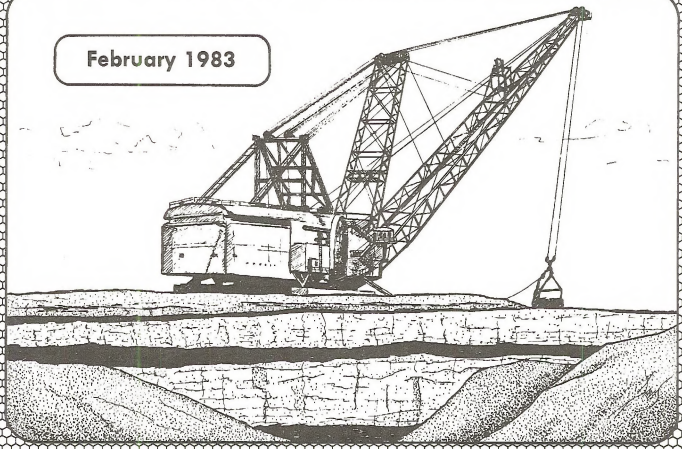
NORTHERN POWDER RIVER TRACT PROFILE

SPRING CREEK

February 1983



UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Miles City District Office
Miles City, Montana

Resources Evaluation
Billings, Montana

POWDER RIVER RESOURCE AREA TRACT PROFILE
SPRING CREEK

PART I: SITE-SPECIFIC ANALYSIS OF THE SPRING CREEK COAL LEASE TRACT

By Bureau of Land Management

PART II: TRACT SUMMARY REPORT, SPRING CREEK

By Resource Evaluation

CONTENTS

PART I

PART II

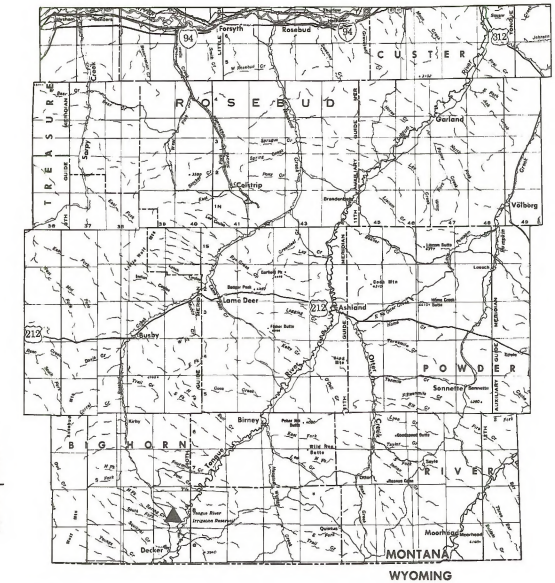
UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

PART I

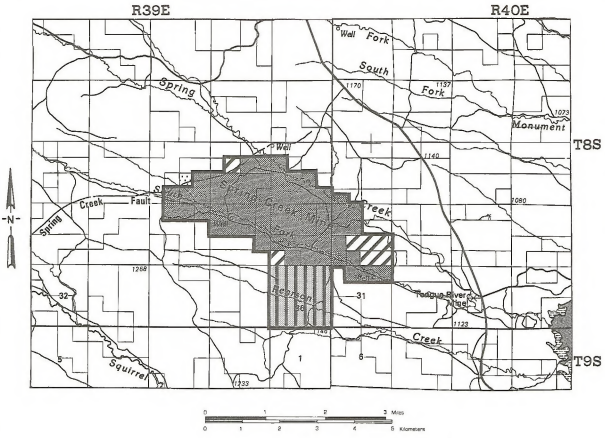
Site-Specific Analysis
Spring Creek Coal Lease Tract
Big Horn County, Montana

Miles City District Office
Miles City, Montana

February 1983



SPRING CREEK
LOCATION MAP



SPRING CREEK

- Proposed Federal Coal Lease Tract
- Leased Federal Coal (Spring Creek Tract)
- Under Lease Modification
- State Leased Coal
- Existing State Surface and Subsurface Mineral Leases
- Tract Boundary

DESCRIPTION OF THE PROPOSED ACTION

The proposed action is to offer for lease a 280-acre tract of land in southeastern Big Horn County, Montana. This tract contains approximately 10.6 million tons of recoverable coal within an existing economical mining unit (EMU). Leasing would prevent a bypass situation within the EMU. The EMU contains approximately:

2,365 acres of leased federal coal
640 acres of leased state coal
280 acres of unleased federal coal

All 280 acres are within an existing mine permit area. See preceding maps for the location of the tract. Attachment A to Part II gives a legal description of the tract.

