

## 2.0 PROPOSED ACTION AND ALTERNATIVES

This chapter describes the Proposed Action and alternatives to this action. The Proposed Action is to complete an exchange of the Bridger, JO Ranch and Welch lands for federal coal rights of equal value beneath the PSO<sup>1</sup> Tract. It is assumed that the PSO Tract would be developed as a new mine. The lands which would be acquired in exchange for the coal would be managed by the USFS (Bridger lands within the BTNF) and BLM (Bridger lands outside the BTNF, JO Ranch lands, and Welch lands).

The No Action Alternative (Alternative 1) is to not complete the exchange. Selection of this alternative would mean that the lands being offered for exchange would remain in private ownership and the federal coal underlying the PSO Tract would remain in federal ownership.

Other alternatives considered but not analyzed in detail include:

- not exchanging or leasing the coal but purchasing the lands offered by P&M Coal for the appraised value (Alternative 2); and
- holding a competitive lease sale for federal coal in the PSO Tract, with the assumption that it would be developed as a new mine by any qualified bidder who

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

acquires the lease (Alternative 3).

The exchange was proposed by P&M as a way to acquire coal beneath their surface in the PSO Tract. The lands they are offering in exchange are attractive to the federal government. The Bridger lands are in-holdings surrounded by BTNF and BLM lands and the JO Ranch lands are in-holdings surrounded by BLM lands. The Welch lands have considerable wildlife value and their acquisition would create a unique opportunity for the public to access the Tongue River in Sheridan County.

### 2.1 Proposed Action

Under the Proposed Action, the exchange would be completed and the Bridger, JO Ranch and Welch lands would become public lands. P&M would acquire ownership of an amount of federal coal underlying the PSO Tract that would be equal in value to the properties they are offering for exchange. The Proposed Action is the Preferred Alternative of the BLM and USFS.

The lands and minerals that would become public lands and minerals if the exchange is completed are described below.

#### Bridger Lands Lincoln County, Wyoming

The legal description of the Bridger lands and mineral interests that P&M is offering to exchange (shown in Figure 1-2) is as follows:

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Lands to be administered by BLM:  
T.26N., R.115W., 6<sup>th</sup> P.M., Wyoming  
Tracts 49, 57, and 71.

Total: 638.37 acres more or less.

Lands to be administered by USFS:  
T.26N., R.116W., 6<sup>th</sup> P.M., Wyoming  
Tracts 39, 41, and 42;

T.26N., R.117W., 6<sup>th</sup> P.M., Wyoming  
Tracts 37 through 43;

T.27N., R.117W., 6<sup>th</sup> P.M., Wyoming  
Tracts 37 through 42.

Total: 2,447.88 acres more or less.

Minerals to be administered by BLM:

T.26N., R.115W., 6<sup>th</sup> P.M., Wyoming  
Tracts 49, 57, and 71.

Total: 638.37 acres more or less.

Minerals included in tracts in area to be administered by USFS:

T.26N., R.116W., 6<sup>th</sup> P.M., Wyoming  
Tracts 39, 41, and 42;

T.26N., R.117W., 6<sup>th</sup> P.M., Wyoming  
Tracts 37 through 43;

T.27N., R.117W., 6<sup>th</sup> P.M., Wyoming  
Tracts 37 through 42.

Total: 2,447.88 acres more or less.

The Bridger lands are surrounded by public lands and minerals administered by the BLM and the USFS. Under the Proposed Action, if these lands become public lands, the acquired surface and mineral estates would be managed like the surrounding public lands in accordance with the BLM *Pinedale*

*Resource Management Plan* and the *USFS BTNF Land and Resource Management Plan*.

### JO Ranch Lands Carbon County, Wyoming

The legal description of the JO Ranch lands and mineral interests that P&M is offering to exchange (shown in Figure 1-3) is as follows:

#### Lands

T.16N., R.90W., 6<sup>th</sup> P.M., Wyoming  
Tract 46;

Section 6: Lots 20, 23, 24, 27,  
NE $\frac{1}{4}$ SW $\frac{1}{4}$ ;

Section 17: SW $\frac{1}{4}$ SW $\frac{1}{4}$ ;

Section 18: NE $\frac{1}{4}$ SE $\frac{1}{4}$ ;

T.16N., R.91W., 6<sup>th</sup> P.M., Wyoming

Section 12: NE $\frac{1}{4}$ NE $\frac{1}{4}$ ,  
SW $\frac{1}{4}$ NE $\frac{1}{4}$ ,  
SW $\frac{1}{4}$ SW $\frac{1}{4}$ ,  
E $\frac{1}{2}$ SW $\frac{1}{4}$ , W $\frac{1}{2}$ SE $\frac{1}{4}$ ;

Section 13: W $\frac{1}{2}$ NW $\frac{1}{4}$ ,  
SE $\frac{1}{4}$ NW $\frac{1}{4}$ ,  
NW $\frac{1}{4}$ SW $\frac{1}{4}$ ;

Section 14: SE $\frac{1}{4}$ NE $\frac{1}{4}$ ,  
NE $\frac{1}{4}$ SE $\frac{1}{4}$ ,  
S $\frac{1}{2}$ SE $\frac{1}{4}$ ;

Section 22: SE $\frac{1}{4}$ SE $\frac{1}{4}$ ,  
SE $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ ;

Section 23: W $\frac{1}{2}$ NE $\frac{1}{4}$ ,  
S $\frac{1}{2}$ NW $\frac{1}{4}$ , N $\frac{1}{2}$ SW $\frac{1}{4}$ ,  
SW $\frac{1}{4}$ SW $\frac{1}{4}$ .

Total: 1,233.55 acres more or less.

#### Minerals

P&M does not own and is not offering for exchange any of the mineral estate underlying the JO Ranch lands.

The JO Ranch lands are surrounded by public lands and minerals

administered by the BLM. Under the Proposed Action, if these lands become public lands, future management of the acquired surface estate will be determined through additional NEPA analyses and planning decisions.

Welch Lands  
Sheridan County, Wyoming

The legal description of the Welch lands and mineral interests that P&M is offering to exchange (shown in Figure 1-4) is as follows:

Lands

T.57N., R.84W., 6<sup>th</sup> P.M., Wyoming

- Section 1: S $\frac{1}{2}$ NE $\frac{1}{4}$ \*,  
SE $\frac{1}{4}$ NW $\frac{1}{4}$ ,  
N $\frac{1}{2}$ SW $\frac{1}{4}$ \*,  
SW $\frac{1}{4}$ SW $\frac{1}{4}$ \*;
- Section 2: Lots 2, 3,  
S $\frac{1}{2}$ N $\frac{1}{2}$ , S $\frac{1}{2}$ \*\*;
- Section 3: Lots 3,4, S $\frac{1}{2}$ N $\frac{1}{2}$ ,  
N $\frac{1}{2}$ S $\frac{1}{2}$ , SE $\frac{1}{4}$ SE $\frac{1}{4}$ ;
- Section 4: Lots 1 through 4,  
S $\frac{1}{2}$ NE $\frac{1}{4}$ ,  
SE $\frac{1}{4}$ NW $\frac{1}{4}$ ,  
N $\frac{1}{2}$ SE $\frac{1}{4}$ .

\*T.57N., R.84W., Section 1:

- S $\frac{1}{2}$ NE $\frac{1}{4}$ , there is a metes and bounds exclusion area of 25.51 acres.
- N $\frac{1}{2}$ SW $\frac{1}{4}$ , there is a metes and bounds exclusion area of 1.2 acres.
- SW $\frac{1}{4}$ SW $\frac{1}{4}$ , there is a metes and bounds exclusion area of 10.6 acres.

\*\*T.57N., R.84W., Section 2:

- S $\frac{1}{2}$ , there is a metes and bounds exclusion area of 5.6 acres.

Total: 1,538.70 acres more or less.

