

# U.S. Department of the Interior Bureau of Land Management

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Environmental Assessment MT- 030-93-08  
March 11, 2009

## BNI Coal Lease by Application NDM 97633 Environmental Assessment

**Location:** T. 142 N., R. 84 W., 5<sup>th</sup> P.M  
Section 32: N2NW, SWNW, NWSW;  
160 acres; Oliver County, N.D.

**Applicant/Address:** BNI Coal, Ltd.

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In cooperation with:  
The Office of Surface Mining Reclamation and Enforcement  
Denver, CO



# **CHAPTER 1**

## **INTRODUCTION AND NEED FOR THE PROPOSED ACTION**

### **INTRODUCTION**

This environmental assessment (EA) analyzes the environmental impacts of leasing a 160 acre parcel of federal coal reserves adjacent to the Center Mine, an operating coal mine. On October 26, 2007, BNI Coal, LTD (BNI), operator of the Center Mine, filed an application to lease 160 acres of federal coal located at:

T. 142 N., R. 84 W., 5<sup>th</sup> PM  
Sec. 32: N2NW, SWNW, NWSW;  
Oliver County, North Dakota

The Fort Union Federal Coal Production Region was decertified on May 21, 1988, opening the region to lease-by-application.

This application has been reviewed by the Bureau of Land Management (BLM), Montana State Office, Branch of Solid Minerals. That office determined that the lease application met the regulatory requirements for a lease by application (LBA) 43 CFR 3425. An environmental document analyzing the effects of leasing and mining is necessary for the lease by application process. The parcel being considered in this EA in association with the adjacent mine is shown in Figure 1-1. The parcel was assigned the case file number NDM 97633. The federal coal reserves were applied for as a maintenance tract for the Center Mine; if not leased, the coal reserves would be bypassed by BNI.

This parcel is within and adjacent to the mining permit boundary BNCR-9702, granted by the Public Service Commission. The approved Center Mine permit includes 6,342.05 acres. On July 26, 2004, the North Dakota Department of Health, Environmental Health Section, approved Center Mine's current air quality permit to approximately 4.5 million tons of coal per year to be mined. The Center Mine produces about 4.2-4.6 million tons per year.

The lease by application area is within or adjacent to the existing mining operation that has been evaluated by several federal and state environmental analyses. These documents contain a description of the existing environment and analysis of the impacts to be expected as a result of surface and coal mining and other development activities in this area. The relevant publications are as follows:

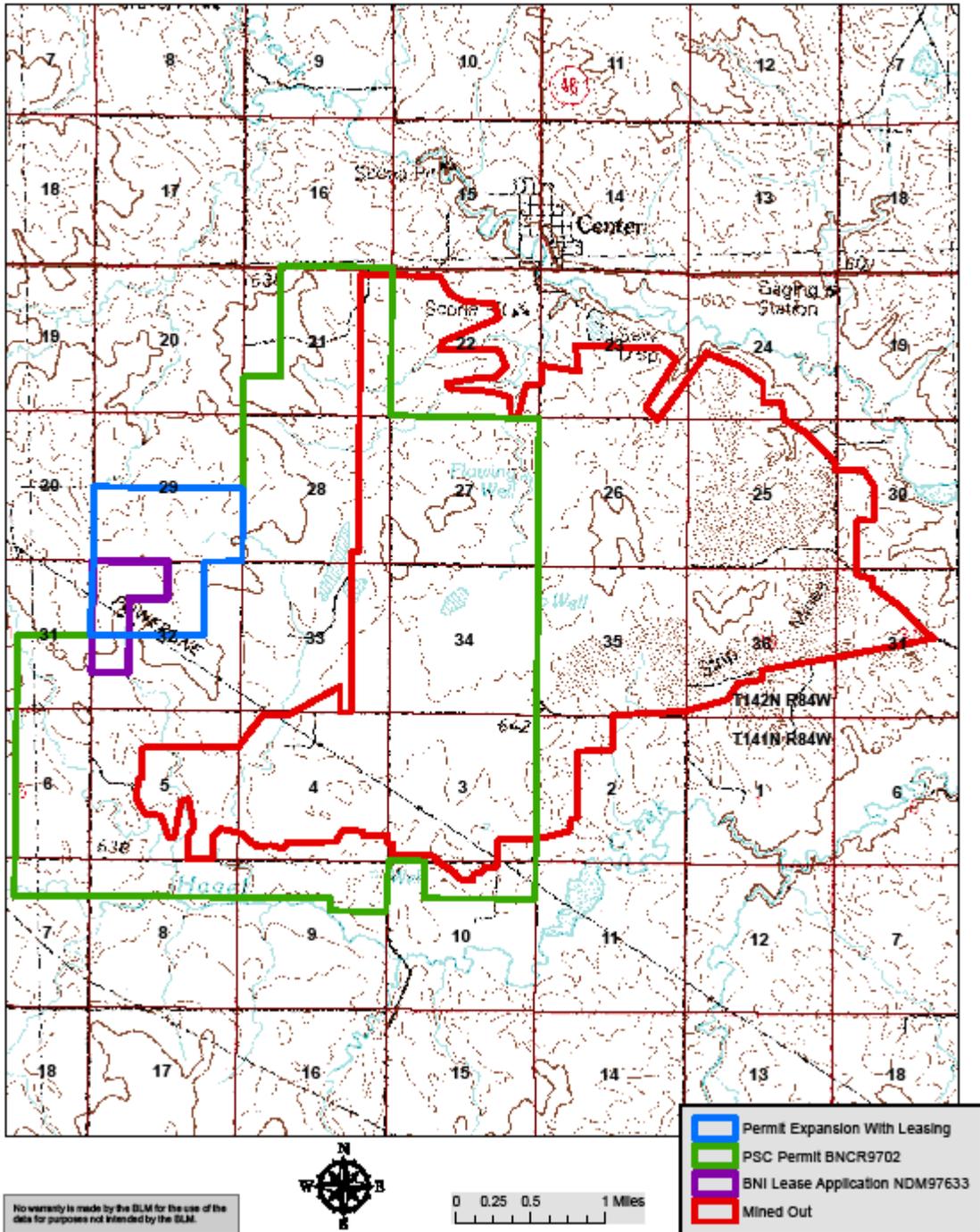
- North Dakota Resource Management Plan and Environmental Impact Statement (Record of Decision, signed April 1988)
- Fort Union Coal Region, Draft EIS, July 1982
- Fort Union Coal Region Center Tract Analysis Site Specific Analysis, September 1981

- Fort Union Coal Region, Final EIS, 1983
- Permit Application Package BNCR-9702 Revision 24, submitted to PSC by BNI Coal Ltd., 2000
- Draft West-Central North Dakota Regional Environmental Impact Study on Energy Development (1978)
- Final West-Central North Dakota Regional Environmental Impact Study on Energy Development (1978).

This EA builds upon the above documents and addresses issues that may have changed since that document was published or that arose from the scoping process.

Figure 1-1

### BNI Coal Lease By Application



## **PURPOSE AND NEED FOR THE PROPOSED ACTION**

BNI has applied for the coal reserves in order to extend the life of the Center Mine. This tract contains an estimated 4.6 million tons of in situ coal. BNI is proposing to mine approximately 4.1 million tons of this coal. Based upon the current projected annual coal production over the life of the mine, the applicant estimates that the existing recoverable reserves at the Center Mine will be depleted within approximately six to eight years at an average production rate of 4.2-4.6 million tons per year within the current permit boundary. Acquiring the LBA would add approximately one year of life to the mine.

This EA analyzes the environmental impacts of leasing and mining the federal coal in the LBA as required by the National Environmental Policy Act (NEPA) and associated rules, regulations, and guidelines. The BLM's decision is whether or not to hold a competitive coal lease sale. After a lease has been issued the lessee must obtain a surface mining permit or a revision to an existing permit from the North Dakota Public Service Commission (PSC) and Office of Surface Mining Reclamation and Enforcement (OSM) for the federal coal. An analysis of the proposed site-specific mining and reclamation plan will occur at that time. Authorities and responsibilities of the BLM and other concerned regulatory agencies are described in the following sections.

## **CONFORMANCE WITH BLM LAND USE PLAN(S)**

The parcel was considered suitable for leasing in the *North Dakota Resource Management Plan/EIS* documents (ROD 1988). The resource management plan (RMP) explored and objectively evaluated reasonable alternatives that addressed impacts of coal mining adequately to determine which lands within the coal study areas are suitable for leasing. The four land-use-planning screens used for federal coal are: (a) coal-development potential; (b) unsuitability criteria; (c) multiple-use tradeoffs; and (d) surface-owner consultation. Screening assures that leasing conforms to the *North Dakota RMP*. The selected alternative in the *North Dakota RMP/EIS* (ROD 1988) identified 573,868 acres of coal suitable for leasing using the coal screens (pg. 22, ND Final RMP). This tract was considered suitable for mining in that Record of Decision with no stipulations identified.

The Environmental Consequences chapter of the *Draft North Dakota RMP/EIS* addresses the impacts on the environment using a generic mine scenario and end-user facility (p. 74). These impacts are also summarized in the *Final North Dakota RMP/EIS* on page 23. Descriptions of the generic mine scenario and its impact are described in Appendix H of the *Draft North Dakota Resource Management Plan/EIS* and the generic end-use facility and its impacts are described in Appendix I of the *Draft RMP/EIS*. These appendices describe the probable major impacts of coal mining and its end user facilities to the resources within the planning area.

A site-specific analysis of leasing and development was completed in the *Fort Union Coal Region Center Tract Analysis* (1981). This analysis was part of the *Fort Union Coal Region Environmental Impact Statement* (Final, 1983). The tract being analyzed is

adjacent to the tract boundary of the analysis. The tract was identified as a logical mining unit for a 4.2 million ton per year surface mine having a 50-year mine life. The environmental consequences of topography, geology and minerals, soils and reclamation potential, vegetation and agricultural production, recreation, hydrology, and climate and air quality are still judged to be valid in light of new information and circumstances. Wildlife will need to be analyzed for changes in endangered species listings and updated lists of BLM sensitive species. Cultural resources will be analyzed in this document with new inventory data. Air quality and water quality will be further evaluated with data from the applicable regulatory agencies to make sure that all standards are being met. An analysis of economics and global climate change will be completed for this document.

These documents are readily available to BLM resource specialists, BLM decision makers, and the public at the BLM office in Dickinson, N.D. Copies of relevant portions of these documents are also available on request at (701)-227-7700.

## **RELATIONSHIPS TO STATUTES, REGULATIONS AND OTHER PLANS**

The coal lease application was submitted and will be processed and evaluated under the following authorities:

- Mineral Leasing Act (MLA), as amended
- Multiple-Use Sustained Yield Act of 1960
- National Environmental Policy Act of 1969 (NEPA)
- Federal Coal Leasing Act Amendment of 1976 (FCLAA)
- Federal Land Policy and Management Act of 1976 (FLPMA)
- Surface Mining Control and Reclamation Act of 1977 (SMCRA)
- Energy Policy and Conservation Act of 2005
- National Historic Preservation Act (NHPA) of 1966, as amended

The BLM is the lead agency responsible for leasing federal coal lands under the MLA as amended by FCLAA and is also responsible for preparation of this EA to evaluate the potential environmental impacts of issuing a coal lease.

The Office of Surface Mining (OSM) is a cooperating agency on this EA. The Surface Mining Control and Reclamation Act of 1977, as amended (SMCRA) gives the OSM primary responsibility for administering programs that regulate surface coal mining operations and the surface effects of underground coal mining operations in the United States. Pursuant to Section 503 of SMCRA, the Public Service Commission (PSC) developed, and the Secretary of the Interior approved, North Dakota's permanent regulatory program authorizing the PSC to regulate surface coal mining operations on private and state lands within North Dakota. Pursuant to Section 523 of SMCRA, the PSC entered into a cooperative agreement with the Secretary of the Interior authorizing the PSC to regulate surface coal mining operations on federal lands within the state.

