

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

**Environmental Assessment DOI-BLM-MT-C030-2013-154-EA
August 23, 2013**

Dakota Westmoreland Corporation Coal Lease Modification

NDM 041765

Location: T. 143 N., R. 88 W., 5th P.M
Section 22: S $\frac{1}{2}$
320 acres: Mercer County, ND

Applicant/Address: Dakota Westmoreland Corporation
P.O. 39
Beulah, ND 58523

U.S. Department of the Interior
Bureau of Land Management
North Dakota Field Office
99 23rd Avenue West, Suite A
Dickinson, ND 58601
Phone: 701-227-7700
Fax: 701-227-7701

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





United States Department of the Interior

BUREAU OF LAND MANAGEMENT
North Dakota Field Office
99 23rd Avenue West – Suite A
Dickinson, North Dakota 58601-2619
www.blm.gov/mt



In Reply Refer To:
1600/3100 (MTC030)

June 20, 2013

Dear Reader:

The Bureau of Land Management (BLM) North Dakota Field Office has prepared an environmental assessment (EA) to analyze the environmental impacts resulting from adding 320 acres of federal coal reserves through a lease modification (LM) at the Beulah Mine, an operating surface coal mine.

The EA with an unsigned Finding of No Significant Impact (FONSI) is available for a 30-day public comment period. Written comments must be postmarked by July 20, 2013 to be considered. Comments may be submitted using one of the following methods:

Email: MT_North_DakotaFO_Lease_EA@blm.gov

Mail: North Dakota Field Office
Attn: Shelly Gerhart
99 23rd Avenue West, Suite A
Dickinson, ND 58601-2619

Before including your address, phone number, e-mail address, or other personal identifying information in your comment, you should be aware that your entire comment – including your personal identifying information – will be available for public review. If you wish to withhold personal identifying information from public review or disclosure under the Freedom of Information Act (FOIA), you must clearly state, in the first line of your written comment, “CONFIDENTIALITY REQUESTED.” While you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so. All submissions from organizations, from businesses, and from individuals identifying themselves as representatives of organizations or businesses, will be available for public review.

Upon review and consideration of public comments, the EA will be updated as needed. The Decision Record and FONSI will be finalized and posted for public review on our BLM website. Please refer to the Montana/Dakotas BLM website at www.blm.gov/mt. From this home page,

click on the state of North Dakota, where you will find the webpage for the North Dakota Field Office. This EA can be found on the link titled “NDFO Coal Lease Modification EA” under the heading “In the Spotlight”.

If you have any questions or would like more information about the issuance of the EA, Decision Record and FONSI, please contact me at 701-227-7700.

Sincerely,

A handwritten signature in black ink, appearing to read "Richard A. Rymerson", with a long horizontal flourish extending to the right.

Richard A. Rymerson
Field Manager

**Dakota Westmoreland Corporation Coal Lease Modification
Federal Coal Lease NDM 041765
Environmental Assessment DOI-BLM-MT-C030-2013-154-EA**

CONTENTS

	<u>Page</u>
1.0 INTRODUCTION, PURPOSE AND NEED FOR THE PROPOSED ACTION	1
Introduction.....	1
Purpose and Need for the Proposed Action	5
Conformance with BLM Land Use Plan(s)	5
Relationship to Statutes, Regulations, or other Plans	6
Decision to Modify Federal Coal Lease	7
2.0 DESCRIPTION OF ALTERNATIVES	8
Introduction.....	8
Proposed Action Alternative.....	9
No Action Alternative.....	10
Additional Alternatives that were considered.....	11
3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL IMPACTS	12
Introduction.....	12
General Setting.....	14
Environmental Impacts	15
Air Quality	16
Soils.....	18
Water.....	20
Surface Water.....	20
Groundwater	21
Vegetation.....	22
Fisheries and Wildlife.....	24
Cultural Resources	26
Recreation	27
Wilderness Study Areas.....	28
Economic Factors.....	28
Environmental Justice.....	34
Climate Change.....	35
Cumulative Impacts	38
Topography.....	39
Soils.....	40
Water.....	40
Air Quality and Climate Change.....	40
Economics.....	40
Bakken Formation Oil Development.....	41

