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# LAND USE ANALYSIS

## Environmental Assessment



**Knife River Mining Company  
Coal Lease Application  
M43083 (ND)  
Dickinson District Office**



**United States Department of the Interior  
Bureau of Land Management**

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LAND USE ANALYSIS/ENVIRONMENTAL ASSESSMENT RECORD

KNIFE RIVER COAL LEASE APPLICATION M-43083 (ND)

December 1979

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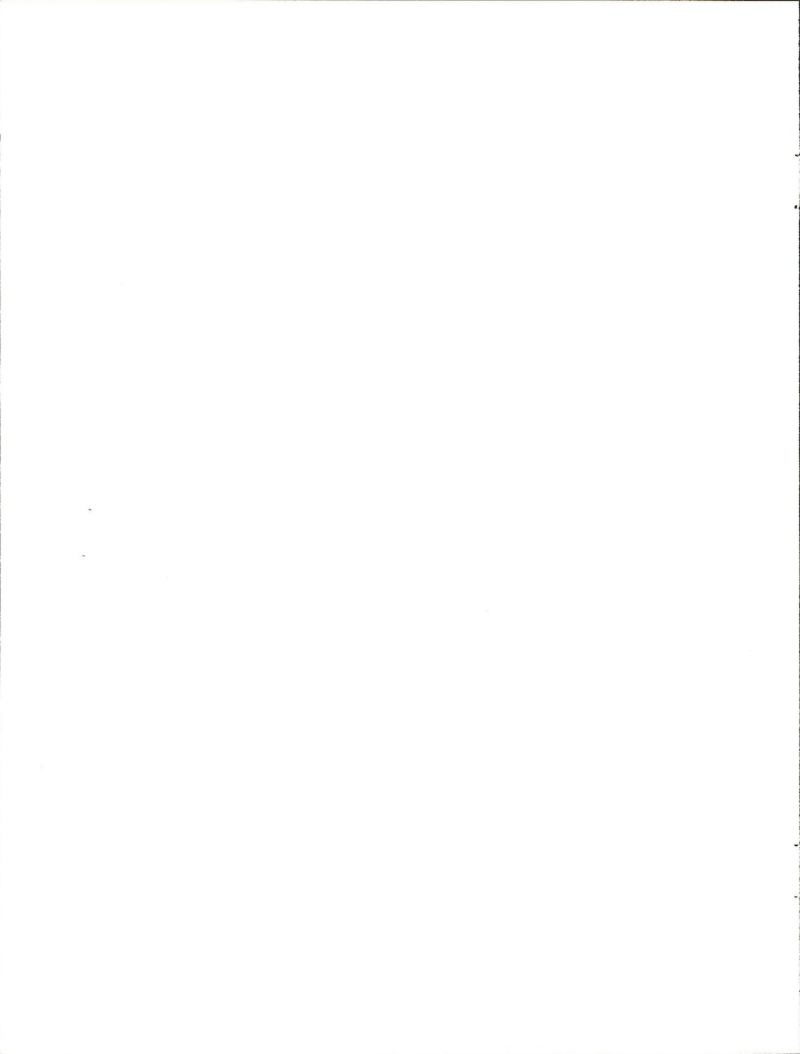
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INTRODUCTION



## INTRODUCTION

The federal coal reserves in the United States are administered by the Bureau of Land Management (BLM), an agency within the Department of Interior. The President, Congress, and Secretary of Interior establish the coal development objectives that BLM carries out. These objectives are expressed in the policy statements, laws, and directives that BLM is implementing to make federal coal available for the energy needs of the nation.

On June 5, 1979, Interior Secretary, Cecil D. Andrus, established a new federal coal management program designed to meet energy production goals through 1987. The program calls for full resumption of a competitive coal leasing system for the first time since a moratorium was imposed in 1971.

Although major leasing of federal coal has not yet been scheduled for North Dakota, BLM is responding to applications for federal coal within ongoing mine operations. BLM processes these applications through an "emergency" program that permits leasing coal in a condensed time frame (43 CFR 3425). The emergency leases are intended to meet critical industry needs and bypass situations.

The Knife River Coal Mining Company, a subsidiary of Montana-Dakota Utilities Company, recently applied for an emergency lease on a tract of

federal coal within the operational area of the South Beulah Mine, approximately four to five miles southwest of Beulah, North Dakota (Map 1). If the company obtains the lease, the coal would help supply the nearby Coyote 1 power plant.

Before federal coal can be leased, several procedures must be undertaken by BLM. These include land use planning and environmental assessment. For major lease proposals, a "comprehensive land use plan" would be prepared. In the present case, since the federal coal is under private surface and the acreage involved is small, BLM decided to carry out a "land use analysis" to meet planning requirements. Authority to use this method is provided in the Federal Coal Leasing Amendment Act of 1975, Section 3(3)(A)(i). According to this act, lease sales may be held for areas with nonfederal surface ownership, if the state has prepared a land use plan, or if Interior (BLM) prepares a land use analysis. The August 7, 1979 BLM planning regulations 1601.6-4(c) also provide authority and guidance for a land use analysis to consider a coal lease when there is no federal ownership in the surface. The major analytical document of the land use analysis is the environmental assessment, which is the analysis of presumed impacts of a proposed federal action on the physical, social, and economic environment.

The Knife River Land Use Analysis is being accomplished in two phases, with a public document prepared for each phase. The first phase consists

primarily of the analytical processes and the initial recommendations. These analyses and recommendations are recorded in the present document, which is being offered to the public for review and comment. For this purpose, a 30-day comment period is provided.

The second phase, the decision process, follows the comment period. It involves considering the public comments, re-analyzing the proposed action in light of the comments, and developing the final BLM recommendations to be forwarded to the Secretary of Interior. The second phase is recorded in a "decision document." After reviewing the two documents and conferring with the Governor of North Dakota, the Secretary will then decide whether or not to lease the proposed area.

# MAP I LOCATION OF REPORT AREA





ENVIRONMENTAL ASSESSMENT



## Chapter 1

### PROPOSED ACTION

The federal proposed action is the leasing (for the purpose of mining) 80 acres of federal coal under the emergency leasing criteria.

The proposed action is not a mining plan, and the proposed action does not include existing operations in the area.

Since the lease must be bid upon competitively, it is possible that someone other than the applicant may obtain the lease. The use of the applicant's mining plans as part of the proposed action is to determine a likely consequence of leasing the tract and does not indicate a preference on the part of the BLM. The mining plan of any bidder awarded the lease will have to be assessed and approved before mining can occur. Any company involved in the surface mining of coal must comply with applicable federal and state regulations.

The proposed tract lies four miles southwest of Beulah, North Dakota, and adjoins the eastern edge of 6,400 acres of South Beulah Mine, which is within the Knife River Known Recoverable Coal Resource Area (KRCRA). Should the Knife River Coal Company obtain an emergency lease for additional federal coal, the coal would be used to supply the Coyote 1 Power Plant, on the western edge of the South Beulah Mine (Map 1-1).

On March 26, 1979, the Knife River Coal Mining Company, a subsidiary of Montana-Dakota Utilities Company, applied for a federal coal lease of 160 acres in the SE $\frac{1}{4}$ , Section 8, T143N, R87W, 5th PM, Oliver County, for the South Beulah Mine (Map 1-1). The company stated in their application that the nonfederal coal in the area will be mined and the federal coal in Section 8 will be by-passed as early as the fall of 1980.

The BLM and the U.S. Geological Survey (USGS) have determined that the application meets the Secretary of Interior's criteria for "Emergency Leasing" (43 CFR 3425). Existing coal data indicate that recoverable coal actually exists in the N $\frac{1}{2}$ SE $\frac{1}{4}$  of Section 8. Therefore, the federal proposed action addresses the possible leasing of only the 80 acres of federal coal in the N $\frac{1}{2}$ SE $\frac{1}{4}$  of Section 8 rather than the entire 160 acres in the SE $\frac{1}{4}$  of Section 8.

According to the USGS, the Knife River Coal Company must open up a new area of the mine in order to supply enough coal for the Coyote 1 Power Plant, currently under construction. The proposed tract is a logical part of the new area. Because of its small size, the tract must be mined in conjunction with Knife River's ongoing operation or be by-passed and not mined. Losing this coal would not be in the best interest of resource conservation.

No other operator could mine the proposed tract at a profit in the foreseeable future. As adjacent coal reserves are controlled by

Knife River, the reserve base is too small to attract a large operator. A small operator catering to the local market would be in direct competition with Consol's Glenharold Mine, located near Stanton, and North American's Indian Head Mine near Zap. Both of these large operations sell coal to the local space heating market; therefore, it would be unlikely that a new, small operator could compete for this market.

The South Beulah Mine was opened in 1963 at a production rate of approximately 700,000 tons annually, growing to an annual production of 1.9 million tons in 1978. Most of the coal from the mine goes to the R.M. Heskett Power Plant in Mandan, North Dakota. A 1,600-acre federal coal lease (M-041765) was issued to the Knife River Coal Mining Company on August 1, 1961 (Map 1-1). The mine currently employs about 80 people. Open pit layout projected to cover the company's anticipated mining over the next 30 to 35 years is shown on Map 1-1.

The company plans to increase production to 2.2 million tons annually to supply coal to the Montana-Dakota Utilities Coyote 1 Power Plant, which is a 440-megawatt power plant under construction about four miles southwest of Beulah. Scheduled for completion in early 1981, its annual coal consumption is expected to be 2.2 million tons. South Beulah Mine will be the sole coal supplier to the power plant. An additional 20 employees would be added to the mine when production increases. After Coyote 1 is completed, the R.M. Heskett plant will receive coal from another source.

## MINING AND RECLAMATION

Any company involved in the surface mining of coal must comply with applicable federal and state regulations. Mining and reclamation plans must meet the appropriate standards of the North Dakota Century Code. Mining permits must be obtained from the North Dakota Public Service Commission, and construction permits are required by the North Dakota Department of Health.

Mining and reclamation plans must also meet the requirements of the Federal Surface Mining Control and Reclamation Act of 1977 (PL 95-87) and the subsequent regulations of 30 CFR Parts 700 and 800. These plans are reviewed and approved by the Office of Surface Mining, Reclamation, and Enforcement in consultation with the State of North Dakota. Where federal coal is involved, additional consultation with the BLM and the USGS is required.

Company exploration test holes indicate that coal of commercial quality could be mined from about 40 acres of the proposed tract, with an estimated maximum recovery of 700,000 tons of coal (Map 1-2). The USGS indicates an in-place reserve of 1,167,000 tons and a recoverable reserve of 1,003,000 tons (calculated recovery rate about 86 percent).

Drill logs of the area provided by the company indicate that the lower two seams of the Beulah-Zap deposits (which underlie the proposed tract) total an average of 12 feet in thickness. Of the two, the upper seam

seam averages a little more than 8.5 feet, while the lower seam a little less than 3.5 feet in thickness. The two seams are separated by an average of 1 foot of interburden. Overburden ranges from 22 to 35 feet in thickness.

Map 1-1 shows the mining pit layout for existing and future mining, including the 80 acres meeting the emergency leasing criteria. The 40 acres of recoverable coal within the 80-acre proposed tract could be recovered in three or four pits, depending on the actual location of the cropline and quality of coal. Assuming normal dragline sequential cycling, the proposed tract could be mined in about three years, beginning in 1981 or 1982.

Annual surface disturbed for the entire mine ranges from 70 to 75 acres, while surface to be disturbed for the proposed tract would be about 13 acres per year, with an additional 30 percent of the surface used for an access road, topsoil storage, and spoiling.

Topsoil is removed in two lifts, in accordance with the state and federal regulations, and stockpiled. Overburden is currently removed with two draglines equipped with 12- and 17-cubic yard buckets. In the summer or fall of 1980, a new dragline with a 75-cubic yard bucket capacity will replace the two draglines.

Overburden removed from the coal would be placed in the previously mined area, and the first-cut area of the overburden would be placed at ground elevation next to the coal outcrop.

Open pits would vary in width from 100 to 150 feet, depending on the depth of overburden. When the top coal seam has been exposed, it would be drilled with a power auger and blasted with nitrate explosives. Electric shovels would then load the coal into 65-ton haulage units, which would haul the coal to the tiple for preparation. After the top seam of coal has been removed, clay stone parting would be removed and deposited on the overburden piles. The second seam would then be blasted and loaded in the same manner as the first coal seam. The highwall of each pit would be established at not less than a three vertical to one horizontal slope. Final highwall would be reduced to a slope of 35 percent or less.

