

EXECUTIVE SUMMARY

On March 23, 1995, Powder River Coal Company (PRCC) filed an application with the U.S. Department of the Interior-Bureau of Land Management (BLM) for a maintenance coal lease for federal coal reserves located north and west of PRCC's existing North Antelope and Rochelle Mines (Figure ES-1). This coal lease application, which is referred to as the Powder River Lease-By-Application (LBA) Tract, was assigned case file number WYW136142. As applied for, this tract includes approximately 4,020 acres and approximately 515 million tons of federal coal.

On April 14, 1995, Kerr-McGee Coal Corporation (KMCC) filed an application with the BLM for a maintenance coal lease for federal coal reserves located west of and adjacent to KMCC's Jacobs Ranch Mine (Figure ES-2). This coal lease application, which is referred to as the Thundercloud LBA Tract, was assigned case file number WYW136458. As applied for, it includes approximately 3,400 acres and approximately 427 million tons of federal coal. The Thundercloud LBA Tract surrounds 40 acres of surface and coal privately owned by the Atlantic Richfield Company (ARCO)(Figure ES-2). Although this coal is not federally owned, it would be logically mined with the federal coal in the Thundercloud Tract. Therefore, for the purposes of the environmental analysis in this EIS, it is assumed that this private coal will be mined in conjunction with the federal coal in the Thundercloud Tract.

The lands applied for in these two applications are located in southeastern Campbell County, Wyoming. The Thundercloud LBA Tract is located approximately 38 miles southeast of Gillette, Wyoming, approximately 15 miles east of

Wright, Wyoming, and approximately 9 miles north of the Powder River LBA Tract.

These lease applications were reviewed by the BLM, Wyoming State Office, Division of Mineral and Lands Authorization, and it was determined that the applications and the lands involved met the requirements of the regulations governing coal leasing on application at Title 43 of the Code of Federal Regulations Part 3425.1 (43 CFR 3425.1). The applications were also reviewed by the Powder River Regional Coal Team (PRRCT) at their public meeting on April 23, 1996, in Cheyenne, Wyoming. At that time, the PRRCT recommended that the BLM process both the Thundercloud and Powder River coal lease applications as LBA's. In order 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 the National Environmental Policy Act of 1969 (NEPA) by evaluating the environmental impacts of leasing and mining the federal coal.

To evaluate the environmental impacts of leasing and mining the coal, the BLM must prepare an environmental assessment (EA) or an environmental impact statement (EIS) to evaluate the site-specific and cumulative environmental impacts of leasing and developing the federal coal in each application area. The BLM made a decision to prepare one EIS for both of these lease applications.

BLM will use the analysis in this EIS to decide whether or not to hold a public, competitive, sealed-bid coal lease sale for each of the two coal tracts and issue federal coal leases. If the sales are held, the bidding at those sales is open to any qualified bidder; it is not limited to the applicants. If the lease sales are held, a lease would be issued to the

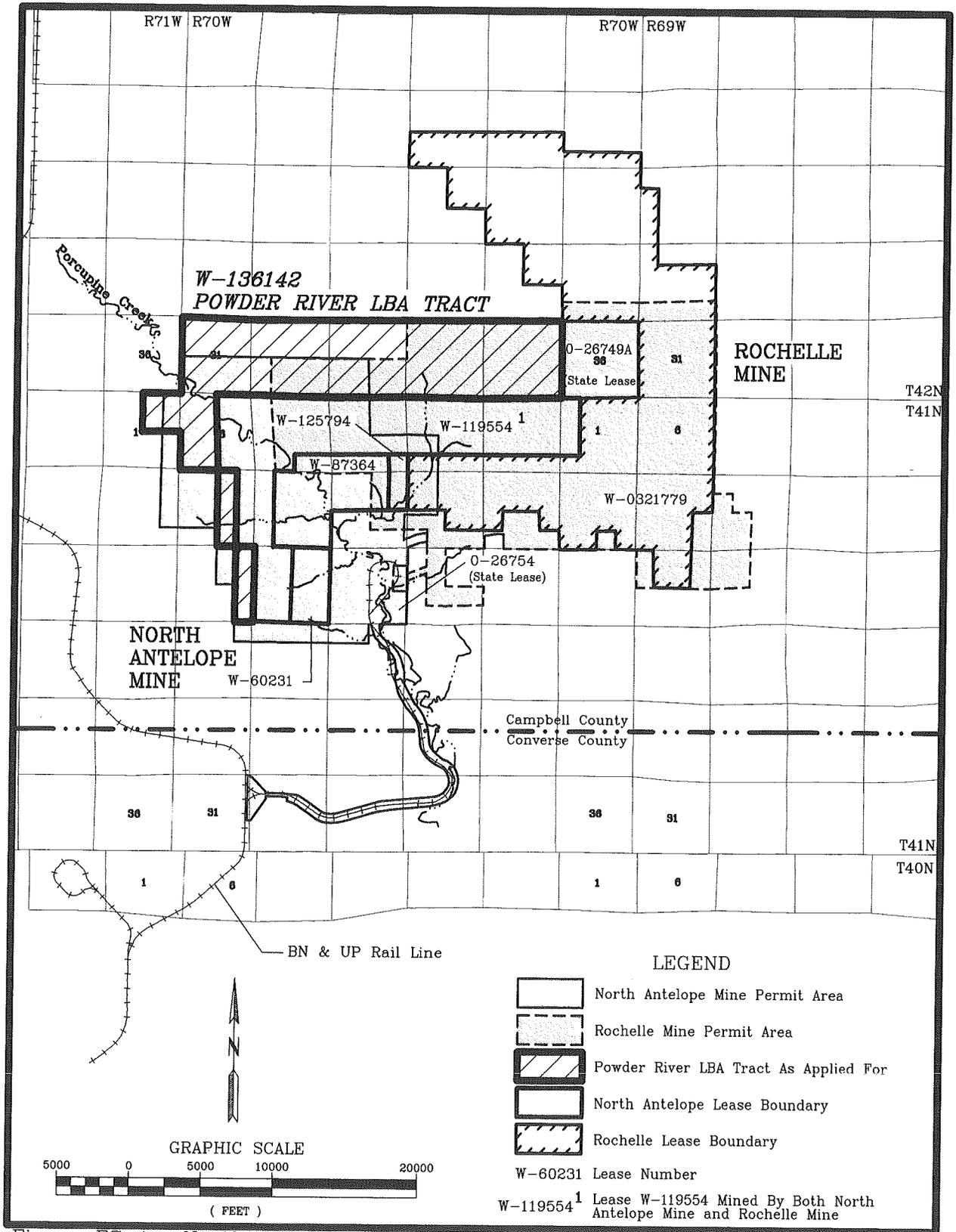


Figure ES-1. North Antelope Mine and Rochelle Mine Coal Leases and the Powder River LBA Tract As Applied For