4.0 CONSULTATION and COORDINATION	42
Consultation and Coordination	42
Preparers and Contributors	45

5.0 REFERENCES	46
-----------------------------	----

Tables

Table 1 Coal Lease Status within the Beulah Mine Permit Area	8
Table 2 Coal Lease Status outside the Beulah Mine Permit Area.....	8
Table 3 Summary and Comparison of Alternatives.....	11
Table 4 Critical Element Checklist for Resources Potentially Affected by the Proposed Action.....	12
Table 5 Ambient Air Pollutant Concentrations as a Percentage NAAQS.....	17
Table 6 Topsoil/Subsoil Removal and Replacement Volumes for the LM Tract.....	19
Table 7 2010 North Dakota Coal Production.....	31
Table 8 Employment and Labor Income Generated from Federal Coal Removal and County Payments under the Proposed Action Plan.....	34
Table 9 Population by Race and Ethnicity.....	35
Table 10 List of Persons, Agencies, and Organizations Consulted.....	43
Table 11 List of Preparers and Contributors.....	45

Figures

Figure 1 Map of Lease Modification and Beulah Mine Permit Areas.....	3
Figure 2 Aerial Photograph of the Proposed Lease Modification Tract.....	4
Figure 3 Economic Impact Areas.....	29
Figure 4 Population Change for Mercer County and the Four-County Impact Area.....	30

Appendices

Appendix A Summary of Environmental Impacts	
Appendix B Table 12 - Area Employment Distribution by Industrial Sector, 2009	
Table 13 - Area Labor Income Distribution by Industry Sector, 2009	

1.0 INTRODUCTION, PURPOSE AND NEED FOR THE PROPOSED ACTION

INTRODUCTION

This environmental assessment (EA) analyzes the environmental impacts resulting from adding 320 acres of federal coal reserves through a lease modification (LM) at the Beulah Mine, an operating surface coal mine. On January 11, 2011, Dakota Westmoreland Corporation (DWC), operator of the Beulah Mine, filed an application to modify Federal Lease NDM 041765 which was originally issued on July 20, 1961. The subject LM tract, comprising 320 acres, more or less, is described as follows:

T. 143 N., R. 88 W., 5th P.M
Section 22: S¹/₂;
Mercer County, ND

The LM tract is contiguous to lease NDM 041765 that includes the following lands:

T. 143 N., R. 87 W., 5th P.M
Section 20: W¹/₂, S¹/₂SE;
Section 30: NENE;
Oliver County, ND

T. 143 N., R. 88 W., 5th P.M
Section 14: NE, NENW;
Section 10: NENE, S¹/₂NE, NESE;
Section 20: NWNW, S¹/₂NW, N¹/₂SW, NWSE
Section 22: N¹/₂;
Section 24: NENW, N¹/₂SE;
Mercer County, ND

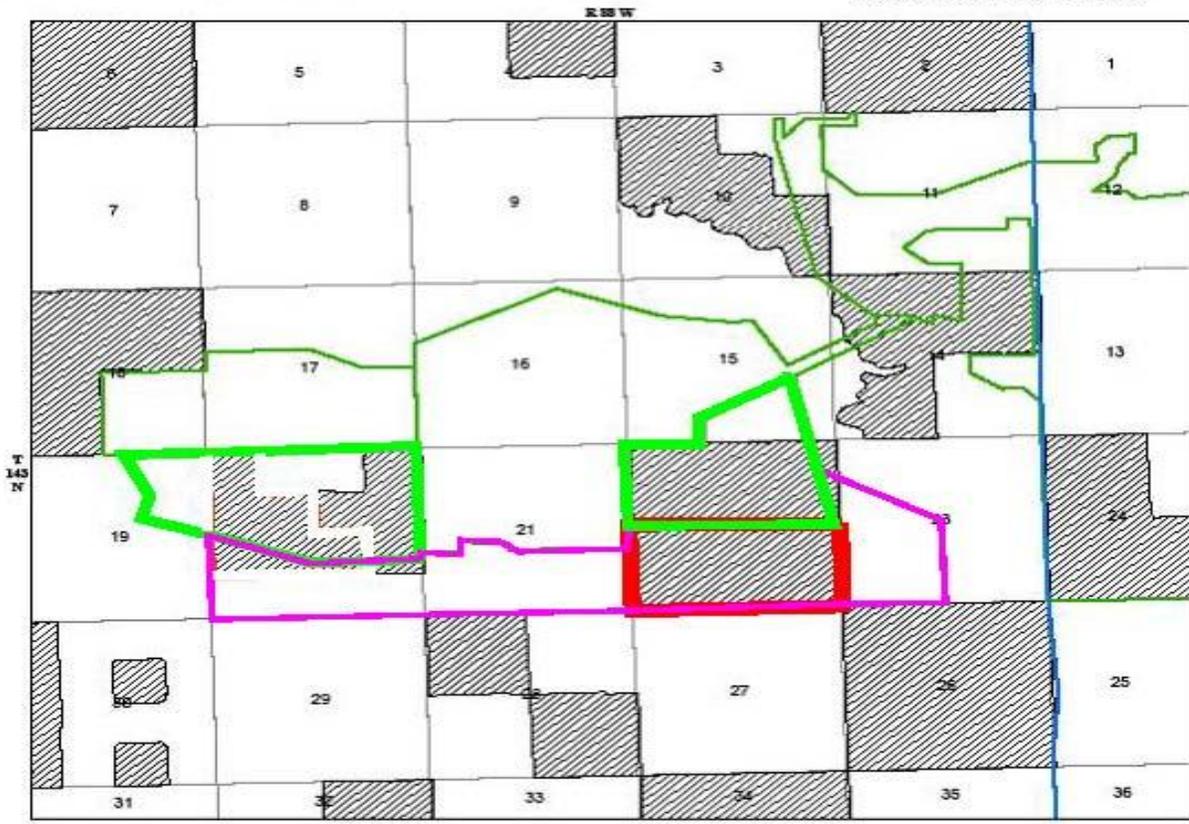
This application has been reviewed by the Bureau of Land Management (BLM), Montana State Office Branch of Solid Minerals. That office determined that the lease application met the regulatory requirements for a lease modification at 43 CFR 3432. Before Federal Lease NDM 041765 is modified, the BLM will prepare an Environmental Assessment (EA) of the impacts from mining the LM tract as part of the existing operation as shown in Figures 1 and 2. If the LM is not approved, the federal coal reserves in the tract will be bypassed by DWC.