Pursuant with this cooperative agreement, a federal coal lease holder must submit a permit application package (PAP) to OSM and the PSC for any proposed coal mining and reclamation operations on federal lands in the state. The mine operator must publish

notice when applying for a mining permit, a revision, or a renewal. The notice is published once a week for four consecutive weeks in the official county newspaper. Any person with an interest that is or may be adversely affected by the application may petition the PSC to designate areas as unsuitable for mining. The operator must contact the surface owner and ask the landowner for a written preference statement regarding post-mining land use.

If the PAP does comply, PSC issues the applicant a permit to conduct coal mining operations. The OSM, BLM, and other federal agencies review the PAP to ensure that it contains the necessary information for compliance with the coal lease; the Mineral Leasing Act of 1920 as amended (MLA); the National Environmental Policy Act of 1969, as amended (NEPA); National Historic Preservation Act of 1966, as amended (NHPA); and other applicable federal laws and their attendant regulations.

The OSM recommends to the Assistant Secretary of the Interior, Land and Minerals Management (1) approval of the mining plan; (2) approval of the mining plan with conditions; or (3) disapproval of the mining plan. Before making a recommendation on the mining plan, OSM would obtain input from other federal agencies, including the BLM.

The PSC enforces the performance standards and permit requirements during the mine's operation and has primary authority in environmental emergencies. The OSM retains oversight responsibility of this enforcement. The BLM has authority to take action in emergency situations when PSC or OSM inspectors cannot act before environmental harm or damage occurs.

In addition to the acts listed above, guidance and regulations for managing and administering public lands are set forth in 40 CFR 1500 (Protection of the Environment) and 43 CFR 3400 (Coal Management).

The BLM is also responsible for consulting with and obtaining comments and assistance from other state and federal agencies that have jurisdiction by law or special expertise with respect to potential environmental impacts.

The proposed action is consistent with all federal laws and regulations and all known state, and local plans, programs and policies.

### **Decision to be Made**

The decision to be made by the BLM is to lease or not lease this small tract of federal coal. The decision will be based on the analysis of physical, biological, economic, and environmental consequences of both alternatives.

## **CHAPTER 2**

### **DESCRIPTION OF ALTERNATIVES**

#### **INTRODUCTION**

This chapter describes the proposed action and alternative to this action. The proposed action is to lease the parcel of federal coal reserve adjacent to the Center Mine, an operating surface coal mine.

The Center Mine currently leases or has leased approximately 1,770 acres of federal coal, 6,810 acres of private coal, and 1,120 acres of state coal within the Center Mine permit boundaries. About 9,700 acres has been or will be affected in mining the current leases within the current permit boundary. There have been about 6,700 acres that have been mined through the year 2007, and about 4,700 acres have been reclaimed but are still under bond.

#### **PROPOSED ACTION**

This alternative is to lease by application the 160 acres of federal coal beneath private surface. The BLM will use this EA to help decide whether to hold a lease sale and issue a lease for federal coal in the LBA in accordance with 43 CFR 3422. The applicant may or may not be the successful high bidder. This analysis assumes the applicant would be the successful bidder and that the tract would be mined as a maintenance tract for the BNI Center Mine.

The proposed tract contains an estimated 4.588 million tons of lignite coal that would be added to existing reserves of the Center Mine. Through year 2008, about 4.2-4.6 million tons of lignite coals have been extracted from the Center Mine annually. Annual coal production from the proposed addition will continue at 4.2-4.6 million tons depending on demand.

BNI is currently under contract with the Square Butte Electric Cooperative, a partner in the Milton R. Young power station, Minnkota Power Cooperative, operator of the Young power station, and the Center Coal Company, which sells stoker and lump coal to homes and small businesses. They have also sold coal to Montana Dakota Utility's Heskett Power Station in Mandan for a test burn, but no contract currently exists. BNI is not under contract with any other coal companies; however, it is seeking other opportunities such as the Heskett power station.

BNI has enough leased reserves in its current mining permit, BNCR-9702, to last until 2011-2012. Coal within the tract will be produced from the Hagel and Kinneman Creek seams, which averages 16.61 feet thick inside the permit area. If a lease is issued and the PSC approves the mine permit revision, coal removal in this parcel could begin in 2010 and continue through 2015.

## NO ACTION

The No Action alternative is considered and analyzed to provide a baseline for comparison of the impacts of the proposed action. In this alternative, the LBA would not be approved for lease sale. The federal coal reserves in the LBA would be bypassed by the current mining operation.

The tract being analyzed will be disturbed regardless of the action taken on the application due to mine level disturbances of adjacent mining operations such as acquiring additional borrow material; over-stripping to allow coal to be removed from the adjacent existing leases; tying of reclamation into native ground; topsoil stockpiles; haul roads; and other mine related activities. BNI coal estimates that 69.3 acres would be disturbed if the federal permit is not obtained. The life of the mine would not be altered, but federal recovery of coal would not take place.

## ALTERNATIVES THAT WERE CONSIDERED BUT ELIMINATED

### Leasing the Parcel with Special Stipulations

This alternative was considered, but due to the lack of resource concerns for specific areas within the parcel, it was eliminated.

**Table 1 Summary Comparison of Alternatives**

	No Action (No Additional BLM Minerals Leased)	Proposed Action (Lease by Application BLM Minerals)
New BLM Lease by Application (acres)	0	160
Center Mine Current Leases (acres):		
• Federal coal	• 1770	• 1930
• Private coal	• 6810	• 6810
• State coal	• 1120	• 1120
Total Surface Disturbance	9769.3**	9860
Estimated production from lease by application	0	4.1 million tons
Estimated total mine production	4-4.5 million tons/year	4-4.5 million tons/year
Estimated life of mine extension	0 years	1 year

\*\*Approximately 69.3 acres would still be disturbed, even if the lease was bypassed.

## **CHAPTER 3**

### **AFFECTED ENVIRONMENT/ENVIRONMENTAL IMPACTS**

#### **INTRODUCTION**

This chapter describes the current conditions of the physical, biological, cultural, economic, and social resources that could be affected by the Proposed Action and No Action alternatives described in Chapter 2.

The affected environment of the Proposed Action and No Action alternatives were considered and analyzed by an interdisciplinary team. The critical element checklist indicates which resources of concern are present, not present, or would not be impacted to a degree that requires detailed analysis within the project area.

Critical elements of the human environment are those elements that are subject to the requirements specified in statute, regulation, or executive order, and must be considered in all EAs (BLM H-1790-1). The existing condition and potential impacts are described for resources, including critical elements, which are potentially affected by the proposal.

The affected environment and environmental effects have been analyzed in depth in BNI's *Permit Application Package, BNCR-9702*. The following sections will summarize and reference data from the application package along with other data available. A copy of the Permit Application Package document may be obtained from the North Dakota Public Service Commission.

#### **GENERAL SETTING**

The Center Mine is located in the glaciated portion of the Missouri Plateau in the Great Plains physiographic province. The topography is gently rolling with occasional small areas of steep topography. There are two major streams in the area, Square Butte Creek and Hagel Creek. Hagel Creek is on the south edge of the permit area and it flows east-northeast, discharging into Nelson Lake. Square Butte Creek is north of the permit area and flows southeast, also discharging into Nelson Lake (Permit Application Package, 3.4).

The parcel being evaluated is in Oliver County, N.D., about two miles south and two and one-half miles west of Center, N.D. Communities within 50 miles include Center, Stanton, Hanover, Hazen, Fort Clark, Washburn, New Salem, Judson, and Beulah, Price, Sanger, Mandan, and Bismarck.

The climate of the Center Mine area is a typical continental climate with irregular light to moderate precipitation, low relative humidity, and nearly continuous air movement. Cold dry air masses from the north intensify the winters. Precipitation is determined by the warm, moist air that comes from the south. The mean annual precipitation in Oliver County is 16 inches per year, with the majority occurring from April through September (Permit Application Package, 3.11).

Temperatures in North Dakota vary greatly with an average low of 9 degrees F in January to an average high of 70 degrees F in July. Temperatures range from -35 degrees F. in the winter to 100 degrees F. in the summer, but the extreme highs and lows are usually of short duration (Permit Application Package, 3.11).

According to the United States Geological Survey, the mean wind speed for the Bismarck area (the closest weather station) is 10.8 miles per hour from a west north-westerly direction. The highest wind speed is 72 miles per hour, which has been clocked in both July and August (USGS, 2006).

Summarizing the Center Mine Permit Application, the geology of the area is controlled by the Williston Basin, a shallow structural basin that has accumulated sediment from the early Paleozoic Era to the Cenozoic Era. The basin's center is located in northwestern Dunn County, N.D. The mine is located in the southeastern part of the basin and the regional structure is evidenced by a gradual northward dip of about 10 feet per mile.

BNI is currently mining two lignite seams in the Sentinel Butte Formation, the Kinneman Creek Seam and the Hagel Seam. The Kinneman Creek Seam is the uppermost seam to be mined at the Center Mine. The recoverable portion of the Kinneman Creek seam in the proposed mining area varies from two to seven feet thick and averages about 5.5 feet thick. The Kinneman Creek seam is associated with less persistent overlying and underlying seams of lignite and carbonaceous clay. The Hagel seam is the lowermost major lignite in the Sentinel Butte Formation. In the proposed mining area, the Hagel seam is split into two seams. The upper portion, or Hagel "A" as it is sometimes called, averages about eight feet thick while the lower split or Hagel "B" is two to three feet thick. In the permit area, the Hagel and Kinneman Creek seams are separated by approximately 10 to 50 feet of clayey interburden. There are various smaller coal seams throughout the stratigraphic section in the permit area, but are not considered economically important (Permit Application Package, 3.2).

The Williston Basin contains large reserves of fossil fuels including coal, oil, and natural gas, all of which are currently being produced. In addition, uranium, bentonite, sand, gravel and scoria have historically or are presently being mined in the Williston Basin. According to BLM's oil and gas GIS data, the nearest active production of oil and gas is 103 miles from the parcel being studied. There is a plugged and abandoned site located within the parcel boundaries. No known uranium, bentonite, sand, gravel, or scoria reserves exist on the parcel being studied.

## **ENVIRONMENTAL IMPACTS**

Environmental impacts of both alternatives are analyzed below and summarized in Appendix A.

### **Proposed Action**

In this alternative, the LBA would be approved for lease sale. The tract contains a continuous coal reserve and the entire 160 acres would be disturbed by mining activity. Reclamation would occur after mining has occurred in accordance to the PSC requirements. A discussion of impacts that will occur in the proposed action alternative is described below and in the other documents listed in the relevant publications provided in Chapter 1.

### **No Action Alternative**

In this alternative, the LBA of the proposed tract would not be approved for lease sale. Federal coal reserves would be bypassed by the current mining operation. The tract being analyzed will be disturbed regardless of the action taken on the application due to mine level disturbances of adjacent mining operations such as acquiring additional borrow material, over stripping to allow coal to be removed from the adjacent existing leases, tying of reclamation into native ground, topsoil stockpiles, haul roads, and other mine related activities. The life of the mine would not be altered, but the recovery of federal coal would not take place. A discussion of impacts that will occur in the no action alternative is described below.

## CRITICAL ELEMENTS

CRITICAL ELEMENTS		
Determination*	Resource	Rationale for Determination
PI	Air Quality	There will be pollutants emissions with the proposed action from mining.
NP	Areas of Critical Environmental Concern	There are no ACECs within the North Dakota Field Office Planning Boundary
NI	Cultural Resources	One site was found on the parcel, but the BLM determined and the SHPO concurred that “no historic properties affected.”
NI	Environmental Justice	Executive Order 12898 requires Federal agencies to “identify and address the disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.”.
PI	Farmlands (Prime or Unique)	There are approximately 16 acres of prime farmland within the existing area.
NP	Floodplains	The parcel being studied is not within any floodplains.
PI	Invasive, Non-native Species	There could be an increase in noxious weed presence associated with disturbance.
NP	Native American Religious Concerns	There were a few requests for more data, but no comments were submitted.
NP	Threatened, Endangered or Candidate Plant or Animal Species	A USFWS letter concurred with BLM’s finding that no T&E species were present.
NP	Wastes (hazardous or solid)	There are no known waste sites.
PI	Water Quality (drinking/ground)	Water issues will be analyzed in this EA.
NP	Wetlands/Riparian Zones	The parcel being reviewed does not contain any wetland or riparian zones.
NP	Wild and Scenic Rivers	There are no federal Wild and Scenic Rivers within the North Dakota Field Office Planning Boundary
NP	Wilderness	There is no designated Wilderness or Wilderness Study Areas within the North Dakota Field Office Planning Boundary.

