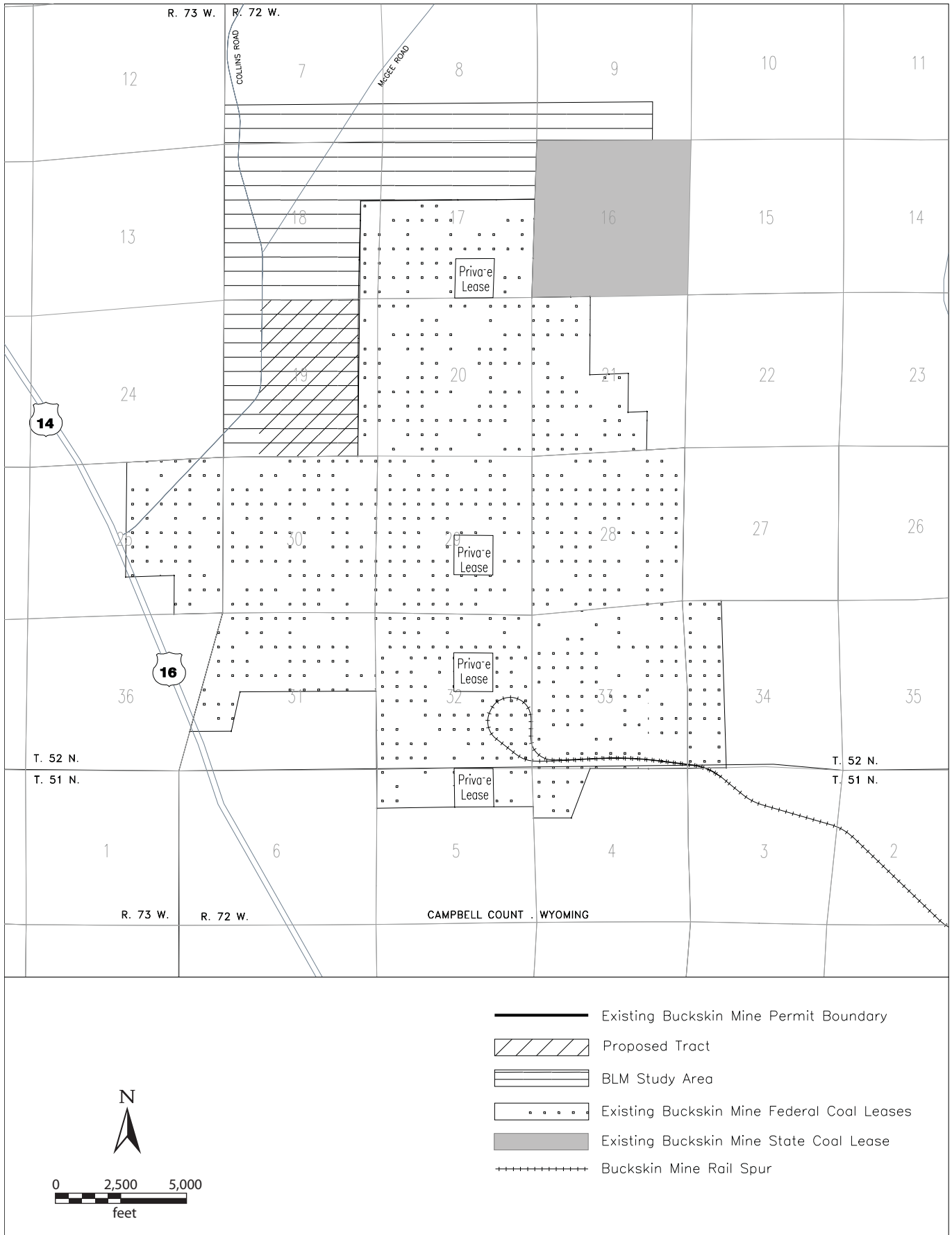
See section 2.3 for a discussion of other alternatives considered but eliminated from further analysis in this EIS.

Under the Proposed Action or Alternative 2, the Buckskin Mine permit area would be enlarged to include the newly leased tract before mining activities could begin. To do this, Kiewit would submit an application with WDEQ/LQD to amend its existing surface mining permit and mining plan, including corresponding monitoring and mitigation plans, to include the new lease area.

2.2.1. Proposed Action

Under the Proposed Action, the BLM would hold a competitive sale, as described under section 1.1.2, and would issue a lease for the federal coal reserves included in the proposed tract. The Proposed Action assumes that Kiewit would be the successful bidder and would incorporate the proposed tract into its existing mine operations. The Proposed Action would not expand operations at the Buckskin Mine, but would maintain current levels of production for an additional two years beyond the current life-of-mine estimate.

² "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."



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

Map 2-1
Proposed Tract and BLM Study Area

2.2.1.1. Description of the Proposed Tract

The proposed tract is adjacent to existing Buckskin Mine federal coal leases (map 2-1). The proposed tract encompasses approximately 419.04 surface acres; approximately 182 acres (43%) overlap the existing Buckskin Mine permit area. The legal description of the proposed tract is provided in table 2-1. The land description and acreage for the proposed tract are based on the BLM Status of Public Domain Mineral Titles (BLM 2007a and 2008). The coal estate in the proposed tract is federally owned; surface ownership and ownership of oil and gas estates are discussed in section 3.11. As described in that section, the entire surface of the proposed tract is privately owned by individuals or companies, while most of the subsurface minerals (all of the coal and the majority of oil and gas reserves) are federally owned. This results in a split estate situation. The BLM has developed a policy to address the split estate issue, which applies to situations where the surface rights are in private ownership and the rights to development of the mineral resources are publicly held and managed by the federal government.