This parcel is located adjacent to the boundary of mining permit KRSB-8603, granted by the North Dakota Public Service Commission. The approved Beulah Mine permit includes 2,666.1 acres. DWC also holds the mining permit KRSB-8802, which includes 4,905.1 acres and lies just east of mine permit KRSB-8603. On February 13, 2006, the North Dakota Department of Health, Environmental Health Section, approved the Beulah Mine's current air quality permit. The Beulah Mine currently produces about three million tons of coal per year.

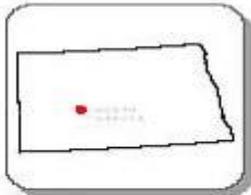
The LM tract is adjacent to the Beulah Mine mining operation that has been evaluated in several previous federal environmental analyses. These documents contain a description of the existing environmental resources in the area. They also analyze the impacts that could occur as a result of surface coal mining. The referenced documents are as follows:

- Environmental Assessment MT-030-94-08, Dakota Westmoreland Corporation Coal Lease Modification NDM 041765, March 2009;
- Permit Application Package KRSB-8603 Revision 21, submitted to the North Dakota Public Service Commission by Dakota Westmoreland Corporation, 2006;
- North Dakota Resource Management Plan and Environmental Impact Statement (Record of Decision, signed April 1988);
- Fort Union Coal Region, Final EIS, 1983;
- Fort Union Coal Region, Draft EIS, July 1982;
- Fort Union Coal Region Schoolhouse Tract Analysis Site Specific Analysis, September 1981; and
- Final West-Central North Dakota Regional Environmental Impact Study on Energy Development (1978).

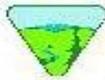
This EA references the above documents and addresses issues that may have changed or that have occurred during the current scoping process.



- Highway 49
 - Coal Lease Modification 41765
 - Current Permit Boundaries
 - Permit Expansion with Leasing
- nd_subsurface_min**
- Coal Only
 - All Minerals
 - Oil and Gas Only
 - Oil, Gas, and Coal Only
 - Other