Minerals

P&M owns and is offering to exchange the coal rights underlying the following lands:

T.57N., R.84W., 6<sup>th</sup> P.M., Wyoming

- Section 1: S $\frac{1}{2}$ NE $\frac{1}{4}$  (excluding 25.51 acres),  
SE $\frac{1}{4}$ NW $\frac{1}{4}$ ,  
N $\frac{1}{2}$ SW $\frac{1}{4}$  (excluding 1.2 acres);
- Section 2: S $\frac{1}{2}$ NW $\frac{1}{4}$ ,  
S $\frac{1}{2}$  (excluding 5.6 acres);
- Section 3: S $\frac{1}{2}$ NE $\frac{1}{4}$ ,  
SE $\frac{1}{4}$ NW $\frac{1}{4}$ ,  
N $\frac{1}{2}$ SE $\frac{1}{4}$ ,  
SE $\frac{1}{4}$ SE $\frac{1}{4}$ .

Total: 807.69 acres more or less.

The remaining 731.01 acres of coal estate in the Welch lands are federally owned. P&M does not own and is not offering to exchange any non-coal mineral rights underlying the Welch lands.

The Welch lands are surrounded by private lands and private and federal minerals. The federal minerals are administered by the BLM Buffalo Field Office.

Public concern has been expressed over BLM acquisition of an underground coal seam fire on the Welch lands. BLM is evaluating several tract configuration options for the Welch lands that the federal government would acquire, if the exchange is completed. The underground coal seam fire occupies approximately 13 acres in the SW $\frac{1}{4}$  of Section 2, T.57N.,

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R.84W. The options BLM is considering include:

- acquiring all of the offered lands in the Welch lands tract;
- deleting the E $\frac{1}{2}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$  and the W $\frac{1}{2}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$  of Section 2, T.57N., R.84W. (40 acres), which contains the active fire area, from the Welch lands tract;
- deleting the SW $\frac{1}{4}$ SW $\frac{1}{4}$  and the W $\frac{1}{2}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$  of Section 2 and the SE $\frac{1}{4}$ SE $\frac{1}{4}$  of Section 3, T.57N., R.84W. (100 acres), which includes the active fire area and the previously mined lands, from the Welch lands tract; and
- deleting the S $\frac{1}{2}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$ , SW $\frac{1}{4}$ SW $\frac{1}{4}$ , S $\frac{1}{2}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$ , and SE $\frac{1}{4}$ SW $\frac{1}{4}$  of Section 2, and the SE $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$ , S $\frac{1}{2}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ , SE $\frac{1}{4}$ SE $\frac{1}{4}$ , and S $\frac{1}{2}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$  of Section 3, T.57N., R.84W. (210 acres), which includes the active fire, the mined lands, and a buffer zone from the Welch lands tract.

Further discussion of the underground coal seam fire and the area that BLM is considering removing from the Welch lands tract under these options can be found in the BLM technical report on the underground coal seam fire, which is included as Appendix D of this document. BLM's preferred option is to acquire all of the Welch lands.

If the Welch lands are acquired, the BLM Buffalo Field Office would determine future management of these lands, including the area occupied by the underground coal seam fire, through additional NEPA analyses and planning decisions.

### PSO Tract Sheridan County, Wyoming

The legal description of the federal coal being considered for exchange under the Proposed Action (the PSO Tract, shown in Figure 2-1) is as follows:

T.58N., R.84W., 6<sup>th</sup> P.M., Wyoming  
Section 15: Lot 1;  
Section 20: SE $\frac{1}{4}$ ;  
Section 21: E $\frac{1}{2}$ NE $\frac{1}{4}$ , S $\frac{1}{2}$ ;  
Section 22: NW $\frac{1}{4}$ , W $\frac{1}{2}$ SW $\frac{1}{4}$ ;  
Section 23: Lots 3 and 4;  
Section 27: W $\frac{1}{2}$ NW $\frac{1}{4}$ ,  
W $\frac{1}{2}$ SW $\frac{1}{4}$ ;  
Section 28: All  
Section 29: NE $\frac{1}{4}$ , NE $\frac{1}{4}$ SE $\frac{1}{4}$ ;  
Section 33: N $\frac{1}{2}$ NE $\frac{1}{4}$ ;  
Section 34: SW $\frac{1}{4}$ NE $\frac{1}{4}$ ,  
NW $\frac{1}{4}$ NW $\frac{1}{4}$ .

Total: 2,045.53 acres more or less.

The land description and acreage are based on the BLM Status of Public Domain Land and Mineral Title approved Coal Plat as of November 12, 1999. BLM was considering a thorough field investigation and conditional corrective resurvey in T.58N., R.84W., after receiving information from a private surveyor in 2001 that there were discrepancies between the 1952 BLM dependent resurvey and the original survey in this township. The corrective resurvey

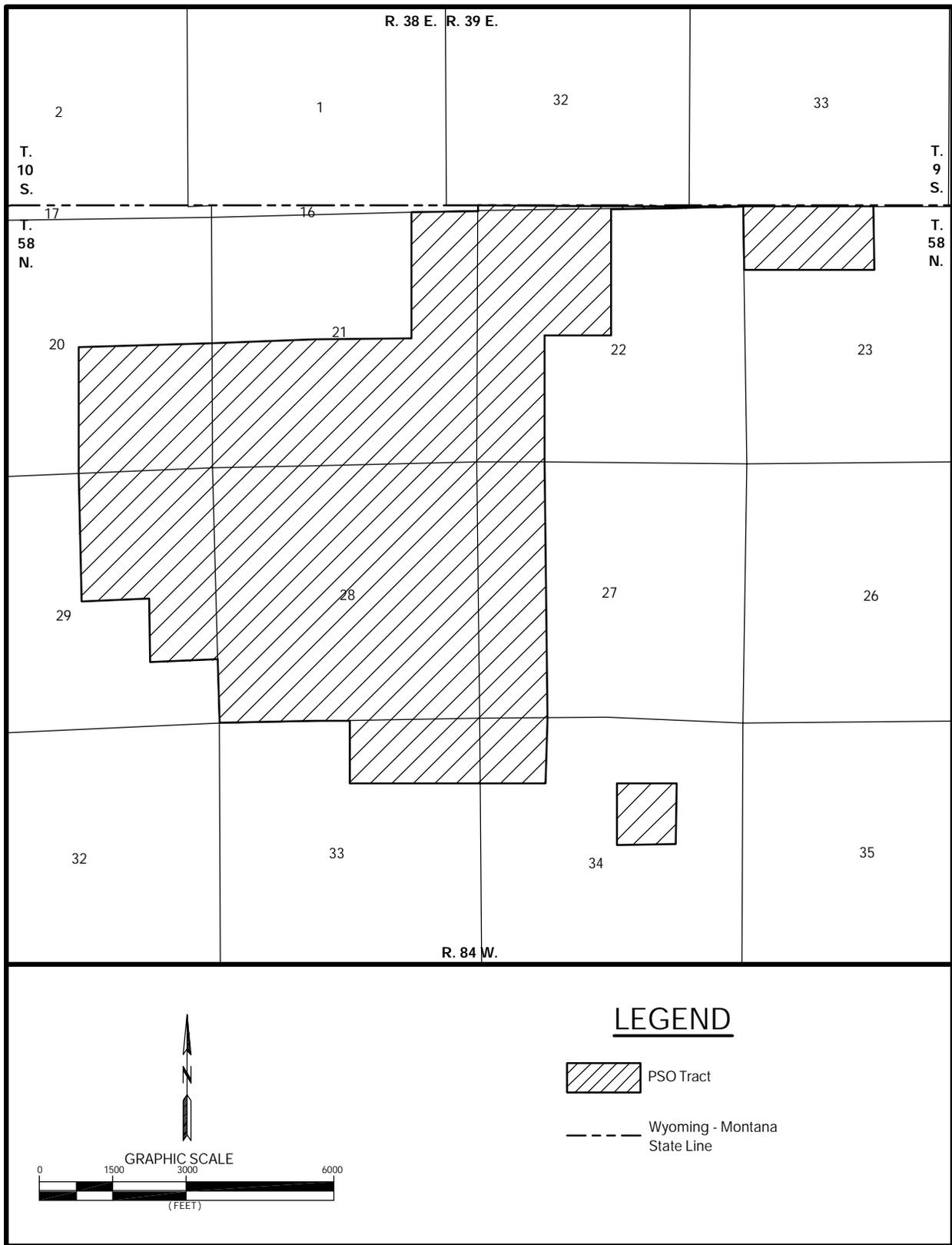


Figure 2-1. PSO Tract Configuration as Proposed.