Table 2-1. Legal Description of the Proposed Tract

Campbell County, Wyoming, Sixth Principal Meridian Township 52 North, Range 72 West		Acres
Section 19:	Lot 5 (W ½)	20.71
	Lot 6	41.42
	Lot 7	42.45
	Lot 10	42.31
	Lot 11	41.68
	Lot 12 (W ½)	20.84
	Lot 13 (W ½)	20.93
	Lot 14	41.75
	Lot 15	41.90
	Lot 18	41.97
	Lot 19	42.01
	Lot 20 (W ½)	21.07
Total Acres		419.04

Source: BLM Status of Public Domain Land and Mineral Titles (2007a and 2008).

Kiewit estimates that the tract contains approximately 77.2 million tons of in-place federal coal reserves; however, not all of those coal reserves are currently considered mineable. According to 43 CFR 3480.0-5(23), the BLM defines minable coal as the reserve base that is commercially mineable. In other words, mineable coal includes all reserves that are legally and physically accessible, including the coal that would be left in place during the mining process, such as support pillars, fenders (i.e., catch benches), property barriers, or coal underlying public roads (because they could be relocated).

Much of the western boundary of the proposed tract is adjacent to Campbell County Road 23 (Collins Road). In accordance with SMCRA, and as specified under unsuitability criterion 3

(43 CFR 3461) (appendix B), lands within 100 feet of the outside line of the right-of-way of a public road are considered unsuitable for surface coal mining. Consequently, the coal reserves underlying the Collins Road, its right-of-way, and an associated 100-foot buffer zone cannot be accessed under current conditions.

An exception to this prohibition is included in the SMCRA regulations at Section 522(e)(4) and 30 CFR 761.11(d)(2). This exception can be applied if the Campbell County Board of Commissioners allows the public road to be relocated or closed after the following have occurred: a public notice has been issued, an opportunity for a public hearing has been provided, and a finding that the interests of the affected public and landowners will be protected has been issued (30 CFR 761.11[d]). If Kiewit were to obtain approval from the commissioners to move the Collins Road, the exception to the prohibition on mining within its right-of-way and buffer zone could be applied and the unsuitability determination could be reconsidered. In that case, Kiewit would be able to recover the coal underlying the county road and its associated buffer zones. If Kiewit were to not seek or obtain approval to move or close the road, a stipulation would be attached to any new lease stating that no mining activity may be conducted in the portions of the lease within the road right-of-way and 100-foot buffer zone without proper authorization, and the associated federal coal reserves would remain unsuitable for mining and would not be recovered. Neither the applicant nor the Campbell County Board of Commissioners has submitted a proposal to move this road, and Kiewit does not anticipate pursuing that option.

Kiewit estimates that approximately 17.1 million tons of mineable coal underlies the Collins Road and its 100-foot buffer zone within the proposed tract. Therefore, of the 77.2 million tons of in-place federal coal reserves in the proposed tract, Kiewit estimates that approximately 60.1 million tons are mineable. Although it may not be recovered as part of the Proposed Action, the coal underlying the road and its buffer area is still considered for leasing because those reserves could be mined under the exception described above. Including this coal in the lease would also allow for maximum recovery of all the mineable coal adjacent to, but outside of, the 100-foot buffer zone, even if the road is not relocated.

Based on historical recovery factors, Kiewit considers approximately 54.1 million tons (70 %) of the total in-place coal reserves in the proposed tract to be “recoverable” under normal mining practices. Recoverable coal reserves are defined in 43 CFR 3480.0-5(32) as the minable reserve base excluding all coal that would be left in place during the mining process, even though they might be physically accessible (i.e., mineable). Recoverable coal represents reserves that can be mined economically and excludes areas defined as unsuitable for mining (e.g., in road rights-of-way that are not relocated) as well as the coal that is left behind as support pillars and similar structures, or unavoidably lost through cleaning, loading, and hauling (e.g., spillage), and spontaneous natural fires.

The BLM independently evaluates the volume and average quality of the coal resources included in proposed LBA tracts as part of the fair market value determination process. The agency’s estimate of the mineable federal coal reserves included in the proposed tract may not agree with

the mineable coal reserve and coal quality estimates provided by the applicant. The BLM estimate would be published in the official notice if the tract is offered for sale.

Under its currently approved mining plan, the Buckskin Mine would retrieve its remaining 344.3 million tons of recoverable coal reserves in approximately 14 years, beginning in January 2009. The mine's current air quality permit as approved by the WDEQ/AQD allows mining of as much as 42 million tons of coal per year. Annual production averaged 20.6 million tons from 2002 through 2007, with a maximum of 25.3 million tons in any single year (Buckskin Mining Company 2002, 2003, 2004, 2005, 2006, and 2007). Under the Proposed Action, Kiewit estimates that the life of the mine would be extended by an additional two years, with an average production rate of 25 million tons per year. Additional details about existing coal reserves and tons mined to date are provided in section 1.1.3.1.

2.2.1.2. Mine Facilities and Employees

Under the Proposed Action, the recovery of additional federal coal reserves would use the existing mine facilities and employees described under section 1.1.3.2. The Proposed Action would not require additional facilities or employees.

2.2.1.3. Mining Methods and Activities

Under the Proposed Action, coal would continue to be produced at the Buckskin Mine from the Anderson and Canyon coal seams, and current production methods would be the same as those described under section 1.1.3.3.

The design of the Buckskin Mine seeks to confine disturbance to the active mine blocks. Before any surface disturbance or other mine-related activities would begin in the proposed tract, support infrastructure such as roads, power lines, gas pipelines, and flood- and sediment-control features would be built or relocated, as needed; no public roads are currently being considered for construction or relocation. Topsoil and overburden removal is accomplished using a variety of suitable heavy equipment. Whenever possible, topsoil would be hauled directly to a reclamation area and overburden to open pits; however, if scheduling conflicts arise, they would be temporarily stockpiled in separate areas and topsoil piles would be seeded to prevent erosion. Overburden and coal removal has been and would continue to be conducted using blasting, trucks and shovels to facilitate efficient excavation.

2.2.1.4. Reclamation Activities

Reclamation activities under the Proposed Action would be consistent with those currently in use at the Buckskin Mine, described in section 1.1.3.4.