The overburden would be replaced by the dragline and front-end loaders. Soil material would be removed and respread through the use of scrapers. Ordinarily, the operator would haul soil materials from a new area to a mined-out area where the overburden has been leveled.

The reclamation objective is to return the surface disturbed during mining to its premined cropland use. The approximate original contour and the present drainage in the area would be reconstructed.

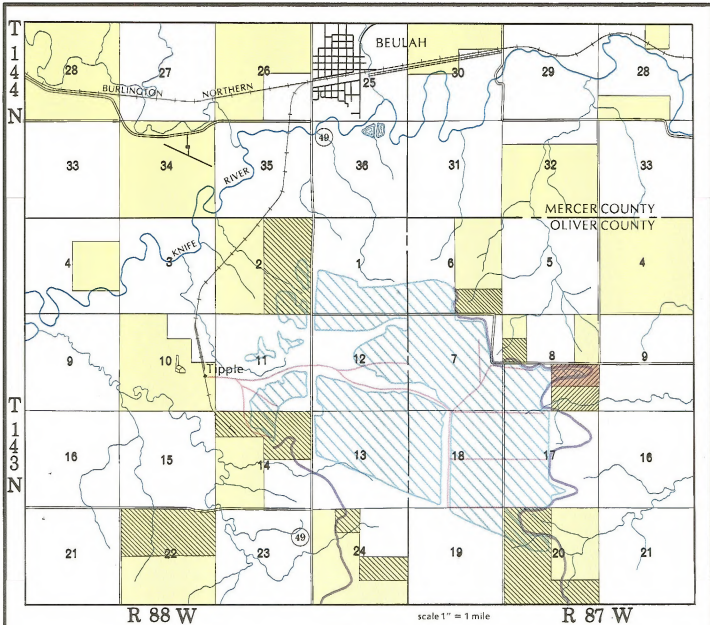
Surface and ground water controls are currently implemented in the ongoing mining operation, including drainage treatment or impoundment of waters until the water meets the applicable state and federal water effluent limitations.



Soil erosion controls such as mulching and seeding of quick-growing cover vegetation are being used. Other controls such as chemical binders or other soil amendments could be used, depending on the characteristics of the site involved.

If a lease is issued, a detailed mining plan must be submitted for approval by the North Dakota Public Service Commission and the federal Office of Surface Mining, Reclamation, and Enforcement in consultation with the BLM. Mining and reclamation plans must address specific questions such as seeding rates and mixtures, extent and location of water impoundments, toxic materials, and other concerns noted elsewhere in the present document. Approval of the mining plan must be obtained before mining can occur.




The amount of bonding required in 43 CFR 3465.5 will be determined by the authorized officer in consultation with USGS. State bonding is also required.

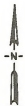


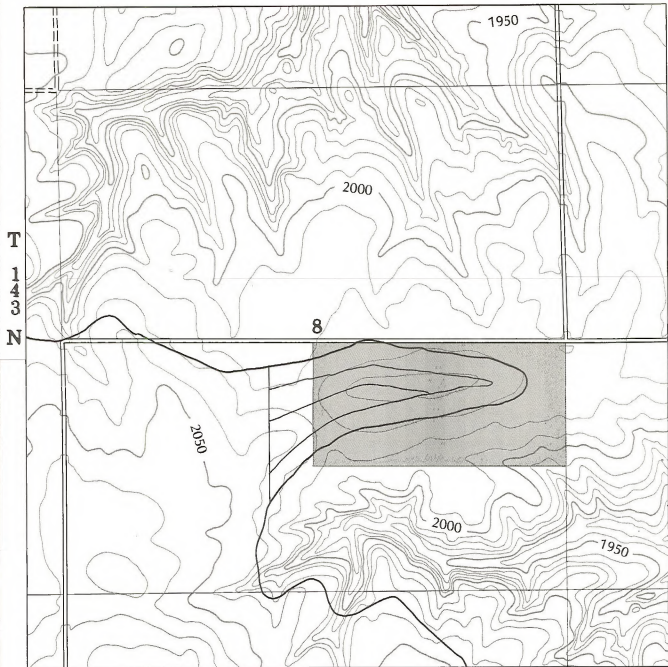
# SOUTH BEULAH MINE

## LEGEND

-  Federal Coal
-  Federal Coal Lease M 014765
-  Federal Coal Lease Application M 43083
-  Federal Lease Proposal
-  Existing and Future Mining Area

-  Coyote I Power Plant
-  Cropline Second Seam
-  Haul Road








R 87 W

scale 5.25" = 1 mile

## FEDERAL PROPOSED LEASING AREA

### LEGEND

-  Federal Lease Proposal
-  Cropline Second Seam
-  Proposed Mining Area



## CHAPTER 2

### DESCRIPTION OF THE ENVIRONMENT

#### CLIMATE

The climate of this area is continental in nature, with hot summers, cold winters, and low relative humidity. The climate is characterized by large annual and day-to-day temperature changes, light to moderate precipitation, plentiful sunshine, and nearly continuous air movement. The mean annual temperature is 40 degrees F, and extremes of 108 degrees F and -42 degrees F have been recorded at Beulah.

The average growing season is 120 days. The average annual precipitation of 16 inches occurs mostly in the form of rain during the growing season of April through September. June is usually the wettest month.

The prevailing wind is from the northwest, and the average wind speed is 11 miles per hour.

#### AIR QUALITY

Air quality monitoring stations have been established throughout the state by the North Dakota Department of Health. Two of these stations are located at Beulah, approximately 4 miles northwest of the proposed tract. The following pollutants are monitored: suspended particulates,

sulfation rate, sulfur dioxide (SO<sub>2</sub>), nitric oxide, nitrogen dioxide (NO<sub>2</sub>), coefficient of haze, dustfall, suspended flourides, pH and Beta radiation.

The State of North Dakota has established ambient air quality standards. Based on the 1975 North Dakota Air Quality Report published by the North Dakota State Department of Health, pollutant concentrations in the Beulah area did not exceed these standards. Based on available data, dust is currently the largest pollutant.

All of the Mercer and Oliver County area has a Class II air quality standard designation. The nearest Class I area is Theodore Roosevelt National Park, located about 80 miles to the west.

#### GEOLOGY

Minable lignite coal within the South Beulah Mine has been identified as the Beulah-Zap bed. It is also referred to as the School House bed by the company; however, some literature and the USGS place the School House bed 45 to 50 feet above the Beulah-Zap bed. The deposit is a multiple-seam lignite bed, with as many as three seams present in a mine area. The seams range in thickness from 3 to 10 feet, and in the southwest portion of the mine area 3 seams have been identified. In the proposed federal lease area, the lower two seams have been identified and proposed for mining. The overburden ranges in thickness from 22 to 35 feet, followed by an 8 to 13 foot thick coal bed. The second coal bed ranges in thickness from 2 to 5 feet. It is separated from the upper bed by a foot or so of gray clay stone interbed (parting).

The USGS estimates that in-place reserves amount to 1,167,000 tons and that recoverable reserves are 1,003,000 tons. The Knife River Coal Company indicates that approximately 700,000 tons would be recovered, assuming that all of the coal is of a commercial quality. The lignite being mined in the area averages 6,900 Btu's per pound, with a composition of 0.98 percent sulfur, 35.02 percent moisture, 26.87 percent volatile, 30.56 percent fixed carbon, and 7.60 percent ash.

The Beulah-Zap coal bed is found in the Sentinel Butte formation of the Fort Union group. Except for the basal sandstone and upper sandstone beds, the Sentinel Butte formation is mostly somber gray and brown interbedded siltstone, claystone, shale, and lignite. Overburden within the mine area is predominantly thick beds of yellow or gray claystone.

#### TOPOGRAPHY

The proposed tract lies within the glaciated Missouri plateau section of the Great Plains physiographic province. Glacial deposits are thin or absent. Relief in the glaciated Missouri plateau section is largely erosional. Relatively soft siltstone, sandstone, and claystone layers have been dissected locally to provide badland topography; but, more commonly, smooth slopes are found between benches, resulting in a rolling to hilly topography.

The proposed tract ranges in surface elevation from 2,040 feet to 1,990 feet. It could be described as a slightly elongated, gently sloping noll. Directly south of the tract, slope increases as the surface descends

70 feet into an unnamed intermittent stream that is a part of the Otter Creek-Knife River drainage (see Map 2-1).

#### SOILS

The Soil Conservation Service (SCS) has identified and mapped five soil mapping units on the proposed tract. This was done while preparing the detailed soil survey report for Oliver County, which was published in 1975. Most of the tract is within the mapping unit known as "Flaxton-Williams soils, undulating," which comprises about 75 percent of the 80 acres. The northeast corner of the tract is covered by the "Arnegard loam, nearly level" mapping unit, which qualifies as prime farmland. However, since the entire unit covers only about 11 acres (about 4 acres within the tract), the North Dakota State SCS office does not recognize it as a large enough area of prime farmland to justify special handling if disturbed for mining.

The entire tract is under cultivation. The land is worked in strips, which helps protect the soil from erosion. Wind erosion is a special concern because of the moderately coarse surface texture that is common over the area. The water erosion hazard increases toward the southern edge of the tract, because of drainage into the deep draw immediately to the south. In general, there are about 10 inches of topsoil and 20 to 40 inches of subsoil over the tract. For more detailed soils information see Appendix 1.

## WATER

The proposed tract lies in the semiglaciated rolling prairie portion of southwestern North Dakota. Glaciation occurred in this area, but the preglacial topography was not altered greatly by the glaciation. On this particular 80 acre tract there are no glacial meltwater channels. The only evidence of glaciation is a scattering of till on the surface.

Surface water runoff from the tract flows through the intermittent stream channel across the south half of the quarter section, then into Otter Creek, and then into the Knife River. The only surface water use on or near the tract is a stock pond about a half mile away on the intermittent stream. The stream channel south of the tract has side slopes of up to forty percent, according to the soil survey. This stream has good vegetative cover, and there is little evidence of erosion. Phreatophytic plants and areas of slumping occur on the north slope of the stream channel, where water occasionally seeps out of the coal seam outcrop. The proposed tract itself is undulating, with no apparent erosion problems. Because of agricultural practices, cover on the tract varies.

Ground water conditions are typical of the other uplands in this area. The Sentinel Butte formation at the surface of the tract is composed of silts and clays interbedded with lignite, sandstone, and limestone layers. These latter layers tend to serve as water-bearing zones. The local water table level of the Sentinel Butte formation is well below the lignite bed, which is the object of the lease application. While this



bed is usually dry, during wet periods it will collect some water. The lignite provides a delayed route for some of the water between the time it falls as precipitation and the time it leaves the area through the stream channel. This provides an extended period of water supply and accounts for the wet-site grasses in the channel bottom and at the seepage sites along the north slope.

Two of the deeper regional aquifers occurring over most of southwestern North Dakota are found beneath the tract. The Upper Hell Creek-Lower Cannonball-Ludlow aquifer is about 850 feet below the surface and the Fox Hills-Basal Hell Creek aquifer is about 1150 feet below the surface. Both of these zones are under artesian pressure, with the hydraulic gradient in the upward direction.

There is no data concerning water quality on this site. Considering the vegetative cover and the condition of the channel, it appears sediment loading is very low. This has been kept low partially by the lignite seeps, which slow runoff velocity and prolong periods during which water is available for plant growth. Both of these conditions enhance vegetative growth and, consequently, soil stability.

## VEGETATION

### Existing Vegetation

Vegetative cover on the proposed tract varies according to agricultural practices. Wheat is grown in alternating strips of crop and fallow. The

soil capability ranges from Class II to IV with most being Class III. Wheat yields, when grown under good management practices, will average 21 bushels per acre.

#### Endangered Plant Species

None were identified on this tract nor would any be expected to exist under the environmental conditions that are present.

#### ANIMALS

One hundred percent of the tract is cropland, which provides food and shelter for species such as deer mice, lark bunting, and killdeer. No endangered wildlife species habitat exists on the area. The U.S. Fish and Wildlife Service concurred with this conclusion.

Drainage is toward a coulee immediately south of the tract which runs easterly and eventually enters Otter Creek and the Knife River. A woody draw and associated shrubland at the head of the coulee is valuable wildlife habitat. Surface water was noted in the coulee bottom. At least one coyote or fox den hole was observed near the coulee bottom.