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area would have included the PSO Tract. This issue was resolved between BLM and the adjacent and the prospective coal estate owners, and a resurvey is not necessary to transfer title to the federal coal estate.

The Proposed Action assumes that the exchange will be completed and P&M will acquire and mine the federal coal included in the tract described above. For purposes of analyzing the potential impacts as required by NEPA, it is assumed that all the federal coal estate within the PSO Tract as proposed by P&M would be included in the exchange. BLM's preferred option at this time is to consider exchanging all of the federal coal estate included in the PSO Tract. The actual tract that would be offered for exchange would depend upon the appraised value of the coal and the P&M properties at the time the exchange is approved. If it is necessary to decrease the size of the PSO Tract in order to equalize the values of the properties to be exchanged, BLM will consider comments received from USFWS concerning removing the scoria hillsides on the western edge of the tract from the PSO Tract. USFWS has recommended removal of the scoria hillsides on the western edge of the PSO Tract from consideration for exchange due to the occurrence of primary breeding habitat for the Lewis' woodpecker on those hillsides.

If an exchange is completed, a detailed mining and reclamation plan would have to be developed and approved in accordance with SMCRA and Wyoming statutes

before P&M could begin mining operations on the tract. In this case, if any operations in the detailed mining and reclamation plan would cross the state line (into Montana), those operations would also have to be developed and approved in accordance with Montana statutes. As part of the approval process, the mining and reclamation plan would undergo detailed review by state and federal agencies. The mining and reclamation plan would include monitoring and mitigation measures that are required by SMCRA, Wyoming statutes, and Montana statutes, if applicable. These monitoring and mitigation measures are considered to be part of the Proposed Action during the exchange process because they are regulatory requirements.

The final, detailed mining and reclamation plan, which must be approved prior to initiation of mining, could potentially differ from the conceptual plan used to analyze the impacts of the Proposed Action in this EIS. Figure 2-2 is a schematic mine plan, prepared by P&M, which is described below. In the schematic mine plan shown in Figure 2-2, P&M has included privately-owned coal, which lies outside of the PSO Tract and which is not included in the exchange proposal. P&M does not currently own this coal.

This conceptual mine plan does not propose to remove coal from the northern and western edges of the PSO Tract in the scoria hillside area that includes the potential Lewis' woodpecker habitat.

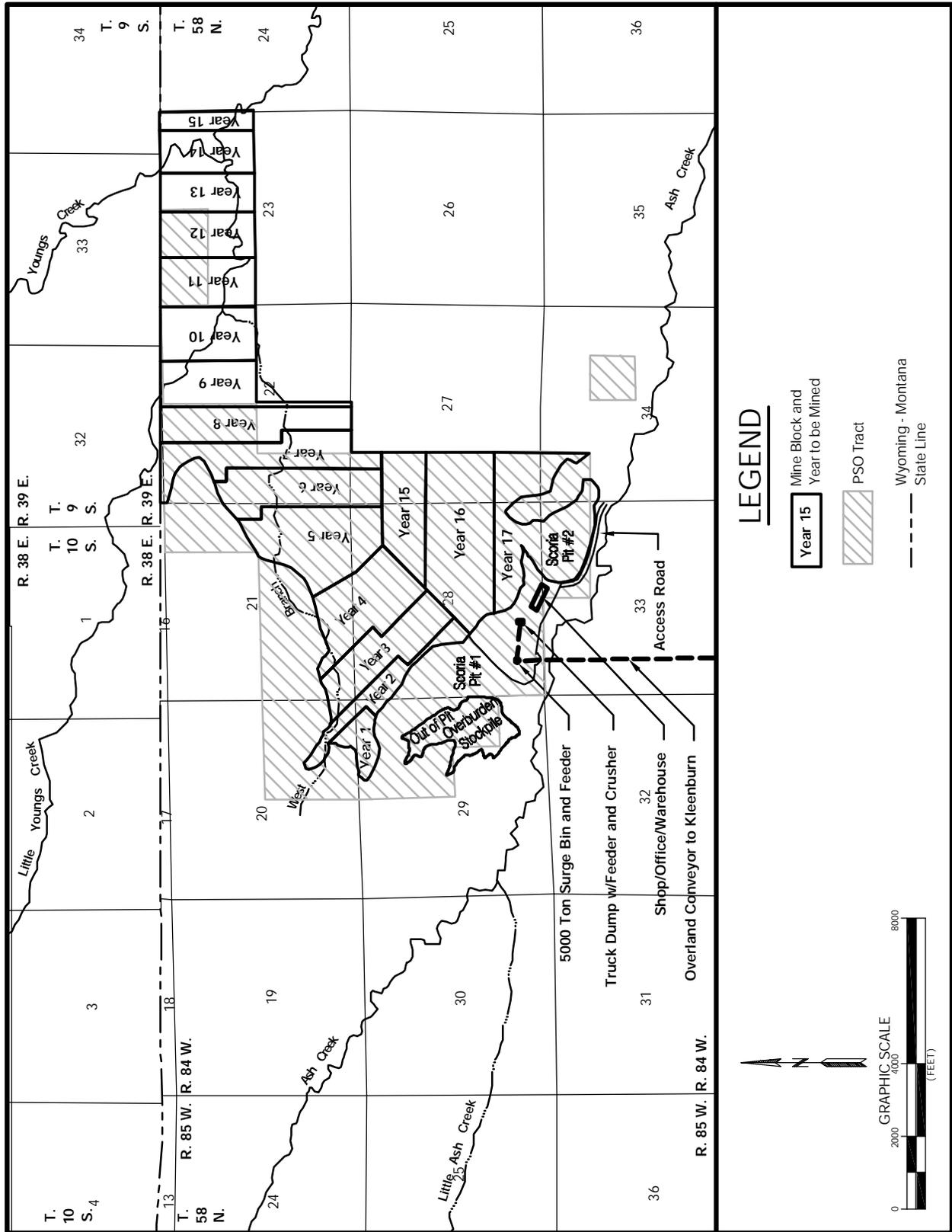


Figure 2-2. Schematic Mine Plan for the Ash Creek Mine.

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There will probably be differences between the final, detailed mining and reclamation plan that P&M would be required to submit for approval prior to mining and P&M's proposed mine plan shown in Figure 2-2, but they would not be expected to significantly change most of the impacts described in this EIS. This is because major factors like tons of coal mined, yards of overburden removed, acres disturbed, etc. would not be significantly different from the plan used in this analysis.

Although the total area of the PSO Tract is about 2,045 acres, not all of this area contains coal that is economically recoverable under foreseeable conditions. Faulting, prehistoric natural coal fires, and other geologic factors have removed the coal or rendered it uneconomic to recover. P&M estimates that there are 153.2 million tons of mineable coal within the mine plan area, of which about 112.5 million tons are in the PSO Tract and are currently owned by the federal government. The total area to be mined under P&M's proposed mine plan is about 1,720 acres, of which 1,244 acres are on the PSO Tract. P&M assumes that about 95 percent of the mineable coal is recoverable, based on historical recovery factors at typical PRB surface coal mines. This would mean that 145.5 million tons, 107 million tons of which are on the PSO Tract and are now federally owned, would be recoverable over the life of the mine. An estimated total of 356.1 million bcy of overburden would be excavated.

BLM will independently evaluate the volume and average quality of the coal resources included in the PSO Tract as part of the fair market value determination process. BLM's estimate of the mineable reserves and average quality of the coal included in the tract will be published in the final appraisal. Some coal quality information in the area of the PSO Tract is included in Section 3.4.3 of this document.

The total estimated area of disturbance would be about 2,595 acres. The area of disturbance would exceed the area of coal removal due to incidental disturbances associated with mining the coal. These include topsoil buffer areas, scoria mining, grading to blend naturally with reclaimed contours, and surface facilities which could include shop/office/warehouse buildings, truck dump with crushing and feeding equipment, transfer conveyor, surge storage bin and feeder, a 24,000-ft long overland conveyor, rail loop and loadout facility, haul roads, and access road. The estimated 2,595-acre area of disturbance includes 99.5 acres for the proposed overland conveyor and 104.5 acres for the proposed rail loop and loadout facilities, which would be located outside of the general area of mine disturbance, under P&M's current mine proposal.