Mined-out areas would be restored to recreate the original contours or other topographic configurations to the extent possible. The approximate original drainage pattern of all streams within affected areas would also be restored (section 3.5). In-channel stockponds and playas (shallow topographic depressions) would be replaced to provide livestock and wildlife watering sources. All postmining topography, including reconstructed drainages, must be approved by the

WDEQ/LQD. After mining, the land is reclaimed to support the premining uses described in section 1.1.3.1. Oil and gas wells, pipelines, and utility easements are reestablished as required.

The reclaimed area would be monitored for a minimum of 10 years to evaluate the success of vegetation growth and the establishment of a variety of plant species prior to the final (Phase III) release of the reclamation bond. Other parameters, such as successful use of reclaimed areas by livestock and wildlife, also must be demonstrated before Phase III bond release is achieved, as described in section 1.1.3.4.

2.2.2. Alternative 1 (No Action)

Under Alternative 1, the No Action Alternative, Kiewit's application to lease the coal included in the proposed tract would be rejected: federal coal reserves adjacent to the existing Buckskin Mine would not be offered for competitive sale, and the additional coal would not be mined.

For the purposes of this EIS, Alternative 1 assumes that the federal coal reserves adjacent to the Buckskin Mine would not be mined in the foreseeable future. However, selection of this alternative would not preclude Kiewit or another company from submitting a future lease application for these adjacent coal reserves. The tract could be leased as a maintenance lease while the adjacent mine is in operation. If it is not leased while the adjacent mine is in operation, it may or may not be leased in the future. The tract evaluated in this EIS does not include enough coal reserves to justify starting a new mine (section 2.3.1); however, the coal reserves included in the tract could be combined with unleased federal coal reserves to the west and north to create a larger tract, which could be mined by a new future operation.

2.2.2.1. Description of Overlap Area

Under Alternative 1, currently permitted mining activities associated with existing coal leases at the Buckskin Mine would not be affected. Approximately 182 acres of the proposed tract and 436.5 additional acres of the BLM study area (618.5 total acres) overlap the existing permit boundary. Therefore, under the No Action Alternative, surface disturbance would occur in this overlap area, but would be limited to highwall reduction, topsoil removal, and other mine support activities related to mining under the existing contiguous leases.

Under Alternative 1, average annual production would continue as described under section 1.3.1.1.

2.2.2.2. Mine Facilities and Employees

Under Alternative 1, mine facilities and employees would continue as described under section 1.1.3.2.

2.2.2.3. Mining Methods and Activities

Under Alternative 1, mining methods and activities would continue as described under section 1.1.3.3.

2.2.2.4. Reclamation Activities

Under Alternative 1, reclamation activities would continue as described under section 1.1.3.4.

2.2.3. Alternative 2

Under Alternative 2, the BLM would hold a competitive sale, as described under section 1.1.2, and would issue a lease for the federal coal reserves included in an alternative tract configuration. The alternative tract configuration would be defined by the BLM from lands within the BLM study area (map 2-1) to be technically, economically, and environmentally preferable to the proposed tract. The alternative tract configuration could be smaller than the proposed tract, or include part or all of the BLM study area.

As under the Proposed Action, Alternative 2 assumes that Kiewit would be the successful bidder and would incorporate an alternative tract configuration into its existing mine operations. Alternative 2 would not expand operations at the Buckskin Mine, but would maintain current levels of production, described in section 1.1.3.1, for six years beyond the current life-of-mine estimate.

2.2.3.1. Description of the BLM Study Area

The BLM study area extends north and west of the proposed tract to encompass approximately 1,883 acres (map 2-1). As described under the No Action Alternative, approximately 436.5 acres (23%) of the BLM study area overlap the existing mine permit area. The legal description of the area is provided in Table 2-2.

Table 2-2. Legal Description of the BLM Study Area

Campbell County, Wyoming, Sixth Principal Meridian Township 52 North, Range 72 West	Acres
Section 7: Lots 17 through 20	166.91
Section 8: Lots 13 through 16	162.00
Section 9: Lots 13 through 15	120.58
Section 17: Lots 1 through 4, 5 (N. ½), 6 (N. ½), 7 (N. ½), and 8 (N. ½)	247.39
Section 18: Lots 5 through 11, 12 (N. ½, SW. ¼), 13 (W. ½), 14 through 19, and 20 (W. ½)	612.95
Section 19: Lots 5 (W. ½), 6 through 11, 12 (W. ½), 13 (W. ½), 14 through 19, and 20 (W. ½)	573.27
Total Acres	1,883.10

BLM = U.S. Bureau of Land Management

Source: BLM Status of Public Domain Land and Mineral Titles (2007a and 2008).

The land descriptions and acreages shown in table 2-2 are based on the same BLM master title plats and coal plats as those listed under section 2.2.1.1 for the Proposed Action. Surface ownership and ownership of oil and gas estates are discussed in section 3.11. In addition to existing surface disturbance associated with the Buckskin Mine, the BLM study area includes small crop areas, two Campbell County roads (the Collins Road and Campbell County Road 73

[McGee Road]), several overhead electric transmission lines, oil and gas pipelines, and three residences. Only one of the three residences is currently occupied.

The coal underlying the Collins and McGee roads and their rights-of-way and associated 100-foot buffer zones have been determined unsuitable for surface coal mining in accordance with SMCRA and as specified under unsuitability criterion 3 (43 CFR 3461), unless the applicant pursues an exception to this prohibition by obtaining authorization to close or relocate one or both roads. Under the same unsuitability criterion, the land underlying the occupied residence, discussed above, is also considered unsuitable for mining. Surface disturbance on this land and a 300-foot buffer around it would be prohibited, unless Kiewit were to purchase the surface rights associated with the residence and its buffer zone.