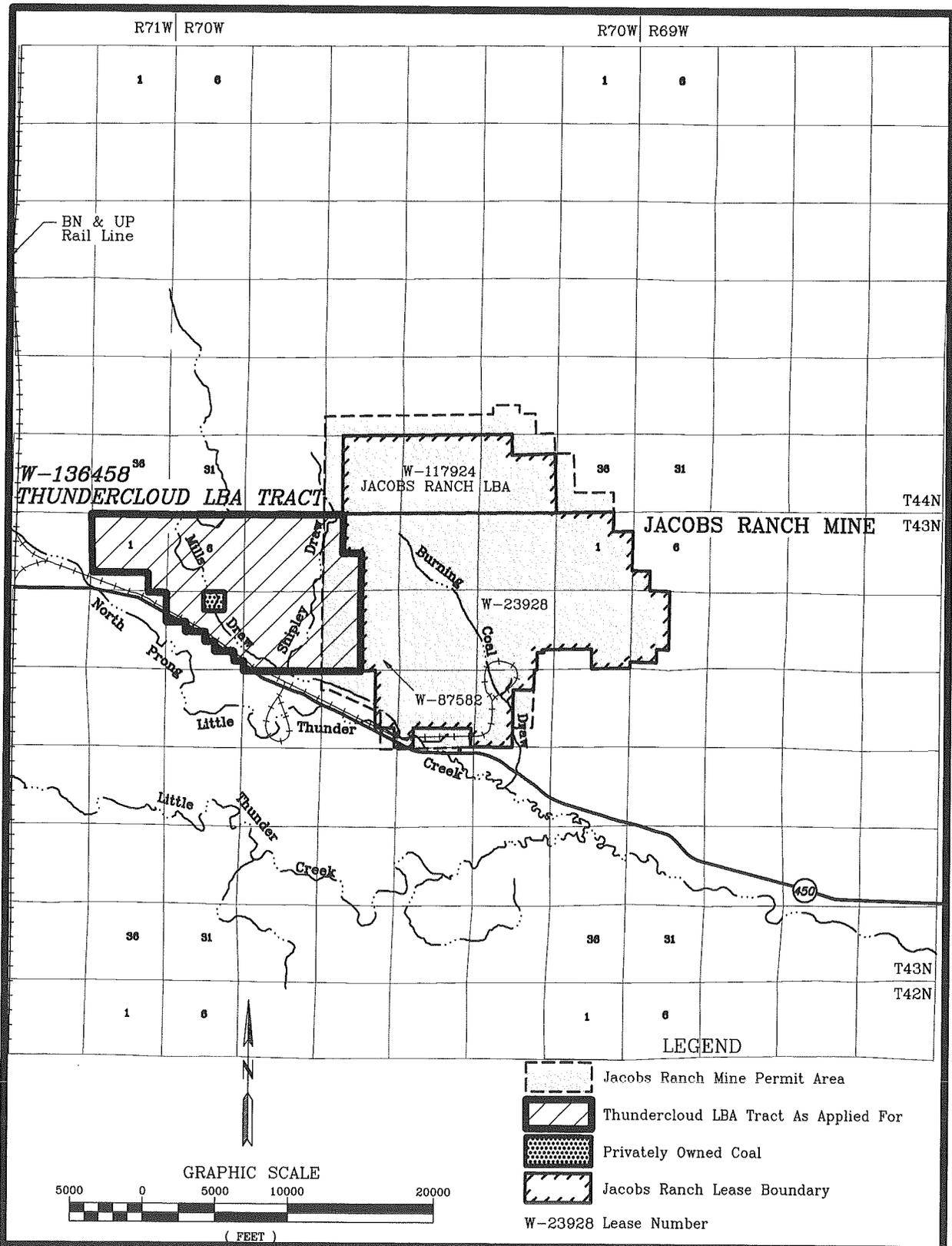


Figure ES-2. Jacobs Ranch Mine Coal Leases and the Thundercloud LBA Tract As Applied For

highest bidder at each sale if a federal sale panel determines that the high bid at that sale meets or exceeds the fair market value of the coal as determined by BLM's economic evaluation, and if the U.S. Department of Justice determines that there are no antitrust violations if a lease is issued to the high bidder at each sale. PRCC and KMCC each previously applied for federal coal under the LBA process, each was the successful high bidder when a competitive lease sale was held, and, in 1992, each was issued a maintenance lease adjacent to these same mines.

Other agencies, including cooperating agencies on this EIS (the U.S. Forest Service [USFS] and the Office of Surface Mining Reclamation and Enforcement [OSM]), will also use this analysis to make decisions related to leasing and mining the federal coal in these tracts.

The lands in both LBA tracts have been subjected to four coal planning screens and determined acceptable for consideration for leasing. A decision to lease the federal coal lands in these applications would be in conformance with both the BLM Resource Management Plan for the Buffalo Resource Area and the USFS Land and Resource Management Plan for the Thunder Basin National Grassland.

As stated previously, the LBA sale process is, by law and regulation, an open, public, competitive sealed-bid process. If separate lease sales are held for these LBA tracts, the applicants (PRCC and KMCC) may not be the successful high bidders. The analysis in this EIS assumes that PRCC will be the successful bidder on the Powder River LBA Tract if a sale is held, and that it will be mined as a maintenance tract for the North Antelope and Rochelle Mines; and that KMCC will be the successful bidder for the

Thundercloud LBA Tract if a sale is held, and that it will be mined as a maintenance tract for the Jacobs Ranch Mine. The Thundercloud LBA Tract is also adjacent to the Black Thunder Mine, operated by Thunder Basin Coal Company (TBCC), and could be mined as a maintenance tract for that mine. If TBCC acquires the tract, the rate of coal production, mining sequence, equipment, and facilities would be different than if KMCC acquires the tract, but the impacts of mining the tract would not substantially alter the environmental analysis conducted in this FEIS.

This FEIS analyzes three alternatives:

The Proposed Action is to hold two separate competitive coal lease sales and issue maintenance leases to the successful bidders (either the applicants or other adjacent existing mines) for the Powder River and Thundercloud LBA tracts as applied for (Figures ES-3 and ES-4).

Alternative 1 is the No Action Alternative. Under this alternative, the LBA tracts would not be leased, but the existing leases at the North Antelope, Rochelle, and Jacobs Ranch Mines would be developed according to the existing approved mining plans for each mine.

Alternative 2 considers holding two separate competitive coal lease sales and issuing maintenance leases to the successful bidders (either the applicant or other adjacent existing mines) for the Powder River and Thundercloud tracts as configured by BLM (Figures ES-3 and ES-4). BLM developed amended tract configurations in order to avoid potential future bypass situations