#### CULTURAL RESOURCE

The BLM conducted an intensive inventory, recording two localities of prehistoric cultural resources on the proposed tract. No historic re-

sources were located on the tract. Both localities consisted of light scatters of lithic flakes, all of one lithic material, Knife River Flint. None of the total of 13 flakes found over both localities showed any evidence of further reduction into specific tool types. The entire area was under cultivation, which, coupled with the low density of cultural material led to a conclusion that the cultural evidence was not sufficient to show any integrity below the plow zone.

The BLM, therefore, concluded that neither locality was significant enough to warrant eligibility for the National Register of Historic Places. The State Historic Preservation Officer has been given opportunity to comment on this determination. His comments will be considered in any final evaluation of these cultural resources.

C.L. Dill (1975) has inventoried adjacent areas in Mercer and Oliver Counties. Cultural resources from that inventory included historic farmsteads, underground coal mines, a townsite and prehistoric lithic material similar to that found in this inventory of the proposed lease area.

#### AESTHETICS

The tract was rated and evaluated for scenic quality and sensitivity according to established procedures and criteria outlined in the BLM Visual Resources Management Manual 6310. The ratings of six BLM raters indicate that the scenic quality of the tract is low to moderate, and that its sensitivity is low (see Appendix 11). The tract is not visible from any primary highway.

## RECREATION

The proposed tract has limited use or potential for outdoor recreation. Upland game hunting is the only recreational activity that is likely to occur on the tract.

## SOCIAL AND ECONOMIC CONDITIONS

There will be no impact on the social environment from the proposed action, since the proposed action will not increase the rate of coal production. The proposed tract is located in Oliver County, but economically influenced by the Beulah-Hazen area in nearby Mercer County. The primary industries in the area are agriculture and construction, with mining and manufacturing as secondary industries. In recent years the influence of mining and energy-related construction in the area has increased rapidly, while agriculture and manufacturing have grown more slowly.

The populations of Mercer and Oliver Counties dropped by 9.3 and 11.0 percent respectively between 1960 and 1970. This reflects an out migration of people, mostly younger ones, which is typical of most agricultural areas. This is often due to a lack of job opportunities. Between 1970 and 1975 the Mercer and Oliver County populations increased by 1.1 and 12.7 percent respectively.

In 1970, the median family income was \$9,590 nationally, \$7,838 in North Dakota, \$6,714 in Mercer County, and \$6,539 in Oliver County. This statistic has also improved between 1970 and 1974 for the two counties by 93 and 32 percent respectively. The annual average unemployment rate for Mercer County varied from 4.9 percent to 6.3 percent from 1972 to 1976, while it varied from 5.5 to 10.3 percent in Oliver County over the same period.

A detailed description of the social and economic conditions within the area was completed for the West-Central North Dakota Regional Environmental Impact Study on Energy Development in 1979.

#### LAND USE

The surface over the proposed tract is owned by Marion McKinney Baird. It is currently rented to Elmer Neuberg for agricultural purposes. Approximately 78 acres (97 percent) are cropland. The county road along the north side of the tract occupies the remaining 2 acres. On the cropland, small grain is produced by the strip crop (summer fallow) method. Incidental uses of the tract include wildlife habitat and hunting.

The adjacent lands are used mainly for crop and livestock production. Mining is occurring approximately one-half mile to the west in Section 7. Some of the county roads within the mining area have been temporarily closed or relocated to allow for more efficient mining.

The proposed tract is well above any flood plain, and it is nonwilderness in character. There are no known endangered or threatened plants or animals inhabiting this tract.

## Chapter 3

### ENVIRONMENTAL IMPACTS

#### AIR QUALITY

Mining of the proposed tract would result in a negative low impact to air quality, due to the increase in particulate matter. Ambient air standards may be exceeded locally during periods of high winds but would not be increased in the area monitored, because mining this tract would only involve the continuation of an existing operation. State Air Quality standards must be met in order to continue operations.

Exhaust emissions from heavy equipment would not be increased, as the same equipment presently operating in the mine would be working on this site. This would result in a low negative impact that would be insignificant outside of the proximity of the equipment.

Fugitive dust would increase locally during the mining operation, but would not increase over the general area.

#### GEOLOGY

Mining 40 acres of the 80-acre proposed tract would commit to nonuse about 164,000 tons of lignite, assuming the recovery rate of 86 percent.

The unrecovered coal would be mixed with spoils and lost. If the in-place coal is by-passed, as much as 1,167,000 tons of the lignite would be committed to nonuse, since the recoverable reserve base of about 1,000,000 tons is too small to attract a large operator. A small operator catering to the local market would be in direct competition with Consol's Glenharold Mine, located 20 miles east of the tract, and the North American Coal Corporation's Indianhead Mine, about 6 miles to the northwest. Both of these large operations sell coal to the local space heating market.

The lignite from the proposed tract would be burned by the Montana-Dakota Utilities Coyote 1 Power Plant at a rate of approximately 2.2 million tons of coal annually. If the proposed federal coal is leased, it would add about 1.2 percent recoverable reserves to the South Beulah Mine, contributing less than six months to the 30-35 year remaining life expectancy of the mine.

Stripping operations would destroy the layering compaction and cohesion of the sedimentary formations above the coal. Porosity and permeability would increase, allowing a freer flow of ground water. The chemical reactivity of the replaced spoil would be greater than that of the undisturbed overburden because of the fragmentation and bulking (increase of 20-25 percent in volume) that commonly results from the excavation and reclamation processes.



Differential settlement of the replaced spoils is not expected to be significant. The reclaimed areas would support the weight of agricultural machinery; however, the weight-bearing properties of the reclaimed land with respect to large buildings or other massive structures would need to be determined by engineering studies if the erection of such structures were being considered.

Coal beds in the area are commonly overlain directly by claystone or shale rich in clay and undesirable amounts of exchangeable sodium. The clay and sodium-rich character of the deeper overburden could be unsuitable for vegetative growth. Excavation and replacement of the overburden would tend to mix the clay and sodium-rich layers, if they exist, with the remaining overburden.

#### TOPOGRAPHY

The major effect to the landscape would result from the removal of overburden over an area of about 40 acres during the mining operation. Initially, the topography would be radically modified. After reclamation, the final topography of the area would be similar to the original landscape. The reclaimed surface would probably be a few feet lower in elevation than the original surface, but this should have no effect on reclamation. Also, the post-mining surface should be suitable for the intended post-mining land use (agriculture).

## SOILS

Currently there is some variation in the thickness of topsoil and subsoil among the soils found on the tract. Removal of the soils would be in response to these variations. When the soil material is respread, there would be a slightly more uniform soil depth created, because the two lifts would be averaged over the tract. However, the effects of averaging should not be very significant on this tract, because of the uniformity of soil depth which already exists. All the major soils present are deep (40"+) and possess favorable topsoil and subsoil characteristics, which would enhance the probability of successful reclamation.

Soil removal would cause some alteration of soil quality, since chemical and physical properties characteristic to each soil series would be mixed. However, because of the uniformity of the soil material, the quality should not be significantly diminished over the tract.

Excessive topsoil compaction should not pose too much of a problem, because of the predominance of moderately coarse surface textures which have low compactibility. However, some excess subsoil compaction could occur where moderately fine textures are present. This would have negative effects on subsoil drainage and permeability, especially if the material is disturbed or compacted when wet. Careful soil handling procedures would keep excess compaction to an insignificant level.

The present nutrient cycle would be disrupted due to soil mixing during removal. However, as the soil material is relatively uniform and fertilizer will be added during rehabilitation, problems with nutrient availability should not occur.

Stripping off vegetative cover and stockpiling the soil increase the opportunity for wind and water erosion. Erosion, along with equipment problems and operator error, would cause the unavoidable loss of some soil. However, the restoration of the existing gentle slopes, protection of stockpiles, proper care and operation of equipment, and quick revegetation and protection of reclaimed areas would keep losses minimal.

Uneven compaction during respreading of overburden would cause some subsidence, or slumping, and result in unexpected surface drainage patterns and depressions. This could lead to unwanted wet spots and excess water erosion. The uneven compaction might also cause a subsurface channeling of water, known as piping, that results in the creation of subsurface caverns. However, slumping and piping should not be serious problems, because the soils on the tract are easy to work, and the tract will have gentle slopes after reclamation.

#### WATER

During the stripping and piling of topsoil and overburden, the vegetation and the soil structure would be destroyed. This would remove the cover, root system and soil structure which hold soil in place. Sediment

loading and concentrations of dissolved solids in surface runoff would increase. With proper placement and construction of sediment ponds, this impact would be insignificant. After the area is reclaimed, increased erosion and sedimentation would subside to premining conditions.

Removal of the lignite from the proposed tract would not destroy an aquifer, but it would remove part of the subsurface hydrologic link between the cropland and the seeps along the draw. After the tract was regraded and revegetated, the slopes of the channel would be a little dryer.

Below the level of the lignite that was mined, there would be no significant impacts. Due to the extent of mining activity in the surrounding area, the impact on water from mining the proposed tract would be insignificant.

#### VEGETATION

There would be no crop production during the mining process and during the early stages of the reclamation process. Most of the 80 acres would be either be mined or used as storage areas for the stock piling of soil materials. After the topsoil has been returned, the tract would be seeded back to grass and remain out of crop production for an additional two to three years. These processes would keep this land out of crop production for an estimated five years. On the basis of 50% summer fallow and 50% planted, with 21 bushels per acre yield, there would be

an annual loss of 840 bushels of wheat.

The reclaimed mined land would be put into temporary grassland cover to control erosion and start the soil rebuilding process. After two to three years the land would go back into crop production, commencing the performance period. By the third year into the cropping and fallow cycle, crop yields should be approaching or equaling the premining performance. Crop loss for the 10 years proof-of-performance period should not exceed 10 to 15 percent of the premining yields.

#### ANIMALS

Analysis of impacts to wildlife is based on the critical assumption that the coal company would not mine or place spoil in the coulee south of the proposed lease tract. Considering the location of the recoverable coal, this is a reasonable assumption.

On the proposed tract itself, removal of topsoil and mining operations would temporarily displace those species such as lark bunting, killdeer, and deer mice that feed or nest in the wheat or fallow portions. Species such as mice, not able to move over to adjacent land, would be destroyed. This loss or the loss of occasional use of the proposed tract by other wildlife would not significantly affect the maintenance or continued existence of these wildlife.

Disturbance of wildlife that use the habitat in the coulee south of the tract would be likely to occur during mining and reclamation operations.

## CULTURAL RESOURCE

The surface lithic areas discovered during inventory would be destroyed by mining. However, the material found there has been recorded, and the areas were determined not to be eligible for the National Register of Historic Places. Therefore, no significant information would be lost, and the impacts would be considered slight.

There is a slight chance that previously unknown cultural resources not visible on the surface may be encountered and destroyed by mining activity.

None of the surrounding features recorded by Dill (1975) would be impacted by this lease proposal.

## AESTHETICS

Spoil piles, draglines, mining facilities, and reclamation equipment would temporarily dominate the landscape. These intrusions would significantly lower the overall scenic quality. The noise from mining and reclamation operations would further diminish the aesthetic quality. Effects from visual intrusions and noise would be acute but short-lived, and they would be mostly a carryover from similar operations on adjacent mining tracts. After the proposed tract is reclaimed, the aesthetic quality would return to premining condition.

## RECREATION

The impacts to the recreational use would be insignificant since little use occurs.

## SOCIAL CONDITIONS

No significant social impacts are anticipated that would result from the proposed action. Surface mining has impacts on several aspects of the social environment, such as housing, education facilities, social services, and public health and safety. However, since the mining operation in this area is ongoing and would continue at its projected rate regardless of the proposed action decision, no population fluctuations are anticipated that would impact the existing social environment.

For information about the changing social conditions within the area, see the site-specific EIS on the Coyote 1 Power Plant and the West-Central North Dakota Regional Environmental Study.

## ECONOMIC CONDITIONS

Leasing the proposed tract would continue the economic growths associated with mining in this area and would provide royalties to the federal government, revenues to the state government, and compensation to the surface owner. A surface mining operation has many impacts on a rural area. The operation creates new and better paying jobs. It brings in

new people, and this increase in population means more money spent locally on goods and services. More housing and industry means a greater local tax base. These conditions, however, presently exist in the area, as the mining operation is ongoing; and they will continue regardless of whether or not the proposed federal coal is leased.

The impact of leasing this particular tract of federal coal would be to extend the life of the mine in the area and, therefore, extend the influx of people and money into the area. There are 1,003,000 tons of recoverable coal in this tract. With a mining rate of 2.2 million tons per year, the proposed action would extend the life of the mine by about 6 months.