Kiewit does not currently plan to pursue efforts to relocate either county road or acquire the surface rights to the land associated with the occupied residence; therefore, the company considers the lands around those features inaccessible and operationally limited. Nevertheless, the coal underlying these features and their respective buffer areas must be considered for leasing by the BLM because those reserves could be mined under the exceptions for unsuitability criterion 3 described in section 2.2.1.1. Including these operationally limited coal reserves in the lease would also allow for maximum recovery of all adjacent mineable coal. Although the coal itself may not be recovered, the surface above the coal would allow for overstripping and other disturbance activities necessary to access previously permitted adjacent reserves. If a lease is issued for lands within the BLM study area, a stipulation will be attached to the lease stating that no mining activity may be conducted within the areas currently identified as unsuitable for mining without proper authorization or acquisition of surface rights, as applicable.

Kiewit estimates that the BLM study area contains approximately 269.7 million tons of in-place coal, and considers approximately 149.7 million tons (56%) of it recoverable. Approximately 103.4 million tons (38%) of coal would not be accessible (according to Kiewit's estimates) because of limitations associated with the occupied residence and public road rights-of-way and buffer zones discussed above. Kiewit estimates that the remaining 16.6 million tons (6%) of coal would be left in place as support pillars and similar structures, or unavoidably lost through spillage and spontaneous natural fires. As for the Proposed Action, the BLM independently evaluates the volume and average quality of the coal resources included in the BLM study area as part of the fair market value determination process. This estimate may not agree with the estimates provided by the applicant. The BLM estimate would be published in the public notice if a tract is offered for sale.

2.2.3.2. Mine Facilities and Employees

Under Alternative 2, Kiewit estimates the life of the mine would be extended by six years with an average annual production rate of 25 million tons. Mine facilities and employees would be the same as those described in section 1.1.3.2 and under the Proposed Action.

2.2.3.3. Mining Methods and Activities

Mining methods and activities would be the same as those described in section 1.1.3.3 and under the Proposed Action.

2.2.3.4. Reclamation Activities

Reclamation activities would be the same as those described in section 1.1.3.4 and under the Proposed Action.

2.3. Eliminated Alternatives

The following alternatives were considered in the initial phase of this EIS, but were eliminated from further analysis.

2.3.1. Alternative 3

The environmental impacts of developing a new mine to recover the coal resources within the proposed tract or an alternative tract configuration would be greater than under either action alternative or the No Action Alternative due to the need for construction of new facilities and rail lines, increased employment requirements and their associated effects on the local socioeconomics, and the creation of additional sources of particulates (dust).

Under this alternative, the BLM would hold a competitive, sealed-bid sale for the federal coal reserves included in the proposed tract or an alternative tract configuration. Alternative 3 assumes, however, that the successful bidder would be someone other than the applicant, and that this bidder would plan to open a new mine to develop these coal resources.

The BLM currently estimates that a tract would need to include as much as 500 to 600 million tons of in-place coal to attract a buyer interested in opening a new mine in the Wyoming PRB. This estimate is based on two primary assumptions. First, an operator would need to construct facilities capable of producing 30 million tons of coal per year to take advantage of the economies of scale offered by the coal deposits in the PRB. Second, 20 to 30 years of coal reserves would be needed to justify the expense of building those facilities. Given these assumptions, neither the proposed tract (approximately 77 million tons) nor the BLM study area (about 270 million tons) includes sufficient in-place coal resources to justify the costs of opening a new mine, though the coal reserves included in this EIS could be combined with unleased federal coal to the west and north to create a larger tract, which could be mined by a new future operation.

A company or companies acquiring this coal for a new stand-alone mine would require considerable initial capital investments, including the construction of new surface facilities (e.g., offices, shops, warehouses, processing facilities, loadout facilities, and rail spur), extensive baseline data collection, and development of new, detailed mining and reclamation plans (rather than simply amending existing plans). A new mine start would also require a large number of

new employees, which may not be available from the mining sector workforce (which includes the oil and gas industry) considering the current strong demand for labor and low unemployment in Campbell County and surrounding counties in the PRB. In addition, a company or companies acquiring this coal for a new mine would have to compete for customers with established mines in a competitive market. Based on demand forecasting for the Wyoming PRB mines, existing mine capacity is sufficient to provide for expected coal demand through 2020 (BLM 2005b). While these factors do not mean that no new mines would open, it would be difficult for them to produce coal at a price competitive with the existing operations while also incurring the high capital and start-up costs associated with new facilities and operations.

The potential difficulty in obtaining an air quality permit is another factor that could discourage new mine starts in the Wyoming PRB. A new mine would constitute a new source of air pollutants. Under the WDEQ/AQD permitting program, anyone planning to construct, modify, or use a facility capable of emitting designated pollutants into the atmosphere must obtain an air quality permit prior to construction. Surface coal mines fall into this category. Air quality is discussed in detail in section 3.4.

To obtain a construction permit, an operator may be required to demonstrate that the proposed activities would not increase air pollutant levels above the state's 24-hour average annual standards for particulate matter measuring 10 micrometers or less in diameter (PM₁₀). These standards were established by the Wyoming Air Quality Standards and Regulations (Chapter 6), and can be found on the Internet at <http://deq.state.wy.us/aqd/standards.asp>. The PRB did not experience any exceedances of these PM₁₀ standards through 2000, but recorded an average of five per year from 2001 through 2007; additional details regarding exceedances at the Buckskin Mine are provided in section 3.4. Although many of the previous exceedances were attributed to high winds, concerns about future potential exceedances of the National Ambient Air Quality Standards (NAAQS) may make it more difficult for a company planning to open a new mine to demonstrate that those operations would not result in additional air pollution levels that are above annual Wyoming standards.

If a lease sale is held and the successful bidder is not the original applicant, the new operator would be required to submit a new permit application, including detailed mining, monitoring, mitigation, and reclamation plans (versus a simple amendment of current plans) to the WDEQ/LQD for review. The new operator would also be required to submit a Resource Recovery and Protection Plan to the BLM for review. Before a new mining operation could begin, a Resource Recovery and Protection Plan must be approved by the BLM, a mining permit must be approved by WDEQ/LQD, and a Mineral Leasing Act mining plan must be approved by the Assistant Secretary of the Interior.