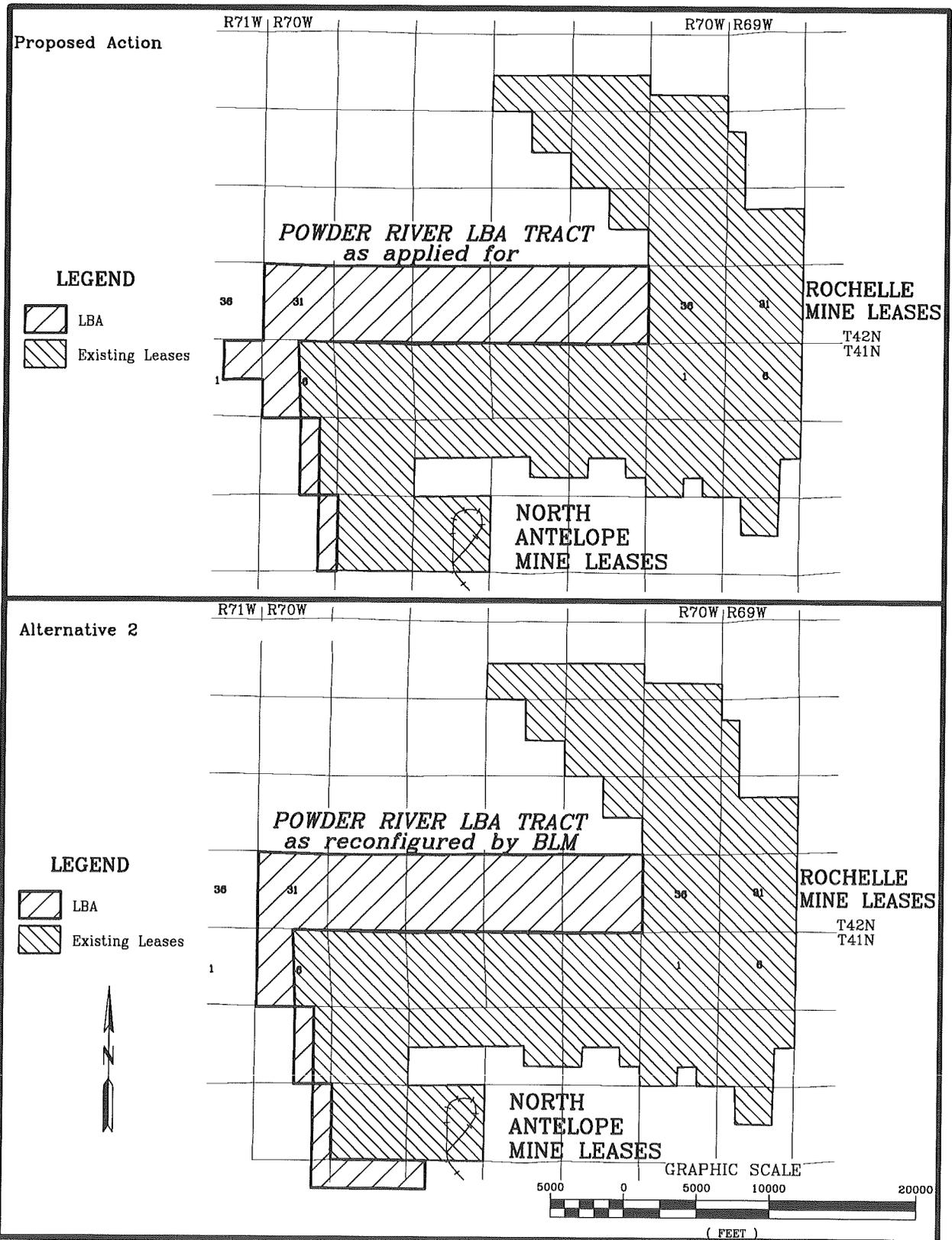


Figure ES-3. Powder River LBA Tract Configurations.

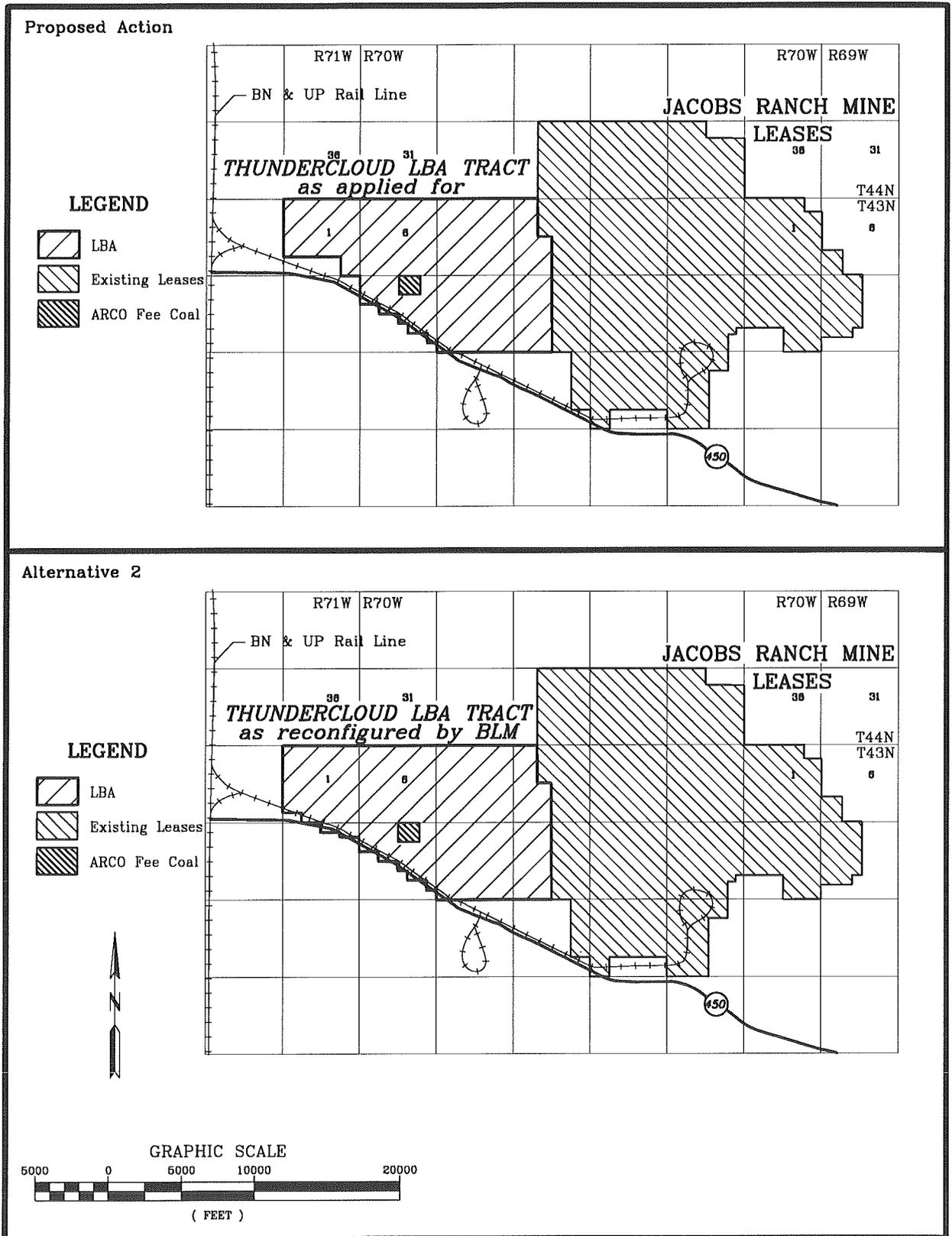


Figure ES-4. Thundercloud LBA Tract Configurations.

and/or to enhance the value of the remaining unleased coal. Under this alternative, the Powder River LBA Tract includes 4,224.225 acres and approximately 532 million tons of federal coal. The amended Thundercloud LBA Tract includes 3,545.503 acres and approximately 432 million tons of federal coal. Alternative 2 is the preferred alternative of the BLM.