1:47,787



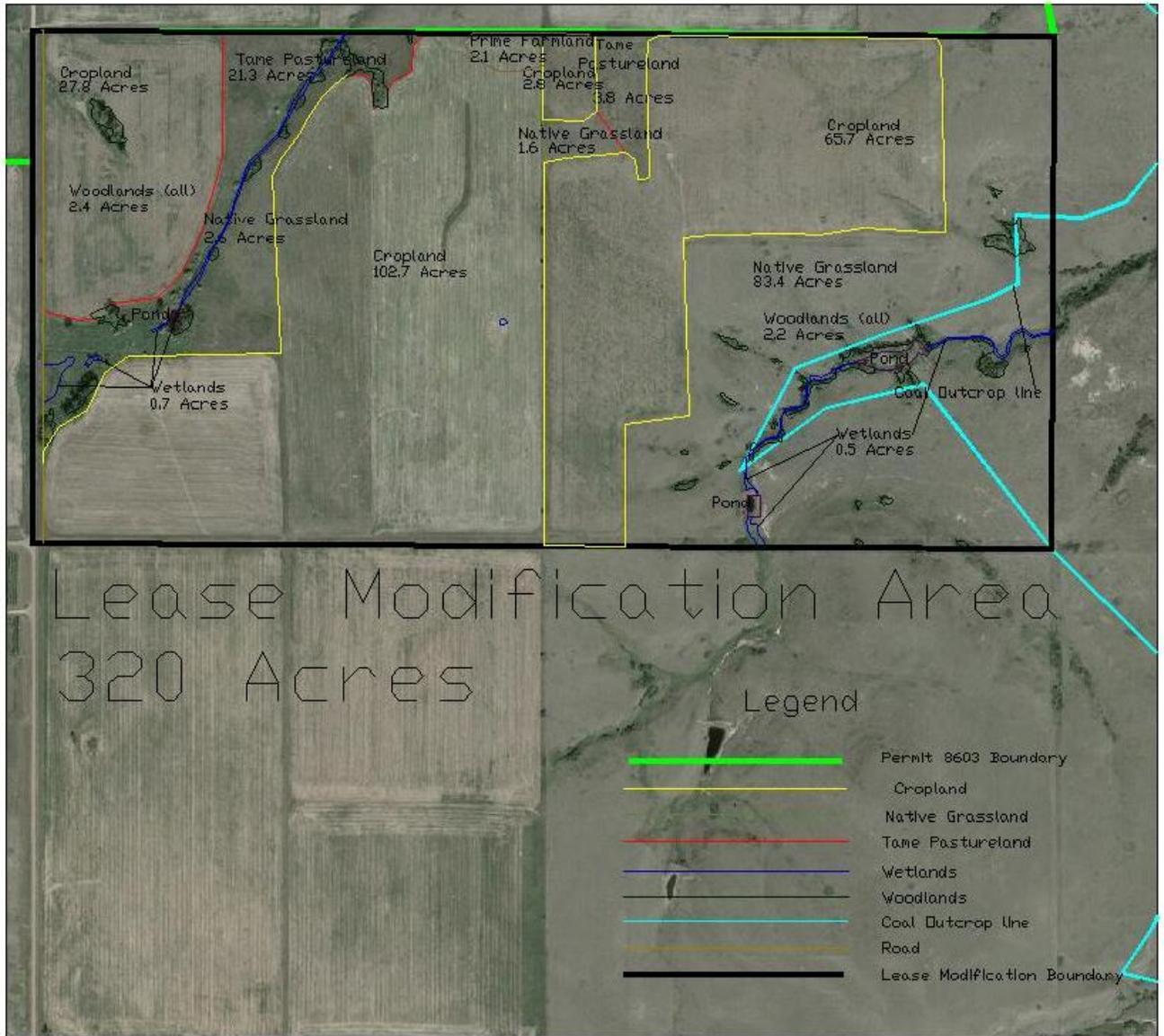
United States Department of the Interior
Bureau of Land Management
Montana/Dakotas State Office
Map created on Mar 10, 2009



CAUTION:
Land ownership data is derived from less accurate data than the 1:24000 scale base map. Therefore, land ownership may not be shown for parcels smaller than 40 acres, and land ownership lines may have plotting errors due to source data.
No warranty is made by the Bureau of Land Management for the use of the data for purposes not intended by the BLM.

Figure 1 - Map of Lease Modification and Beulah Mine Permit Areas

Figure 2 - Aerial Photograph of the Proposed Lease Modification Tract



PURPOSE AND NEED FOR THE PROPOSED ACTION

DWC has applied for the federal coal reserves in the LM tract in order to extend the life of the Beulah Mine. At this time, DWC is proposing to mine approximately 1.67 million tons of the 5.15 million tons of recoverable coal contained in the tract. The reason why DWC only intends to mine a portion of the LM tract's reserves is attributed to changes in one of their existing coal supply contracts that occurred after the lease modification application was accepted by the BLM. This issue will be discussed later in the text. Based upon the projected annual coal production rate of three million tons per year within the current mine permit area, the applicant estimates that the permitted existing recoverable reserves at the Beulah Mine will be depleted within approximately two to three years. Acquisition of the LM tract coal reserves could add approximately two years to the life to the mine.