In view of these issues, the current economies of mining in the Powder River Federal Coal Region appear to make construction of a new mine economically unfeasible using coal reserves in the proposed tract or BLM study area. Therefore, this alternative is not analyzed further in this EIS.

2.3.2. Alternative 4

Under Alternative 4, the BLM would delay the sale of federal coal reserves in the proposed tract and BLM study area. Under this alternative, it is assumed that a tract could be developed later as either a maintenance tract for an existing mine or a new mine start, depending on how long the sale was delayed. Alternative 4 was not analyzed in detail because it would not produce substantially different impacts from other alternatives that were analyzed in more detail. The environmental impacts of mining the coal later as part of an existing mine would be expected to be similar and essentially equal to the action alternatives discussed previously (section 2.2.1 and section 2.2.3). As discussed in section 2.3.1, the environmental impacts from a new mine start would be expected to be greater than if the coal reserves were mined as an extension of an existing mine.

Delaying the lease sale would not guarantee that the BLM would receive a higher price during the initial bidding process, or a higher bonus bid or royalties and taxes once the lease is issued due to other reasons that may or may not be related to the quality and/or location of the coal reserves themselves. The price of coal and, thus, the rate of mining, is affected by various factors including, but not limited to, customer demand (sales) and transportation options. For example, coal prices were depressed in the early 2000s, which resulted in lower bid prices during that period. Conversely, damage to train tracks in Wyoming and other states limited coal shipments during much of 2005. Those shipping constraints, combined with increased world energy demand and numerous natural disasters in other parts of the country, led to unusually large increases in coal prices that year.

The prices received for coal from the PRB have generally been increasing in recent years. If that trend continues, the fair market value of federal coal reserves could increase and a delayed sale would result in a higher lease bid, as well as higher bonus bid and royalty payments to the government when the lease is issued and coal is mined, respectively. This approach also would allow CBNG resources to be more completely recovered prior to mining. Likewise, if the fair market value of the coal reserves were to decrease, a delayed sale would bring lower initial and bonus bids as well as lower royalty, tax, and annual rental payments.

Royalty and tax payments are the largest revenue sources from new leases, but cannot be collected until the coal is permitted and mined; this process requires several years after the lease is issued. Therefore, the price of coal when it is mined (and essentially sold to the customer) affects royalty and tax payments. Higher coal prices result in greater royalty and tax payments, regardless of whether coal lessees have short- or long-term contracts with their customers. The reverse is true when coal prices decrease.

Other considerations include the value of making low-sulfur coal available now versus leaving mineable coal in place for future development, in anticipation of cleaner fuel sources being developed in the future. Continued leasing of low-sulfur coal from the PRB enables existing coal-fired power plants to more easily meet current CAA requirements until new technologies are developed to improve efficiency and reduce emissions. This approach provides a stable supply of power to meet increasing demand without a potentially significant increase in power costs for individuals and businesses, and meets current energy requirements while the new

technologies are developed. If cleaner fuel sources are developed in the future, they could be phased in with less economic impact on the public. An economic analysis could be conducted to estimate the range of potential future economic benefits that would result from delaying the lease sale until coal prices rise. However, because it is impossible to predict with any certainty when or if those rates would increase, any projected benefits from delaying the lease sale would be speculation.

CBNG resources are currently being recovered from leases in and near the proposed tract and BLM study area. As of May 2008, 30 permits had been issued for drilled or proposed well sites on lands in the BLM study area. Of those, 12 have expired without drilling, 3 are reported as plugged and abandoned, and 15 are currently producing. Another 12 wells are producing CBNG in the area immediately surrounding the BLM study area. Additional information relative to conventional oil and gas and CBNG development in the proposed tract and immediately adjacent area is provided in section 3.3.2.

Several existing mechanisms can facilitate the continued recovery of these oil and gas resources prior to mining if the federal coal in the proposed tract or an alternative tract configuration is leased under the current timeline:

- The BLM can attach a Multiple Mineral Development stipulation to the lease. Such a stipulation would state that the BLM has the authority to withhold approval of coal mining operations that would interfere with the development of mineral leases issued prior to the coal lease.
- Mining the proposed tract or alternative tract configuration cannot occur until the coal lessee has a permit to mine the tract as approved by the WDEQ/LQD and a Mineral Leasing Act mining plan approved by the Secretary of the Interior. Before that mining plan can be approved, the BLM must approve the Resource Recovery and Protection Plan for mining the tract. Prior to approving the plan, the BLM can review the status of CBNG development in the final tract configuration and the mining sequence proposed by the coal lessee. The permit approval process generally takes several years to complete. This interval would allow additional time for CBNG resources to be recovered from the leased tract.
- The BLM has a policy in place regarding conflicts between CBNG and coal recovery. This policy directs the BLM decision makers to optimize the recovery of both resources and to ensure that the public receives a reasonable return (BLM 2006a).

As described previously, rental and royalty provisions from the proposed tract or an alternative tract configuration would benefit the U.S. if coal prices increased by the time mining began. Given the mechanisms currently in place, a large portion of the economically recoverable CBNG resources in the area would be expected to be recovered after a lease is issued and before mining occurred. The environmental impacts of mining the coal later as part of an existing mine would be expected to be similar and essentially equal to the action alternatives discussed in section 2.2.1 and section 2.2.3. 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.

2.4. Regulatory Compliance, Mitigation, and Monitoring

In general, the levels of mitigation and monitoring required for surface coal mining by the SMCRA and Wyoming state law are more rigorous and extensive than those required for other surface disturbing activities. Those regulations and laws require surface coal mines to collect a wide range of detailed baseline information, and implement extensive mitigation measures and monitoring programs. The currently approved permit to conduct mining operations for the Buckskin Mine includes these requirements (i.e., the No Action Alternative).