Table ES-1 summarizes coal production, surface disturbance, and mine life for the North Antelope and Rochelle Mines under each alternative. Table ES-2 summarizes coal production, surface disturbance and mine life for the Jacobs Ranch Mine under each alternative. The environmental impacts of mining both tracts summarized below would be similar under the Proposed Action and Alternative 2.

Other alternatives that were considered but not analyzed in detail include holding separate competitive coal lease sales and issuing leases to the successful bidders (not the applicant) for the purpose of developing new stand-alone mines; and delaying the competitive sale of one or both LBA tracts.

Critical elements of the human environment (BLM 1988) that could be affected by the proposed project include air quality, cultural resources, Native American religious concerns, threatened, endangered, and candidate (T&E) plant and animal species, hazardous or solid wastes, water quality, and wetlands/riparian zones. USFS Region 2 Sensitive Species could also be affected by the proposed project. Five critical elements (areas of critical environmental concern, floodplains, prime and unique farmland, wild and scenic rivers, and wilderness) are not present in the project area and are not addressed further. In addition to the critical

elements that are potentially present in the project area, the EIS discusses the status and potential effects of the project on topography and physiography, geology and mineral resources, soils, water availability or quantity, alluvial valley floors, wetlands, vegetation, wildlife, land use and recreation, paleontological resources, visual resources, noise, transportation resources, and socioeconomics.

The project area is located in the Powder River Basin (PRB), a part of the Northern Great Plains that includes most of northeastern Wyoming. The LBA tracts are located in the south-central part of the PRB at an elevation of about 4,700 ft in an area of low rolling topography. The main mining objective in both LBA tracts is the Wyodak coal seam. In the Thundercloud LBA Tract, there are up to three mineable coal seams, referred to as the upper, middle, and lower Wyodak. In the Powder River LBA Tract, there is one mineable seam, referred to as the Wyodak in this EIS. The main coal seam on both LBA tracts is 75 feet thick, and overburden ranges from about 150 ft thick at the eastern boundaries of the LBA tracts to over 250 ft on the northern and western boundaries. These overburden and coal thicknesses are similar to the existing leases at the North Antelope, Rochelle, and Jacobs Ranch Mines.

The existing topography on both LBA tracts would be substantially changed during mining. A highwall with a vertical height equal to overburden plus coal thickness would exist in the active pits. Some spoil and topsoil would be stockpiled for later reclamation, some would be directly placed into the already mined pit. Porcupine Creek (at the Powder River LBA Tract) and Mills and Shipley Draws and North Prong Little Thunder Creek (at the Thundercloud LBA Tract) would be diverted into temporary

Table ES-1. Summary Comparison of Coal Production, Surface Disturbance, and Mine Life for Powder River LBA Tract, North Antelope and Rochelle Mines.

Item	No Action Alternative (Existing North Antelope/Rochelle Mines)	Added by Proposed Action	Added by Alternative 2
Leased Coal (In place)	1.01 billion tons ¹	515 million tons	532 million tons
Recoverable Coal ^{2,3}	971 million tons	489 million tons	505 million tons
Lease Acres ³	11,434 acres	4,023.5 acres	4,224.2 acres
Total Area To Be Disturbed	11,948 acres	4,626 acres	4,669 acres
Permit Area ⁴	16,217 acres	6,530 acres	6,530 acres
Average Annual Coal Production	65 million tons	none added (65 million tons)	none added (65 million tons)
Life Of Mine	33 years	7.5 years	7.8 years
Average No. Of Employees	640	220	220
Total Projected State Revenues ⁵	\$1.07 billion	\$538 million	\$555 million
Total Projected Federal Revenues ⁶	\$334 million	\$168 million	\$174 million

¹ Does not include 165 million tons of coal in original lease that were never included in the mine permit due to economic factors.

² Assumes 95% recovery of in-place coal reserves, based on operational experience at the North Antelope and Rochelle Mines.

³ Tons and acres provided for life of mine beginning in 1983 for North Antelope Mine and 1985 for Rochelle Mine.

⁴ Includes combined North Antelope and Rochelle Mine Permit Areas, which overlap. Separately, the two permit areas comprise 18,063 acres.

⁵ Projected revenue to the State of Wyoming assumes the State will receive \$1.10 per ton of coal sold (University of Wyoming 1994). Projection includes estimated income to the State from severance tax, property and production taxes, sales and use taxes, and Wyoming's share of federal royalty payments.

⁶ Federal Revenues based on a \$4.00/ton price x federal royalty of 12.5% x amount of recoverable coal plus bonus payment of 17.8c/ton based on an average of last 7 LBA's (see Table 1-1) x amount of leased coal less state's 50% share.

Table ES-2. Summary Comparison of Coal Production, Surface Disturbance, and Mine Life for Thundercloud LBA Tract and Jacobs Ranch Mine

Item	No Action Alternative (Existing Jacobs Ranch Mine)	Added by Proposed Action	Added by Alternative 2
Leased Coal (in place)	538 million tons	427 million tons ¹	432 million tons ²
Recoverable Coal ³	484 million tons	384 million tons	389 million tons
Lease Acres	6,955 acres	3,395.9 acres ⁴	3,545.5 acres ⁴
Total Area To Be Disturbed	8,122 acres	3,749 acres ⁵	3,834 acres ⁵
Permit Area	9,198 acres	3,851 acres ⁵	3,851 acres ⁵
Average Annual Coal Production (1997 forward)	27 million tons	8 million tons (to 35 million tons)	8 million tons (to 35 million tons)
Life Of Mine	30 years	11 years	11.1 years
Average No. Of Employees	350	100	100
Total Projected State Revenues ⁶	\$532 million	\$422 million	\$428 million
Total Projected Federal Revenues ⁷	\$169 million	\$134 million	\$136 million

¹ Excludes the 40-acre coal tract in the NW/4 NE/4 of Section 7 owned by ARCO and 11 million tons beneath the railroad right of way and buffer area.

² Excludes the 40-acre coal tract in the NW/4 NE/4 of Section 7 owned by ARCO and 22 million tons beneath the railroad right of way and buffer area.

³ Assumes 90% recovery of in-place coal reserves.

⁴ Excludes the 40-acre coal tract in the NW/4 NE/4 of Section owned by ARCO

⁵ Includes the 40-acre coal tract in the NW1/4 NE1/4 of Section 7 owned by ARCO.

⁶ Projected revenue to the State of Wyoming assumes the state will receive \$1.10 per ton of coal sold (University of Wyoming 1994). Projection includes estimated income to the State from severance tax, property and production taxes, sales and use taxes, and Wyoming's share of federal royalty payments.

⁷ Federal revenues based on a \$4.00/ton price x federal royalty of 12.5% x amount of recoverable coal plus bonus payment of 17.8¢/ton based on an average of last 7 LBA's (see Table 1-1) x amount of leased coal less state's 50% share.

channels or blocked to prevent flooding of the pits. Following reclamation, the average surface elevation would be approximately 43 ft lower at the Thundercloud LBA Tract and 46 ft lower at the Powder River LBA Tract due to removal of the coal. The reclaimed land surface would approximate premining contours and the basic drainage network would be retained, but the reclaimed surface would contain fewer, gentler topographic features. This could contribute to reduced wildlife carrying capacity on the LBA tracts. These topographic changes would not conflict with regional land use, and the postmining topography would adequately support anticipated land use.