#### LAND USE

Mining and reclamation would preclude agricultural use of the proposed tract. The actual area to be mined is approximately 40 acres; however, the buffer zone and working area would occupy most of the 80-acre tract. The period of time that the agricultural use is interrupted and the mining process is occurring should be no more than 7-12 years.

The county road bordering the tract on the north should not be significantly affected, since it is outside of the proposed mining area.

Mining on the cropland will not significantly affect grazing on the adjacent rangeland, however, wildlife use will probably be reduced, and hunting will shift to more remote areas during the mining period.



## Chapter 4

### MITIGATING OR ENHANCING MEASURES

Except as indicated below, there are no mitigating or enhancing measures recommended beyond the requirements of federal, state, and local laws or permits.

#### VEGETATION

There would be no residual impacts to vegetation on the proposed tract; however, the (adjacent) south half of the quarter section, which contains the steep-sided coulee, needs to be protected from damage caused by runoff.

#### ANIMALS

Stipulations in the mining plan should adequately minimize or eliminate impacts to the habitat south of the proposed lease tract. Those measures should include:

1. No topsoil or subsurface spoils will be placed in the coulee south of the tract.
2. No haul roads will be allowed to cross into, or spoil into the coulee south of the tract.

3. Human activity, including mining, will be closely monitored in the spring (April-June) in the mining area so as to reduce impact on breeding and nesting birds and other wildlife that may occur in the adjacent habitat.

#### CULTURAL RESOURCE

No mitigating measures are needed to reduce the impacts on the lithic area in the lease area, because they have been recorded and are not significant to the local prehistory. Standard coal lease stipulations require that if previously unknown cultural resources are encountered during construction, topsoil removal operations, or mining, work should be halted until the responsible federal official is notified and can evaluate the discovery.

## Chapter 5

### RESIDUAL ADVERSE IMPACTS

#### CLIMATE AND AIR QUALITY

If all the requirements of state and federal law are observed the impact to climate and air quality would be avoided. However, there would continue to be some residual adverse air quality conditions, primarily fugitive dust. This residual impact would be very small and would only occur in the local area of the mine.

#### GEOLOGY

About 154,000 tons of the in-place reserves of 1,167,000 tons of coal would not be recovered; therefore, it would be lost to future generations. The minable reserves in the proposed tract represents about 1.2 percent of the coal already under lease or committed to mining by the South Beulah Mine.

Differential settlement of replaced spoils is not expected to be significant as far as the proposed post-mining land use is concerned.

## TOPOGRAPHY

The resultant lowering of the surface (comparing reclaimed land to its original condition) should have an insignificant effect on the intended postmining land use of the proposed tract.

## SOILS

The favorable characteristics of the soils on this tract should ensure successful reclamation. However, even if all mitigating measures are conscientiously applied by the operator, there would be some soil loss due to erosion, equipment problems, operator error, etc. All of the work must be performed in the best possible manner to keep the loss to a minimum. Probably, there would be some soil concerns associated with subsidence, piping, and compaction, but they should not be serious if reclamation measures are satisfactorily applied.

## WATER

The seeps along the north side of the coulee (immediately south of the tract) would be dryer. This would only affect the immediate vicinity of the seeps.

## VEGETATION

Mining and reclamation operations must be carried out in accordance with state and federal regulations. The current requirements of saving and

returning the topsoil and the second layer of soil material would ensure successful reclamation of the proposed tract.

Any surface disturbing activity that occurs in the adjacent coulee area south of the tract would require extensive mitigation and reclamation measures, because of the steep slopes and fragile soils. Even if the surface is not disturbed in this area, control measures would be necessary to protect it from mining-related erosion and contamination.

#### ANIMALS

No residual adverse impacts to wildlife are expected to occur as a result of mining the coal on the proposed tract.

#### CULTURAL RESOURCE

No significant cultural resources on the proposed tract have been recorded; thus, any impacts would be negligible. The lack of mitigating measures should not produce significant residual adverse impacts.

#### AESTHETICS

As there would be only insignificant changes in landform, color, and vegetation composition (after reclamation), the residual impact would be minor.

#### RECREATION

After reclamation there would be no residual impacts to recreation (mainly upland game bird hunting).

#### SOCIAL AND ECONOMIC CONDITIONS

There would be no residual adverse social or economic impacts resulting from the proposed action.

#### LAND USE

After the land has been rehabilitated, there would be no residual adverse impacts.

## Chapter 6

### SHORT-TERM USES VS. LONG-TERM PRODUCTIVITY

The decision to lease or not lease coal cannot be made without weighing, on the one hand, the values of the resources to be utilized or made available and, on the other hand, the resources to be lost or made unavailable. For an activity such as coal mining, it is useful to consider these resources in both the short-term and the long-term perspective. In the present case the short-term time frame begins with the removal of topsoil from the proposed tract and ends with the successful completion of reclamation efforts. During this period, the overburden and soils are removed and stockpiled, the coal is removed and burned, the overburden and soils are replaced, and the tract is fertilized and seeded to grass. The short-term use does not end until the North Dakota Public Service Commission decides that the tract has been reclaimed and releases the coal company from its performance bond.

The long-term view includes future effects that linger after the period of short-term use has ended. It begins after the tract has been reclaimed, when the premining activity (in the present case, agriculture) can again resume; however, it does not end, because the long term involves an indefinite period beyond the life of the project.

In any planned action that would impact the environment it is usually necessary to sacrifice the use of some resources--either permanently or

temporarily--to obtain or use another resource. This is sometimes known as "trade-off." The short-term losses are weighed against the short-term and long-term gains. Long-term losses are weighed against long-term and short-term gains. Thus, the decision on a proposed action often involves "trading off" one value (e.g., wildlife habitat) for another value (e.g., coal). These trade-offs can involve both long-term and short-term commitments of resources.

#### SHORT TERM

In the present case, the short-term use of the proposed lease tract would be from 7-12 years (depending on variables related to reclamation). Strip mining the coal on the tract would extend the life of the South Beulah Mine by about six months, during which time the tract would help maintain the economic viability of the surrounding area in terms of employment and income. The following environmental components would be made unavailable during the period of short-term use:

- the geology from the base of the coal bed to the soil material;
- the opportunity to develop surface or subsurface water on the tract;
- the opportunity to further explore the tract for cultural remains;
- the soil structure necessary to support vegetation;
- vegetation;
- wildlife habitat;
- recreation, primarily upland game hunting;
- agriculture.



In addition, during the short-term use, the seepage of water to the coulee on the south would be diminished and surface runoff from the tract would be stopped.

#### LONG TERM

If the proposed tract is mined, the coal bed will be lost for future generations. Any remaining cultural resources that have not been inventoried would probably be lost forever, and, if discovered later, would have less value because of their disturbed condition and change in relative location. The soils on the tract would be permanently altered by the proposed action, but the soils that result from reclamation would be as productive as the original soils. The passage of water through the overburden would be altered, resulting in the coulee to the south becoming somewhat drier. The remaining environmental components would not be significantly affected in the long term. After reclamation, the proposed tract would fit back into the ecological niche it occupied prior to mining.

#### TRADE-OFF

The most significant loss associated with mining the tract would be the short-term loss of agricultural production, which must be weighed against the short-term gain of making the coal available to the nearby electric generating plant. No significant long-term gains or losses are anticipated if the tract is mined.

## NOT LEASING

If the tract were not leased and consequently not mined, the short-term effect of a shorter supply of coal for the immediate energy needs of the nation would result. If the tract were not mined, the long-term effect of losing the coal to any future mining operation would probably result, due to the impracticality of returning for the 40+ acres of coal. No other effects of not mining the tract would result.

## Chapter 7

### IRRETRIEVABLE RESOURCE COMMITMENTS

The purpose of this chapter is to identify impacts that would cause irreparable damage or permanent (or exceptionally long-term) changes to the environment.

There are several permanent changes or losses that would be sustained by the environment. The coal is a non-renewable resource; after it is mined, it is not replaced.

The mining process and subsequent landscaping and seeding during reclamation would change the appearance of the land, i.e., general topography and vegetation.

The soil units as they now exist would be lost. They would return in a new form with reclamation. The ground water seeps which occur along the draw to the south may be a little drier even after the tract has been reclaimed. This would reduce the amount of wet-site vegetation in that area.

## Chapter 8

### ALTERNATIVES

#### NO-ACTION ALTERNATIVE

If the proposed tract is not leased, a calculated in-place reserve of approximately one million tons of coal would be lost to present and future generations. An amount equal to this deficit would likely be mined elsewhere, with the possibility of increased impacts. However, none of the effects to the surface and subsurface, as identified in chapters 3 and 5, would occur within the 80-acre tract.

#### OTHER ALTERNATIVES

Considering the proposed mining schedule and the physical size, minable reserve base, geology, and location, of the tract there is no alternative to the proposed action that would provide similar benefits with different environmental impacts. Even leasing at a later date would likely have the same effects as the no-action alternatives since a small operator is not likely to be interested in the tract now or in the foreseeable future.

Chapter 9

CONSULTATION AND COORDINATION

North Dakota Game and Fish Department

Bill Lynott - Biologist, Bismarck, North Dakota

North Dakota Geological Survey

Gerald Groenewold - Geologist, Grand Forks, North Dakota

North Dakota Outdoor Recreation Agency

North Dakota Public Service Commission

Ervin Barchenger - Bismarck, North Dakota

Terry Zich - Geologist, Bismarck, North Dakota

Jim Deutsch - Soil Scientist, Bismarck, North Dakota

North Dakota State Historical Society

James E. Sperry - State Historic Preservation Officer,

Bismarck, North Dakota

Dill, C. L.

1975 Archeological and Historic Site Survey, South Beulah Mine  
Expansion Areas, Knife River Coal Company. Manuscript,  
State Historical Society of North Dakota, Bismarck.

Soil Conservation Service

Sylvester Ekart - State Soil Scientist, Bismarck, North Dakota  
Kenneth Thompson - Area Soil Scientist, Dickinson, North Dakota  
Adrian Ivers - District Conservationist, Center, North Dakota

Surface Owner

Marion Baird, Bellaire, Texas

U.S. Fish and Wildlife Service

James Nelson - Biologist, Bismarck, North Dakota  
Frank Cole - Biologist, Bismarck, North Dakota  
James C. Gritman - Acting Regional Director, Region 6,  
Denver, Colorado

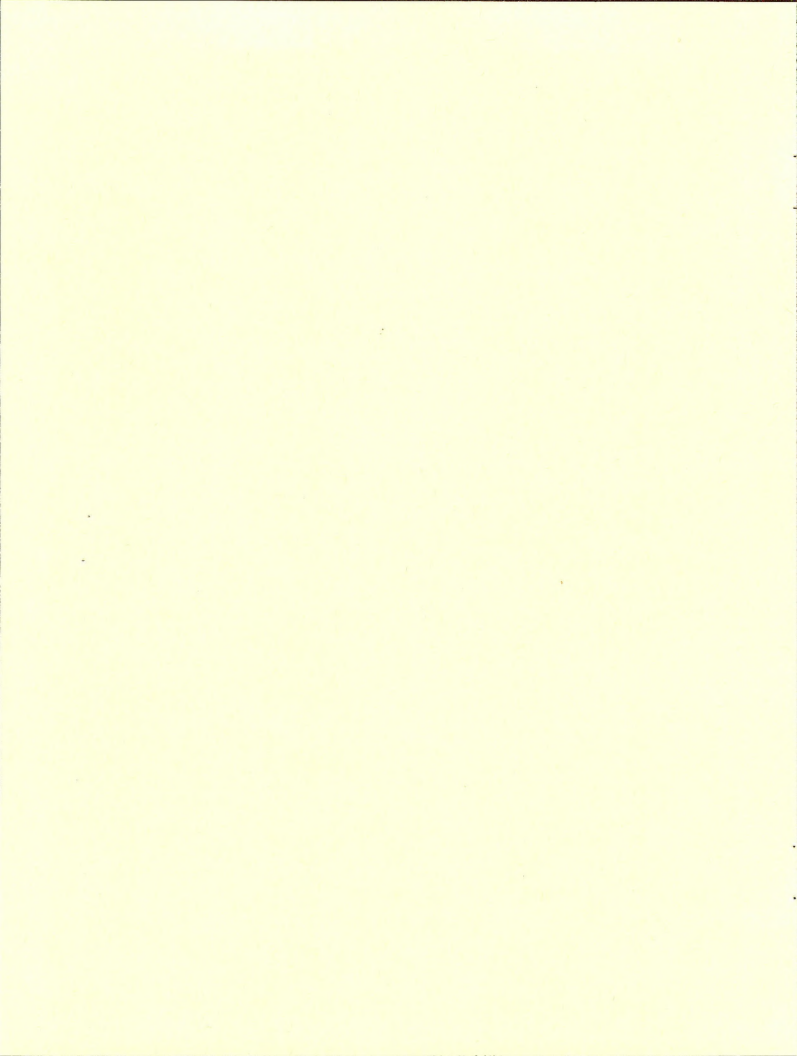
U.S. Geological Survey

Mark Crowley - Hydrologist, Bismarck, North Dakota

APPENDICES

APPENDIX I - SOILS INFORMATION

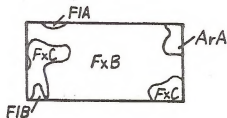
APPENDIX II - VISUAL RESOURCE





APPENDIX 1

Soil Map  
 Section 8, N<sub>2</sub>S<sub>2</sub>E<sub>4</sub>, T143N R87W  
 Oliver County, North Dakota-80 acres