\*Possible determinations:

NP = not present in the area impacted by the proposed or alternative actions

NI = present, but not affected to a degree that detailed analysis is required

PI = present and may be impacted to some degree. Will be analyzed in affected environment and environmental impacts. (NOTE: PI does not mean impacts are likely to be significant in any way).

## **AIR QUALITY**

The air quality of any region is controlled primarily by the magnitude and distribution of pollutant emissions, and the regional climate. The transport of pollutants from source areas is strongly affected by local topography. Coal mining and processing at end-user facilities are sources of particulate and gaseous air pollutants. Fugitive dust is generated by mining, hauling, processing, and storing coal and is mitigated by dust suppression practices. Gaseous pollutant emissions are generated by engine exhaust from mining equipment.

The basic framework for controlling air pollutants in the United States is mandated by the 1970 Clean Air Act and its amendments, and the 1999 Regional Haze Regulations. The Clean Air Act addresses criteria air pollutants, state and national ambient air quality standards for criteria air pollutants, and the Prevention of Significant Deterioration program. The Regional Haze Regulations address visibility impairment.

The North Dakota Department of Health, Environmental Health Section, governs air quality in North Dakota. State air quality standards must be just as stringent as National Ambient Air Quality Standards (NAAQS), and allowable increments for the prevention of significant deterioration (PSD) of air quality. Air quality in North Dakota is under the jurisdiction of the Air Pollution Control Rules of the State of North Dakota under Chapter 23-25 of the Century Code. The North Dakota Department of Health, Environmental Health Section, approved by the Environmental Protection Agency (EPA), administers the program under the Clean Air Act. The state air quality standards can be found at the following website: <http://www.legis.nd.gov/information/acdata/pdf/33-15-02.pdf>.

The PSD program classifies air quality of a region as Class I, II or III. The Center Mine and the surrounding area is a Class II zone, which allows a moderate increase in concentration and new sources of air pollution, although the concentrations are not allowed to exceed the concentrations set forth by the state of North Dakota or federal standards (NDAAQS and NAAQS).

BNI currently holds air pollution control permit 079004 from the North Dakota Department of Health, Environmental Health Section, with a source unit of annual coal production of approximately 4-4.5 million tons of coal per year. A copy of this permit may be obtained by contacting the North Dakota Department of Health. The Department of Health monitors the mine for a number of years after the permit is originally issued using on-site monitoring stations. If the applicant proves that it is not exceeding air quality standards, air monitoring is no longer required on-site, and monitoring defers to statewide ambient air quality monitoring. BNI no longer has on-site air quality monitoring. Consultation with the North Dakota Department of Health reports that there are currently no known violations of air quality by the BNI mine or any of its end-user facilities.

The North Dakota Department of Health operates seven ambient air quality monitoring sites and industry operates eight source-specific air quality monitoring sites. The National

Park Service maintains a monitoring site at the Theodore Roosevelt National Park – South Unit’s Painted Canyon Overlook. The ambient monitoring data from these sites are included in the North Dakota Department of Health’s *North Dakota Air Quality Data Summary* report. According to this report, there were no sulfur dioxide, nitrogen dioxide, ozone or particulate matter exceedances of either the state or federal ambient air quality standards measured during 2007. The North Dakota Department of Health cites that North Dakota is one of thirteen states that are in attainment for all criteria pollutants. North Dakota also has been designated attainment for both the fine particulates and the 8-hour ozone standards (North Dakota Air Quality Data Summary Report, 2007).

### **No Action Alternative**

Mining operations on adjacent lands would still occur, and the area being studied will be used for haul roads, stockpiles, and other mining operations that could still marginally affect air quality. The Center Mine would be expanded to include state and private coal. Approximately 4.2-4.5 million tons of coal would be mined and processed each year with BNI following the same mining practices they currently use, so it is not expected that operations would exceed air quality standards if they follow their current mining practices.

### **PROPOSED ACTION**

#### **Direct and Indirect Impacts of the Proposed Action**

BNI operates the Center Mine under authority granted by the North Dakota Department of Health, Environmental Health Section, under Air Pollution Control Permit to Operate #079004. The area being studied is covered under the existing permit with coal production of approximately 4-4.5 million tons of coal per year. Through the air quality permit, North Dakota Department of Health sets standards that ensure the project meets requirements of state and federal air-quality regulations.

Mining must comply with state ambient air-quality standards and the Class II annual standards. During peak production the relatively small gaseous emissions, from diesel and gasoline engines associated with mining operations would not violate air-quality standards. Potential airborne dust particles cannot exceed air quality standards. Air quality monitoring will ensure that BNI stays within its permitted specifications.

In the *Draft North Dakota RMP/EIS*, Appendix H evaluates a generic mine scenario. The generic mining scenario is summarized in the following statements. The highest annual concentration of particulate matter would be 6.2  $\mu\text{g}/\text{m}^3$  offsite with an annual background concentration of 24  $\mu\text{g}/\text{m}^3$ . This level does not exceed the state or federal Ambient Air Quality Standards of 50  $\mu\text{g}/\text{m}^3$ . In addition, North Dakota has a 24-hour standard of 150  $\mu\text{g}/\text{m}^3$  that cannot be exceeded more than once per year off the mine site. The predicted highest 24-hour values associated with the proposed action during peak production is 47  $\mu\text{g}/\text{m}^3$ . With the estimated 24-hour background concentration of 100  $\mu\text{g}/\text{m}^3$  added, the ambient level would be 147  $\mu\text{g}/\text{m}^3$ . This level does not exceed the state and federal Ambient Air Quality Standards. Several small sources of gaseous pollutants are

associated with surface coal mining operations. During peak production, these emissions are not expected to violate air quality standards. The generic mining scenario assumes a 5.5 million ton per year operation, which is larger than BNI's production of 4.5 million tons per year.

The *Fort Union Coal Region Center Tract Site Specific Analysis* of 1981 used dispersion modeling assuming a 4.2 million ton per year mining operation to predict particulate concentrations for comparison with state and national ambient air quality standards. Copies of this document are available upon request and it is summarized in the following statements. For the annual particulate standard, the highest concentration of particulate matter at a site off the mine could be  $6.2 \mu\text{g}/\text{m}^3$  with an annual background concentration of  $22 \mu\text{g}/\text{m}^3$ , and therefore should not exceed state or federal ambient air quality standards. The predicted highest 24-hour values associated with the proposed action during peak production could be as high as  $38 \mu\text{g}/\text{m}^3$  with an estimated 24-hour background concentration added of  $100 \mu\text{g}/\text{m}^3$ . The ambient level would be  $138 \mu\text{g}/\text{m}^3$ , which complies with state and federal ambient air quality standards. Several small sources of gaseous pollutants are associated with surface coal mining operations but are not expected to violate air quality standards and are expected to have limited impacts to air quality.

Approximately 4.2-4.5 million tons of coal would be mined and processed each year with BNI following the same mining practices it currently uses, so it is not expected that operations would exceed air quality standards if they follow their current mining practices. This alternative would extend the life of the mine for approximately one year, so an additional year of emissions would be introduced to the environment.

## **SOILS**

Using the NRCS Web Soil Survey, the major soil types in the project area are:

- Belfield-Daglum silty clay loams, 2-6% slopes
- Regent silty clay lam, 3-6% slopes
- Morton-Janesburg silt loams, 0-3% slopes

The other soil types in the area are:

- Arnegard loam, 0-2% slopes
- Belfield Daglum silty clay loams, 0-2% slopes
- Cabba-Werner complex, 9-15% slopes
- Grail silt loam, 0-2% slopes
- Morton silt loam, 3-6% slopes
- Regent silty clay loam, 6-9% slopes
- Rhoades-Daglum complex, 0-9% slopes
- Sen-Werner loams, 3-9% slopes
- Sen and Amor loams, 6-9% slopes
- Williams loam, 6-9% slopes

Arnegard series consists of deep, well drained, loamy soils that are high in organic content, fertility, and available water capacity, making them highly suitable to crop production.

Belfield-Daglum and Daglum-Belfield series consists of well to moderately well-drained, deep, friable soils that have a moderate to dense claypan. Belfield-Daglum runoff is medium and artificial practices are needed to improve permeability of the claypan and control water erosion before it can be used for crop production.

Williams series consists of deep, nearly level to steep, well drained, loamy soils on glacial till upland in the plains. This soil has a high water capacity and fertility and it is used more extensively for crops than any other soil in the county.

Cabba series consists of shallow, well-drained, moderately permeable soils on residual uplands. These soils are formed in material weathered from soft loamy bedrock.

Grail series consists of deep, well drained, slowly permeable soils on foot slopes, on valley fans, and in upland swalls. These soils are formed in material weathered from calcareous alluvium.

Regent series consists of moderately deep, well-drained, slowly permeable soils on residual uplands. These soils are formed in materials weathered from residuum of soft, alkaline shale.

Rhoades Daglum series consists of deep, nearly level to moderately sloping, well-drained soils. It is crossed by shallow drainage ways that are indistinct in places. These soils are unsuited to cultivated crops while effective in controlling erosion in rangeland and pastureland.

Sen series consists of moderately deep, well-drained, moderately permeable soils on residual uplands. Armor soils have a fine-loamy control section. Werner soils have soft bedrock at a depth of 10 to 20 inches and lack a B2 horizon.

The project area contains approximately 16 acres of soils rated as prime farmland. There are also about 31 acres classified as farmland of statewide importance. (NRCS Web Soil Survey, 2008) Prime farmland is defined as land that has the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, oilseed, and other agricultural crops with minimum inputs of fuel, fertilizer, pesticides, and labor, and without intolerable soil erosion (7U.S.C. 4201(c)(1)(A)). Farmland of statewide importance is defined as land identified by state or local agencies for agricultural use, but not of national significance (7 U.S.C. 4201(c)(1)(C)). Special reclamation standards apply to soils that have productivity that is defined as prime farmland.

## No Action Alternative

The No Action alternative would not meet the need for the proposed action and federal coal reserves would be bypassed. The tract being analyzed will be disturbed regardless of the action taken on the application due to mine level disturbances of adjacent mining operations such as acquiring additional borrow material; over-stripping to allow coal to be removed from the adjacent existing leases; tying of reclamation into native ground; topsoil stockpiles; haul roads; and other mine related activities on approximately 69.3 acres. The table that follows illustrates the amount of soil that will be removed from 2009-2014 if leasing does not occur:

<b>Year of Removal</b>	<b>Topsoil Removed (cubic yards)</b>	<b>Subsoil Removed (cubic yards)</b>
2009	3,389	20,697
2010	974	6,128
2011	2,827	5,787
2012	6,554	9,162
2013	54,267	88,783
2014	33,465	65,690
<b>Totals</b>	<b>101,476</b>	<b>196,247</b>

## Proposed Action

### Direct and Indirect Impacts of the Proposed Action

Topsoil is removed when mining operations commence and replaced during reclamation. Post-mining topsoil is a composite of pre-mining soils. Pre-mining soils occur as a soil series and are often combined into mappable units which are distinguished by physical and chemical characteristics, depths, location in the landscape, and other criteria. Prior to mining, the operator is required to map the soils, test them for physical and chemical suitability for growth, and provide a plan for salvage and replacement.