This EA analyzes the environmental impacts of leasing and mining the federal coal in the LM tract as required by the National Environmental Policy Act (NEPA) and associated rules, regulations, and guidelines. The BLM's decision is whether or not to approve the lease modification. If the lease modification is approved, in order to mine the tract, DWC would need to revise an existing mining permit from the North Dakota Public Service Commission (PSC). Additionally, a modified mining plan approval, recommended by the Office of Surface Mining Reclamation and Enforcement (OSM), will be required from the Assistant Secretary of Mining and Minerals for the federal coal. An analysis of the proposed site-specific mining and reclamation plans will occur at that time. The responsibilities of the BLM and other concerned regulatory agencies are described in the following sections.

CONFORMANCE WITH BLM LAND USE PLAN(S)

The North Dakota Resource Management Plan/EIS (RMP/EIS) identified lands containing federal coal available for further consideration for leasing through the application of four land use planning screens: (a) coal development potential; (b) unsuitability criteria; (c) multiple-use tradeoffs; and (d) surface-owner consultation. The North Dakota RMP/EIS objectively evaluated reasonable alternatives that addressed the impacts of coal mining adequately to determine which lands within the coal study areas are suitable for leasing. The selected alternative in the *North Dakota RMP/EIS* (ROD 1988) identified 573,868 acres of coal suitable for leasing using the coal screens (page 22, ND Final RMP). The Beulah Mine LM tract was considered suitable for leasing with no stipulations identified. The Environmental Consequences chapter of the *North Dakota RMP/EIS* describes the environmental impacts using a generic coal mine scenario and end-user facility (p. 74, Appendix H, Appendix I).

In the Fort Union Coal Region, a site-specific environmental analysis that considered potential coal leasing and development was completed for the Schoolhouse Tract in 1981 (Fort Union Coal Region Schoolhouse Tract Analysis - 1981). The LM tract is located approximately 3.5 miles west of the Schoolhouse Tract boundary. The previous owner of the Beulah Mine, Knife River Corporation, was identified in the tract analysis report as producing 2.2 million tons of coal per year with the expectation that it would increase to 3.1 million tons per year with a 50-year mine life. The Environmental Consequences section of that report evaluated topography, geology and minerals, soils and reclamation potential, vegetation and agricultural production,

hydrology, and air quality. The information in that report will be referenced in this EA since those data are still judged to be appropriate and valid in light of new information and circumstances.

For this EA, wildlife will be analyzed for changes in endangered species listings and the lists of BLM sensitive species will be updated. Cultural resources will also be analyzed in this document with new inventory data for the LM tract. 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. Soils will be analyzed for their reclamation potential. The impacts to the local and regional economy will be analyzed and climate change will also be discussed.

The following documents are readily available to BLM resource specialists, decision-makers, and the public at the BLM North Dakota Field Office located in Dickinson, N.D. Copies of relevant portions of these documents are also available upon request at (701) 227-7700.

RELATIONSHIP TO STATUTES, REGULATIONS, OR OTHER PLANS

The LM application will be processed and evaluated under the following authorities:

- Migratory Bird Treaty Act (MBTA) of 1918;
- Mineral Leasing Act (MLA) of 1920, as amended;
- Multiple-Use Sustained Yield Act of 1960;
- National Historic Preservation Act (NHPA) of 1966, as amended;
- National Environmental Policy Act (NEPA) of 1969;
- Endangered Species Act (ESA) of 1973;
- Federal Coal Leasing Act Amendment (FCLAA) of 1976;
- Federal Land Policy and Management Act (FLPMA) of 1976;
- Surface Mining Control and Reclamation Act (SMCRA) of 1977; and
- Energy Policy and Conservation Act of 2005.

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

The Office of Surface Mining (OSM) was a cooperating agency on this EA. The Surface Mining Control and Reclamation Act of 1977, as amended (SMCRA), provides 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 North Dakota 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 in the state (30 CFR Part 934). Pursuant to this cooperative agreement, a federal coal lease holder must submit a mine permit application package (PAP) to OSM and the PSC for any proposed coal mining and reclamation operation on federal lands within in the state. OSM obtains input from the BLM in regard to the Resource Recovery and Protection Plan. 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 that are unsuitable for mining. The operator must contact the surface owner and request a written preference statement regarding post-mining land use.