Scale  
 1:20,000  
 3.168" = 1 mile

<u>Mapping Unit</u>	<u>Mapping Unit and Slope</u>	<u>Acres*</u>	<u>% of Area</u>
ArA	Arnegard loam, nearly level (0-3%)	4	5.00
FIA	Flaxton-Livona fine sandy loams, nearly level (0-3%)	1	1.25
FlB	Flaxton-Livona fine sandy loam, undulating (3-6%)	1	1.25
FxB	Flaxton-Williams soils, undulating (3-6%)	61	76.25
FxC	Flaxton-Williams soils, rolling (6-9%)	13	16.25
		80	100.00

\* Acres calculated by dot-grid method

## MAPPING UNIT DESCRIPTIONS

### Name and Description

Arnegard loam, nearly level (0 to 3 percent slopes) (ArA). This soil occupies upland swales, valley fans, and foot slopes. It is mainly nearly level but ranges from level to very gently sloping. The size of areas varies greatly but is generally less than 40 acres.

This soil has the profile described as representative of the series. Included in mapping were small areas of Sen, Williams, Vebar, Grassna, Grahl, Parshall, and Straw soils. Runoff is slow.

Most of the runoff from surrounding soils is absorbed, except during the heaviest rains. This soil is used mainly for small grain, corn and alfalfa. On many farms this soil is used for home gardens. It is well suited to all crops commonly grown in the county. (Capability unit IIc-6; overflow range site; windbreak group 1.)

Flaxton-Livona fine sandy loams, nearly level (0 to 3 percent slopes) (FlA). This complex consists of well-drained, deep friable soils on uplands. These soils formed partly in 10-40 inches of fine sandy loam and partly in the underlying glacial till. Flaxton fine sandy loam makes up about 65 percent of the complex, and Livona fine sandy loam 25 percent.

The Flaxton soil has the profile described as representative of the series. The Livona soil has a profile similar to that described as representative for its series, except that the fine sandy loam in the upper part of the solum is about 3 inches thicker than typical. Runoff is slow.

Included in mapping were small areas of Parshall, Williams, Arnegard, and Tonka soils. Also included were some eroded areas. In these areas are spots where the original subsoil of brown clay loam has been exposed and plowed and there is sandy ridged deposition along field boundaries.

The main concern of management is a serious hazard of soil blowing. Nearly all the acreage is cultivated. The soils are used mainly for small grains, corn, and alfalfa. They are well suited to grass, legumes; and corn but not so well suited to small grains. (Capability unit IIIe-3M; sandy range site; windbreak group 5.)

Flaton-Livona fine sandy loams, undulating (3 to 6 percent slopes) (F1B). This complex consists of well-drained, deep, friable soils on uplands. These soils formed partly in 10-40 inches of fine sandy loam and partly in the underlying glacial till. The Flaxton soil is on lower slopes, and the Livona soil is on upper slopes. Flaxton fine sandy loam makes up about 60 percent of the complex and Livona fine sandy loam 30 percent.

The Livona soil has the profile described as representative for its series.

Included in mapping were small areas of Williams loams and Parshall fine sandy loams. The Williams soils have convex slopes, and Parshall soils have concave slopes. Also included were small areas of Tonka and Arnegard soils. Other inclusions were eroded areas. In these areas are spots where the original subsoil of brown clay loam has been exposed and plowed and there is sandy ridged deposition along field boundaries. Runoff is slow to medium.

Soil blowing is a severe hazard, and gullyng is a moderate hazard, especially in fields where row crops are grown. Most of the acreage is cultivated. The soils are used mainly for small grains. They are well suited to grass, legumes, and corn but not so well suited to small grains. (Capability unit IIIe-3M; sandy range site; windbreak group 5.)

Flaxton-Williams soils, undulating (3 to 6 percent slopes) (FxB). This complex consists of well-drained, deep, friable soils on uplands. The Flaxton soil formed partly in 10-40 inches of fine sandy loam and partly in the underlying glacial till, and the Williams soil formed in clay loam glacial till. Flaxton fine sandy loam makes up about 40 percent of the complex, Williams loam and fine sandy loam 30 percent, and Livona fine sandy loam 25 percent. Runoff is slow to medium.

Included in mapping were small areas of Parshall, Arnegard, and Tonka soils, and spots of eroded Flaxton and Livona soils. In these eroded spots, the original subsoil of brown clay loam has been exposed and

plowed, and in places nearby there is sandy deposition in hummocks and ridged field boundaries.

Soil blowing is a serious hazard on these soils. Most of the acreage is cultivated. The soils are used mainly for small grains, and they are well suited to the crops commonly grown in the county. Control of gullying is needed, especially in fields where row crops are grown. (Capability unit IIIe-3M; Flaxton part in sandy range site, and Williams part in windbreak group 3.)

Flaxton-Williams soils, rolling (6 to 9 percent slopes) (FxC). This complex consists of well-drained, deep, friable soils on uplands. The Flaxton soil formed partly in 10-40 inches of fine sandy loam and partly in the underlying glacial till, and the Williams soil formed in clay loam glacial till. Flaxton fine sandy loam makes up about 35 percent of the complex, Williams loam and fine sandy loam 35 percent, and Livona fine sandy loam 25 percent.

The Williams soils have a profile similar to that described as representative for its series, except that the solum is about 4 inches thinner, and in places they have a surface layer of fine sandy loam. Runoff is medium. Included in mapping were small areas of Parshall, Arnegard, and Tonka soils.

The main concerns of management are soil blowing and water erosion. Water erosion is more severe in cultivated drainageways than in other areas. Limiting the use of row crops helps to minimize losses of soil and water. About half the acreage is cultivated. The soils are used mainly for grass and small grains. They are well suited to grass and fairly well suited to small grains and legumes. Control of water erosion is needed if corn is grown. (Capability unit IVe-3; Flaxton part in sandy range site, and Williams part in silty range site; Flaxton part in windbreak group 5, and Williams part in windbreak group 3.)

#### BRIEF SOIL SERIES DESCRIPTIONS

##### Arnegard Series

The Arnegard series consists of deep, well-drained, loamy soils that formed in materials washed downslope. These soils are in upland swales, on valley fans, and on foot slopes. They have slopes of 0-9 percent. They are mainly in small tracts and are well distributed throughout the county.

In a representative profile the surface layer is very dark grayish-brown loam about 18 inches thick. The subsoil extends to a depth of about 40 inches and consists of friable loam. It is very dark grayish-brown to a depth of about 32 inches and dark grayish-brown below that depth. The underlying material is grayish-brown, light clay loam.

Arnegard soils are high in organic-matter content, fertility, and available water capacity. Permeability is moderate.

Because these soils receive runoff from surrounding soils, extra moisture is available to crops. These soils are used for crops, except in small tracts that are associated with soils that are suited only to grass. Native trees and shrubs grow in some swales and on some north-facing slopes. These soils are well suited to most crops commonly grown in the county, but they are not so well suited to corn where slopes are more than 3 percent. Series Classification: Fine-loamy, mixed Pachic Haploborolls.

#### Flaxton Series

The Flaxton series consists of deep, nearly level to hilly, well-drained soils on uplands. These soils formed in 20-40 inches of thin, wind-laid, loamy and sandy material and in the underlying glacial till.

In a representative profile the surface layer is very dark grayish-brown fine sandy loam about 15 inches thick. The subsoil is about 27 inches thick. The upper part of the subsoil is dark grayish-brown, friable fine sandy loam that extends to a depth of about 28 inches. The lower part is clay loam that is brown to a depth of about 31 inches and light olive brown below. The underlying material is light brownish-gray clay loam glacial till.

Flaxton soils are moderately to highly susceptible to soil blowing. They are high to moderate in organic-material content and available water capacity and moderate in fertility. Permeability is moderately rapid in the upper part of the subsoil and moderately slow below.

These soils are used mainly for small grains, alfalfa, and corn. In areas where slopes are less than 6 percent, they are suited to all the crops commonly grown in the county, but in more strongly sloping areas, they are better suited to grass than to most other plants. Series Classification: Fine-loamy, mixed Pachic Argiborolls.

#### Livona Series

The Livona series consists of deep, nearly level to hilly, well-drained soils on uplands. These soils formed partly in thin, wind-laid, loamy or sandy material that is less than 20 inches thick, and partly in the underlying glacial till.

In a representative profile the surface layer is very dark grayish-brown fine sandy loam about 7 inches thick. The subsoil is about 29 inches thick. The upper 8 inches of the subsoil is friable, dark grayish-brown fine sandy loam; the next 5 inches is friable, light olive-brown clay loam, and the lower 16 inches is friable, pale-olive clay loam. The underlying material is mottled, pale-olive clay loam.



Livona soils are moderately to highly susceptible to soil blowing. They are high in available water capacity and moderate in organic-matter content and fertility. Permeability is moderately rapid and rapid in the upper part of the subsoil and moderately slow below the subsurface.

These soils are used mainly for small grain, alfalfa, and corn. Where slopes are less than 6 percent, they are suited to all crops commonly grown in the county, but where slopes are stronger, they are better suited to grass than to most other crops. Series Classification: Fine-loamy, mixed Typic Argiborolls.

#### Williams Series

The Williams series consists of deep, nearly level to steep, well-drained, loamy soils on glacial till upland plains. They are more extensively used for crops than other soils in the county. Surface drainage is mainly well defined but is poorly defined in some of the larger tracts. Williams soils have convex and plane slopes. Rounded cobblestones, stones, and boulders are common on the surface or within the soil profile.

In a representative profile the surface layer is very dark grayish-brown loam about 7 inches thick. The subsoil is friable clay loam that extends to a depth of about 21 inches. It is brown in the upper part and grayish brown in the lower part. The underlying material is calcareous clay

loam glacial till that is pale olive to a depth of about 27 inches and light brownish gray below that depth.

Williams soils are high in available water capacity and fertility and moderate in organic-matter content. Permeability is moderate in the subsoil and moderately slow in the underlying material.

Most of these soils are used for crops, mainly small grains. Because stones are on the surface, cultivation is difficult in some places, but the stones are only a nuisance in most places. Except in hilly or stony areas, most of these soils are suited to all crops commonly grown in the county. Series Classification: Fine-loamy, mixed Typic Argiborolls.

## APPENDIX II

Scenery Quality Inventory Chart			
KEY FACTORS	RATING CRITERIA AND SCORE		
<b>1 LAND FORM</b>	Vertical or major relief (hill, spurs, high, eroded formations, massive rock outcrops, severe surface variations) 4	Steep canyon walls, mesas, interesting erosional patterns, valleys in size & shape of land forms 2	Rolling hills, foothills, flat valley bottoms 1
<b>2 COLOR</b>	Rich color, contrast, some variety in visual contrasts on the color of soil, rocks, vegetation or water 4	Some variety in colors and contrast of the soil, rocks & vegetation, but not dramatic 2	Neutral color variations, little contrast, generally muted tones, lacking visible contrast 1
<b>3 WATER</b>	Small stream or waterfall on view adding white water, a dominant factor in the landscape 4	Flowing and on view in soil but not dominant 2	Absence or presence but without view 1
<b>4 VEGETATION</b>	A homogeneous variety of patterns, textures, patterns, and type 4	Some variation in patterns and texture, but only one or two major types 2	Little or no variation, somewhat lacking 1
<b>5 UNIQUENESS</b>	One of a kind or rare type within region 4	Unusual but similar to others within the region 2	Interesting in its setting, but fairly common within the region 1
<b>6 INTRUSIONS</b>	Tree trunks, structures, undesirable artificial lights and influences 2	Scenic quality is somewhat degraded and the coloration setting, trees but no artificial trees that draw attention, artificial structures are present, regarded 1	Intrusions are so numerous that scenic quality is for the most part nullified 4
<p>Scenery A = 15-24</p> <p>Scenery B = 10-14</p> <p>Scenery C = 1-9</p>			
SOURCE: BLM Manual 6310, 1975			

### EXPLANATION OF RATING CRITERIA

1 Land form or topography becomes more interesting as it gets steeper and more massive. Examples of outstanding land forms are found in the Grand Canyon, the Sawtooth Mountain Range in Idaho, the Wrangell Mountain Range in Alaska, and the Rocky Mountain National Park.