P&M proposes to utilize shovel and truck equipment similar to those commonly utilized in the industry at other PRB surface coal mines. Typical equipment sizes which could be used would include 240- to 320-ton trucks matched with 60- to 80-

ton capacity shovels. These primary equipment units would be used to remove overburden and interburden as well as mine coal. P&M prepared a mine plan layout, depicted schematically on Figure 2-2, to show how the coal within the proposed mine plan area could be recovered using this equipment and how it could be transported to the rail line for shipping. This is a conceptual mine plan layout prepared for purposes of evaluating the potential impacts of removing the coal. If the exchange is completed, P&M would have to acquire any needed rights-of-way and required construction permits before construction activities could begin, in addition to completing the mining and reclamation permit requirements. The location of the facilities could change based on a number of factors including costs, rights-of-way negotiations, and requirements imposed by the construction permits. P&M refers to the proposed mine as the Ash Creek Mine for planning purposes.

Mining would begin with a boxcut northwest of the facilities area (Figure 2-2) and extend across the western portion of the south end of the mining area. Overburden from the boxcut would be placed in an overburden stockpile located adjacent to the south side of the mining area but separated from Ash Creek to control surface water runoff in the area. The boxcut would be opened to establish an operating pit approximately 350 ft wide, which would advance in a parallel manner with subsequent cuts. A pit length of approximately 2,500 ft would be maintained. Multiple seams would

be mined, and coal would be blended as needed to address customer coal quality constraints.

The proposed mining sequence would allow expansion into adjacent private coal reserves during the later part of the mine life, if P&M acquires the rights to mine that coal. This private coal is shown being mined in years seven through 15 of the schematic mine plan shown in Figure 2-2. Supporting equipment that would be utilized includes motor graders, crawler tractors, water trucks, scrapers, maintenance equipment, pumps, light plants, and related equipment common to the industry.

The proposed surface coal mining operation envisioned for the mine would include relatively simple facilities and associated infrastructure. A facilities area would be developed adjacent to Ash Creek along the southern part of the mining area. This would be an above-drainage location to facilitate control of surface water. The site would be protected and not visible from surrounding areas as it would not be above surrounding topography. This would help to mitigate any concerns for visual, noise, or fugitive dust effects from the operation.

Facilities to be located at this site would include a maintenance shop, warehouse, employee bathhouse, and mine office complex as a single building unit. Equipment parking, employee and vendor parking, outside storage, and other improved site areas for fuel storage, equipment “lay-down”, and other

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requirements of a surface coal mining operation would be provided within the facilities area.

The truck dump, crushing, and conveying facilities would be located at this site. A transfer conveyor belt would be used to convey the crushed coal to a 5,000 ton capacity surge bin/silo which would serve as the feed for an overland conveyor.

P&M proposes to use an overland conveyor to transport coal to a unit train loadout facility on the BNSF mainline, which is located roughly 4.5 miles due south of the operation. An overland conveyor was selected to minimize disturbance at the site and reduce development costs while maximizing use of existing facilities located near the recently reclaimed Big Horn Coal Company loadout facilities. Using the most direct route between the proposed Ash Creek Mine facilities and the proposed loadout facilities, this conveyor would be approximately 24,000 ft long. The surface estate between the proposed mine and the loadout facilities is owned by private, government, and corporate entities. P&M would have to negotiate access with these surface owners and obtain the necessary construction permits prior to constructing the conveyor.

A logical production build-up has been developed for the proposed mining operation. Production with opening of the boxcut would begin at one million tons and build over the next three years to a steady-state annual production for the remaining mine life at 10 million tons. This schedule provides for a

mine life of 17 years. This level of production approximately matches and maximizes production of overburden from one shovel. A projection of annual production of overburden/ interburden and coal is shown in Table 2-1.

Reclamation activities which would be completed at the mine site include topsoil removal and replacement, drainage and sediment control, backfilling and grading, and seeding and planting according to the Wyoming statutes administered by WDEQ/LQD. Topsoil would be removed and stockpiled or directly placed on re-graded surfaces. Once the operation is in a steady-state production condition, topsoil would be directly placed on graded backfill to minimize the need for stockpiling and rehandling.

Drainage and sediment control structures would be used to control surface water quality at the site. It is assumed that there would be only minor groundwater inflow into the active mine pit and therefore structures would not be required for any groundwater dewatering needs. Several sediment ponds, gravel check dams, grass filters, and other BACT structures would be used as required to control surface water quality from mining and reclamation activities.

Grading of backfilled spoil would be completed to establish a postmining surface that would resemble the premining topography and would be approved by WDEQ/LQD. The postmining topography would be somewhat lower in elevation than the premining topography due to

Table 2-1. Production Schedule for the Proposed Ash Creek Mine.

Year	Production (in millions)	
	Coal (Tons)	Overburden (bcy)
1	1.0	3.0
2	2.5	5.4
3	5.0	11.4
4	7.0	19.9
5	10.0	27.7
6	10.0	28.1
7	10.0	24.6
8	10.0	22.8
9	10.0	23.3
10	10.0	26.4
11	10.0	23.4
12	10.0	21.7
13	10.0	12.9
14	10.0	12.2
15	10.0	27.1
16	10.0	34.0
17	<u>10.0</u>	<u>32.2</u>
<b>Total</b>	<b>145.5</b>	<b>356.1</b>

coal removal. However, given the drainage configuration of the site, positive drainage could be established in the postmining topography with completion of reclamation activities.

The mining and reclamation plan would be reviewed by WDEQ/LQD and P&M would make any changes necessary in order to secure the permit to mine.

P&M estimates that a selling price of \$8.00 per ton would be needed to justify the expense of opening a new mine.

The mine would employ about 70 persons at normal operating capacity.

Hazardous and Solid Waste

Solid waste produced at the Ash Creek Mine would consist of floor sweepings, shop rags, lubricant containers, welding rod ends, metal shavings, worn tires, packing material, used filters, and office and food wastes. The mine would dispose of its solid wastes within its permit boundary in accordance with WDEQ-approved solid waste disposal plans. Sewage generated by mining would be handled by WDEQ-permitted sewage systems to be constructed on site.

Maintenance and lubrication of most of the equipment would take place at the shop facilities. Major lubrication, oil changes, etc., of most equipment would be performed

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inside the service building lube bays, where used oil would be contained and deposited in storage tanks. The collected used oils would then be recycled offsite.

P&M has reviewed the EPA's *Consolidated List of Chemicals Subject to Reporting Under Title III of the Superfund Amendments and Re-authorization Act (SARA) of 1986* (as amended) and EPA's *List of Extremely Hazardous Substances* as defined in 40 CFR 355 (as amended) for hazardous substances which may be used at the Ash Creek Mine. P&M would maintain files containing Material Safety Data Sheets for all chemicals, compounds and/or substances which are or would be used during the course of mining.

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

P&M would be required to comply with emergency reporting requirements for releases of hazardous materials. Any release of hazardous or extremely hazardous substances in excess of the reportable quantity, as established in 40 CFR 117, would be reported as

required by the *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;
- 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, 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.

## **2.2 Alternative 1**

Alternative 1 is the No-Action Alternative. Under the No-Action Alternative, the exchange would not be completed.

For purposes of this analysis, it is assumed that if the No-Action Alternative is selected, the federal coal in the PSO Tract would not be mined in the foreseeable future, but selection of this alternative would not preclude leasing of this federal coal in the future. Under the No-Action Alternative it is also assumed that the Bridger lands, JO Ranch lands, and Welch lands would remain in private ownership. The Bridger lands would remain private in-holdings in the BTNF and the BLM Pinedale Field Area. The JO Ranch lands, including the JO Ranch buildings, which are eligible for National Historic Site status, would remain private in-holdings in the BLM Rawlins Field Area. The Welch lands, which represent a unique opportunity for public access to the Tongue River in Wyoming outside of the Big Horn National Forest, would remain in private hands. For the purpose of this analysis, no other assumption is made about the future use of these lands. However, based on information P&M has provided, it is

likely that these lands would be sold on a competitive bid basis. These sales could result in subdivision and rural development of these lands.