The table that follows illustrates the amount of soil that will be removed from 2009-2014 if leasing occurs:

<b>Year of Removal</b>	<b>Topsoil Removed (cubic yards)</b>	<b>Subsoil Removed (cubic yards)</b>
2009	5,851	35,371
2010	6,706	45,451
2011	28,624	57,877
2012	41,576	60,818
2013	95,012	151,962
2014	57,593	116,746
<b>Totals</b>	<b>235,362</b>	<b>468,225</b>

Soils are impacted by mining operations potentially changing soil structure, texture, organic content, infiltration, permeability, water-holding capacity, soil plant nutrient level, soil microbial composition and activity, and soil fertility. Mining exposes lower soils to overburden material that could contain chemical components at levels which could be harmful to plants and animals. Stockpiling soil for several years before it is redistributed can degrade biological, chemical, and physical properties. It may lower organic content, microbial activity, viability of plant seeds, nutrient cycles, and increase near-surface bulk density. The exposure, compaction, and stockpiling of salvaged soil material can increase the potential for soil erosion by both wind and water.

A short-term loss of soil productivity would occur during mining; productivity would be restored with proper reclamation and management. Topsoil and subsoil removed during early stages of mining would provide an adequate layer of productive material to be replaced and averaged on reshaped overburden during reclamation. The PSC's "Rules Governing Reclamation of Surface-Mined Land" (April 2007) require all soils within mine permit areas to be intensively surveyed, with depths of topsoil and subsoil layers to be saved, identified and marked prior to lifting. Soil material would either be stockpiled for later redistribution or hauled directly to reshaped overburden that is ready for soil replacement.

Soil instability and erosion problems associated with reclamation would be kept to a minimum with proper handling techniques and adherence to regulatory guidelines as promulgated in the above-referenced PSC rules. All runoff from disturbed areas would be required to pass through sedimentation ponds on the mine permit areas, thus trapping water-eroded soil materials before they move offsite. Vegetative cover would be restored on re-spread soils as quickly as possible to stabilize sites and reduce erosion. Reclaimed lands would remain under bond with the PSC until such time that successful reclamation is demonstrated under its standards.

Disturbance of any identified prime farmland would require operations in accordance with performance standards stipulated in the PSC rules. It is expected that the entire area will be successfully reclaimed. The reclamation will create soil conditions that are different than pre-mining conditions due to soil mixing and disturbance but proper reclamation practices will return soils to productivity.

## **WATER**

### **Surface Water**

There are few surface water features in the area being analyzed. The main streams and drainages in the area are Square Butte Creek and Hagel Creek. Square Butte Creek is north of the area being analyzed and flows southeast to discharge into Nelson Lake. Hagel Creek is on the south edge of the permit area and flows east-northeast to discharge into Nelson Lake. A few dams and dugouts are situated in drainages and are used for livestock watering and sediment control. A more detailed description and monitoring station data are available in the Permit Application Package, Chapter 3.4.

No alluvial valley floors or floodplains are present.

### **Groundwater**

There are three shallow aquifers of concern within the permit area. Two of the aquifers are in the lignite beds that BNI is currently mining and the third is a silty sand layer that lies about fifty feet below the Hagel Seam.

A study by DS*Atlantic* Tribble & Richardson analyzed the groundwater of the Center Mine area and reached the following conclusions. The uppermost aquifer is the Kinneman Creek Seam and it ranges from dry to fully saturated within the area. The next aquifer is the Hagel Seam which ranges from partially saturated to confined conditions, and provides a greater quantity of water than does the Kinneman Seam. The lowest of the shallow aquifers is designated as the Sheet Sand and is not generally used as a water source because of its low permeability and available drawdown.

Deep aquifers lie 200-300 feet below the Hagel Seam. Domestic and livestock water supplies for the general area are obtained from various sand and lignite aquifers in the Sentinel Butte and Bullion Creek Formations. Wells generally yield 1 to 10 gpm (gallons per minute). Center's Municipal supply is from several wells finished in the Square Butte Creek Aquifer and the deeper Bullion Creek Formation (Permit Application Package, BNCR-9702, 3.3).

### **No Action Alternative**

The No Action alternative would not meet the need for the proposed action and federal coal reserves would be bypassed. Mining operations on adjacent lands would still occur, and the area will be used for haul roads, stockpiles, and other mining operations. Water quality would still be impacted by other mining operations but following current mining practices it is not expected that water quality standards would be exceeded. Ground water would still be affected by mining operations that would lower the water table.

## **Proposed Action**

### **Direct and Indirect Impacts of the Proposed Action**

While existing ephemeral drainages would be altered during mining, they would be restored to a stable state during reclamation. Any surface runoff from storm-flow would be diverted around the site and into sediment ponds. Releases from these ponds would meet all requirements of the National Pollution Discharge Elimination permit and all downstream beneficial uses of water would be maintained.

Surface coal mining impacts groundwater quantity in two ways: (1) aquifers are removed and replaced with unconsolidated backfill, and (2) groundwater levels in aquifers adjacent to the mines are lowered as a result of seepage and dewatering into the open pit. If federal tracts are leased, the area of coal removal and reclamation at the Center Mine would increase slightly, and impact to groundwater would increase. The area subject to lower water levels would grow roughly in proportion to the area being mined.

Ground water would be discharged from lignite beds and other shallow aquifers to the pit during the stripping of overburden and removal of coal. This water would be used for dust abatement and any release into any waterway would be monitored to ensure it does not violate water quality standards. A modeling indicates that a theoretical drawn down could extend for up to two miles from a mine site. However, monitoring suggests that the perceptible drawdown would extend approximately 1,800 feet. Beyond 1,800 feet, it would be difficult to differentiate between a drawdown and natural ground water fluctuations. If an existing well were made unusable due to a drawdown, BNI would provide replacement water as required by the PSC permit (Permit Application Package BNCR-9707, 3.3).

Disturbances from mining might reduce water quality in shallow groundwater aquifers. If this were to make any existing well unusable, BNI would provide replacement water from a deeper aquifer as required by PSC and Subsection 9 of North Dakota Century Code § 38-14.1-24. Water quality in replaced overburden would be similarly impacted reducing its value as a future source of ground water.

Most deep water wells in this area are drilled into a sand layer that lies 200-300 feet below the lowest mined strata - the Hagel Seam (Permit Application Package BNCR-9707, 3.3-2). Since water levels and quality in these deeper aquifers would not be adversely affected, these wells would remain functional. In fact, this is the area where replacement water may be produced.

The North Dakota Department of Health was contacted and provided data from the Center Mine from the year 2000 to present. The mine has not violated any permit limits during that time. It is expected that since the same mining practices will be followed during mining operations in this tract, the proposed action is not expected to violate any water quality standards.

## **VEGETATION**

The use of aerial photography and a field investigation concluded that the proposed lease tract is rangeland with a mixture of tame grass and native species, cropland, and a tree-row. Land uses and vegetation characteristics are similar to the surrounding lands where cropland is intermixed with native and tame prairie. Land uses and vegetation patterns reflect local and regional economic conditions along with climatic, geologic, and edaphic factors.

No special-status plant species have been found in the tract. A complete list of vegetation can be found in the BNI Permit Application Project 3.2 (Permit Application Package BNCR-9707, 3.2).

The vegetative survey of the area determined that non-native noxious weeds are known to be within the permit boundary. These include Absinth wormwood, leafy spurge, field bindweed, and Canada thistle (Permit Application Package BNCR-9707, 3.2). However, the BLM weed specialist did not note any noxious weeds in the project area during the field examination, indicating that they are well controlled.

### **No Action Alternative**

The No Action alternative would not meet the need for the proposed action and federal coal reserves would be bypassed. Mining operations on adjacent lands would still occur, and the area would be used for haul roads, stockpiles, and other mining operations that would disturb and remove vegetation. This could introduce noxious weeds and other invasive non-native species. Impacts would be the same as under the proposed action, but would affect slightly less surface (69.3 acres) and vegetation. BNI would still be responsible for reclaiming the disturbed area and controlling noxious weeds.

### **Proposed Action**

#### **Direct and Indirect Impacts of the Proposed Action**

Vegetation would be removed by coal mining and the associated disturbance for haul roads, stockpiles, and other mining operations. After mining operations have moved through an area, lands will be reclaimed back into whatever land use type the landowner prefers. Reclamation is overseen by the PSC.

Noxious weeds may be introduced through mining operations and reclamation efforts. Some invasive, non-native noxious weeds would likely take root during reclamation. The lessee would be required to control weeds as part of the reclamation program, which would be overseen by the PSC.

As required by PSC Chapter 63-01.1 (Noxious Weed Control), BNI has implemented a weed control program that suppresses or prevents the spread of noxious weeds on reclaimed lands which may include, but are not limited to, native grasslands, pastureland, hay land, cropland, sediment pond edges, stockpiles, and shelterbelts. Herbicides used

will be dependent upon land use, vegetation present, animals present, product availability, seasonality, and commercial/academic/professional recommendations. As the product labels insist, care will be taken to follow dictated usages. In conjunction with herbicide applications, a rotary mower will be used to control the spread of weeds (Permit Application Package BNCR-9707, 4.12.4-1).

## **FISHERIES AND WILDLIFE**

Wildlife surveys and resource studies of the proposed lease area were completed by Western Technology and Engineering, Inc., Helena, Mont., in 1980 and revised in 2002. Surveys identified minimal use by larger mammals such as mule deer, white-tailed deer and pronghorn antelope. Small mammals such as rabbits, weasels, mice and voles are present, but populations are thought to be relatively small. Some reptile and amphibian use is known to occur, but to what extent is unknown.

Most of the remaining native grassland in the proposed lease area indicates a history of heavy, season-long grazing by domestic livestock. Range condition is reported to be poor to fair condition, with a considerable percentage of Kentucky bluegrass. Residual cover is generally lacking in the spring for nesting song birds and resident upland game birds. Aftermath grazing and some tillage occur on cereal grain crops in the fall which lessens the wildlife value.

Avian surveys indicate that nesting raptors are absent. However, annual migrations of bald and golden eagles and other hawks are observed spring and fall. Current surveys have resulted in an absence of sharp-tailed grouse leks on the proposed lease area. However, sharp-tailed grouse are known to utilize the area and there are leks to the north and south of section 32 (Permit Application Package BNCR-9702, 3.20).

Detailed lists of wildlife observed in and around the proposed lease area can be found in BNI's Permit Application Package submission to the PSC in Appendix 3.10-1.

The BLM consulted with the U.S. Fish and Wildlife Service (FWS) regarding threatened and endangered species. The FWS responded with a letter dated July 24, 2008, concurring with the BLM that the proposed lease area was absent of any resident T&E species and, therefore, would not have any effect on T&E species. Public comments were requested in a NEPA scoping letter and no comments were received concerning the determination.

### **No Action Alternative**

The No Action alternative would not meet the need for the proposed action and federal coal reserves would be bypassed. Mining operations on adjacent lands would still occur and the area will be used for haul roads, stockpiles, and other mining operations that could still displace a small amount of wildlife. The habitat will be removed at a rate of about 240 acres per year, but only 69.3 acres of potential habitat within the project area would be disturbed.

Wildlife habitat within the proposed lease tract has already been greatly altered by some breaking of the native prairie for various agricultural practices. Remaining intact areas of native prairie have been converted and/or degraded by different grazing practices since early European settlement, therefore reducing wildlife value considerably.

### **Proposed Action**

#### **Direct and Indirect Impacts of the Proposed Action**

As coal mining takes place, habitat will be removed at a rate of about 240 acres per year. Ground nesting songbirds and large and small mammals will be temporarily displaced as the mining operation takes place. Mortality of some relatively small, immobile species would occur as a result of the mining operation. On a landscape scale, the mortality and displacement of certain wildlife species would not be significant to the overall populations. Reclamation of the post-mining operation with native grasses would replace some of the altered habitat. Reclamation would be overseen by the PSC.