2 Color: Consider the overall color of the basic components of the landscape (i.e., soil, rocks, vegetation, etc.) as they appear during the high-use season. Key factors to consider in rating "color" are variety, contrast, and harmony.

3 Water is the ingredient which adds movement or openness to a scene. The degree to which water dominates the scene is the primary consideration in selecting the rating score.

4 Vegetation: Give primary consideration to the variety of patterns, forms, and texture created by the vegetation.

5 Uniqueness: This factor provides an opportunity to give added importance to one or all of the scenic features that appear to be relatively unique within any one physiographic region. There may also be cases where a separate evaluation of each of the key factors does not give a true picture of the overall scenic quality of an area. Often it is a number of not so spectacular elements in the proper combination that produces the most pleasing scenery — the uniqueness factor can be used to recognize this type of area and give it the added emphasis it needs.

6 Intrusions: Consider the impact of man-made improvements on the aesthetic quality. These intrusions can have a positive or negative aesthetic impact. Rate accordingly.

1. Date  
June 1979

2. Rater  
District Staff

3. State  
North Dakota

4. District  
Dickinson

5. Plan Unit  
Knife River Coal Co.

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

QUALITY EVALUATION SCORESHEET

CLASS	SCORE RANGE
7	
A	15-24
B	10-14
C	1-9

6. Recreation Activity

Scenery Quality

8. KEY FACTORS

*Landform*  
*Color*  
*Water*  
*Vegetation*  
*Uniqueness*  
*Intrusions*

*11. TOTAL SCORE*  
*12. CLASS*

9. RATING AREA

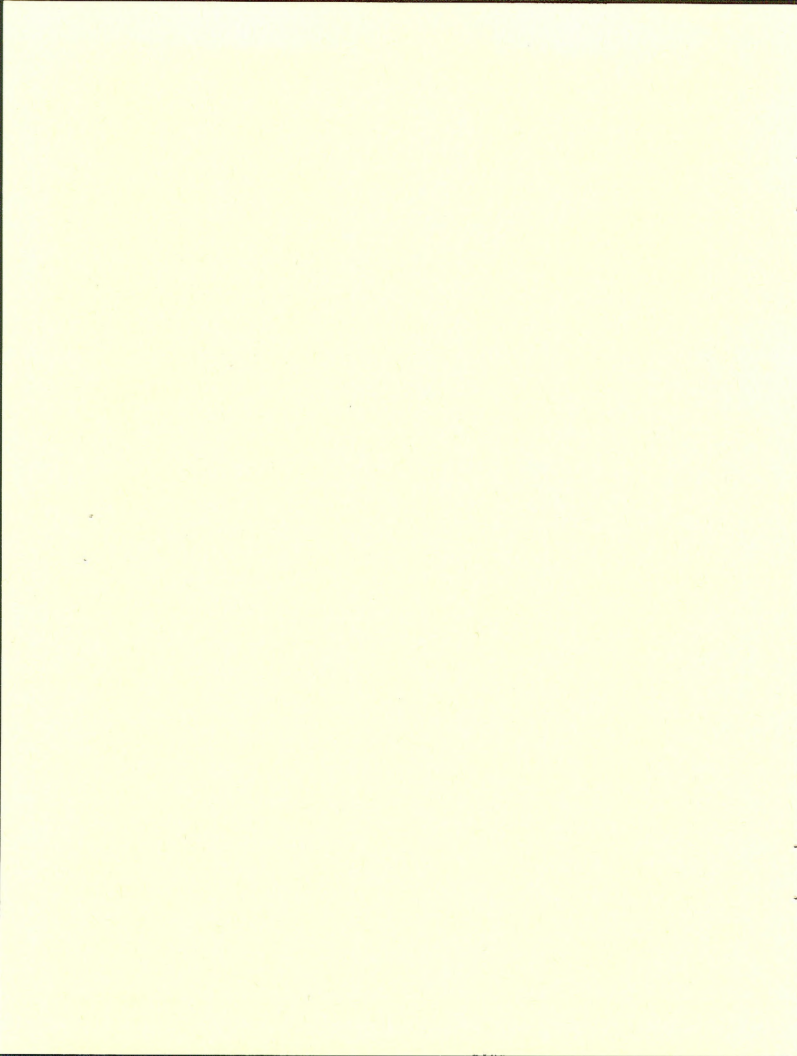
10. POINT MAXIMUM

13. REMARKS

NO. (a)	NAME (b)	10. POINT MAXIMUM							11. TOTAL SCORE	12. CLASS	13. REMARKS
		4	4	4	4	6	2				
	Rater No. 1	1	2	1	2	1	1		8		
	Rater No. 2	1	2	1	2	1	1		8		
	Rater No. 3	1	1	1	2	1	2		8		
	Rater No. 4	1	1	2	2	2	2		10		
	Rater No. 5	1	2	1	2	1	1		8		
	Rater No. 6	1	2	1	2	1	1		8		
	Average	1	1.7	1.2	2	1.2	1.3				
	Summary Rating	1	2	1	2	1	1		8	C Low	

(Instructions on reverse)

SURFACE OWNER VIEWS



STATEMENT OF SURFACE OWNER CONSENT AND OPINION ON RECLAMATION

On July 11, 1979, Marion McKinney Baird, surface owner of record since 1961, entered into a lease option with Knife River Coal Mining Company. If the Knife River exercises this lease option, they will have the right to conduct strip mining operations on the subject land. This lease option is taken as evidence that the surface owner consents to the use of the subject land for the purpose of mining the underlying federal coal.

Marion Baird was contacted on August 27, 1979, by a BLM representative to discuss reclamation and postmining land use. Mrs. Baird said she would like to have the area reclaimed to cropland. This is the current primary use of the subject tract.

The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that proper record-keeping is essential for the success of any business and for the protection of the interests of all parties involved. The text outlines the various methods and systems that can be used to ensure the accuracy and reliability of financial data.

In addition, the document provides a detailed overview of the different types of financial statements that are commonly used in business. It explains the purpose and content of each statement, including the balance sheet, income statement, and cash flow statement. The text also discusses the importance of reconciling these statements and ensuring that they are consistent and accurate.

Finally, the document offers practical advice and tips for businesses on how to effectively manage their financial records. It covers topics such as the selection of accounting software, the establishment of internal controls, and the regular review and audit of financial data. The goal is to provide businesses with the knowledge and tools they need to maintain accurate and reliable financial records.

The second part of the document focuses on the importance of maintaining accurate records of all transactions. It emphasizes that proper record-keeping is essential for the success of any business and for the protection of the interests of all parties involved. The text outlines the various methods and systems that can be used to ensure the accuracy and reliability of financial data.

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The final part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that proper record-keeping is essential for the success of any business and for the protection of the interests of all parties involved. The text outlines the various methods and systems that can be used to ensure the accuracy and reliability of financial data.

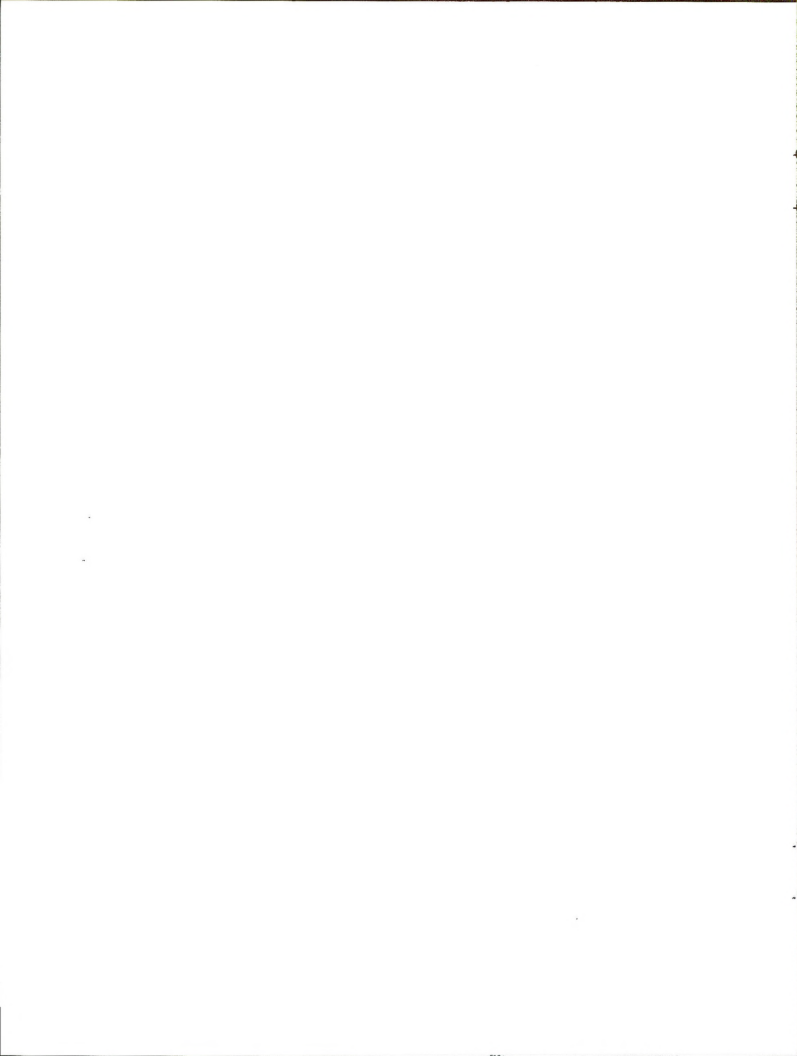


## RELATIONSHIP TO STATE AND LOCAL PLANNING

The State of North Dakota does not have a land use plan that covers the Knife River-South Beulah area of Oliver and Mercer County. However, the North Dakota Century Code has empowered the County Board of Commissioners to enact planning and zoning within their county. The Oliver County Planning and Zoning Commission has been set up to advise the county commissioners on all planning and zoning matters. In 1976 the Oliver County Zoning Ordinance was adopted. This ordinance sets forth the minimum requirements for land use.

The subject tract is currently zoned for agricultural use. The primary use of the lands within the Agricultural District is that of general farming and ranching activity. However, a temporary use permit can be granted to allow coal exploration and mining. Currently the Knife River Coal Company is mining west of this tract under a temporary use permit.

The BLM's proposal to lease coal within the operational area of the Knife River's South Beulah Mine is compatible with the Oliver County land use policy.



APPLICATION OF UNSUITABILITY CRITERIA



## APPLICATION OF UNSUITABILITY CRITERIA

### GENERAL APPLICATION PROCEDURES

Section 522 (b) of the Surface Mining Control and Reclamation Act of 1977 requires that the Secretary of Interior conduct a review of the federal lands to determine whether or not there are areas on federal lands that are unsuitable for all or certain types of surface coal mining operations. In pursuit of this mandate, the Secretary has had developed within the Department of Interior a list of 20 unsuitability criteria that are to be applied to federal lands where leasing of federal coal may be proposed.

A list of the unsuitability criteria is located in Appendix A at the end of this section. Each criterion describes a condition or conditions that may cause an area of federal land to be designated as unsuitable for surface coal mining. Most of the criteria, however, have some factors described that may exempt the area from being designated as unsuitable. These "exceptions" generally are allowances for applying practices that would mitigate impacts on the resources addressed by each criterion. Application of the exceptions by the land manager is discretionary.

The following is an abbreviated step-by-step discussion of unsuitability application procedures:

### Step 1

Areas that are over qualifying coal deposits and that meet the conditions spelled out by each criterion are delineated on a composite map.

These are initial unsuitable areas.