## **2.3 Alternatives Considered but not Analyzed in Detail**

### 2.3.1 Alternative 2

Alternative 2, which is based on a comment received during the scoping process, assumes that the exchange does not take place and the government purchases the offered lands from P&M. This alternative assumes that P&M would be willing to sell the offered lands for the appraised value. P&M has stated that it is not offering and does not intend to sell its offered lands to the U.S. (BLM and USFS) at the appraised value being considered in the exchange. P&M has indicated that it would sell the lands on a competitive bid basis if the exchange is not completed. It might be possible to obtain an appropriation from the Land and Water Conservation Fund for purchase of some or all of the offered lands at the appraised value. This process would require several years and Congressional approval. Even if P&M was willing to delay holding a competitive sale until this process was completed, it is not likely that the U.S. would be able to competitively acquire all of these lands for the appraised value that might be approved through the Land and Water Conservation Fund. Therefore, this alternative was not analyzed in detail.

Under this alternative, the environmental impacts would be

similar to the Proposed Action for any of the Bridger, JO Ranch, and Welch lands that were successfully acquired by the U.S. The federal coal could potentially be leased and mined in the future, in which case the mining-related environmental impacts would be similar to the Proposed Action.

### 2.3.2 Alternative 3

Under Alternative 3 the federal government would hold a competitive lease sale for the coal beneath the PSO Tract and use the revenue generated to purchase the lands offered by P&M.

Since decertification of the PRB as a coal producing region in 1989, BLM has leased 11 tracts of federal coal in the Wyoming PRB in response to applications for maintenance tracts to extend the lives of existing mines. BLM has not received an application to lease federal coal in the PSO Tract or in any other federal coal tract in the western part of the Wyoming PRB, where the PSO Tract is located.

The revenue that would be generated if the coal is leased and mined would go into the General Fund and could not be diverted from the Treasury to purchase the P&M lands without Congressional action. Therefore, this alternative is not analyzed in detail in this EIS.

The environmental impacts of this alternative would be similar to the environmental impacts of the Proposed Action, assuming that the coal would be leased and mined.

## **2.4 Comparison of Alternatives**

The locations of the lands which P&M is offering for exchange for the federal coal included in the PSO Tract are shown on Figures 1-1 through 1-4. The location of the federal coal that P&M would acquire under the Proposed Action is shown on Figure 2-1. Table 2-2 summarizes the lands and minerals that P&M is offering for exchange under the Proposed Action. Table 2-3 compares the Proposed Action and the No Action Alternative (Alternative 1) in terms of projected coal production, surface disturbance, mine life, and federal and state revenues.

Table 2-4 presents a comparative summary of the direct and indirect environmental impacts of implementing the Proposed Action as compared to the No-Action Alternative. Table 2-5 presents a comparative summary of cumulative environmental impacts of implementing each alternative. The environmental consequences of the Proposed Action and Alternative 1 are analyzed in Chapter 4.0.

These summary impact tables are derived from the following explanation of impacts and magnitude. NEPA requires all agencies of the federal government to include, in every recommendation or report on proposals for legislation and other major federal actions significantly affecting the quality of the human environment, a detailed statement by the responsible official on:

- (i) the environmental impact of the Proposed Action,

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

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

2.0 Proposed Action and Alternatives

Table 2-2. Summary Comparison of Lands and Minerals Offered for Exchange by P&M.

Tract	Proposed Action			No Action Alternative	
	Surface Estate (acres)	Mineral Estate (All Minerals) (acres)	Mineral Estate (Coal Only) (acres)	Surface Estate (acres)	Mineral Estate (acres)
Bridger lands	3,086.25	3,086.25	0.00	0.00	0.00
JO Ranch lands	1,233.55	0.00	0.00	0.00	0.00
Welch lands	<u>1,538.70</u>	<u>0.00</u>	<u>807.69</u>	<u>0.00</u>	<u>0.00</u>
TOTAL	5,858.50	3,086.25	807.69	0.00	0.00

Table 2-3. Summary Comparison of Coal Production, Surface Disturbance, and Revenues for the PSO Tract.

Item	Proposed Action	No Action Alternative
Mineable Federal Coal	112.5 million tons	none
Recoverable Federal Coal <sup>1</sup>	107.0 million tons	none
Area of Federal Coal Exchanged	2,045.53 acres	none
Area of Federal Coal to be Mined	1,244 acres	none
Total Area to be Disturbed by Coal Mining <sup>2</sup>	2,595 acres	none
Average Annual Coal Production	10 million tons	none
Average Number of Employees	70	none
Total Projected State Revenues <sup>3</sup>	\$ 99.0 million	none
Total Projected Annual Revenues to Sheridan County <sup>4</sup>	\$ 6.0 million	none
Total Projected Federal Revenues <sup>5</sup>	\$ 53.0 million	none

<sup>1</sup> Assumes 95 percent of mineable coal is recovered.

<sup>2</sup> Includes disturbance due to mining, overburden stockpiling, construction of surface facilities, scoria mining, and related disturbance.

<sup>3</sup> Projected revenue to State of Wyoming is \$0.75 per ton of coal sold. Includes income from severance taxes, property and production taxes, sales and use taxes, and excludes Wyoming's share of federal royalty payments (UW 1994) (refer to Section 4.4.19 of this EIS), plus \$0.35 per ton of coal sold for AML fees minus U.S. Government's 50 percent share.

<sup>4</sup> Based on a coal price of \$8.00 per ton and production rate of 10 million tons per year, including coal from PSO Tract and adjacent privately owned coal in mine plan area. Includes counties' share of severance taxes, property taxes, sales and use taxes.

<sup>5</sup> Federal revenues are based on a coal price of \$8.00 per ton Δ amount of recoverable coal Δ black lung tax of 4.0 percent, plus \$0.35 per ton for AML fees Δ amount of recoverable coal minus the State's 50 percent share.

Note: All figures in this table are for the PSO Tract only.

Table 2-4. Summary Comparison of Magnitude<sup>1</sup> and Duration of Direct and Indirect Impacts<sup>2</sup> for the Proposed Action, and the No-Action Alternative for the P&M Land Exchange.

<i>DESCRIPTION OF POTENTIAL IMPACT BY RESOURCE</i>	<i>MAGNITUDE AND DURATION OF IMPACT</i>	
<b>RESOURCE NAME</b>	<b>PROPOSED ACTION</b>	<b>NO ACTION ALTERNATIVE</b>
<b>TOPOGRAPHY AND PHYSIOGRAPHY, GEOLOGY AND MINERALS, SOILS, AIR QUALITY, WATER RESOURCES, ALLUVIAL VALLEY FLOORS, WETLANDS, VEGETATION, WILDLIFE, THREATENED, ENDANGERED, PROPOSED, AND CANDIDATE SPECIES, CULTURAL RESOURCES, NATIVE AMERICAN CONCERNS, PALEONTOLOGICAL RESOURCES, VISUAL RESOURCES, NOISE, TRANSPORTATION FACILITIES</b>	<p align="center"><b><u>BRIDGER LANDS</u></b></p> <p>Negligible to moderate, beneficial, permanent on Bridger lands. Lands would become public. USFS and BLM would manage surface and mineral resources in accordance with existing land use plans. No change in management anticipated.</p>	<p>Nature, extent, and duration of impacts would depend on private landowner(s). Lands and minerals would remain private. Resources could be affected by development conducted by private landowner(s).</p>
<b>LAND USE AND RECREATION</b>	<p>Moderate, beneficial and adverse, permanent on Bridger lands. USFS and BLM would manage surface and mineral resources in accordance with existing land use plans. Public access would be provide. Private grazing leases would become federal grazing leases.</p>	<p>Nature, extent, and duration of impacts would depend on private landowner(s). Lands and minerals would remain private. Resources could be affected by development conducted by private landowner(s). Public access would be determined by private landowner(s). Status of grazing leases would not change.</p>
<b>TOPOGRAPHY AND PHYSIOGRAPHY, GEOLOGY AND MINERALS, SOILS, AIR QUALITY, ALLUVIAL VALLEY FLOORS, WETLANDS, NATIVE AMERICAN CONCERNS, PALEONTOLOGICAL RESOURCES, VISUAL RESOURCES, NOISE, TRANSPORTATION FACILITIES</b>	<p align="center"><b><u>JO RANCH LANDS</u></b></p> <p>Negligible to moderate, beneficial, permanent on JO Ranch lands. Lands would become public. Future management would be determined through additional NEPA and planning decisions.</p>	<p>Nature, extent, and duration of impacts would depend on private landowner(s). Lands would remain private. Resources could be affected by any development conducted by private landowner(s).</p>
<b>WATER RESOURCES, VEGETATION, WILDLIFE, THREATENED, ENDANGERED, PROPOSED, AND CANDIDATE SPECIES, LAND USE AND RECREATION, CULTURAL RESOURCES</b>	<p>Moderate, beneficial, and adverse, permanent on JO Ranch lands. Management of Cow Creek riparian area, JO Ranch buildings, and sand hills habitat would be determined through additional NEPA analysis and planning decisions. Public access would be provided. Private grazing leases would become federal grazing leases.</p>	<p>Nature, extent, and duration of impacts would depend on private landowner(s). Lands would remain private. Resources could be affected by any development conducted by private landowner(s). Public access would be determined by private landowner(s). Status of grazing leases would not change.</p>