### **CULTURAL RESOURCES**

The area proposed for leasing has been inventoried for cultural resources (Fandrich et al, 1997). One cultural resource (site 32OL343) identified during that inventory consists of four standing structures and 17 historic archaeological features. The standing structures include a shed, an outhouse, a corral, and a dog house. The historic archaeological features include 10 foundations, six cultural material concentrations, and one well. The cultural material concentrations consisted of items such as a John Deere nine disk plow, a wood wagon, nine 55 gallon steel drums, 45 rubber tires, glass jars, nuts and bolts, and other historic items usually associated with farmsteads.

Analyses of the materials located at the site indicate that the earliest materials dated from 1896 and the latest to 1931. Later historic materials were deposited at the site; e.g., 45 tires, as a convenient trash dump. The property was homestead in 1912 by Mr. Fred Ganske. Construction of the structures began that same year. Mr. Ganske retained ownership, but did not live on-site, until his death in 1960. The title of the land was settled by his widow, Hilda Ganske, who retained ownership until 1990, when it was sold to Brenda Schwalbe. Ms. Schwalbe is the current owner of the property.

The site was evaluated but determined ineligible for listing in the National Register of Historic Places (NRHP) primarily because of its poor physical condition and its use as a dump, and because it did not meet the NRHP criteria for listing. The North Dakota State Historical Preservation Office (SHPO) has concurred with this determination. Consequently, no cultural resources eligible for the NRHP are within the area of potential effect should this area be leased.

### **No Action Alternative**

The No Action alternative would not meet the need for the proposed action and federal coal reserves would be bypassed. There would be no environmental impacts with associated disturbance because there are no cultural resources present.

### **Proposed Action**

#### **Direct and Indirect Impacts of the Proposed Action**

There will no impacts to cultural resources eligible for the National Register of Historic Places (NRHP). The one cultural resource located within the 160-acre tract was determined not eligible for the NRHP and, as a result, requires no additional consideration or action for this undertaking. The BLM consulted with the North Dakota SHPO on this proposed lease sale and it concurred that the site is not eligible for the NRHP and that the proposed lease sale will not affect cultural resources eligible for the NRHP.

### **RECREATION**

Recreation opportunities within Section 32 are reasonably limited. The major recreational use of this area is for hunting purposes and permission must be obtained from BNI and/or the private landowner. There is currently only a limited amount of visits to the area by the surface owner for hunting purposes. In general there is a no hunting policy mine-wide, with the exception for the Sporting Chance. Sporting Chance hunts consist of a group of disabled persons that hunt both pheasants and geese.

### **No Action Alternative**

The disturbance of mine related activities on 69.3 acres would probably displace the majority of all recreational opportunities. The shelterbelt would still remain, which provides the best area of pheasant hunting on the parcel. The disabled hunting program might be displaced to other areas within the mine that have not been mined or that have been reclaimed.

### **Proposed Action**

#### **Direct and Indirect Impacts of the Proposed Action**

All of the recreational opportunities would be displaced from the parcel during mining operations. The disabled hunting program would utilize other areas within the mine that have not been mined or that have been reclaimed.

### **WILDERNESS STUDY AREAS**

No wilderness study areas are involved in the tract being considered for lease.

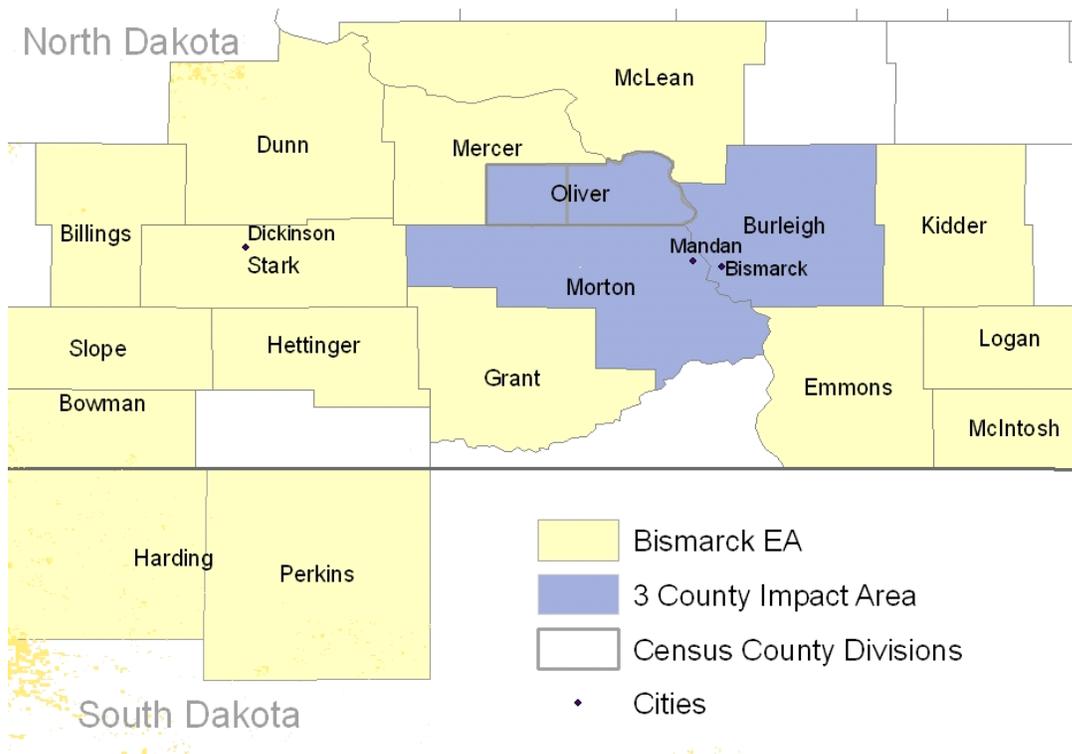
## ECONOMIC FACTORS

### Introduction

Removal of coal from the BNI lease tract has the potential to affect local economic conditions. Certain defining features of every area influence and shape the nature of local economic activity. Among these are the local population, the presence of or proximity to large cities or regional population centers, types of longstanding industries, predominant land and water features, and unique area amenities. These characteristics of Oliver County and other adjacent counties influence the relationship between the Center Mine and local economic activity.

### Impact Area

In order to accurately portray the relationship of current BLM management, the social and economic geographic scope of analysis must be defined. The economic effects from coal removal feasibly extend beyond the immediate vicinity of the mine. The role of the BNI Lease EA within the larger region must be addressed while not masking potential change within counties and communities in the area. In this manner, the area social and economic characteristics and effects on the social and economic environment are dependent on the extent of the area examined, thus area information is presented at two geographic scales based on available data: county and census county subdivisions (CCD) (Figure 1). Impacts and characteristics of Burleigh, Morton and Oliver counties are presented alongside impacts and characteristics of just Oliver County given economic linkages between Oliver County and Burleigh and Morton counties. Environmental Justice is examined at both the county and CCD level.

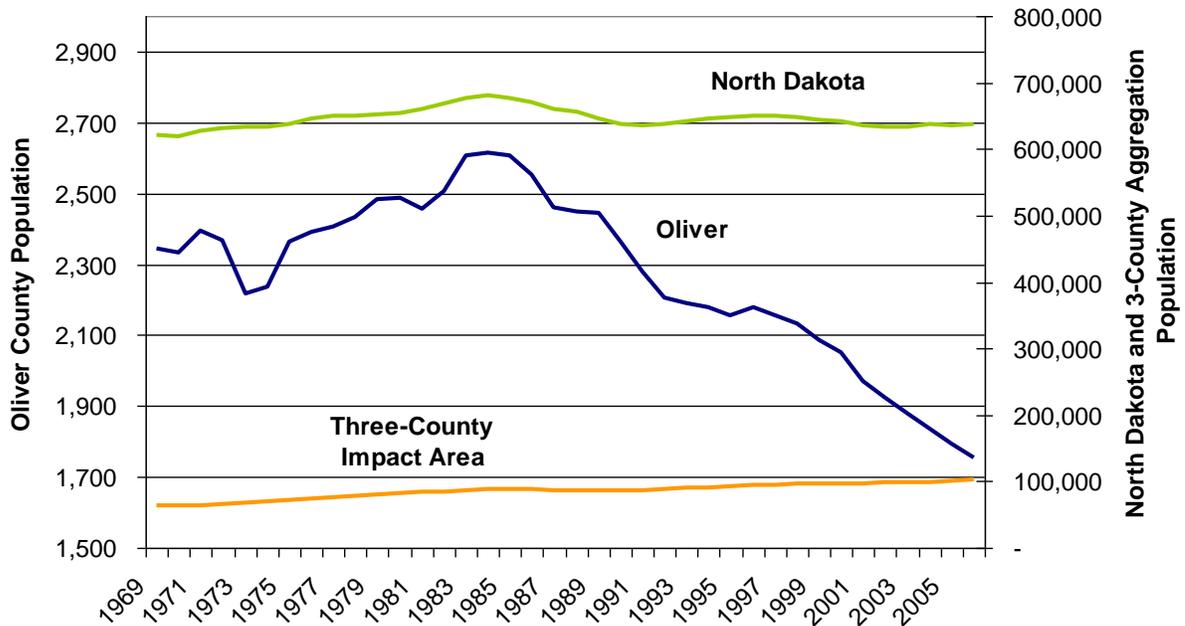


**Figure 1. BEA Economic Area and the Impact Area**

## Affected Environment

### Population Change

Population change in Oliver County between 1969 and 2006 fell by 578 people, a 25 percent decline, and increased in the three-county impact area by 39,536 people, a 62 percent increase. While growth in the three-county impact area over this period outpaced the state (3 percent) and the nation (47 percent), growth in Oliver County was slower than both the state and the nation (Figure 2).



**Figure 2. Population Change for Oliver County and the Three-County Impact Area (Source: US Department of Commerce, 2005)**

### Employment and Income

Employment within Oliver County makes up 1.5 percent of total employment in the larger three-county impact area. Employment within both Oliver County and the larger three-county impact area is distributed amongst industry sectors and displayed below in Appendix B, Table 1. While the government (15 percent) and health & social services (15 percent) were the largest components of employment in the three-county impact area in 2006, the agriculture, forestry, fishing & hunting (23 percent) and the retail trade (16 percent) sectors were the largest in Oliver County (IMPLAN, 2006). The Interior Columbia Basin Ecosystem Management Project identified communities that were specialized with respect to employment. Their method used the ratio of the percent employment in each industry in the region of interest (Oliver County) to an average percent of employment in that industry for a larger area (the reference region; the three-county impact area). For a given industry, when the percent employment in the analysis region is greater than in the reference region, local employment specialization exists in that industry (USDA Forest Service, 1998). Using this criterion applied with 2006 data, Oliver County can be characterized as specialized with respect to employment in the

agriculture, forestry, fishing & hunting, the mining, the retail trade, and the transport, warehousing & utilities sectors (IMPLAN, 2006).

There are three major sources of personal income: (1) labor earnings or income from the workplace, (2) investment income, or income received by individuals in the form of rent, dividends, or interest earnings, and (3) transfer payment income or income received as Social Security, retirement and disability income or Medicare and Medicaid payments. In 2006 labor earnings were the largest source of income accounting for 68 percent of all income within both Oliver County and the three-county impact area. Investment income and transfer payments accounted for 17 and 15 percent respectively in both Oliver County and the three-county impact area. While the government (20 percent) and health & social services (15 percent) were the largest sources of labor income in 2006 within the three-county impact area, the mining (34 percent) and the transport, warehousing & utilities (34 percent) sectors were the largest sectors in Oliver County (IMPLAN, 2006). Utilizing the same criterion used above to examine employment specialization, Oliver County can be characterized as specialized with respect to labor income in the agriculture, forestry, fishing & hunting, the mining, and the transport, warehousing & utilities sectors (Appendix B Table 2).