### Step 2

The appropriate exceptions criteria are applied to every area that has an initial unsuitable designation. The unsuitable designation may be dropped where an exception action can be taken. The land manager has the discretion to drop or not drop the unsuitable designation where an exception fits. If an exception cannot be appropriately applied, the area remains designated as unsuitable for mining.

In many cases the decision on unsuitability may be deferred. An example is the designation of buffer zones along county roads. It is probably more appropriate that the exceptions be applied when a mining company has a definite mining proposal in an area containing a county road. At that time the mining company can go to the county authorities to request temporary relocation of the road. If the authorities refuse, then a buffer zone of 100 feet on either side of the road becomes an area unsuitable for surface mining.

### Step 3

The areas that remain as unsuitable are portrayed on a composite map.

### Step 4

A document is prepared that discusses the application of unsuitability. This includes initial designation, use of exceptions, and final designations.

### Step 5

A document is prepared on the impact of unsuitability designation. This includes: (1) the potential coal resources involved; (2) the demand for such resources; and (3) the impact of such designation on the environment, the economy, and the supply of coal.

### Step 6

As a part of the normal public participation phase of the BLM land use planning process, the unsuitability maps and documents are presented to the public for comment.

Step 7

Unsuitable area designations are made final after public comments have been analyzed and, where appropriate, adjustments have been made. Final designations will be a part of the decision document of the land use plan. The decision document, which also includes public comments and BLM's response to them, will be made available to the public.

Once the planning recommendations are presented, any person whose interests may be adversely affected by the recommendations may request a public hearing on the plan prior to its adoption.



APPLICATION OF UNSUITABILITY CRITERIA  
ON FEDERAL COAL IN THE EMERGENCY LEASING APPLICATION AREA AT THE  
SOUTH BEULAH MINE

All 20 unsuitability criteria were addressed when doing the land use analysis on the Knife River emergency leasing application. The federal coal area has conditions or situations that fit only one criterion:

Criterion 3. Buffer Zones Along Right-of-Way and Adjacent to Communities and Buildings

The county road (see Map 1-2) along the north border of the application area meets the conditions of this criterion but is not being designated as unsuitable at this time, since an exception can be applied at a later time by the proper local authority and the Office of Surface Mining Reclamation and Enforcement.

For definitions of the 20 Unsuitability Criteria see the Final Approved list (dated July 19, 1979) in Appendix A of this section.

## DESIGNATING AREAS UNSUITABLE FOR SURFACE COAL MINING

On December 5, 1978, Guy R. Martin, Assistant Secretary, Land and Water Resources, Department of the Interior, announced a statement of policy for the "Coordination of Federal Lands Review Under the Surface Mining Control and Reclamation Act (SMCRA), Land Use Planning Under the Federal Land Policy and Management Act, and the Federal Coal Management Review Under the President's Environmental Message of May 1977." This announcement was published in the Federal Register on Friday, December 8, 1978 (Volume 43, No. 237, pages 57661-57670). This Departmental policy statement explained how future, ongoing, and updated BLM (land use) management framework plans would be made consistent with recent statutory changes involving new environmental protection measures that may affect potential development of coal resources on federal lands.

The final approved (July 19, 1979) criteria for designating areas unsuitable for surface coal mining are part of the Federal lands review required by Section 522-523 of SMCRA. The actual formal designation will follow approval of the plan supplement. (Section 522-523 of SMCRA are reproduced in full immediately after the list of final criteria.)

It should also be noted that the results of the above review are subject to public review and right to petition under Section 522(c). The Federal lands program for regulation of surface coal mining on Federal lands under Section 523 of SMCRA shall not constitute a major action within the meaning of Section 102(2)(c) of the National Environmental Policy Act of 1969 (42 USC 4332) according to Section 702(d) of SMCRA.

The unsuitability criteria used during this planning update follows:

Section 3461.1 Criteria for assessing lands unsuitable for all or certain stipulated methods of coal mining.

(a)(1) Criterion Number 1. All Federal lands included in the following land systems or categories shall be considered unsuitable: National Park System, National Wildlife Refuge System, National System of Trails, National Wilderness Preservation System, National Wild and Scenic Rivers System, National Recreation Areas, lands acquired with money derived from the Land and Water Conservation Fund, National Forests, and Federal lands in incorporated cities, towns, and villages. All Federal lands which are recommended for inclusion in any of the above systems or categories by the administration in legislative proposals submitted to the Congress or which are required by statute to be studied for inclusion in such systems or categories shall be considered unsuitable.

(2) Exceptions. (i) A lease may be issued within the boundaries of any National Forest if the Secretary finds no significant recreational, timber, economic or other values which may be incompatible with the lease; and (A) surface operations and impacts are incident to an underground coal mine, or (B) where the Secretary of Agriculture determines,

with respect to lands which do not have significant forest cover within those National Forests west of the 100th meridian, that surface mining may be in compliance with the Multiple-Use Sustained-Yield Act of 1960, the Federal Coal Leasing Amendments Act of 1976 and the Surface Mining Control and Reclamation Act of 1977. (ii) A lease may be issued within the Custer National Forest with the consent of the Department of Agriculture as long as no surface coal mining operations are permitted.

(3) Exemptions. The application of this criterion to lands within the listed land systems and categories is subject to valid existing rights, and does not apply to surface coal mining operations existing on August 3, 1977. The application of the portion of this criterion applying to land proposed for inclusion in the listed systems does not apply to lands: to which substantial legal and financial commitments were made prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

(b)(1) Criterion Number 2. Federal lands that are within rights-of-way or easements or within surface leases for residential, commercial, industrial, or other public purposes, or for agricultural crop production on Federally owned surface shall be considered unsuitable.

(2) Exceptions. A lease may be issued, and mining operations approved, in such areas if the surface management agency determined that:

(i) All or certain types of coal development (e.g., underground mining) will not interfere with the purpose of the right-of-way or easement; or

(ii) The right-of-way or easement was granted for mining purposes; or

(iii) The right-of-way or easement was issued for a purpose for which it is not being used; or

(iv) The parties involved in the right-of-way or easement agree, in writing, to leasing; or

(v) It is impractical to exclude such areas due to the location of coal and method of mining and such areas or uses can be protected through appropriate stipulations.

(3) Exemptions. This criterion does not apply to lands: to which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

(c)(1) Criterion Number 3. Federal lands affected by section 522(e)(4) and (5) of the Surface Mining Control and Reclamation Act of 1977 shall be considered unsuitable. This includes lands within 100 feet of the outside line of the right-of-way of a public road or within 100 feet of a cemetery, or within 300 feet of any public building, school, church, community or institutional building or public park or within 300 feet of an occupied dwelling.

(2) Exceptions. A lease may be issued for lands:

(1) Used as mine access roads or haulage roads that join the right-of-way for a public road;

(1i) For which the Office of Surface Mining Reclamation and Enforcement has issued a permit to have public roads relocated;

(1ii) For which owners of occupied buildings have given written permission to mine within 300 feet of their buildings.

(3) Exemptions. The application of this criterion is subject to valid existing rights, and does not apply to surface coal mining operations existing on August 3, 1977.

(d)(1) Criterion Number 4. Federal lands designated as wilderness study areas shall be considered unsuitable while under review by the Administration and the Congress for possible wilderness designation. For any Federal land which is to be leased or mined prior to completion of the wilderness inventory by the surface management agency, the environmental assessment or impact statement on the lease sale or mine plan shall consider whether the land possesses the characteristics of a wilderness study area. If the finding is affirmative, the land shall be considered unsuitable, unless issuance of noncompetitive coal leases and mining on leases is authorized under the Wilderness Act and the Federal Land Policy and Management Act of 1976.

(2) Exemption. The application of this criterion to lands for which the Bureau of Land Management is the surface management agency and lands in designated wilderness areas in National Forests is subject to valid existing rights.

(e)(1) Criterion Number 5. Scenic Federal lands designated by visual resource management analysis as Class I (an area of outstanding scenic quality or high visual sensitivity) but not currently on the National Register of Natural Landmarks shall be considered unsuitable. A lease may be issued if the surface management agency determined that surface coal mining operations will not significantly diminish or adversely affect the scenic quality of the designated area.

(2) Exemptions. This criterion does not apply to lands: to which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

(f)(1) Criterion Number 6. Federal lands under permit by the surface management agency, and being used for scientific studies involving food or fiber production, natural resources, or technology demonstrations and experiments shall be considered unsuitable for the duration of the study, demonstration or experiment, except where mining could be conducted in such a way as to enhance or not jeopardize the purposes of the study, as determined by the surface management agency, or where the principal scientific user or agency gives written concurrence to all or certain methods of mining.

(2) Exemptions. This criterion does not apply to lands: to which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

(g)(1) Criterion Number 7. All districts, sites, buildings, structures, and objects of historical, architectural, archeological, or cultural significance on Federal lands which are included in or eligible for inclusion in the National Register of Historic Places, and an appropriate buffer zone around the outside boundary of the designated property (to protect the inherent values of the property that make it eligible for listing in the National Register) as determined by the surface management agency, in consultation with the Advisory Council on Historic Preservation and the State Historic Preservation Office shall be considered unsuitable.

(2) Exceptions. All or certain stipulated methods of coal mining may be allowed if the surface management agency determined, after consultation with the Advisory Council on Historic Preservation and State Historic Preservation Office that the direct and indirect effects of mining, as stipulated, on a property in or eligible for the National Register of Historic Places will not result in significant adverse impacts of the property.

(3) Exemptions. The application of this criterion to a property listed in the National Register is subject to valid existing rights, and does not apply to surface coal mining operations existing on August 3, 1977. The application of the criterion to buffer zones and properties eligible for the National Register does not apply to lands: to which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

(h)(1) Criterion Number 8. Federal lands designated as natural areas or as National Natural Landmarks shall be considered unsuitable.

(2) Exceptions. A lease may be issued and mining operation approved in an area or site if the surface management agency determines that:

(i) With the concurrence of the state, the area or site is of regional or local significance only;

(ii) The use of appropriate stipulated mining technology will result in no significant adverse impact to the area or site; or

(iii) The mining of the coal resource under appropriate stipulations will enhance information recovery (e.g., paleontological sites).

(3) Exemptions. This criterion does not apply to lands: to which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which includes operations on which a permit has been issued.

(i)(1) Criterion Number 9. Federally designated critical habitat for threatened or endangered plant and animals species, and habitat for Federal threatened or endangered species which is determined by the Fish and Wildlife Service and the surface management agency to be of essential value and where the presence of threatened or endangered species has been scientifically documented, shall be considered unsuitable.

(2) Exception. A lease may be issued and mining operations approved if, after consultation with the Fish and Wildlife Service, the Service determines that the proposed activity is not likely to jeopardize the continued existence of the listed species and/or its critical habitat.

(j)(1) Criterion Number 10. Federal lands containing habitat determined to be critical or essential for plant or animals species listed by a state pursuant to state law as endangered or threatened shall be considered unsuitable.

(2) Exception. A lease may be issued and mining operations approved if, after consultation with the state, the surface management agency determines that the species will not be adversely affected by all or certain stipulated methods of coal mining.

(3) Exemptions. This criterion does not apply to lands: to which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.



(k)(1) Criterion Number 11. A bald or golden eagle nest or site on Federal lands that is determined to be active and an appropriate buffer zone of land around the nest site shall be considered unsuitable. Consideration of availability of habitat for prey species and of terrain shall be included in the determination of buffer zones. Buffer zones shall be determined in consultation with the Fish and Wildlife Service.

(2) Exceptions. A lease may be issued if:

(i) It can be conditioned in such a way, either in manner or period of operation, that eagles will not be disturbed during breeding season; or

(ii) The surface management agency, with the concurrence of the Fish and Wildlife Service, determines that the golden eagle nest(s) will be moved.

(iii) Buffer zones may be decreased if the surface management agency determines that the active eagle nests will not be adversely affected.

(l)(1) Criterion Number 12. Bald or golden eagle roost and concentration areas on Federal lands used during migration and wintering shall be considered unsuitable.

(2) Exception. A lease may be issued if the surface management agency determines that all or certain stipulated methods of coal mining can be conducted in such a way, and during such periods of time, to ensure that eagles shall not be adversely disturbed.

(m)(1) Criterion Number 13. Federal lands containing a falcon (excluding kestrel) cliff nesting site with an active nest and buffer zone of Federal land around the nest site shall be considered unsuitable. Consideration of availability of habitat for prey species and of terrain shall be included in the determination of buffer zones. Buffer zones shall be determined in consultation with the Fish and Wildlife Service.