Required mitigation and monitoring programs are also considered to be part of the action alternatives considered in this EIS. These data collection requirements, monitoring commitments, and mitigation plans would be extended to include mining operations in the proposed tract or alternative tract configuration if they are leased and permitted for mining. A mining and reclamation plan would have to be approved for the final tract configuration before any mining operations could be conducted there, regardless of who acquires the tract. The major mitigation and monitoring measures that are required by state or federal regulation are summarized in table 2-3. Specific information about some of these measures (including their results at the Buckskin Mine) is included in chapter 3. If impacts are identified during the leasing process that are not addressed by existing required mitigation measures, the BLM can require additional measures in the form of stipulations on the new lease within the limits of its regulatory authority. The mining and reclamation plan would have to be revised to address any new concerns that are not included under existing procedures.

Table 2-3. Regulatory Compliance, Mitigation, and Monitoring Measures for Surface Coal Mining Operations Legally Required for All Alternatives

Resource	Regulatory Compliance or Mitigation Required by Stipulations, State, or Federal Law ¹	Monitoring ¹
Topography and Physiography	<ul style="list-style-type: none"> ▪ Restoring to approximate original contour or other approved topographic configuration 	<ul style="list-style-type: none"> ▪ WDEQ/LQD checks as-built vs. approved topography with each annual report
Geology and Minerals	<ul style="list-style-type: none"> ▪ Identifying and selectively placing or mixing chemically or physically unsuitable overburden materials to minimize adverse effects on vegetation or groundwater 	<ul style="list-style-type: none"> ▪ WDEQ/LQD requires monitoring in advance of mining to detect unsuitable overburden
Soil	<ul style="list-style-type: none"> ▪ Salvaging soil suitable to support plant growth for use in reclamation ▪ Protecting soil stockpiles from disturbance and erosional influences ▪ Selectively placing at least 4 feet of suitable overburden on the graded backfill surface below replaced topsoil to meet guidelines for vegetation root zones 	<ul style="list-style-type: none"> ▪ Monitoring vegetation growth on reclaimed areas to determine need for soil amendments ▪ Sampling regraded overburden for compliance with root zone criteria

Resource	Regulatory Compliance or Mitigation Required by Stipulations, State, or Federal Law ¹	Monitoring ¹
Air Quality	<ul style="list-style-type: none"> ▪ 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 best available control technology, including: <ul style="list-style-type: none"> – Fabric filtration or wet scrubbing of coal storage silo and conveyor vents – Watering or using chemical dust suppression on haul roads and exposed soils – Containing truck dumps and primary crushers – Covering conveyors – Promptly revegetating exposed soils – High-efficiency baghouse dust collection systems or passive enclosure control systems 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 of exit volume – Watering active work areas – Reclamation planning to minimize surface disturbances subject to wind erosion – Paving access roads – Haul truck speed limits – Limited material drop heights for shovels and draglines ▪ Following voluntary and required measures to avoid exposing the public to NO₂ from blasting clouds, including: <ul style="list-style-type: none"> – Phoning neighbors and workers to notify them 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 	<ul style="list-style-type: none"> ▪ On-site air quality monitoring for PM₁₀ and/or TSP ▪ Off-site ambient monitoring for PM₁₀ and/or TSP ▪ On-site compliance inspections
Surface Water	<ul style="list-style-type: none"> ▪ Building and maintaining sediment-control ponds or other devices during mining ▪ Restoring approximate original drainage patterns during reclamation ▪ Restoring stockponds and playas during reclamation 	<ul style="list-style-type: none"> ▪ Monitoring storage capacity in sediment ponds ▪ Monitoring quality of discharges ▪ Monitoring streamflow and water quality
Groundwater Quantity	<ul style="list-style-type: none"> ▪ Evaluating cumulative impacts on water quantity associated with proposed mining ▪ Replacing existing water rights that are interrupted, discontinued, or diminished by mining with water of equivalent quantity 	<ul style="list-style-type: none"> ▪ Monitoring wells ▪ track water levels in overburden, coal, interburden, underburden, and backfill
Groundwater Quality	<ul style="list-style-type: none"> ▪ Evaluating cumulative impacts on water quality associated with proposed mining ▪ Replacing existing water rights that are interrupted, discontinued, or diminished by mining with water of equivalent quality 	<ul style="list-style-type: none"> ▪ Monitoring wells ▪ track water quality in overburden, coal, interburden, underburden, and backfill
Alluvial Valley Floors	<ul style="list-style-type: none"> ▪ Identifying all AVFs that would be affected by mining ▪ WDEQ/LQD determination of significance to agriculture of all identified AVFs affected by mining ▪ Protecting downstream AVFs during mining ▪ Restoring essential hydrologic function of all AVFs affected by mining 	<ul style="list-style-type: none"> ▪ Monitoring to determine restoration of essential hydrologic functions of any declared AVF