<sup>1</sup> Refer to Sections 4.0 through 4.5 for a discussion on magnitude of impacts.

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

2.0 Proposed Action and Alternatives

Table 2-4. Summary Comparison of Magnitude<sup>1</sup> and Duration of Direct and Indirect Impacts<sup>2</sup> for the Proposed Action, and the No-Action Alternative for the P&M Land Exchange (Continued).

<i>DESCRIPTION OF POTENTIAL IMPACT BY RESOURCE</i>	<i>MAGNITUDE AND DURATION OF IMPACT</i>	
<b>RESOURCE NAME</b>	<b>PROPOSED ACTION</b>	<b>NO ACTION ALTERNATIVE</b>
<b><u>WELCH LANDS</u></b>		
<b>TOPOGRAPHY AND PHYSIOGRAPHY, GEOLOGY AND MINERALS, SOILS, AIR QUALITY, WATER RESOURCES, ALLUVIAL VALLEY FLOORS, WETLANDS, VEGETATION, WILDLIFE, THREATENED, ENDANGERED, PROPOSED, AND CANDIDATE SPECIES, CULTURAL RESOURCES, NATIVE AMERICAN CONCERNS, PALEONTOLOGICAL RESOURCES, VISUAL RESOURCES, NOISE, TRANSPORTATION FACILITIES</b>	Negligible to moderate, beneficial, permanent on Welch lands. Lands would become public. BLM would manage surface resources in accordance with land use plans which would be amended to address management of these lands.	Nature, extent, and duration of impacts would depend on private landowner(s). Lands and minerals other than coal would remain private. Resources could be affected by any development conducted by private landowner(s).
<b>LAND USE AND RECREATION</b>	Moderate, beneficial, and adverse permanent on Welch lands. Public access would be provided. Existing uses could continue. Future management would be determined through additional NEPA and planning decisions. Private grazing leases would become federal grazing leases.	Nature, extent, and duration of impacts would depend on private landowner(s). Lands and minerals other than coal would remain private. Resources could be affected by any development conducted by landowner(s). Public access would be determined by private landowner(s). Status of grazing leases would not change.
<b><u>PSO TRACT</u></b>		
<b>TOPOGRAPHY &amp; PHYSIOGRAPHY</b> PERMANENT TOPOGRAPHIC MODERATION could result in:		
Microhabitat reduction	Moderate, long term on mine area	No impact due to mining
Habitat diversity reduction	Moderate, long term on mine area	No impact due to mining
Reduction in water runoff and peak flows	Moderate, beneficial, long term on mine area	No impact due to mining
Increased precipitation infiltration	Moderate, beneficial, long term on mine area	No impact due to mining
Wildlife carrying capacity reduction	Moderate long term on mine area	No impact due to mining
Reduction in erosion	Moderate, beneficial, long term on mine area	No impact due to mining
Enhanced vegetative productivity	Moderate, beneficial, long term on mine area	No impact due to mining
Potential acceleration of groundwater recharge	Moderate, beneficial, long term on mine area	No impact due to mining

<sup>1</sup> Refer to Sections 4.0 through 4.5 for a discussion on magnitude of impacts.

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

Table 2-4. Summary Comparison of Magnitude<sup>1</sup> and Duration of Direct and Indirect Impacts<sup>2</sup> for the Proposed Action, and the No-Action Alternative for the P&M Land Exchange (Continued).

DESCRIPTION OF POTENTIAL IMPACT BY RESOURCE	MAGNITUDE AND DURATION OF IMPACT	
RESOURCE NAME	PROPOSED ACTION	NO ACTION ALTERNATIVE
<p><b>GEOLOGY AND MINERALS</b>                      SUBSURFACE changes would result in:                      Removal of coal                      Removal and replacement of topsoil and overburden                      Physical characteristic alterations in geology                      Loss of CBM through venting and/or drainage<sup>3</sup>                      Loss of access for sub-coal oil and gas development</p>	<p>Moderate, permanent on mine area                      Moderate, short term on mine area</p>	<p>No impact due to mining                      No impact due to mining</p>
<p><b>SOILS</b>                      CHANGES IN PHYSICAL PROPERTIES would include:                      Increased near-surface bulk density &amp; decrease in soil infiltration rate                      More uniformity in soil type, thickness, and texture                      Decreased soil loss due to topographic modification</p>	<p>Moderate, long term on mine area                       Moderate, beneficial, long term on mine area                      Moderate, beneficial, long term on mine area</p>	<p>No impact due to mining                       No impact due to mining                      No impact due to mining</p>
<p>CHANGES IN CHEMICAL PROPERTIES would include:                      More uniform soil chemistry and nutrient distribution</p>	<p>Moderate, beneficial, long term on mine area</p>	<p>No impact due to mining</p>
<p>CHANGES IN BIOLOGICAL PROPERTIES would include:                      Organic matter reduction                      Microorganism population reduction                      Existing plant habitat reduction in soils stockpiled before placement</p>	<p>Moderate, long term on mine area                      Moderate, long term on mine area                      Moderate, long term on mine area</p>	<p>No impact due to mining                      No impact due to mining                      No impact due to mining</p>
<p><b>WATER RESOURCES</b>                      SURFACE WATER                      CHANGES IN RUNOFF CHARACTERISTICS AND SEDIMENT DISCHARGE would include:                      Disruption of surface drainage systems                      Increased runoff and erosion rates                      Increased infiltration in sediment ponds                      Increases in frequency &amp; amount of flows in Youngs Creek due to discharge from settling ponds                      Increase in suspended solids in discharges downstream of mine area</p>	<p>Moderate, short term on mine area                      Moderate, short term on mine area                       Moderate, short term on mine area                      Moderate, short term on mine area</p>	<p>No impact due to mining                      No impact due to mining                       No impact due to mining                      No impact due to mining</p>

<sup>1</sup> Refer to Sections 4.0 through 4.5 for a discussion on magnitude of impacts.

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

<sup>3</sup> Most of the CBM reserves could be recovered prior to initiation of mining activity. CBM reserves in the Dietz 3 coal bed that are not recovered prior to mining would be lost through venting. CBM reserves in the Monarch and Carney coal beds that are not recovered prior to mining could be lost through drainage or recovered after mining is completed.

2.0 Proposed Action and Alternatives

Table 2-4. Summary Comparison of Magnitude<sup>1</sup> and Duration of Direct and Indirect Impacts<sup>2</sup> for the Proposed Action, and the No-Action Alternative for the P&M Land Exchange (Continued).