The geology from the base of the coal to the land surface would be subject to considerable long-term change on the LBA tracts under either action alternative. Mining would permanently remove the coal. The replaced overburden would be a relatively homogeneous mixture compared to the premining layered overburden.

Consequences to soil resources from mining the LBA tracts would include changes in the physical, biological, and chemical properties. Following reclamation, the soils would be unlike premining soils in texture, structure, color, accumulation of clays, organic matter, microbial populations, and chemical composition. The replaced topsoils would be much more uniform in type, thickness, and texture. They would be adequate in quantity and quality to support planned postmining land uses (i.e., wildlife habitat and rangeland).

Moderately adverse impacts to air quality would occur on the LBA tracts if they are mined. Dust would be visible to the public when mining occurs near Highway 450, Highway 59, and Antelope and Mackey County Roads. Total suspended particulates

(TSP) concentrations would be elevated in the vicinity of mining operations, but would not violate federal or Wyoming primary and secondary standards, even when combined with emissions from adjacent mines. Concentrations of gaseous emissions would remain within acceptable federal and state standards. Federal and state air quality standards have not been exceeded by all existing industrial development in the southeastern PRB, including the existing mines. This is not predicted to change as a result of mining the LBA tracts.

Changes in runoff characteristics and sediment discharges would occur during mining of the LBA tracts, and erosion rates could reach high values on the disturbed areas because of vegetation removal. However, state and federal regulations require that surface runoff from mined lands be treated to meet effluent standards, so sediment would be deposited in ponds or other sediment-control devices. After mining and reclamation are complete, surface water flow, quality, and sediment discharge would approximate premining conditions.

Mining the LBA tracts would increase the area of lowered water levels in the coal and overburden aquifers, and the area where the existing coal and overburden aquifers would be replaced by mine backfill. Drawdown in the continuous coal aquifer would be expected to increase roughly in proportion to the increase in area affected by mining, and would extend farther than drawdown in the discontinuous overburden aquifers. The data available indicate that hydraulic properties of the backfill would be comparable to the premining overburden and coal aquifers. Groundwater quality in the backfill can be expected to range from 3,000 to 6,000 mg/L, similar to the premining Wasatch Formation aquifer. This would meet Wyoming Class III standards for use as stock water.

Mining would progressively remove the native vegetation on both LBA tracts. Reclamation and revegetation of this land would occur contemporaneously with mining. Re-established vegetation would be dominated by species mandated in the reclamation seed mixtures (to be approved by WDEQ). The majority of these species would be native to the LBA tracts. Initially, the reclaimed land would be dominated by grassland vegetation which would be less diverse than the premining vegetation. Estimates for the time it would take to restore sagebrush to premining density levels range from 20 to 100 years. An indirect impact of decreased big game habitat carrying capacity would be associated with this vegetative change. However, a diverse, productive, and permanent vegetative cover would be established on the LBA tracts within about 10 years following reclamation, prior to release of the final reclamation bond. The decrease in plant diversity would not seriously affect the potential productivity of the reclaimed areas, and the proposed postmining land use (wildlife habitat and rangeland) should be achieved even with the changes in vegetation composition and diversity. In areas of the LBA tracts where surface ownership is private, the private landowners would have the right to manipulate the vegetation on their lands as they desire once the final reclamation bond is released.

Mining of the LBA tracts would reduce the acreage of habitat available for wildlife populations; however, the LBA tracts do not contain any unique or crucial big game habitat, and habitat would be disturbed in parcels, with reclamation progressing as new disturbance occurs. Wildlife habitat quality has declined in the PRB due to a continuing trend of landscape fragmentation from roads, rail lines, oil and gas wells, coal mines, and fences. Mining of the LBA tracts would add

to this habitat fragmentation. However, since no defined crucial habitat occurs on the LBA tracts and very little crucial habitat occurs in the highly developed corridor involving area coal mines, these consequences are not expected to cause significant impacts.

USFS Region 2 sensitive species habitat may be directly or indirectly impacted by changing the surface character of the LBA tracts. If the LBA tracts are leased, the USFS will evaluate the tracts for these sensitive species in a Biological Evaluation prior to any habitat manipulation actions when each lessee files an application for a surface mining permit.

Mining the LBA tracts would not be expected to jeopardize the existence of any T&E species, and no known critical habitat for T&E species exists on the LBA tracts.

Active mining would preclude other land uses. During mining and reclamation, the public would not have access to approximately 1,240 acres of federal land on the Thundercloud LBA Tract and approximately 2,675 acres of federal land on the Powder River LBA Tract for hunting or other purposes. Following reclamation, the land would be suitable for grazing and wildlife use, which are the historic land uses. Following reclamation bond release, management of the private surface would return to the private surface owner and management of the federal surface would return to the federal surface managing agency (USFS).

Mining would also impact existing oil and gas development on the leased lands during active mining. There are active oil and gas wells on both LBA tracts. If some or all of these wells on either tract are still producing at the time that coal removal begins, it would

be necessary to remove the equipment associated with those wells and to mine through those wells to recover all of the coal. Before this could occur, the coal lessee and the oil and gas well operator would have to negotiate a mutually acceptable agreement regarding the value of the unrecovered oil and gas resources and/or the cost of re-establishing production after mining and reclamation. New drilling would not be possible in areas of active mining, but could potentially take place in areas not being mined, or in reclaimed areas. Potential for development of coal bed methane resources on the tract would be lost with the removal of the coal.

Cultural resources on the LBA tracts would be impacted by mining, but adverse impacts would be mitigated through data recovery and/or avoidance of significant properties. Formal Wyoming State Historic Preservation Office (SHPO) consultation is required for concurrence with determination of the eligibility of sites for inclusion on the National Register of Historic Places (NRHP) prior to mining. If eligible cultural properties are found within the LBA tracts and they cannot be avoided, a data recovery program would be implemented.

No sites of Native American religious or cultural importance are known to occur on the LBA tracts; if such sites or localities are identified, they will be taken into consideration.

No unique or significant paleontological resources have been identified on the LBA tracts, and the likelihood of encountering significant paleontological resources is small.

The Powder River LBA Tract and most of the Thundercloud LBA tract would not be visible from any major travel routes and would be partly concealed by surrounding

terrain. Some areas of the Thundercloud LBA tract would be visible from State Highway 450. Mining would affect landscapes classified by USFS as "common," and the landscape character would not be significantly changed following reclamation.

Impacts from noise generated by mining activities on the LBA tracts are not expected to be significant due to the remote nature of the site.

No new or reconstructed transportation facilities would be required under the Proposed Action or Alternative 2. Leasing the LBA tracts would extend the length of time that coal is shipped from the permitted North Antelope, Rochelle, and Jacobs Ranch Mines. Active pipelines and utility lines would have to be relocated in accordance with previous agreements, or agreements would have to be negotiated for their relocation.