2.0 Proposed Action and Alternatives

Resource	Regulatory Compliance or Mitigation Required by Stipulations, State, or Federal Law ¹	Monitoring ¹
Wetlands	<ul style="list-style-type: none"> ▪ Identifying all wetlands that would be affected by mining ▪ U.S. Army Corps of Engineers identification of jurisdictional wetlands ▪ Replacing all jurisdictional wetlands that would be disturbed by mining ▪ Replacing functional wetlands as required by surface managing agency, surface landowner, or WDEQ/LQD 	<ul style="list-style-type: none"> ▪ Monitoring reclaimed wetlands using same procedures used to identify premining jurisdictional wetlands
Vegetation	<ul style="list-style-type: none"> ▪ 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% 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 ▪ Directly hauling 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 	<ul style="list-style-type: none"> ▪ Monitoring revegetation growth and diversity until release of final reclamation bond (minimum 10 years) ▪ Monitoring erosion to determine need for corrective action during establishment of vegetation ▪ Use of controlled grazing during revegetation evaluation to determine suitability for postmining land uses
Wildlife and Sensitive Species	<ul style="list-style-type: none"> ▪ Restoring premining 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 ▪ Planting cottonwoods 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 USFWS approved avian mitigation plans ▪ Avoiding bald eagle disturbance ▪ Restoring bald eagle perching and foraging areas disturbed by mining ▪ Restoring sage-grouse and mountain plover habitat disturbed by mining ▪ Surveying for sage-grouse, mountain plovers, and black-tailed prairie dogs 	<ul style="list-style-type: none"> ▪ Baseline and annual wildlife monitoring surveys ▪ Monitoring for Migratory Bird Species of Management Concern in Wyoming
Threatened, Endangered, Proposed, and Candidate Species	<ul style="list-style-type: none"> ▪ Surveying for Ute ladies'-tresses and blowout penstemon ▪ USFWS block clearance from black-footed ferret surveys in project area ▪ Same as Wildlife and Sensitive Species above 	<ul style="list-style-type: none"> ▪ Baseline and annual wildlife monitoring surveys
Land Use	<ul style="list-style-type: none"> ▪ Suitably restoring reclaimed area for historic uses (grazing and wildlife) 	<ul style="list-style-type: none"> ▪ Monitoring of controlled grazing prior to bond release evaluation

Resource	Regulatory Compliance or Mitigation Required by Stipulations, State, or Federal Law ¹	Monitoring ¹
Cultural Resources	<ul style="list-style-type: none"> ▪ Conducting pre-disturbance Class I and 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 agency personnel if historic or prehistoric materials are uncovered during mining operations ▪ Instructing employees of the importance of and regulatory obligations to protect cultural resources 	<ul style="list-style-type: none"> ▪ Monitoring mining activities during topsoil stripping ▪ Ceasing activities and notifying authorities if unidentified sites are encountered during topsoil removal
Native American Concerns	<ul style="list-style-type: none"> ▪ Notifying Native American tribes with known interest in this area of leasing action and requesting help in identifying potentially significant religious or cultural sites 	<ul style="list-style-type: none"> ▪ No specific monitoring program
Paleontological Resources	<ul style="list-style-type: none"> ▪ Conducting pre-disturbance surveys to identify paleontological resources on all state and federal lands, and on private lands affected by federal undertakings ▪ Notifying appropriate agency personnel if potentially significant paleontological sites are discovered during mining ▪ Instructing employees of the importance of and regulatory obligations to protect paleontological resources 	<ul style="list-style-type: none"> ▪ Ceasing activities and notifying authorities if unidentified resources are encountered during topsoil removal
Visual Resources	<ul style="list-style-type: none"> ▪ Restoring landscape character during reclamation through return to approximate original contour and revegetation with native species 	<ul style="list-style-type: none"> ▪ No specific monitoring program; land contours and plant communities monitored as part of topography and vegetation requirements, respectively
Noise	<ul style="list-style-type: none"> ▪ Protecting employees from hearing loss 	<ul style="list-style-type: none"> ▪ Mine Safety and Health Administration inspections
Transportation Facilities	<ul style="list-style-type: none"> ▪ Relocating existing pipelines, if necessary, in accordance with specific agreement between pipeline owner and coal lessee 	<ul style="list-style-type: none"> ▪ Monitoring conducted by pipeline company per WDEQ requirements
Socioeconomics	<ul style="list-style-type: none"> ▪ Paying royalty and taxes as required by federal, state, and local regulations. No mitigation measures are proposed 	<ul style="list-style-type: none"> ▪ Surveying and reporting to document volume of coal removed
Hazardous and Solid Waste	<ul style="list-style-type: none"> ▪ Disposing solid waste and sewage within permit boundaries according to approved plans ▪ Storing and recycling waste oil ▪ Maintaining 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 are 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 under the Comprehensive Environmental Response, Compensation, and Liability Act, as amended ▪ Preparing and implementing spill prevention control and countermeasure plans, spill response plans, inventories of hazardous chemical categories pursuant to section 312 of Superfund Amendments and Reauthorization Act, as amended ▪ Preparing emergency response plans. 	<ul style="list-style-type: none"> ▪ No specific monitoring other than required by these other regulations and response plans

WDEQ/LQD = Wyoming Department of Environmental Quality/Land Quality Division; PM₁₀ = particulate matter of 10 micrometers or less in diameter; TSP = total suspended particulates; EPA = Environmental Protection Agency; NO₂ = nitrogen dioxide; AVF = alluvial valley floors; USFWS = U.S. Fish and Wildlife Service; SHPO = State Historic Preservation Office; NRHP = National Register of Historic Places.

¹ These requirements, mitigation plans, and monitoring plans are required by SMCRA and Wyoming state law. They are already in place for the existing Buckskin Mine in its current approved WDEQ/LQD mining and reclamation plan (the No Action Alternative). Under the Proposed Action and Alternative 2, these requirements, mitigation plans, and monitoring plans would need to be addressed in a mining plan revision for the additional leased tract; they would need to be approved before mining could occur.

Source: WDEQ Rules and Regulations.

If impacts are identified during the leasing process that are not addressed by existing required mitigation measures, the BLM can require additional mitigation measures (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.

2.5. Summary of Coal Production and Disturbance under the Proposed Action and Alternatives

The decision-making process for public lands and/or federal minerals in Wyoming is conducted in compliance with NEPA, which requires all federal agencies to:

- involve the interested public in their decision-making process;
- consider reasonable alternatives to the proposed actions;
- develop measures to mitigate environmental impacts; and
- prepare environmental documents that disclose the impacts of the proposed actions and alternatives.

Table 2-4 describes projected coal production, surface disturbance, mine life, and federal and state revenues for the Buckskin Mine under the Proposed Action and alternatives. These figures are based on an average production rate of 25 million tons per year, which is the current projected life-of-mine rate.