The proposed action would extend the life of the mine for 1-1/2 years without an increase in production. Employment would not change. No additional disturbance for facilities or haul roads would occur.

In preparing to offer this tract, personnel from the BLM, Miles City District, inventoried the tract to determine the site specific resource values and analyzed the potential environmental effects of coal development on this individual tract. Previous planning included application of surface owner consultation, multiple use and unsuitability criteria (43 CFR 3461). Any new findings of unsuitability are reflected in the delineation and development proposal of the tract described in this profile.

As the existing operation has been permitted under existing state and federal regulations, proper mining and reclamation would continue to be carried out as specified by the approved mine permit.

AFFECTED ENVIRONMENT

The existing environment and the impacts from the ongoing operation have been covered in the following documents:

Northern Powder River Basin Coal EIS, U.S. Geological Survey, Montana Department of State Lands 1979.

Environmental Impact Statement, Spring Creek Mine, Big Horn County, Montana, U.S. Geological Survey, Montana Department of State Lands, 1979.

No additional disturbance beyond those discussed in the above documents would occur. Leasing of this 280 acres would have an insignificant effect on the environment when associated with the existing operation.

NET ENERGY ANALYSIS

A net energy analysis was calculated using the guidance contained in BLM Washington Office Information Memo 79-282, August 1979. To produce a pound of coal, 37.7 British thermal units (BTUs) would be expended. That pound of coal, in turn, would produce about 8,462 BTUs. The ratio of energy produced to that expended is over 224 BTUs/1 BTU.

APPENDIX
SPRING CREEK UNSUITABILITY SUMMARY

UNSUITABILITY CRITERIA RESULTS

Criterion	Applicable to Tract	Exception Used	Additional Data Needed	Comments
1. Federal land systems	No			
2. Rights-of-way and easements	No			
3. Buffer zones for roads, buildings, etc.	No			
4. Wilderness study areas	No			
5. Scenic areas	No			
6. Land used for scientific study	No			
7. Historic lands and sites	Yes	Yes		Will require mitigation.
8. Natural areas	No			
9. Federally listed endangered species	No			
10. State listed endangered species	No			
11. Eagle nests	No			
12. Eagle roosts and concentration areas	No			
13. Falcon cliff nesting sites	No			
14. Migratory birds	No			
15. State high-interest fish and wildlife	No			
16. Floodplains	No			
17. Muncipal watersheds	No			
18. National Resource Waters	No			
19. Alluvial valley floors	No			
20. State proposed criteria	No			

UNITED STATES DEPARTMENT OF THE INTERIOR
MINERALS MANAGEMENT SERVICE

PART II

1984 Lease Sale — Coal

Summary Report — Spring Creek Tract
Northern Powder River Basin
Big Horn County, Montana

North Central Region
Billings, Montana

November 8, 1982

TRACT SUMMARY REPORT

Minerals Management Service, North Central Region
Billings District
Billings, Montana

Date: November 8, 1982

TRACT DESCRIPTION

Tract Name: Spring Creek Redelineation No.:

Coal Region: Powder River

State: Montana County: Big Horn

BLM Resource Area and Planning Unit: Powder River RA;
Decker-Birney Planning Unit

USGS Quadrangle Maps: Pearl School, Decker

Legal Description: See Attachment A and Attachment B (Tract Location Map)

Known Recoverable Coal Resource Area (KRCRA): Northern Powder River

Tract Acres (by BLM)

Federal Uncommitted:	280
Federal Committed:	2365
State:	640
Private (Fee):	0
Total Tract:	3285

Approximate Acres Underlain by Coal:

Federal Uncommitted:	160.0
Federal Committed:	2151.0
State:	640.0
Private(Fee):	0.0
Total Tract:	2951.0

Estimated In-Place Coal Tonnage:

Federal Uncommitted:	22.2 MMT
Federal Committed:	304.6 MMT
State:	88.7 MMT
Private (Fee):	0 MMT
Total Tract:	415.1 MMT

Estimated Recoverable Coal Tonnage:

Federal Uncommitted:	10.6 MMT
Federal Committed:	232.3 MMT
State:	15.9 MMT
Private (Fee):	0.0 MMT
Total Tract:	258.8 MMT

ENTITIES EXPRESSING INTEREST

None.
(Nerco has expressed interest in this area in the past.)

COAL RESOURCE CLASS DESIGNATION

CLASS 1: Good

Confidence in resource estimates is good because the surface areas of category "A" and "B" resources cover two-thirds or more of the total surface area of the tract

CLASS 2: Moderate

Confidence in resource estimates is moderate because the surface areas of category "A" and "B" resources cover one-third to two-thirds of the total surface area of the tract.