A 1994 University of Wyoming study estimated that the total direct fiscal benefit to the State of Wyoming from coal mining taxes and royalties is \$1.10/ton of coal mined. Using that estimate, the tax and royalty benefit to the State of Wyoming of mining the coal in the LBA tracts under the action alternatives would range from \$960 million to \$983 million. The total economic impact to the local area from direct, indirect and induced effects would range from \$5.24 billion to \$5.37 billion. Mine life, and thus employment, would be extended up to 11.1 years at the Jacobs Ranch Mine and up to 7.8 years at the North Antelope and Rochelle Mines.

Under the No Action Alternative, the impacts described in the preceding paragraphs to topography and physiology, geology and minerals, soils, air quality, water resources, alluvial valley floors, wetlands, vegetation,

wildlife, USFS Region 2 sensitive species, threatened, endangered and candidate species, land use and recreation, cultural resources, Native American concerns, paleontological resources, visual resources, noise, transportation, and socioeconomics would occur on the existing Jacobs Ranch, North Antelope and Rochelle coal leases, but these impacts would not be extended onto the LBA tracts.

In the case of surface coal mining, the Surface Mining Control and Reclamation Act (SMCRA) and state law require a considerable amount of mitigation and monitoring. If impacts are identified during the leasing process that are not mitigated by existing required mitigation measures, then BLM or USFS can include additional mitigation measures as stipulations on a new lease. No mitigation or monitoring measures beyond those required by SMCRA or state law have been identified as necessary for the Powder River or Thundercloud tracts at this time.

Cumulative impacts result from the incremental impacts of an action added to other past, present, and reasonably foreseeable future actions, regardless of who is responsible for such actions. Cumulative impacts can result from individually minor, but collectively significant, actions occurring over time.

Since decertification of the Powder River Federal Coal Region in 1990, the Wyoming State BLM Office has held nine competitive coal lease sales and sold seven federal coal leases containing approximately 1.42 billion tons of coal using the lease-by-application or LBA process. This leasing process has undergone the scrutiny of two appeals to the Interior Board of Land Appeals and one audit by the General Accounting Office.

The Wyoming BLM has received applications for five federal coal tracts containing approximately 2.0 billion tons of coal, including the Powder River and Thundercloud LBA tracts. The Powder River Regional Coal Team (PRRCT) has reviewed all of these applications and has recommended processing four of them. At a public meeting held in Casper, Wyoming on April 23, 1997, the PRRCT recommended that the BLM not process the New Keeline lease application for a potential new mine start at this time. The BLM Wyoming State Director subsequently rejected that application without prejudice in a decision signed on June 13, 1997. This decision has been appealed. The four pending LBA's recommended for processing include approximately 1.3 billion tons of mineable federal coal.

The Wyoming and Montana BLM state offices completed a study entitled "*Powder River Basin Status Check*" in 1996. The purpose of this study was to document actual mineral development impacts in the PRB from 1980 to 1995 and compare them with mineral development impacts that were predicted to occur by 1990 in the five previously prepared PRB regional EIS's. The status check was updated prior to the 1997 PRRCT public meeting in Casper.

Four of the previously prepared regional EIS's evaluated coal development in the PRB in Wyoming. They are:

Final Environmental Impact Statement, Eastern Powder River Coal Basin of Wyoming, BLM, October 1974;

Final Environmental Impact Statement, Eastern Powder River Coal, BLM, March 1979;

Final Environmental Impact Statement, Powder River Coal Region, BLM, December 1981;

Draft Environmental Impact Statement, Round II Coal Lease Sale, Powder River Region, BLM, January 1984.

For Wyoming, the status check compared actual development in Campbell and Converse counties with predictions in the 1979 and 1981 Final EIS's, and USGS Water Resources Investigations Report 88-4046, entitled "*Cumulative Potential Hydrologic Impacts of Surface Coal Mining in the Eastern Powder River Structural Basin*," by Martin and others.

In 1996, Wyoming produced approximately 278.4 million tons of coal, according to the records of the Wyoming State Inspector of Mines. This is almost a three-fold increase since 1980, when 94 million tons of coal was produced in the state. The increasing state production is primarily due to increasing sales of low-sulfur, low-cost PRB coal to electric utilities who must comply with Phase I requirements of Title III of the 1990 Clean Air Act Amendments. Electric utilities account for 97% of Wyoming's coal sales.

There are currently 17 operating coal mines in Campbell and northern Converse counties (Figure ES-5). They are located just west of the outcrop of the Wyodak coal, where the coal is at the shallowest depth. These mines produce 85% to 95% of the coal produced in Wyoming each year. The actual levels of production from these mines are within the levels predicted in the 1981 EIS. The increasing production will probably result in a continuing demand for federal coal in the Wyoming Powder River Basin, as discussed in the coal leasing demand study that was completed by the BLM Wyoming State Office in 1996 (BLM 1996e). However,

several mines have announced plans to decrease coal production at this time due to the low coal prices.

Oil production has decreased in the Wyoming PRB since 1990. In recent years, more wells have been plugged annually than have been drilled.

Natural gas production in the Wyoming PRB has increased since 1990. The increase is primarily due to the development of shallow coal bed methane resources in the area just west of the coal mines, which was not anticipated in the regional EIS's. Since 1992, five EA's and one EIS have been prepared to analyze the impacts of coal bed methane development projects in the Powder River Basin. Only about half of the oil and gas rights in the area of current coal bed methane development interest are federal; the remainder are private and state. Coal bed methane wells can be drilled on private and state oil and gas leases after approval by the Wyoming Oil and Gas Conservation Commission and the Wyoming State Engineer's Office. Wells cannot be drilled on federal oil and gas leases until the BLM analyzes the individual and cumulative environmental impacts of that drilling, as required by NEPA.

Water and methane are produced from the coal by coal bed methane wells, and the area of coal bed methane development in the PRB is west of the existing coal mines. Therefore, the potential exists for overlapping groundwater drawdown in the coal if both resources are produced. Currently, there is no coal bed methane production in the vicinity of the LBA tracts, but based on current trends, it is likely that development will continue southward in the direction of the LBA tracts and adjacent mines. If coal bed methane is developed adjacent to the six southern mines, the