(2) Exception. A lease may be issued where the surface management agency, after consultation with the Fish and Wildlife Service, determines that all or certain stipulated methods of coal mining will not adversely affect the falcon habitat during the periods when such habitat is used by the falcons.

(n)(1) Criterion Number 14. Federal lands which are high priority habitat for migratory bird species of high Federal interest on a regional or national basis, as determined jointly by the surface management agency and the Fish and Wildlife Service, shall be considered unsuitable.

(2) Exception. A lease may be issued where the surface management agency, after consultation with the Fish and Wildlife Service, determines that all or certain stipulated methods of coal mining will not adversely affect the migratory bird habitat during the periods when such habitat is used by the species.

(o)(1) Criterion Number 15. Federal lands which the surface management agency and the state jointly agree are fish and wildlife habitat for resident species of high interest to the state and which are essential for maintaining these priority wildlife species shall be considered unsuitable. Examples of such lands which serve a critical function for the species involved include:

(i) Active dancing and strutting grounds for sage grouse, sharp-tailed grouse, and prairie chicken;

(ii) Winter ranges most critical for deer, antelope, and elk; and

(iii) Migration corridors for elk.

A lease may be issued if, after consultation with the state, the surface management agency determines that all or certain stipulated methods of coal mining will not have a significant long-term impact on the species being protected.

(2) Exemptions. This criterion does not apply to lands; to which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

(p)(1) Criterion Number 16. Federal lands in riverine, coastal, and special floodplains (100-year recurrence interval) shall be considered unsuitable unless, after consultation with Geological Survey, the surface management agency determines that all or certain stipulated methods of coal mining can be undertaken without substantial threat of loss to people or property, and to the natural and beneficial values of the floodplain on the lease tract and downstream.

(2) Exemptions. This criterion does not apply to lands: to which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

(q)(1) Criterion Number 17. Federal lands which have been committed by the surface management agency to use as municipal watersheds shall be considered unsuitable.

(2) Exception. A lease may be issued where:

(i) The surface management agency determines, as a result of studies, that all or certain stipulated methods of coal mining will not adversely affect the watershed to any significant degree; and



(ii) The municipality (incorporated entity) or the responsible governmental unit concurs in writing in the issuance of the lease.

(3) Exemptions. This criterion does not apply to lands; to which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

(r)(1) Criterion Number 18. Federal lands with National Resource Waters, as identified by states in their water quality management plans, and a buffer zone of Federal lands 1/4 mile from the outer edge of the far banks of the water, shall be unsuitable.

(2) Exception. The buffer zone may be eliminated or reduced in size where the surface management agency determines that it is not necessary to protect the National Resource Waters.

(3) Exemptions. This criterion does not apply to lands; to which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

(s)(1) Criterion Number 19. Federal lands identified by the surface management agency, in consultation with the state in which they are located, as alluvial valley floors according to the definition in section 3400.0-5(a) of this title, the standards in 30 CFR Part 822, the final alluvial valley floor guidelines of the Office of Surface Mining Reclamation and Enforcement when published, and approved state programs under the Surface Mining Control and Reclamation Act of 1977, where mining would interrupt, discontinue, or preclude farming, shall be considered unsuitable. Additionally, when mining Federal land outside an alluvial valley floor would materially damage the quantity or quality of water in surface or underground water systems that would supply alluvial valley floors, the land shall be considered unsuitable.

(2) Exemptions. This criterion does not apply to surface coal mining operations which produced coal in commercial quantities in the year preceding August 3, 1977, or which had obtained a permit to conduct surface coal mining operations.

(t)(1) Criterion Number 20. Federal lands in a state to which is applicable a criterion (i) proposed by that state, and (ii) adopted by rulemaking by the Secretary, shall be considered unsuitable.

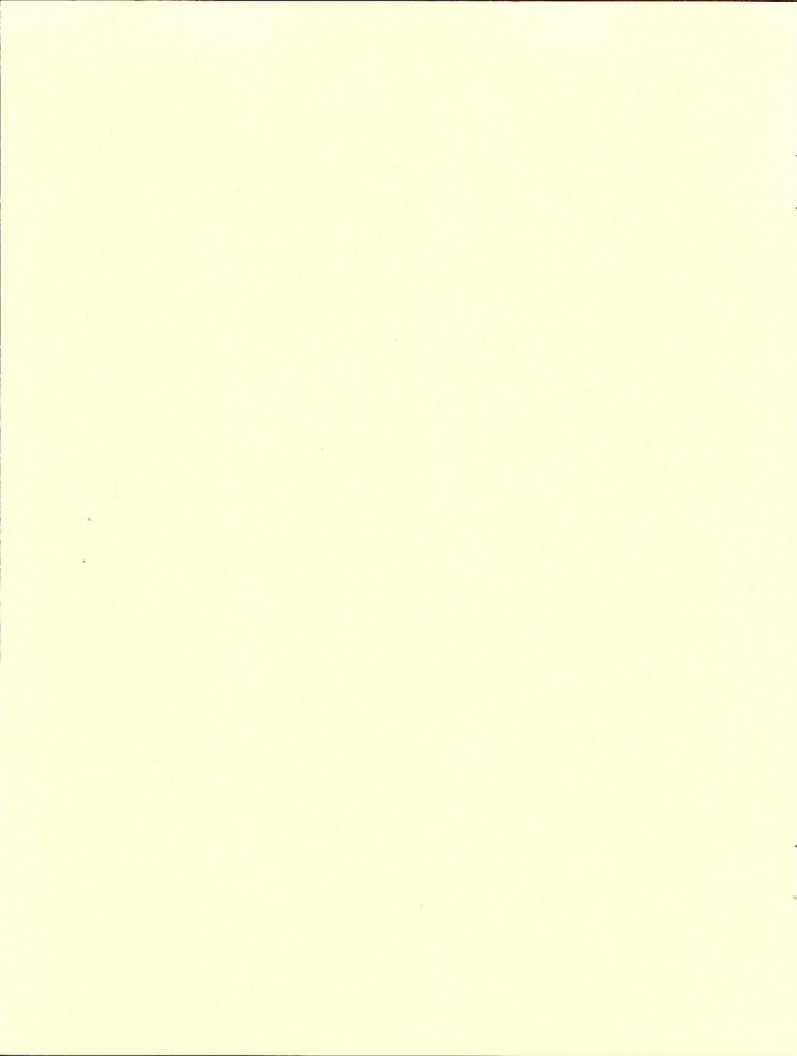
(2) Exceptions. A lease may be issued when:

(1) Such criterion is adopted by the Secretary less than 6 months prior to the publication of the draft comprehensive land use plan or land use analysis, plan, or supplement to a comprehensive land use plan, for the area in which such land is included, or

(ii) After consultation with the state, the surface management agency determines that all or certain stipulated methods of coal mining will not adversely affect the value which the criterion would protect.

(3) Exemptions. This criterion does not apply to lands: to which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

PROPOSED SPECIAL STIPULATIONS



## PROPOSED SPECIAL STIPULATIONS

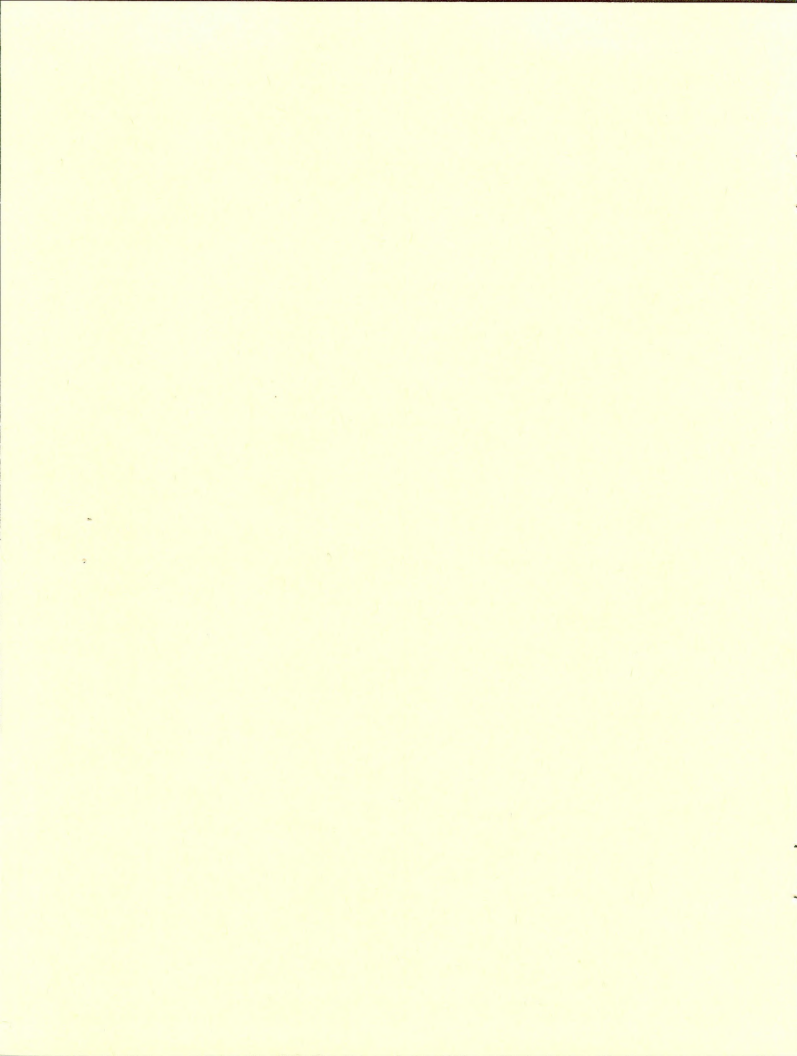
The purpose of this section of the land use analysis is to present the recommended special stipulations that are to be made a part of the coal lease issued in response to the emergency application. Special stipulations are those developed and placed in a standard lease form that direct the lessee to conduct certain operations not already prescribed by law, regulation, or standard lease terms. They are also used to clarify or make more specific already prescribed requirements.

The intent of the special stipulations recommended for this lease is to mandate to the lessee what is required as a product of mining and reclamation rather than mandate how to achieve it. This provides flexibility and allows application of practices that best fit the lessee's operation and specific situations. Procedures must be spelled out in an operation and reclamation plan which must be approved by the North Dakota Public and U.S. Geological Survey. Many of the mitigating measures in the environmental assessment are not reflected here as proposed stipulations, because they are elsewhere covered by law or regulation or are procedural rather than product oriented.

Following is the special lease stipulation recommended for this by-pass lease application:

Reclamation shall result in the mined over lands being returned to their premining agricultural use.

INITIAL RECOMMENDATIONS AND RATIONALE





INITIAL RECOMMENDATIONS AND RATIONALE

It is recommended that the tract of federal coal included in this land use analysis be offered for lease and that the special stipulations listed in the Proposed Special Stipulations section of this analysis be made part of the lease. The legal description of the 80-acre tract in Oliver County, North Dakota is:

T143N, R87W, 5TH.P.M. - Section 8, N<sub>2</sub>SE<sub>4</sub>

The impact assessment completed one as part of this land use analysis indicates that environmental damage would be minimal if mining and reclamation are done according to standards required by law, regulation, and lease terms.

This recommendation is based on the following criteria:

1. The coal would help meet the energy needs of the state and nation.
2. The coal needs to be leased at this time to avoid having it by-passed. If by-passed, it would essentially be lost, as economic factors would prevent it from being mined in the future.

3. The criteria for emergency leasing under the new federal coal management program have been met.
4. The area has the potential for successful reclamation. A good reclamation plan must be developed and carried out for complete success.
5. A new electric generating plant is dependent upon coal in this area.
6. Irreversible environmental impacts would be insignificant.
7. Development of the coal would not have any adverse social and economic impacts.
8. The coal is needed for efficient mining of the area, resulting in lower mining and subsequent energy costs.
9. There would be beneficial economic impacts to the state and federal governments through the collection of taxes, rentals, and royalties.
10. The area is recommended to be returned to a condition that supports agriculture, as that is the desire of the surface owner and its is also that most productive use of the land.

11. Overall environmental damage would be of short duration and insignificant in nature.

100  
100  
100

BUREAU OF LAND MANAGEMENT

Library  
Denver Service Center

Form 1270-3  
(Rev. 1984)

BORROWER

TD 199 .CSB K5  
Knife River cc  
application N

DATE LOANED	BORROWER

USDI - BLM