DESCRIPTION OF POTENTIAL IMPACT BY RESOURCE	MAGNITUDE AND DURATION OF IMPACT	NO ACTION ALTERNATIVE
RESOURCE NAME	PROPOSED ACTION	NO ACTION ALTERNATIVE
<b>WATER RESOURCES (continued)</b>		
<b>GROUNDWATER</b>		
<b>CHANGES ASSOCIATED WITH MINING OPERATIONS</b>		
would include:		
Removal of coal and overburden aquifers	Negligible, short term on mine area	No impact due to mining
Replacement of existing coal and overburden with unconsolidated backfill material	Negligible, long term on mine area	No impact due to mining
Depressed water levels in aquifers within northeast-trending fault block occupied by PSO Tract	Moderate, short term within fault block	No impact due to mining
Change in hydraulic properties in backfilled areas	Negligible, long term on mine area	No impact due to mining
Change in groundwater quality in backfilled areas	Moderate, long term on mine area	No impact due to mining
Decrease in water supply for two groundwater-right holders within mine five-foot drawdown area	Moderate, short term	No impact due to mining
Disturbance of Youngs Creek/Little Youngs Creek alluvial aquifers if P&M acquires rights to mine private coal within PSO Tract	Moderate, short term	No impact due to mining
<b>ALLUVIAL VALLEY FLOORS</b>		
While a final determination has not been made by WDEQ/LQD, it is believed that proposed mining operations would not affect AVFs significant to agriculture	No impact to AVFs significant to agriculture on proposed mine area. AVFs determined not to be significant to agriculture would be restored if affected.	No impact due to mining
<b>WETLANDS</b>		
Removal of existing jurisdictional wetlands by mining operations	Jurisdictional wetlands on disturbance areas would be destroyed and replaced in accordance with Section 404 of the Clean Water Act	No impact due to mining
Removal of existing non-jurisdictional wetlands by mining operations	Non-jurisdictional wetlands on disturbance areas would be destroyed and replaced in accordance with agreements with surface owners or surface managing agency.	No impact due to mining
<b>VEGETATION</b>		
REMOVAL OF NATIVE VEGETATION would result in:		
Increased erosion	Moderate, short term on mine area	No impact due to mining
Wildlife and livestock habitat loss	Moderate, short term on mine area	No impact due to mining

<sup>1</sup> Refer to Sections 4.0 through 4.5 for a discussion on magnitude of impacts.

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

Table 2-4. Summary Comparison of Magnitude<sup>1</sup> and Duration of Direct and Indirect Impacts<sup>2</sup> for the Proposed Action, and the No-Action Alternative for the P&M Land Exchange (Continued).

DESCRIPTION OF POTENTIAL IMPACT BY RESOURCE RESOURCE NAME	MAGNITUDE AND DURATION OF IMPACT PROPOSED ACTION	NO ACTION ALTERNATIVE
<p><b>VEGETATION (continued)</b>                      AFTER RECLAMATION the following could result:                      Impact in vegetation patterns                      Reduction in vegetation diversity                      Reduction in shrub density                      Decrease in big game habitat carrying capacity</p>	<p>Negligible, long term on mine area                      Negligible, long term on mine area                      Moderate, long term on mine area                      Moderate, long term on mine area</p>	<p>No impact due to mining                      No impact due to mining                      No impact due to mining                      No impact due to mining</p>
<p><b>WILDLIFE</b>                      DURING MINING the following could occur:                      Wildlife displacement and increased competition on habitat outside of mining area                      Restrictions on wildlife movement, particularly big game                      Direct loss of small mammals                      Loss of sage grouse nesting habitat and disturbance of breeding activities                      Abandonment of raptor nests                      Foraging habitat reduction for raptors                      Loss of nesting and foraging habitat for Migratory Birds of Management Concern                      Reduction in waterfowl and shorebird resting and feeding habitat</p>	<p>Moderate, short term on mine area                      Moderate, short term on mine area                      Moderate, short term on mine area                      Negligible, short term on mine area</p>	<p>No impact due to mining                      No impact due to mining</p>
<p>Loss of songbird nesting and foraging habitat                      Temporary wildlife habitat loss                      Road kills by mine-related traffic                      Reduction in big game carrying capacity and diversity                      Disturbance of fish habitat in Little Youngs and Youngs Creeks</p>	<p>Moderate, short term on mine area                      Negligible, short term on mine area                      Negligible, short term on mine area                      Moderate, long term on mine area                      Negligible, short term on mine area</p>	<p>No impact due to mining                      No impact due to mining</p>

<sup>1</sup> Refer to Sections 4.0 through 4.5 for a discussion on magnitude of impacts.

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



Table 2-4. Summary Comparison of Magnitude<sup>1</sup> and Duration of Direct and Indirect Impacts<sup>2</sup> for the Proposed Action, and the No-Action Alternative for the P&M Land Exchange (Continued).

DESCRIPTION OF POTENTIAL IMPACT BY RESOURCE	MAGNITUDE AND DURATION OF IMPACT	NO ACTION ALTERNATIVE
RESOURCE NAME	PROPOSED ACTION	NO ACTION ALTERNATIVE
<b>VISUAL RESOURCES</b>		
EVIDENT IMPACTS DURING MINING would include:		
Alteration of landscape classified by the BLM as VRM Class II	Negligible, short term on mine area	No impact due to mining
Partial visibility of mining operations to Wyoming Highway 338 and adjacent landowners	Negligible to moderate, short-term on mine area and adjacent areas	No impact due to mining
IMPACTS FOLLOWING RECLAMATION could be:		
Smoother sloped terrain	Negligible, long term on mine area	No impact due to mining
Reduction in sagebrush density	Negligible, short term on mine area	No impact due to mining
<b>NOISE</b>		
INCREASED NOISE LEVELS could affect:		
Nearby occupied dwellings	Negligible to moderate, short term on adjacent areas	No impact due to mining
Wildlife in immediate vicinity	Negligible, short term on mine and adjacent areas	No impact due to mining
<b>TRANSPORTATION FACILITIES</b>		
Increase in coal shipped on existing railroads	Negligible, short term on mine area	No impact due to mining
New employees travel on highways for duration of mining operations	Negligible, short term on mine area	No impact due to mining
Relocation of pipelines	Potential moderate, short term on mine area	No impact due to mining
Relocation of utility lines	No impact on mine area	No impact due to mining
Construction and operation of overland coal conveyor and loadout facilities	Moderate, short-term on areas adjacent to facilities	No impact due to mining
<b>SOCIOECONOMICS</b>		
EFFECTS DURING MINING would include:		
Employment Potential (Up to 70 jobs in mine area is expected)	Moderate, beneficial short term	No impact due to mining
Revenues from taxes to the state government	Moderate, beneficial short term	No impact due to mining
Revenues from taxes to the federal government	Small, beneficial, short term	No impact due to mining
Revenues from taxes to local governments	Moderate, beneficial short term on mine area	No impact due to mining
Economic development	Moderate, beneficial short term on mine area	No impact due to mining
Depreciation of property values for adjacent landowners	Moderate, short term	No impact due to mining
Population in Sheridan County	No impact due to mining	No impact due to mining

<sup>1</sup> Refer to Sections 4.0 through 4.5 for a discussion on magnitude of impacts.