## **Mining**

Coal mining and coal conversion are basic industries which bring money into the state and support and create jobs in other sectors of the local and regional economy (Coon and Lestriz, 2007). Given the small number of mining operations in the area (Table 3), data on mining employment and labor income are not available from the U.S. Department of Commerce at a county level; however, estimates are available from the Economic Profile System (EPS, 2009). From 1977 to 2000, estimated mining employment as a share of total employment went from 8.5 to 9.2 percent in Oliver County while decreasing in the larger three-county impact area (from one percent to 0.5 percent). Over this period estimated mining income as a share of TPI increased from 17.7 to 19.9 in Oliver County while again slightly decreasing in the larger three-county impact area (from 1.2 to 0.7 percent) (EPS, 2009). In the year 2006, average annual mining wages in the state were \$64,644, which was more than twice the average wage of all private and public sectors (\$31,316) in the state (US Department of Commerce, 2006). Data from 2006 presented in Tables 1 and 2 show that mining made up 0.3 and 13.3 percent of employment and 0.9 and 34.5 percent of labor income in the three-county impact area and Oliver County, respectively (IMPLAN, 2006). Despite the relatively few mining operations in the area, these data indicate Oliver County can be considered specialized with respect to the mining industry.

**Table 3. Coal Production and Number of Mines 2007**

<b>State and County</b>	<b>Number of Mines</b>	<b>Production (Thousand Short Tons)</b>
<b>North Dakota</b>	<b>4</b>	<b>29,606</b>
McLean	1	7,789
Mercer	2	17,923
Oliver	1	3,894
<b>U.S. Total</b>	<b>1,374</b>	<b>1,146,635</b>

Source: · Energy Information Administration (EIA), 2007

In 2007 North Dakota was the tenth largest coal producer in the nation (EIA, 2007). Coal-fired plants provide nearly all of North Dakota’s electricity generation and North Dakota brings in only small amounts of coal from other states (EIA, 2009). While coal mining is important to North Dakota’s economy, federal coal production has accounted for less than nine percent of the total state production over the last decade. Most of the state’s production has come from the Freedom Mine in Mercer County; in 2007 60.5 percent of North Dakota’s production came from Mercer County (Table 3). Annual coal removal from the Center Mine has ranged from 3.9 to 4.5 million tons annually and was 3.9 million tons in 2007 (Table 3); which was 13 percent of the state’s total production. This included removal from state and private mineral estate; however, there has been no federal coal production from the Center Mine since 2002.

### **Revenue Sharing and Distributions to Counties**

The coal mining industry contributes substantially to local and state tax revenues including personal and corporate income taxes, sales and use taxes, energy conversion taxes, and coal severance taxes. Coal severance taxes are a particularly important source of revenue at the county level. The tax is currently 37.5 cents per ton, of which 70 percent is distributed to the coal-producing counties. The remaining 30 percent is deposited in a permanent trust the state makes available to counties as loans for infrastructure development. Since 2001, the tax revenue is further apportioned as follows: 40 percent to the county general fund; 30 percent to the cities within the county; and 30 percent to the school districts (North Dakota Office of the State Tax Commissioner, 2006).

A portion of the revenues received by BLM from the sale of coal and the lease of land is distributed back to counties in the area. Fifty percent of fees received by the BLM for leasing and 25 percent of federal royalties from sales of coal are returned to counties where activities occur (1920 Mineral Lands Leasing Act, 41 Stat. 437; North Dakota Century code, 15.1-27-25). Since 2001, federal royalties from the sales of coal in the state have increased by 30 percent from \$788,994 to \$1,024,774 in 2008 (DOI, 2009). Since there has been no federal coal production from the Center Mine since 2002, there have been no associated federal royalty disbursements to Oliver County since 2002.

## **Environmental Consequences**

### **Methodology for Analysis**

The analysis of economic effects considers job and labor income in an economic impact analysis.

Economic impact analysis is used to evaluate potential direct, indirect, and induced effects on the economy. The analytical technique used by the BLM to estimate employment and income impacts is "input-output" analysis using the IMPLAN Pro software system. Input-output analysis (Miernyk, 1965) is a means of examining relationships within an economy both between businesses and between businesses and final consumers. It captures all monetary market transactions for consumption in a given time period. The resulting mathematical representation allows one to examine the effect of a change in one or several economic activities on an entire economy, all else constant. This examination is called economic impact analysis. IMPLAN translates changes in final demand for goods and services into economic effects, such as labor income and employment of the affected area's economy. The IMPLAN modeling system requires one to build regional economic models of one or more counties for a particular year. The regional model for this analysis uses 2006 IMPLAN data – it was determined that the economic impact area for this EA will include Oliver County and a comparison to the larger three-county area that encompasses Burleigh, Morton and Oliver counties.

The economic impacts to the local economy affected by the treatments proposed are measured by estimating the employment (full- and part-time jobs) and labor income generated by the 1) removal of coal from the proposed lease tract at the Center Mine, and 2) payments to counties associated with production from BLM managed mineral estate. The direct employment and labor income benefit employees and their families and therefore directly affect the local economy. Additional indirect and induced multiplier effects (ripple effects) are generated by the direct activities. Together the direct and multiplier effects comprise the total economic impacts to the local economy. The multiplier effects tied to the coal removal were estimated using IMPLAN. Potential limitations of these estimates are the time lag in IMPLAN data and the data intensive nature of the input-output model.

### **No Action Alternative**

If the lease were not approved, no direct or indirect effects on the local economy would occur under the No Action Alternative. The life of the mine would be shorter than under the Proposed Action. The No Action Alternative contributes no jobs nor income because there are neither activities nor payments associated with federal coal removal under this alternative.

### **Proposed Action**

#### **Direct and Indirect Impact of the Proposed Action**

Table 6 displays both direct, indirect and total estimates for employment (part and full-time) and labor income that may be contributed to the area from the Proposed Action.

Since coal removal from federal mineral estate will occur over a six-year period, the estimated impacts of jobs and labor income would be spread out over the period from 2010 to 2015. It is important to note that these are not new jobs or income, but rather jobs and income that can be attributed to this project. The Proposed Action could contribute 103 direct part and full-time jobs associated with coal removal, in addition to 57 indirect and induced part and full time jobs (for a total of and 160 part and full time jobs) spread over six years in Oliver County. Payments to Oliver County from federal royalty disbursements and coal severance taxes could contribute roughly 28 direct, and two indirect and induced (for a total of 30) part and full-time jobs spread over six years in Oliver County.

In total, federal coal removal and associated payments under the Proposed Action are expected to contribute approximately 131 direct and 189 total part and full-time jobs and \$15.4 million of total labor income in Oliver County spread over the years from 2010 to 2015. As we increase the size of the impact area to include Burleigh and Morton counties in addition to Oliver County, employment and labor income impacts also increase to 139 direct and 343 total jobs and \$20.1 million in labor income. The increase in indirect and induced employment can be attributed to the larger secondary expenditures of mining related activity and the salary related purchases of employees in the larger impact area.

**Table 6. Employment and Labor Income generated from Federal Coal Removal and County Payments under the Proposed Action (IMPLAN, 2006)**

	Employment (# Jobs)			Labor Income (\$)		
	Total	Direct	Indirect & Induced	Total	Direct	Indirect & Induced
<b>Oliver County Impact Area</b>						
Minerals	160	103	57	\$14,567,786	\$12,392,480	\$2,175,307
Payments to Counties	30	28	2	\$818,699	\$791,061	\$27,638
<b>Oliver County Total</b>	<b>189</b>	<b>131</b>	<b>59</b>	<b>\$15,386,485</b>	<b>\$13,183,540</b>	<b>\$2,202,945</b>
<b>Three-County Impact Area</b>						
Minerals	306	109	197	\$19,082,239	\$13,140,527	\$5,941,712
Payments to Counties	36	30	6	\$1,052,765	\$862,933	\$189,832
<b>Three-County Total</b>	<b>343</b>	<b>139</b>	<b>204</b>	<b>\$20,135,004</b>	<b>\$14,003,460</b>	<b>\$6,131,544</b>

## ENVIRONMENTAL JUSTICE

Executive Order 12898 requires Federal agencies to “identify and address the disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.” According to the Council on Environmental Quality’s (CEQ) Environmental Justice Guidelines for NEPA (1997) “minority populations should be identified where either: (a) the minority population of the affected area exceeds 50 percent or (b) the minority population percentage of the affected area is meaningfully greater than the minority

population percentage in the general population or other appropriate unit of geographic analysis. . . . a minority population also exists if there is more than one minority group present and the minority percentage, as calculated by aggregating all minority persons, meets one of the above stated thresholds.”

Thus, the ethnic and racial composition of North Dakota, the three-county impact area, and CCDs within the area are of interest. The shares of 2000 population by race and ethnicity are displayed in Table 4 below.<sup>1</sup> In the year 2000, the share of population described as white was greater than the State in counties and CCDs in the impact area. The shares of African American, American Indian and those identified with two or more races in Center City CCD were greater than Oliver County in 2000. Shares of all other races were less than the State’s and the three-county impact area. In addition, the share of Hispanics was greater than both the State and the three-county impact area in West Oliver CCD (US Census Bureau, 2000). Thus, populations in the area can likely be defined according to the CEQ’s definition of minority populations.

**Table 4. Population by Race and Ethnicity (2000)**

	White	Black or African American	American Indian & Alaska Native	Asian	Native Hawaiian & Other Pacific Islander	Some other race	Two or more races	Hispanic (of any race)
<b>North Dakota</b>	<b>92.4%</b>	<b>0.6%</b>	<b>4.9%</b>	<b>0.6%</b>	<b>0.0%</b>	<b>0.4%</b>	<b>1.2%</b>	<b>1.2%</b>
<b>Three County Area</b>	<b>95.3%</b>	<b>0.2%</b>	<b>3.0%</b>	<b>0.4%</b>	<b>0.0%</b>	<b>0.2%</b>	<b>0.9%</b>	<b>0.7%</b>
Oliver County	97.6%	0.1%	1.3%	0.1%	0.0%	0.0%	0.9%	0.6%
Center City CCD	93.8%	0.4%	3.4%	0.0%	0.0%	0.0%	2.4%	0.6%
East Oliver CCD	99.8%	0.0%	0.1%	0.0%	0.0%	0.0%	0.1%	0.2%
West Oliver CCD	98.8%	0.0%	0.4%	0.4%	0.0%	0.0%	0.4%	1.4%

Source: US Census Bureau, SF1 Tables P7 and P8

In addition to race, concentrations of people living under the poverty level are of interest when considering the Environmental Justice implications of the Proposed Action. CEQ guidance on identifying low-income populations states “agencies may consider as a community either a group of individuals living in geographic proximity to one another, or a set of individuals (such as migrant workers or Native Americans), where either type of group experiences common conditions of environmental exposure or effect.” In 1999 shares of the population living below poverty in East Oliver and West Oliver CCDs (16 and 24 percent) were greater than shares in Oliver County (15 percent), the three-county impact area (8 percent), and North Dakota (12 percent) (US Census Bureau, 2000b). Thus, the Census data indicate that low income populations, as defined by CEQ, could exist within the project area.

While minority and low-income populations may exist in the area, the alternatives are not expected to have a disproportionately high and adverse human health or environmental effects on these communities. Impacts to local communities are expected to be

<sup>1</sup> Race and ethnicity shares do not add to 100 percent because Hispanics can be of any race.

negligible, and there is no reason to suspect that any impacts will disproportionately affect minority and low income populations. In addition, employment and income contributions of the Proposed Action could support employment and income in the area which could benefit area minority and low-income populations.

## **CLIMATE CHANGE**

Ongoing scientific research has identified the potential impacts of anthropogenic (man-made) greenhouse gas (GHG) emissions, changes in biological carbon sequestration, and other changes due to land management activities on the global climate. Through complex interactions on a regional and global scale, these changes cause a net warming effect of the atmosphere, primarily by decreasing the amount of heat energy radiated by the earth back into space. Although natural GHG levels have varied for millennia, recent industrialization and burning of fossil carbon sources have caused carbon dioxide equivalent (CO<sub>2</sub>(e)) concentrations to increase dramatically, and are likely to contribute to overall global climatic changes. The Intergovernmental Panel on Climate Change recently concluded that “warming of the climate system is unequivocal” and “most of the observed increase in globally average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic greenhouse gas concentrations.”