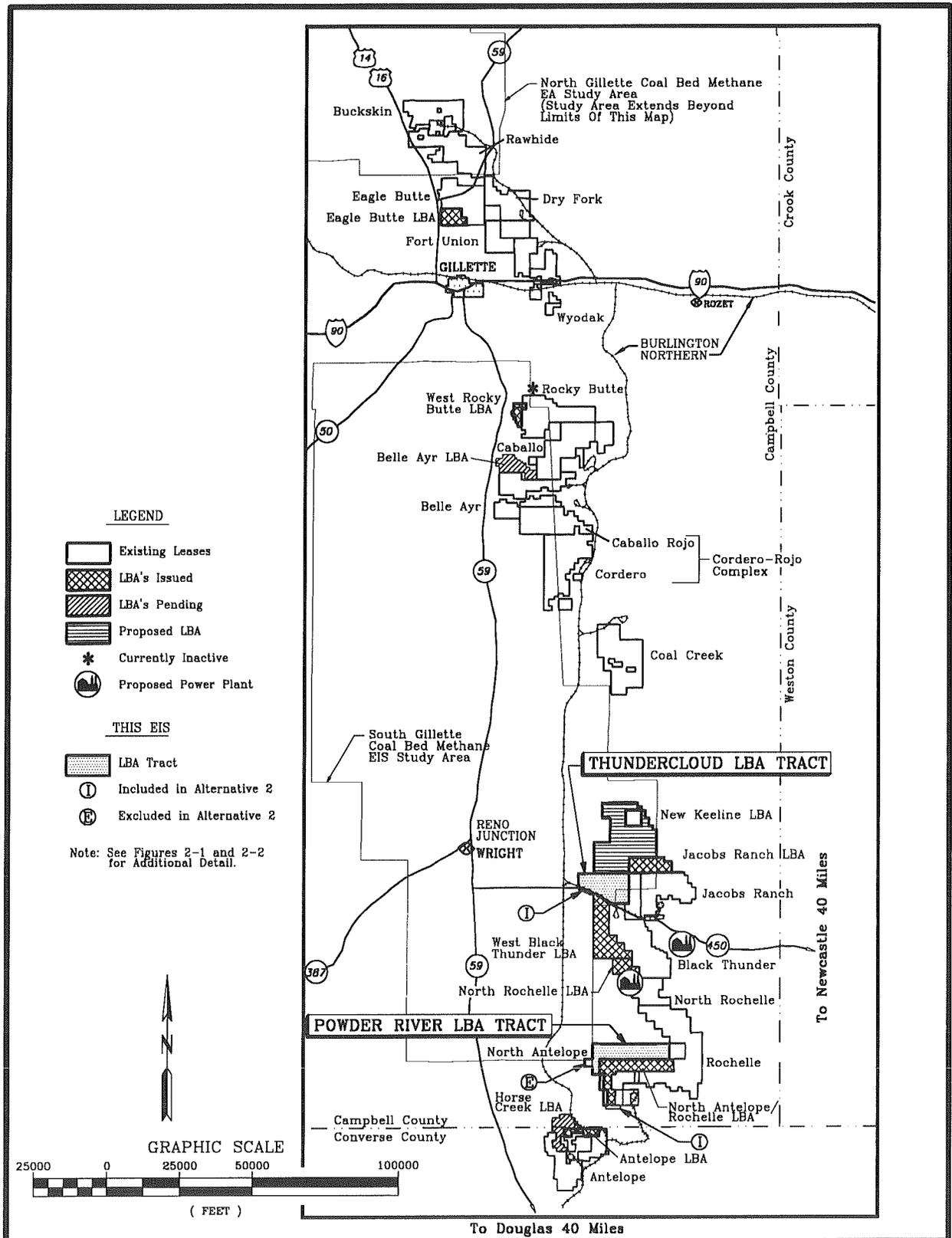


Figure ES-5. Existing and Proposed Federal Coal Leases.

resulting groundwater withdrawal from the Wyodak coal would cause drawdowns that would extend farther to the west and that would overlap additively with groundwater drawdown in the Wyodak Coal caused by coal mining.

Other mineral development levels in the Wyoming PRB are currently lower than predicted in the EIS's. In the 1970's, significant uranium development was anticipated in southwest Campbell County and northwest Converse County. This development did not materialize because the price of uranium dropped in the early 1980's. There are currently three *in situ* uranium operations in Converse and Johnson counties, but no mines and no mills. Uranium production has been increasing since 1990. The increase is partially due to higher uranium prices, particularly in 1996 and 1997.

In addition to the ongoing coal mining, the proposed maintenance coal leasing (the Powder River and Thundercloud LBA Tracts considered in this EIS and the Horse Creek LBA Tract), and the potential coal bed methane development, there are four other projects in progress or planned in the vicinity of the southern group of mines: 1) construction of the North Rochelle Mine facilities and rail loop which began in June of 1997; 2) the ENCOAL Plant, which has been proposed within the rail loop at the North Rochelle Mine; 3) the Two Elk Power Plant, which has been proposed east of the Black Thunder Mine; and 4) the construction of the proposed DM&E Railroad line. The ENCOAL and Two Elk projects could commence in 1998; however, the schedule for both projects is tentative. In a recent press release (Ziegler Coal Holding Company, August 29, 1997), it was announced that the construction contract for the plant had been terminated. The DM&E

railroad currently proposes to get the necessary permits and start construction by 1999, and complete a new railroad line in 2001. These projects were proposed independently of the LBA tracts and the schedules for some of these projects are uncertain. They are considered in the cumulative impact analysis because, due to their location, the impacts related to these projects could overlap with the impacts related to mining coal on and in the vicinity of the LBA tracts.

The existing and proposed development in the PRB has and will continue to result in the introduction of additional roads, railroads, power lines, fences, mine structures, and oil and gas production equipment. This area has already undergone change from a semi-agriculturally based economy to a coal mining and oil and gas economy. Environmentally, the open, basically treeless landscape has been visibly altered by construction, equipment, and human activities. Leasing of the LBA tracts would increase the total area that would be affected by mining but would not cause a significant cumulative change in daily impacts because mining disturbance is progressive, and reclamation proceeds contemporaneously. Cumulative impacts vary by resource and range from being almost undetectable to being substantial. Cumulative impacts on air quality, groundwater quantity and wildlife habitat (particularly antelope) have created the greatest concern. Figure ES-6 shows modeled average annual PM₁₀ concentrations in 2001 at Jacobs Ranch, Black Thunder, North Rochelle, North Antelope, and Rochelle Mines. Figure ES-7 shows modeled and extrapolated worst-case coal aquifer drawdown as a result of mining at these same mines. Monitoring of backfill areas indicates that reclaimed areas are being recharged with water generally suitable for livestock use (the premining use). Wildlife