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

2.0 Proposed Action and Alternatives

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

DESCRIPTION OF POTENTIAL IMPACT BY RESOURCE	MAGNITUDE TYPE AND DURATION OF IMPACT	NO ACTION ALTERNATIVE
RESOURCE NAME	PROPOSED ACTION	
<b>TOPOGRAPHY &amp; PHYSIOGRAPHY</b> RECOVERY OF COAL AND RECLAMATION could result in: Sixteen percent increase in area of topographic moderation due to surface coal mining Overlapping changes in topography due to coal and CBM development	Moderate, long term on mine areas Negligible, short term on mine areas	No added impact due to Ash Creek Mine Same as Proposed Action for existing surface mines
<b>GEOLOGY AND MINERALS</b> RECOVERY OF COAL AND RECLAMATION would result in: Sixteen percent increase in area of surface mining disturbance in area Overlapping impacts due to coal and CBM development	Moderate, long term on mine areas Moderate, short term on mine areas	No added impact due to Ash Creek Mine Same as Proposed Action for existing surface mines
<b>SOILS</b> RECOVERY OF COAL AND RECLAMATION could result in: Sixteen percent increase in area of surface mining disturbance and reclamation in area Overlapping soil disturbance due to coal mining and CBM development	Moderate, beneficial and adverse, long term on mine areas Moderate, short term	No added impact due to Ash Creek Mine Same as Proposed Action for existing surface mines
<b>AIR QUALITY</b> CUMULATIVE IMPACTS ASSOCIATED WITH MINING OPERATIONS AND WY PRB OIL AND GAS EIS ALTERNATIVE 1 AND MT OIL AND GAS EIS ALTERNATIVE E would include: Cumulative near-field concentrations of criteria pollutants Cumulative far-field concentrations of NO <sub>2</sub> annual	Above PSD Class II increment for PM <sub>10</sub> 24-hour. Concentrations of other pollutants below increments Above PSD Class I increment in Northern Cheyenne Reservation. Concentrations in other areas are below increments.	Same as Proposed Action Same as Proposed Action
Cumulative far-field concentrations of PM <sub>10</sub> 24-hour	Above PSD Class I increment in Northern Cheyenne Reservation and Washakie Wilderness. Concentrations in other areas are below increments.	Same as Proposed Action
Cumulative visibility impacts in mandatory Class I areas	Potential impacts range from 3 days above 1 dV at Red Rock Lakes Wilderness to 32 days above 1 dV at Wind Cave National Park. Potential maximum decidew change is 29 dV at UL Bend Wilderness.	Same as Proposed Action
Acidification of sensitive lakes	Potential impacts are 180 percent of the level of acceptable change (LAC) in Upper Frozen Lake and 104 percent of the LAX in Florence Lake. Impacts at other lakes are below the LAC.	Same as Proposed Action

<sup>1</sup> Refer to Section 4.8 for a discussion of cumulative impacts.

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

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

DESCRIPTION OF POTENTIAL IMPACT BY RESOURCE	MAGNITUDE TYPE AND DURATION OF IMPACT	NO ACTION ALTERNATIVE
RESOURCE NAME	PROPOSED ACTION	
<b>WATER RESOURCES</b>		
<u>SURFACE WATER</u>		
IMPACTS TO SURFACE WATER could result in:		
Overlapping drainage basin disturbances and decreased flows due to surface coal mining	Negligible, short term	Same as Proposed Action for existing surface mines
Offsetting changes in surface flow due to overlapping impacts of CBM development and surface coal mining	Negligible, short-term, beneficial	Same as Proposed Action for existing surface mines
<u>GROUNDWATER</u>		
IMPACTS ON GROUNDWATER could result in:		
Overlapping impact between mines due to replacing coal aquifers with backfill aquifers	No cumulative impacts anticipated on mine areas	Same as Proposed Action for existing surface mines
Overlapping drawdown in the coal and alluvial aquifers between surface mines	Negligible, short to long term	Same as Proposed Action for existing surface mines
Overlapping drawdown in the coal aquifer due to surface mining and CBM development	Moderate, short term	Same as Proposed Action for existing surface mines
Water-level decline in the sub-Dietz 3 coal aquifers	No cumulative impacts anticipated in mine areas	Same as Proposed Action for existing surface mines
Change in groundwater quality as a result of mining	No cumulative impacts anticipated in mine areas	Same as Proposed Action for existing surface mine areas
<b>ALLUVIAL VALLEY FLOORS</b>		
<b>WETLANDS</b>		
Removal of existing wetlands	No cumulative impacts anticipated on mine areas	Same as Proposed Action for existing surface mine areas
<b>VEGETATION</b>		
RECOVERY OF COAL AND RECLAMATION would result in:		
Sixteen percent increase in area of vegetation disturbance and reseeded due to coal mining	Moderate, long term on mine areas	No added impacts due to Ash Creek Mine
Overlapping vegetation disturbance due to coal mining and CBM development	Moderate, short term	Same as Proposed Action for existing surface mines

<sup>1</sup> Refer to Section 4.8 for a discussion of cumulative impacts.  
<sup>2</sup> All impacts are assumed to be adverse unless noted otherwise.

2.0 Proposed Action and Alternatives

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

DESCRIPTION OF POTENTIAL IMPACT BY RESOURCE	MAGNITUDE TYPE AND DURATION OF IMPACT	NO ACTION ALTERNATIVE
RESOURCE NAME	PROPOSED ACTION	
<b>WILDLIFE</b> IMPACTS ON WILDLIFE FROM OVERLAPPING SURFACE MINING AND OTHER DEVELOPMENT could result in: Loss of pronghorn habitat	Moderate, short term	No added impacts due to Ash Creek Mine
Mule deer and white-tailed deer population reduction	Negligible, short term	No added impacts due to Ash Creek Mine
Reduction in raptor nesting sites and foraging habitat	Negligible, short term	No added impacts due to Ash Creek Mine
Reduction in sage grouse leks	Moderate, short term	No added impacts due to Ash Creek Mine
Loss of nesting and foraging habitat for Migratory Birds of Management Concern	Negligible, short term	No added impacts due to Ash Creek Mine
Reduction in waterfowl habitat	Minor, short term	No added impacts due to Ash Creek Mine
Reduction in wildlife habitat diversity	Moderate, long term on mine areas	No added impacts due to Ash Creek Mine
Reduction in some wildlife carrying capacity	Moderate, long term on mine areas	No added impacts due to Ash Creek Mine
<b>THREATENED, ENDANGERED, PROPOSED, AND CANDIDATE SPECIES</b> See Appendix E and T&E section in Table 2-4		
<b>LAND USE AND RECREATION</b> IMPACTS ON LAND USE could result in: Loss of agricultural production	Moderate, short term on mine areas	No added impacts due to Ash Creek Mine
Disruption of oil and gas development/production	Moderate to significant, short term on mine areas	Same as Proposed Action for existing surface mine areas
Reduction of wildlife habitat	Moderate, short term on mine areas	No added impacts due to Ash Creek Mine
IMPACTS ON RECREATION could result in: Loss of access to lands used by recreationists, particularly hunting	Negligible, short term on mine areas	No added impacts due to Ash Creek Mine
<b>CULTURAL RESOURCES</b>		
<b>NATIVE AMERICAN CONCERNS</b>	Sites eligible for NRHP would be mitigated on mine areas. Ineligible sites may be destroyed. No impact identified on mine areas	Same as Proposed Action for existing surface mines No added impacts due to Ash Creek Mine

<sup>1</sup> Refer to Section 4.8 for a discussion of cumulative impacts.

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

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

DESCRIPTION OF POTENTIAL IMPACT BY RESOURCE	MAGNITUDE TYPE AND DURATION OF IMPACT	NO ACTION ALTERNATIVE
RESOURCE NAME	PROPOSED ACTION	NO ACTION ALTERNATIVE
<b>PALEONTOLOGICAL RESOURCES</b>	No impact identified on mine areas	No added impacts due to Ash Creek Mine
<b>VISUAL RESOURCES</b>	No overlapping impacts with existing mines	No added impacts due to Ash Creek Mine
Impacts on visual resources by mining activities	No overlapping impact with existing mines	No added impacts due to Ash Creek Mine
<b>NOISE</b>	Negligible, short term	No added impacts due to Ash Creek Mine
<b>TRANSPORTATION FACILITIES</b>	Moderate, beneficial, short term	No added impacts due to Ash Creek Mine
Increased use of existing transportation facilities	Moderate, beneficial, short term	No added impacts due to Ash Creek Mine
<b>SOCIOECONOMICS</b>	Moderate, beneficial, short term	No added impacts due to Ash Creek Mine
IMPACTS ON SOCIOECONOMICS could include:	Moderate, beneficial, short term	No added impacts due to Ash Creek Mine
Stabilization of municipal and county economics	Moderate, beneficial, short term	No added impacts due to Ash Creek Mine
Employment	Significant, beneficial, short term	No added impacts due to Ash Creek Mine
Federal, State, and Community Tax Revenues	Significant, beneficial, short term	No added impacts due to Ash Creek Mine

<sup>1</sup> Refer to Section 4.8 for a discussion of cumulative impacts.

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