Global mean surface temperatures have increased nearly 1.33°F from 1906-2005. Models indicate that average temperature changes are likely to be greater in the Northern Hemisphere. Northern latitudes (above 24° N) have exhibited temperature increases of nearly 2.1°F since 1900, with nearly a 1.8°F increase since 1970 alone. Without additional meteorological monitoring systems, it is difficult to determine the spatial and temporal variability and change of climatic conditions, but increasing concentrations of GHGs are likely to accelerate the rate of climate change.

In 2001, the IPCC indicated that by the year 2100, global average surface temperatures would increase between 2.5°F and 10.4°F above 1990 levels, depending on the assumptions made in the predictive model. The National Academy of Sciences has confirmed these findings, but also has indicated there are uncertainties regarding how climate change may affect different regions. Computer model predictions indicate that increases in temperature will not be equally distributed, but are likely to be accentuated at higher latitudes. Warming during the winter months is expected to be greater than during the summer, and increases in daily minimum temperatures are more likely than increases in daily maximum temperatures. Increases in temperatures would increase water vapor retention in the atmosphere, and reduce soil moisture, increasing generalized drought conditions, while at the same time enhancing heavy storm events. Although large-scale spatial shifts in precipitation distribution may occur, these changes are more uncertain and difficult to predict.

There are uncertainties associated with the science of climate change. This does not imply that scientists do not have confidence in many aspects of climate change science. Some aspects of the science are known with virtual certainty because they are based on well-known physical laws and documented trends (EPA 2008).

Several activities contribute to the phenomena of climate change, including emissions of GHGs (especially carbon dioxide and methane) from fossil fuel development, large wildland fires and activities using combustion engines; changes to the natural carbon cycle; and changes to radiative forces and reflectivity (albedo). It is important to note that GHGs will have a sustained climatic impact over different temporal scales. For example, recent emissions of carbon dioxide can influence climate for 100 years.

It may be difficult in some cases to discern whether global climate change is already affecting resources in the analysis area. However in most cases there is information about potential or projected effects of global climate change on resources. It is important to note that projected changes are likely to occur over several decades to a century. Therefore, many of the projected changes associated with climate change described below may not be measurable within the reasonably foreseeable future.

While North Dakota has not completed an emissions inventory based upon a comparison with its neighbors (Montana and South Dakota) it's believed that activities in North Dakota account for between 0.50% and 0.75% of total U.S. gross GHG emissions. It's clear that at a global scale, emissions from North Dakota would play an even smaller role as the entire United States contributes just 24% of the global emissions (<http://www.eia.doe.gov/oiaf/1605/archive/gg04rpt/emission.html>). The principal sources of North Dakota's GHG emissions are likely the use of electricity, agriculture, transportation, and fossil fuels. In addition to these sources, North Dakota's grass lands and wetlands would continue storing a substantial amount of carbon dioxide (an important GHG).

No data currently exists in respect to GHG emissions in the state of North Dakota.

### **No Action Alternative**

GHGs would not be produced from the tract being developed. Mining operations on adjacent lands would continue at the same rate and greenhouse emissions would continue to be introduced into the environment.

### **Proposed Action**

#### **Direct and Indirect Impacts of the proposed Action**

GHGs would be produced as part of mining operations and in end-user facilities. Emissions would be emitted at the present rate and would continue for an additional year with the leasing of federal coal.

### **CUMULATIVE IMPACTS**

Cumulative impacts are those impacts resulting from the incremental impact of an action when added to other past, present, or reasonably foreseeable actions regardless of what agency or person undertakes such other actions. In this case, the immediate decision is whether to lease or not lease the 160 acres of coal. The cumulative impacts would be the impacts of the entire mining operation on the environment.

In addition to the proposed tract, BNI intends to add additional coal reserves to the Center Mine in the coming years. BNI has enough leased reserves in its current mining permit, BNCR-9702, to last until 2011-2012. After 2012, BNI has several options currently under consideration. One option is to continue moving west along the current path, which would include 480 acres of unleased federal coal. The second option lies south of Hagel Creek and southwest of the Milton R. Young Station and includes 720 acres of unleased federal coal.

Appendix H of the *Draft North Dakota RMP/EIS* identifies cumulative impacts for mining operations. This analysis considers a generic mine scenario considered to be a 5.5 million tons per year surface mine with a 40-year mine life. Mine operation would be expected to disturb land at a rate of 475 acres per year or 19,000 acres over 40 years. It would take approximately 10-13 years for completion of the full cycle from initial disturbance through mining, reclamation, and bond release for each acre. In full production, the total area out of production in any year would be 4,800-6,175 acres. Soils would be continuously replaced on mined out areas and brought back into production during the life of the mine.

The BNI Center Mine is currently operating at less than this capacity. The Center Mine has an average production rate of 4.2-4.6 million tons per year, averaging 240 acres of disturbance. Therefore, analysis of impacts contained in the Appendix H can be used to understand the cumulative impacts of leasing the proposed tract in regards to the entire mining operation. A site-specific analysis of cumulative impacts is discussed below.

### **Topography**

Following surface coal mining and reclamation, topography would be modified within the permit boundary of the Center Mine. The topography in the general area lacks diversity, mainly consisting of flat terrain with some rolling hills. When reclaimed, areas mined are generally smoothed out with more uniform slopes.

Reduced relief and subdued topography may result in increased infiltration of surface water and reduced peak flows from drainages. Reclaimed lands may be less visually attractive to some users, but this observation diminishes over time.

### **Soils**

BNI estimates that it disturbs approximately 240 acres per year with mining operations. Reclamation of mined areas should support a stable and productive native vegetation community of cropland, rangeland, and wildlife habitat. Areas within the mine are progressively disturbed and reclaimed to restore soil productivity and prevent soil erosion. Additional but less extensive soil disturbance would be associated with the on-going and proposed development east and south of the parcel being studied.

## **Water**

This project lowers the water table 50 feet extending 1,800 feet. Existing mine sites have a drawdown that overlaps with our new project resulting in a 55 foot drawdown (Permit Application Package BNCR-9702, 3.3).

## **Air Quality/Climate Change**

Pollutants and GHGs would be emitted at the same rate that they are currently being produced, which is currently meeting all air quality standards. The duration of emissions would be extended by one year with the leasing of the parcel of federal coal.

## **Economics**

Employment and labor income associated with federal coal removal and county payments would contribute directly as a result of labor required, and indirectly as purchases are made between industry sectors and households spend resulting income. These contributions would accrue to Oliver County and the larger three-county area alongside impacts from other projects occurring on public and private land in the area. For example, in 2006 total employment in the three county impact area was 76,345 and labor income was \$2,752,363,000. If we assume contributions from federal coal removal will be distributed equally amongst the six years the annual employment contribution of 57 and labor income of \$3,355,834 would make up 0.07 and .12 percent of the 2006 three county impact area totals, respectively. Annual contributions would make up .04 and 0.09 percent of total employment and labor income in Oliver County. The economy can be affected by a variety of factors including population growth, changes in interest rates, recession, growth of new sectors, tax policy, State economic policy, etc. When compared to these factors, the BNI Coal Lease alternatives have a negligible cumulative effect on the county and larger regional economy. Because any changes in economic activity from the proposed action would be unnoticeable at these levels, there should be no cumulative economic effects.

## **CHAPTER 4**

### **PERSONS, GROUPS, AND AGENCIES CONSULTED**

#### **Public Involvement Process**

On June 23, 2008, a scoping letter was sent to 84 parties stating that we were preparing an environmental analysis and inviting comments.

Upon his request, additional materials including a map, aerial photos, and archeology survey information were sent to Mr. Curley Youpee, Director of Cultural Resources for the Fort Peck Tribes. He had no further issues or concerns.

The Bureau of Indian Affairs commented that it has no environmental objections to this action, as long as it complies with all pertinent laws and regulations.

A letter requesting consultation was sent to the U.S. Fish and Wildlife Service on June 5, 2008. The USFWS sent a reply on July 24, 2008, concurring with the BLM's "no effect" determination on the other federally listed species within the project area. It cited that there are several wetlands in the project area, but none in the planning area. It also stated that there is potential habitat for the Dakota Skipper, a candidate species under the ESA, but that there are currently no known populations of the Dakota Skipper in the planning area.

The Bureau of Land Management's South Dakota Field Office commented that pictures should be taken and documentation of native grasses should be noted for reclamation purposes.

A Federal Register notice will be published announcing a public hearing for fair market value and the production of the final EA. A press release and legal notice will be posted in local papers announcing the public hearing and comment period.

This environmental assessment will be sent to the governor's office for a 30-day review.

A letter will be sent to the original 84 parties stating that the Environmental Assessment may be accessed on the North Dakota Field Office website and inviting comments.

The Public Service Commission will further analyze the area with a technical review of the mining application before mining commences; this will include further public participation. A PSC fact sheet released in January 2008 describes this process:

*The mine operator must publish notice when applying for a mining permit and significant revision. The notice is published once a week for four consecutive weeks in the official county newspaper. Any person with an interest that is or may be adversely affected by the application may petition the PSC to designate all or part of the proposed mining operation as unsuitable for surface coal mining operations. The petition must be filed with the PSC within 30 days of the last publication of the notice. Copies of the permit applications are located in the County Auditor's Office and can be examined during regular working hours.” (PSC, 2008)*

**Table 4.1. List of Persons, Agencies and Organizations Consulted**

- Charles Colombe, Rosebud Sioux Tribe, Rosebud, S.D.
- Aloma McGaa, Sisseton-Wahpeton Oyate, Agency Village, S.D.
- Center School District 18, Center, N.D.
- Clifford Peters, Flandreau Santee Sioux, Flandreau, S.D.
- Valentino White, Spirit Lake Sioux Tribe, Fort Totten, N.D.
- Elgin Crows Breast, Three Affiliated Tribes, New Town, N.D.
- Harold Frazier, Cheyenne River Sioux Tribe, Eagle Butte, S.D.
- Johnson Holy Rock, Oglala Sioux Tribe, Pine Ridge, S.D.
- Darrel Martin, Fort Belknap (Assiniboine and Gros Ventre), Harlem, Mont.
- Bureau of Indian Affairs, Rocky Mountain Regional Office, Billings, Mont.
- Marcus Wells, Three Affiliated Tribes, New Town, N.D.
- Tim Mentz, Sr., Standing Rock Sioux Tribe, Fort Yates, N.D.
- Ron His Horse is Thunder, Standing Rock Sioux Tribe, Fort Yates, N.D.
- Michael G. Jandreau, Lower Brule Sioux Tribe, Lower Brule, S.D.
- Madonna Archembeau, Yankton Sioux Tribe of SD, Marty, S.D.
- Peter Belgrade, Spirit Lake Sioux Tribe, Fort Totten, N.D.
- John Morales, Fort Peck Assiniboine and Sioux, Poplar, Mont.
- Francis Bernie, Yankton Sioux Tribe of SD, Marty, S.D.
- Russell Eagle Bear, Rosebud Sioux Tribe, Rosebud, S.D.
- Bureau of Indian Affairs, Perry Baker, New Town, N.D.
- Mark Allen, Flandreau Santee Sioux Tribe, Flandreau, S.D.
- Charles and Elaine Quiver, Oglala Sioux Tribe, Pine Ridge, S.D.
- Morris Belgarde, Fort Belgarde (Gros Ventre), Harlem, Mont.
- Torin Crow, Crow Creek Sioux Tribe, Fort Thompson, S.D.
- Harvey White Woman, Oglala Sioux Tribe, Kyle, S.D.
- Scott Jones, Lower Brule Sioux Tribe, Lower Brule, S.D.
- Cecilia Fire Thunder, Oglala Sioux Tribe, Pine Ridge, S.D.
- Albert M. Le Beau III, Cheyenne River Sioux Tribe, Eagle Butte, S.D.
- Audubon Society, Laura Munski, Grand Forks, N.D.
- Bureau of Indian Affairs, Standing Rock Agency, Fort Yates, N.D.