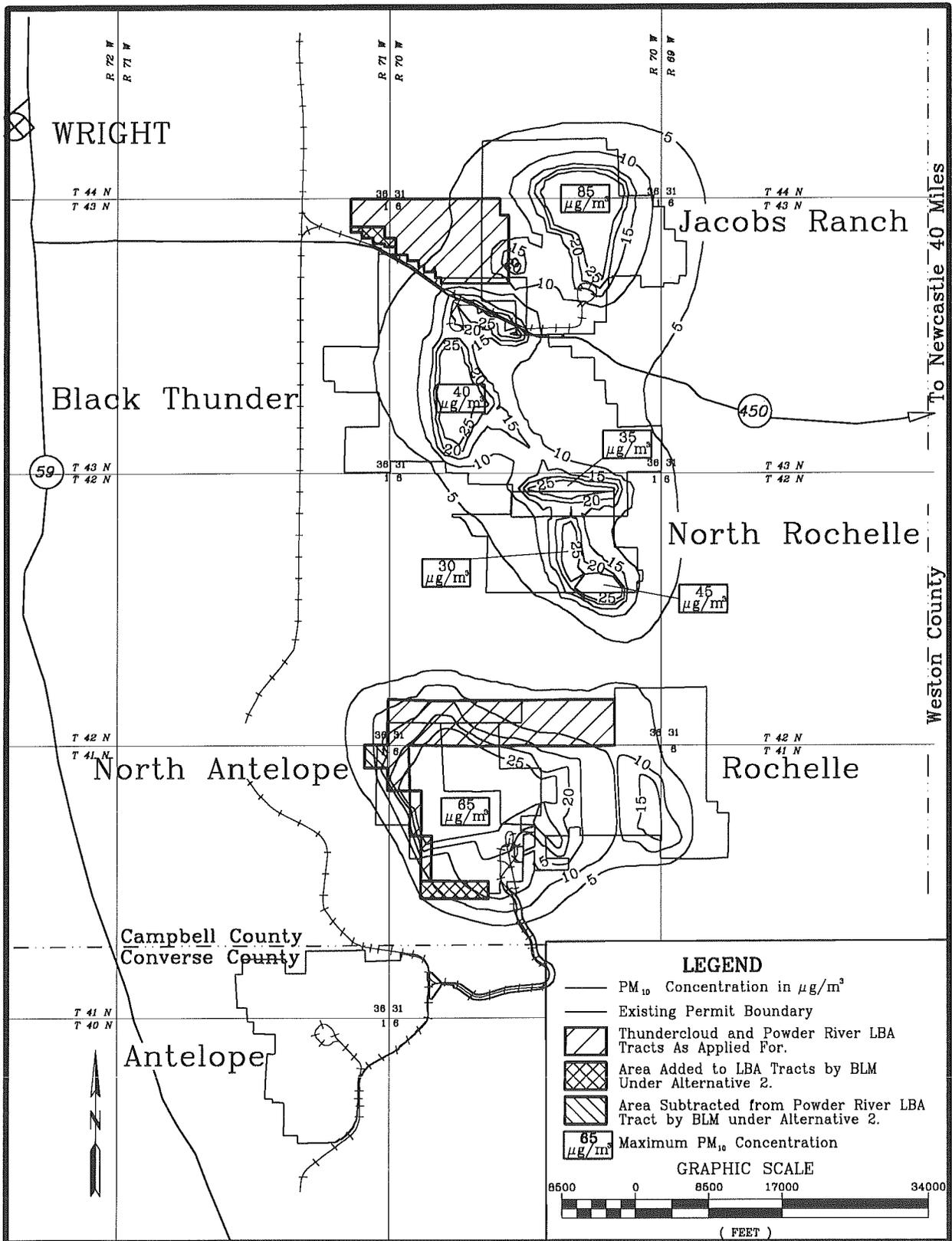


Figure ES-6. Modeled Average Annual PM₁₀ Concentrations in 2001 Resulting from Removal of 140 Million Tons of Coal at Jacobs Ranch, Black Thunder, North Rochelle, North Antelope and Rochelle Mines.

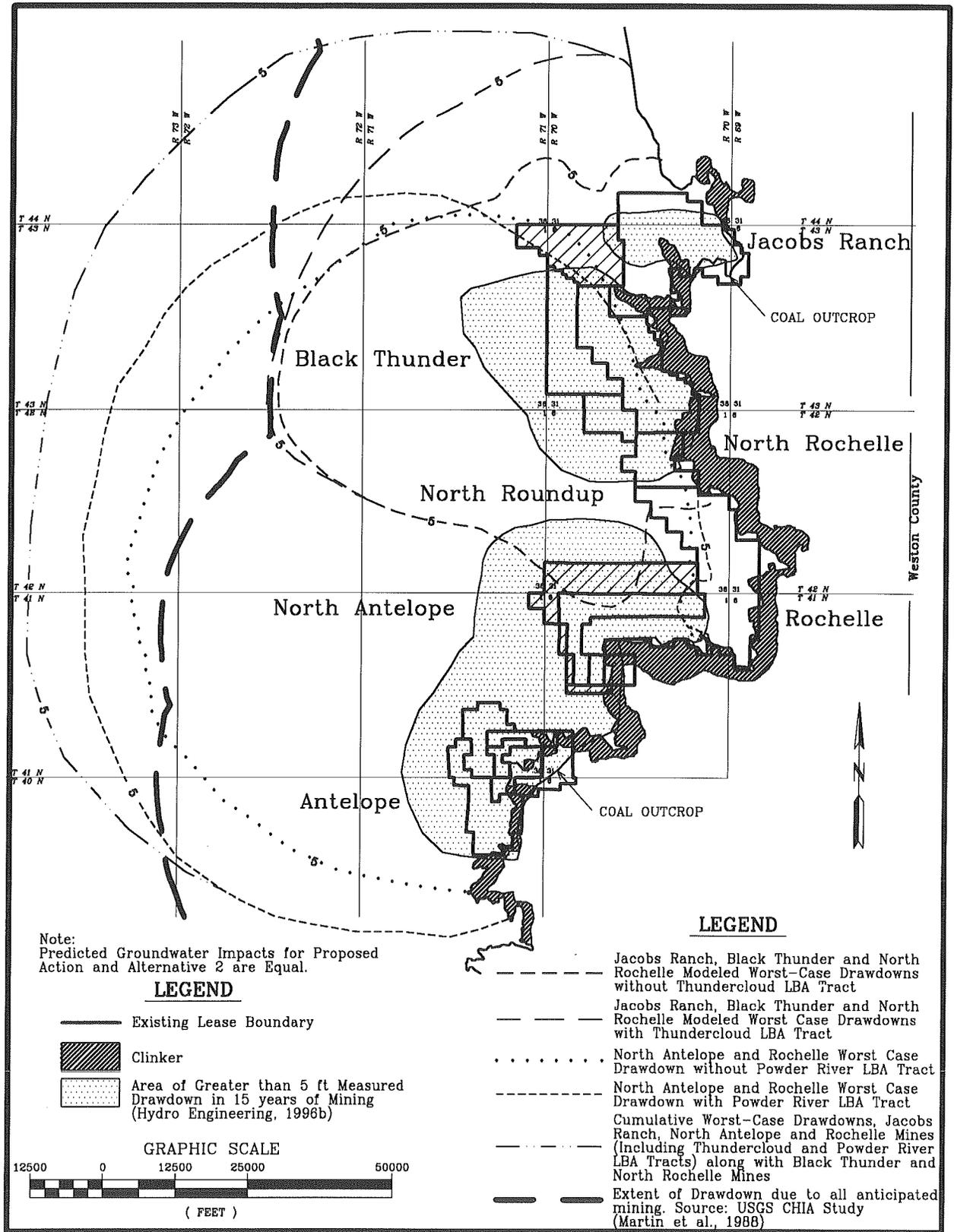


Figure ES-7. Modeled and Extrapolated Worst-Case Coal Aquifer Drawdown Scenarios Showing Extent of Actual 15-Year Drawdowns and USGS Predicted Cumulative Drawdowns.

monitoring indicates that wildlife are using reclaimed areas.

This EIS presents the BLM's analysis of environmental impacts under authority of the National Environmental Policy Act (NEPA) and associated rules and guidelines. The BLM will use this analysis to make a leasing decision. The decision to lease these lands is a necessary requisite for mining, but is not in itself the enabling action that will allow mining. The most detailed analysis prior to mine development would occur after the lease is issued, when the lessee files an application for a surface mining permit and mining plan approval, supported by extensive proposed mining and reclamation plans, to the Wyoming Department of Environmental Quality (WDEQ).