CLASS 3: Poor

Confidence in resource estimates is poor because the surface areas of category "A" and "B" resources cover one-third or less of the total surface area of the tract.

POTENTIAL FOR DEVELOPMENT OF TOTAL TRACT
SPRING CREEK REDELINEATION TRACT

EVALUATION FACTORS	CLASS 1	CLASS 2	CLASS 3
Coal Resources	X		
Coal Quality	X		
Transportation	X		
Minability	X		
Marketability		X	
Overall Class	X		

See Attachment C.

COAL RESOURCE CATEGORY DEFINITIONS

CATEGORY "A" RESOURCES

Resource quantity is estimated from data sources that are adequately spaced to assume, with a high degree of confidence, continuity between data points. The geologic character of the area is well defined. The resources for the Spring Creek Redelineation tract also meet the demonstrated reserves category of USGS Bulletin 1450-B.

CATEGORY "B" RESOURCES

Resource quantity is based on an assumption of continuity between data points with a lower confidence level than that of category "A" resources. The geologic character of the area is not as well defined as category "A" resources.

CATEGORY "C" RESOURCES

Resource quantity is based on an assumption of what can reasonably be expected to exist in the same producing region under analogous geologic conditions with a lower confidence level than that of either category "A" or "B".

POTENTIAL FOR DEVELOPMENT OF TOTAL TRACT
TOTAL IN-PLACE TONNAGE OF SPRING CREEK REDELINEATION TRACT

Coal Bed	Average Thickness	Resources (million short tons)		
		Category A	Category B	Category C
Anderson plus Dietz 1 and Dietz 2	80	415.1	---	---

Coal Rank: Subbituminous
Unit Weight: 1770 tons per acre-foot

IN-PLACE TONNAGE - FEDERAL UNCOMMITTED

Tract: Spring Creek Redelineation

Coal Bed	Average Thickness	Resources (million short tons)		
		Category A	Category B	Category C
Anderson plus Dietz 1 and Dietz 2	78	22.2	---	---

Coal rank: Subbituminous
Unit Weight: 1770 tons per acre-foot

IN-PLACE TONNAGE - FEDERAL COMMITTED

TRACT: Spring Creek Redelineation

Coal Bed	Average Thickness	Resources (million short tons) Category A	Category B	Category C
Anderson plus Dietz 1 and Dietz 2	80	304.6	---	---

Coal Rank: Subbituminous
Unit Weight: 1770 tons per acre-foot

IN-PLACE TONNAGE - STATE

TRACT: Spring Creek Redelineation

Coal Bed	Average Thickness	Resources (million short tons) Category A	Category B	Category C
Anderson plus Dietz 1 and Dietz 2	80	88.7	---	---

Coal Rank: Subbituminous
Unit Weight: 1770 tons per acre-foot

OVERBURDEN/INTERBURDEN THICKNESS RANGES

Anderson plus
Dietz 1 and Dietz 2 Overburden -min. 40 feet max. 420 feet

COAL GEOLOGY OF THE SPRING CREEK REDELINEATION TRACT

The coal beds of the Spring Creek Tract are in the Tongue River Member of the Fort Union Formation of Paleocene age. The most economical coal seams are the Anderson, Dietz 1, and Dietz 2 as described by R. E. Matson and J. W. Blumer (Matson, et al, 1973). These three seams are combined over the entire tract to form an 80-foot averaged thick seam. The eastern boundary of the tract is controlled by the burn line of the Smith and combined Anderson, Dietz 1 and Dietz 2.

The Spring Creek fault strikes northeast-southwest with a maximum throw of 200 feet and cuts through the north boundary of the tract. Other prominent structures are the northwest-southeast lineation consisting of fault-controlled topographic features such as the Spring Creek and South Fork Spring. These drainages are filled with alluvium and colluvium of Holocene age and border on the southern boundary of the tract.

COAL QUALITY - SPRING CREEK REDELINEATION TRACT (as received)

(Values in percent, except BTU)

Coal Bed	Number of Samples	Moisture	Volatile Matter	Fixed Carbon	Ash	Sulfur	BTU/lb
Anderson plus Dietz 1 and Dietz 2	*	24.50	31.83	40.04	3.63	0.33	9,407

* Coal quality from U.S. Department of Interior, 1979. Final environmental statement, proposed mining and reclamation plan, Spring Creek Mine. Spring Creek Coal Company, Big Horn County, Montana, on Federal Lease Montana 069782. U.S. Geological Survey and Montana Department of State Lands, p. 1-14

POTENTIAL USE OF COAL: Electrical generation

TRANSPORTATION:

	Mode	Distance to Transportation Link
Existing	Railroad	0.5 miles
Being Developed		
Being Planned		
None Planned		

MINABILITY:

Type of Mine: Surface-dragline operation

Estimated Recovery:

Based on current practices in the Powder River Basin coal region, a recovery factor of 90 percent is typical. However, this percent recovery may or may not be attained.