- Bureau of Indian Affairs, Cora Jones, Aberdeen, S.D.
- Cheyenne River Sioux Tribe, Raymond Uses the Knife, Eagle Butte, S.D.
- Congressman Earl Pomeroy, Ross Keys, Bismarck, N.D.
- North Dakota Game and Fish Department, Bismarck, N.D.
- National Trust for Historic Preservation, Washington D.C.
- Office of Surface Mining, Gene Hay, Denver, Colo.
- Public Service Commission, Dean Moos, Bismarck, N.D.
- U.S. Army Corps of Engineers, Omaha District, Riverdale, N.D.
- USDA-NRCS, State Conservationist, Bismarck, N.D.
- Bureau of Land Management, James Beaver, Billings, Mont.
- Bureau of Land Management, Gary Smith, Billings, Mont.
- Bureau of Indian Affairs, Fort Peck Agency, Poplar, Mont.
- Dakota Resource Council, Staff Director, Dickinson, N.D.
- North Dakota Historical Society, Mr. Paul Picha, Bismarck, N.D.
- North Dakota Historical Society, Duane Klinner, Bismarck, N.D.
- Senator Kent Conrad, Bismarck, N.D.
- Senator Byron Dorgan, Bismarck, N.D.
- U.S. National Park Service, Valerie Naylor, Medora, N.D.
- Governor John Hoeven, State of North Dakota, Bismarck, N.D.
- Cheyenne River Sioux Tribe, Deirdre Desmond, Eagle Butte, S.D.
- Bureau of Indian Affairs, Carson Murdy, Aberdeen, S.D.
- Ducks Unlimited, Paul Bultsma, Bismarck, N.D.
- North Dakota Wildlife Society, North Dakota Chapter, Bismarck, N.D.
- North Dakota State Land Department, Rick Larsen, Bismarck, N.D.
- Public Service Commission, Jim Deutsch, Bismarck, N.D.
- Sierra Club, Bismarck, N.D.
- U.S. Fish and Wildlife Service, Jeff Towner, Bismarck, N.D.
- Ronald Ness, Bismarck, N.D.
- Oliver County Auditor, Center, N.D.
- Cross Ranch Nature Conservancy, Center, N.D.
- U.S. EPA, Region 8, Denver, Colorado
- Lee Lufloen, Hensler, N.D.
- Andrea Stomberg, MDU, Bismarck, N.D.
- Jeff Buechler, Rapid City, S.D.
- Gerry Schlekeway, Pierre, S.D.
- Dr. John Hoganson, ND Geological Survey, Bismarck, N.D.
- Dave Pieper, USFS, Bismarck, N.D.
- Scott Jones, Lower Brule Sioux Tribe, Lower Brule, S.D.
- Oliver County Land Use, Center, N.D.
- Kent Albers, Hensler, N.D.
- Lyndon Bucher, Belle Fourche, S.D.
- Chance Davis, Heart Trail Ranch, Belle Fourche, S.D.
- Eric Rosenquist, Center, N.D.
- Carol Pavel, Whitewood, S.D.

- Lonny Bagley, BLM North Dakota Field Office, Dickinson, N.D.
- Elgin Crows Breast, Three Affiliated Tribes, New Town, N.D.
- Cross Ranch State Park, Center, N.D.
- Dwaine Helmers, Hensler, N.D.
- Larry D. Dokken, Williston, N.D.
- Eric Hunt, Spearfish, S.D.
- Stanely Kohn, North Dakota Game and Fish Dept., Bismarck, N.D.
- Tobias Stroh, Dept. of Agriculture, Dickinson, N.D.
- Marian Atkins, BLM South Dakota Field Office, Belle Fourche, S.D.
- Peter Belgrade, Spirit Lake Sioux Tribe, Fort Totten, N.D.

The North Dakota State Historical Preservation Office was consulted to meet obligations under NHPA and regulations found at 36CFR800. The SHPO concurred with our finding of “no historic properties affected.”

### List of Preparers/Reviewers

Table 4.2 is a list of preparers and reviewers that worked on the creation of this document.

**Table 4.2. List of Preparers/Reviewers**

<b>Name (and agency, if other than BLM)</b>	<b>Title</b>	<b>Responsible for the Following Section(s) of this Document</b>
Angela Wetz	Natural Resource Specialist	Originator; Soil, Water, Air, Noxious Weeds/Invasive Plants, WSA, Recreation
Mike Philbin	Hydrologist	Review of Soil, Water and Air Sections
Eugene Hay		OSM Review
Gary Smith	Archeologist	Cultural Resources
Tim Zachmeier	Wildlife Biologist	Wildlife
Ed Hughes	Supervisory Industry Economist	Economic Factors, Solid Minerals
John Thompson	Planning and Environmental Specialist	Review for NEPA compliance
Henry Eichman	Economist	Environmental Justice, Social and Economics

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**Appendix A**  
Summary of Environmental Impacts

<b>Resource</b>	<b>Proposed Action Alternative</b>	<b>No Action Alternative</b>
Air Quality	Approximately 4.2-4.5 million tons of coal would be mined and processed annually on private, state, and federal coal that has already been leased and the proposed lease tract. The federal tract would add one year of life to the mine. Maintaining the current mining practices it is not expected that operations would exceed air quality standards.	Approximately 4.2-4.6 million tons of coal will be mined and processed annually on private, state, and previously leased federal coal. Maintaining the current mining practices, it is not expected that operations would exceed air quality standards.
Soils	235,362 cubic yards of topsoil and 468,225 cubic yards of subsoil would be removed for mining operations. Reclamation will occur after mining operations in accordance with PSC regulations.	101,476 cubic yards of topsoil and 196,247 cubic yards of subsoil would be removed during adjacent mining operations. Reclamation will occur after mining operations in accordance with PSC regulations.
Water Resources	Surface water quality would be slightly impacted by mining operations. With the use of sediment ponds and other mitigation measures required by PSC it is not expected that water quality standards would be exceeded. The draw-down of groundwater in relationship to mining in the tract and adjacent mining operations would be 55 feet and may reduce water quality.	Surface water quality would be slightly impacted by adjacent mining operations. With the use of sediment ponds and other mitigation measures required by PSC it is not expected that water quality standards would be exceeded. Adjacent mining operations would lower the groundwater table by 50 feet and may reduce water quality.
Vegetation	Vegetation will be removed on the 160 acres during the mining operations. Lands will be reclaimed back to the land use type the surface owner prefers according to PSC standards.	Vegetation will be removed on approximately 69.3 acres during mining operations on adjacent tracts. Lands will be reclaimed back to the land use type the surface owner prefers according to PSC standards.

Fisheries and Wildlife	Ground nesting songbirds and large and small mammals will be temporarily displaced as the mining operation takes place. Mortality of some relatively small, immobile species would occur as a result of the mining operation. On a landscape scale, the mortality and displacement of certain wildlife species would not be significant to the overall populations.	Mining operations on adjacent lands would still occur and could displace a small amount of wildlife. Wildlife habitat within the proposed lease tract has already been greatly altered by some breaking of the native prairie for various agricultural practices. Remaining intact areas of native prairie have been converted and/or degraded by different grazing practices since early European settlement, therefore reducing wildlife value considerably.
Cultural Resources	There would be no environmental impacts with associated disturbance because there are no cultural resources present.	There would be no environmental impacts with associated disturbance because there are no cultural resources present.
Recreation	The disturbance of mine related activities on 69.3 acres would probably displace the majority of all recreational opportunities. The disabled hunting program might be displaced to other areas within the mine that have not been mined or that have been reclaimed.	All of the recreational opportunities would be displaced from the parcel. The disabled hunting program would be displaced to other areas within the mine that have not been mined or that have been reclaimed.
Environmental Justice	If the lease was not approved, no direct or indirect effects on local Environmental Justice populations would occur under the No Action Alternative.	While minority and low-income populations may exist in the area, the alternatives are not expected to have a disproportionately high and adverse human health or environmental effects on these communities.
Economic Factors	If the lease was not approved, no direct or indirect effects on the local economy would occur under the No Action Alternative. The No Action alternative contributes no jobs nor income because there are no activities associated with this alternative. Similarly, no effects to market or non-market values are experienced.	The Proposed Action would add value to BNI and to the community of Oliver County. In total, coal removal and associated payments under the Proposed Action are expected to contribute approximately 343 total jobs and \$20.1 million in labor income spread over the years from 2010 to 2015 in Burleigh, Morton and Oliver Counties.

Climate Change	GHGs would not be produced from the tract being developed. Mining operations on adjacent lands would continue at the same rate and greenhouse emissions would continue to be introduced into the environment.	GHGs would be produced as part of mining operations and in end-user facilities. Emissions would be emitted at the present rate and would continue for an additional year with the leasing of federal coal.
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## Appendix B

Table 1. Area Employment Distribution by Industry Sector, 2006 (Source: IMPLAN, 2006)

Sector	Three-County Impact Area		Oliver County	
	Percent	Absolute (full and part-time jobs)	Percent	Absolute (full and part-time jobs)
Accommodation & Food Services	6.6%	5,070	2.1%	24
Admin, Waste Mngt & Rem Services <sup>2</sup>	3.4%	2,616	2.1%	24
Ag, Forestry, Fishing & Hunting	3.1%	2,412	23.2%	265
Arts, Entertainment, and Recreation	1.9%	1,422	1.3%	15
Construction	5.9%	4,514	2.2%	26
Educational Services	2.1%	1,625	1.3%	15
Finance, Insurance and Real Estate	7.0%	5,373	3.7%	43
Government	15.3%	11,751	11.6%	132
Health & Social Services	15.3%	11,744	1.8%	20
Information	1.8%	1,405	0.0%	0
Manufacturing	4.4%	3,393	1.8%	20
Mgmt of Companies & Wholesale Trade	5.3%	4,097	1.0%	11
Mining	0.3%	249	13.3%	152
Mining Services	0.01%	9	0.0%	0
Retail Trade	12.0%	9,205	15.7%	180
Services	11.1%	8,516	4.8%	54
Transport, Warehousing & Utilities	4.2%	3,242	14.3%	163
<b>TOTAL</b>	<b>100.0%</b>	<b>76,645</b>	<b>100.0%</b>	<b>1,143</b>

<sup>2</sup> Admin, Waste Mngt & Rem Services refers to Administration, Waste Management and Remediation Services

**Table 2.** Area Labor Income Distribution by Industry Sector, 2006 (Source: IMPLAN, 2006)

Sector	Three-County Impact Area		Oliver County	
	Percent	Absolute (millions of dollars)	Percent	Absolute (millions of dollars)
Accommodation & Food Services	2.6%	\$74.3	0.6%	\$0.3
Admin, Waste Mngt & Rem Services	2.0%	\$57.7	0.6%	\$0.3
Ag, Forestry, Fishing & Hunting	1.2%	\$34.0	10.4%	\$5.3
Arts, Entertainment, and Recreation	0.4%	\$10.9	0.3%	\$0.1
Construction	6.3%	\$181.7	1.6%	\$0.8
Educational Services	1.4%	\$39.9	0.1%	\$0.0
Finance, Insurance and Real Estate	6.1%	\$174.4	1.9%	\$1.0
Government	20.2%	\$581.7	9.1%	\$4.7
Health & Social Services	15.4%	\$444.9	0.4%	\$0.2
Information	2.1%	\$59.3	0.0%	\$0.0
Manufacturing	8.4%	\$241.3	1.5%	\$0.8
Mgmt of Companies & Wholesale Trade	8.8%	\$253.9	1.2%	\$0.6
Mining	0.9%	\$24.9	34.5%	\$17.7
Mining Services	0.01%	\$0.4	0.0%	\$0.0
Retail Trade	7.5%	\$215.5	1.9%	\$1.0
Services	9.3%	\$267.0	2.0%	\$1.0
Transport, Warehousing & Utilities	7.6%	\$219.6	34.1%	\$17.5
<b>TOTAL</b>	<b>100.0%</b>	<b>\$2,881.4</b>	<b>100.0%</b>	<b>\$51.4</b>