Detailed discussions of the direct and indirect environmental impacts under the Proposed Action and analyzed alternatives are provided in chapter 3; a summary of those impacts is provided in table 3-2. Cumulative environmental impacts under the Proposed Action and each analyzed alternative are discussed in chapter 4, and a summary of those impacts is provided in table 4-41. As described in section 2.3, Alternatives 3 and 4 were considered in the initial phase of this EIS, but were eliminated from further analysis because they were not feasible or were not substantially different from other analyzed alternatives, respectively.

Table 2-4. Comparison of Additional Coal Production, Surface Disturbance, Mine Life, and Revenues under the Proposed Action and Alternatives

Item	Existing Buckskin Mine Permit Area	Additional Under		
		Alternative 1 (No Action)	Proposed Action ^{1,3}	Alternative 2 ^{2,3}
In-Place Coal (as of 12-31-08)	460.9 mmt	0	77.2 mmt	269.7 mmt
Mineable Coal (as of 12-31-08) ⁴	361.9 mmt	0	60.1 mmt	166.3 mmt
Recoverable Coal (as of 12-31-08) ^{4,5}	344.3 mmt	0	54.1 mmt	149.7 mmt
Potential Lease Area	6,438.2 acres	0	419.04 acres	1,883.1 acres
Total Disturbance Area ⁶	6,727.8 acres ⁷	0	478 acres	618 acres
Permit Area ⁸	8,011.5 acres	0	1,009 acres	2,191.6 acres
Average Annual Post-2008 Coal Production	25 mmt	0	0	0
Remaining Life of Mine (Post-2008) ⁹	14 years	0	2 years	6 years
Average Number of Employees	338	0	0	0
Total Projected State and Local Revenues (Post-2008) ^{10,11}	\$563.6 million	0	\$90.6–\$108.8 million	\$250.2–\$300.4 million
Total Projected Federal Revenues (Post-2008) ¹²	\$417.0 million	0	\$69.2–\$87.3 million	\$191.0–\$241.1 million

mmt = million tons

- ¹ Numbers are based on the entire proposed tract, which includes a 182-acre overlap with the existing Buckskin Mine permit area; that overlap was not factored into calculations for coal reserves for the existing mine, but was included in total disturbance numbers for the existing mine.
- ² Numbers were calculated based on the entire BLM study area, which includes a 436.5-acre overlap with the existing Buckskin Mine permit area; that overlap was not factored into calculations for coal reserves for the existing mine, but was included in total disturbance numbers for the existing mine.
- ³ Coal numbers assume mining of the entire proposed tract or BLM study area. Estimates for total disturbance include additional lands in a buffer outside of those areas within the general analysis area, excluding operationally limited lands west of both county roads and around the occupied residence.
- ⁴ Mineable and recoverable coal figures under the Proposed Action and Alternative 1 are maximum estimates and do not account for coal reserves that would not be mined beneath the occupied residence and associated 300-foot buffer zone, or the public road rights-of-way (Collins and McGee roads), their associated 100-foot buffer zones, and other operationally limited lands between the two roads.
- ⁵ Recoverable coal figures assume a recovery rate of 95% for coal in the Canyon seam and a 90% for all other coal reserves; they do not include coal left behind as support pillars and similar structures, or unavoidably lost through spillage and spontaneous natural fires during normal mining operations.
- ⁶ The total area to be disturbed exceeds the leased area under the existing Buckskin Mine and the Proposed Action because of the need for highwall reduction, topsoil removal, and other mine support activities that cause surface disturbance outside the lease boundaries. The permit area is larger than the leased or disturbed area to ensure that all disturbed lands are within the permit boundary and to allow an easily defined legal land description. The total area to be disturbed does not include lands under public roads, in their rights-of-way or 100-foot buffer zones, in the 300-foot buffer zone around the occupied residence, or in the operationally limited lands west of the Collins and McGee roads; those expected exclusions result in a smaller disturbance area than lease area under Alternative 2.
- ⁷ Includes federal and state coal leases currently held by the Buckskin Mining Company.
- ⁸ Pending WDEQ permit revision under the Proposed Action and Alternative 2.
- ⁹ Assumes average current average annual coal production rate of 25 million tons continues through life-of-mine.
- ¹⁰ Revenues to the State of Wyoming and local governments include severance taxes; property and production taxes (ad valorem); sales and use taxes; and Wyoming's share of federal royalty payments, bonus bids, annual rental payments, and Abandoned Mine Land fees. State revenues are based on an assumed price of \$7.85 per ton of "recoverable coal," federal royalty of 12.5% of the value less 51% federal share, plus \$0.315 per ton for Abandoned Mine Land fees on assumed 25% state share, plus bonus payments of between \$0.30 and \$0.97 per ton of LBA leased coal per ton (based on average of six LBAs in 2004 and 2005) times the tonnage of recoverable coal times a 50% state share, plus \$0.07 per ton estimated sales and use taxes, plus \$0.33 per ton estimate for ad valorem taxes, plus \$0.415 per ton in severance taxes. Only the sales and use taxes paid directly by the mine are considered (i.e., taxes generated by vendors and suppliers and by consumer expenditure supported directly and indirectly by the mine are not included. These figures could change based on the outcome of recent legislation that changed the percentage of distribution to states.
- ¹¹ Revenues for Alternative 1 do not include the \$4.2 million in scheduled coal lease bonus bids to be paid on the final tract configuration in fiscal year 2009.
- ¹² Federal revenues are based on an assumed price of \$7.85 per ton, federal royalty of 12.5% times 51% share, plus \$0.315 per ton for Abandoned Mine Land fees times an assumed 75% federal share, plus black lung tax of \$0.00261 per ton, plus bonus payments of between \$0.30 and \$0.97 per ton of LBA leased coal (based on the range of the six LBA sales in 2004 and 2005) times tonnage of recoverable coal minus a 50% federal share. These figures could change based on the outcome of recent legislation that changed the percentage of distribution to states.