Estimated Annual Production:

Federal Uncommitted: 7.0 million tons (for 1-1/2 years only)

Total Tract: 7.0 million tons

Estimated Mine Life: 37 years

Estimated Surface Acres to be Mined Per Year:

Federal Uncommitted: 83 total acres over 1-1/2 years

Total Tract: 55 acres per year

Active, Inactive, and Abandoned Mines or Leases in Tract Vicinity:

The tract is adjacent to the Spring Creek Mine and 4 miles northwest of the West Decker Mine. The East Decker Mine lies 6 miles to the southeast of the tract.

MARKETABILITY

No expression of interest was received on this tract. The situation at the Spring Creek Mine is such that the bypass situation could be rectified by a lease modification. In consideration of the previous discussion and the ratings on the other evaluation factors, a rating of Class 2 was applied.

OVERALL

In consideration of the other evaluation factors, an overall rating of Class 1 was applied.

DEFINITIONS AND ASSUMPTIONS FOR THE SPRING CREEK REDELINEATION TRACT:
See Attachment D

REFERENCES: See Attachment E

TRACT LEGAL DESCRIPTION

SPRING CREEK

Principal Meridian, Montana

FEDERAL UNCOMMITTED	Acres
T. 8 S., R. 39 E.,	
sec. 23, SE1/4NW1/4;	40
sec. 25, SW1/4SW1/4.	40
T. 8 S., R. 40 E.,	
sec. 30, NE1/4SW1/4 and SE1/4.	200
Total	280

FEDERAL COMMITTED	
T. 8 S., R. 39 E.,	
sec. 22, SE1/4SW1/4, E1/2SE1/4, and SW1/4SE1/4;	160
sec. 23, S1/2NE1/4 and S1/2;	400
sec. 24, SW1/4NW1/4, SW1/4, W1/2SE1/4, and SE1/4SE1/4;	320
sec. 25, N1/2, N1/2SW1/4, SE1/4SW1/4, and SE1/4;	600
sec. 26, N1/2 and NE1/4SE1/4;	360
sec. 27, N1/2NE1/4 and NE1/4NW1/4.	120
T. 8 S., R. 40 E.,	
sec. 19, S1/2 lot 4;	18.25
sec. 30, lots 1 to 4, inclusive, E1/2NW1/4, and SE1/4SW1/4;	266.76
sec. 31, N1/2NE1/4 and NE1/4NW1/4.	120
Total	2,365.01
Rounded Total	2,365

STATE COMMITTED	
T. 8 S., R. 39 E.,	
sec. 36, all.	640
Tract Total	3,285.01
Rounded Tract Total	3,285

Attachment B

TRACT MAP
-Spring Creek-

Please see the tract map at the beginning of Part I.

COAL DETERMINATIONS
SPRING CREEK REDELINATION TRACT

Coal Quality

The coal quality of this tract has been rated as Class 1 because of the high BTU content on the moderately low percentage of sulfur.

Transportation

A rail spur lies within 0.5 miles of the tract. Therefore, a Class 1 rating was applied for this tract.

Minability

The uncommitted Federal coal could add to the life of the Spring Creek Mine and clear up some potential bypass situations. A thick seam of coal and a low stripping ratio combine with the previous mentioned factors to assign a Class 1 rating for this seam.

MINING ENGINEERING
DEFINITIONS AND ASSUMPTIONS
- Spring Creek Delineation -

Deductions from the in-place resource were made for buffer zones and high-wall reduction zones. A recovery factor of 90 percent was then applied to the minable resource to determine the recoverable resource.

The rating for transportation was determined from the following table:

Rating	Distance to Established Transportation Link
Good	0-7 miles
Moderate	7-15 miles
Poor	15- miles

For a tract with more than one minable seam a weighted average proximate analysis was figured for the tract. The tract's proximate analysis was then compared to analyses from other marketed coals in the area for rating purposes.

References Cited

Matson, R. E., Blumer, J. W., and Wegelin, L. A., 1973, Quality and reserves of strippable coal, selected deposits, southeastern Montana: Montana Bureau of Mines and Geology Bulletin 91, 135 p.

U.S. Department of Interior, 1979, Final environmental statement, proposed mining and reclamation plan, Spring Creek Mine, Spring Creek Coal Company, Big Horn County, Montana, on Federal Lease Montana 069782: U.S. Geological Survey and Montana Department of State Lands, p. I-14.