If the PAP does comply, the 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 Historic Preservation Act of 1966, as amended (NHPA); the National Environmental Policy Act of 1969, as amended (NEPA); the Endangered Species Act of 1973, as amended (T&E); and other applicable federal laws and their attendant regulations.

Following the review of the PAP, the OSM under the MLA, will recommend to the Assistant Secretary of the Interior, Land and Minerals Management, one of the following; (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 the event of an environmental emergency. The OSM retains oversight responsibility for the state program. The BLM has authority to take action in emergency situations where the PSC or OSM inspectors cannot act before any potential 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.

This LM Proposed Action is consistent with all federal laws and regulations and all known state, and local plans, programs and policies.

DECISION TO MODIFY FEDERAL COAL LEASE

The decision to be made by the BLM is to either modify or not modify federal coal lease NDM 041765 by adding a 320 acre tract of contiguous federal coal reserves to the Beulah Mine. This decision will be based on the analysis of physical, biological, economic, and social factors, and the environmental consequences of both alternatives.

2.0 DESCRIPTION OF ALTERNATIVES

INTRODUCTION

This chapter describes the Proposed Action and an alternative to this action. The Proposed Action is to modify federal coal lease NDM 041765 by adding the 320 acre LM tract to that lease at the Beulah Mine. The Beulah Mine leases are summarized below in the following tables:

Table 1 – Coal Lease Status within the Beulah Mine Permit Area

Acres within Permitted Area (All Leased, Includes Bond Released Areas)						
Permit #	Mineral Lessee	Surface Facilities	Mined Out	Future Mining	Bond Released*	Total
KRSB-8603	USA	97.0	84.4	473.1	0	654.5
	State of ND	278.9	209.6	0	0	488.5
	Private	515.2	843.6	164.3	0	1,523.1
	Total	891.1	1,137.6	637.4	0	2,666.1
KRSB-8802	USA	358.2	142.5	345.1	120.8	845.8
	State of ND	83.9	148.3	2.5	0	234.7
	Private	1,102.1	2,542.0	181.3	533.6	3,825.4
	Total	1,544.2	2,832.8	528.9	654.4	4,905.3

* Bond released acreage values not included in lessee acreage totals.

Table 2 – Coal Lease Status outside the Beulah Mine Permit Area

Acres within Non-Permitted Area						
Permit #	Mineral Lessee	Surface Facilities	Mined Out	Future Mining	Bond Released	Total
KRSB-8603	USA Leased	44	0	436	0	480
	USA Lease Pending	45	0	275	0	320
	USA Not Leased	0	0	480	0	480
	State of ND	82	0	398	0	480
	Private	238	0	1,842	0	2,080
	Total		409	0	3,431	0
KRSB-8802	USA Leased	0	0	280	0	280
	USA Lease Pending	0	0	0	0	0
	USA Not Leased	0	0	0	0	0
	State of ND	0	0	0	0	0
	Private	0	0	1,027.2	0	1,027.2
	Total		0	0	1,307.2	0

Through 2011, there have been 3,970.4 acres that have been mined at the Beulah Mine. Approximately 3,164 of these acres have been reclaimed but are still under bond. Approximately 654.4 acres have been mined, reclaimed, and released from bond.

PROPOSED ACTION ALTERNATIVE

This alternative is to modify federal coal lease NDM 041765 by adding the 320 acre LM tract of contiguous federal coal reserves to the Beulah Mine. The BLM will use this EA to determine whether to approve the federal coal lease modification in accordance with 43 CFR 3432. If the decision is to modify the existing coal lease, the tract would become part of federal coal lease NDM 041765 and mined as a maintenance tract.

DWC is under a coal supply contract with the Coyote Power Station, operated by Otter Tail Power Company. The supply contract expires May 1, 2016 and as a result of recent negotiations between DWC and Otter Tail Power Company, the contract will not be extended. The Coyote Station is located adjacent to the Beulah Mine which annually provides approximately 2.5 million tons of coal to the station.

DWC is also under a coal supply contract with the Heskett Power Station, operated by Montana-Dakota Utilities Company. Approximately 0.5 million tons of coal is shipped annually by rail to the Heskett Station which is located two miles north of Mandan, ND which is approximately 70 miles south of the Beulah Mine.

The LM tract contains an estimated 5.15 million tons of recoverable lignite coal that could be added to existing reserve base at the Beulah Mine. In 2012, the Beulah Mine produced 2.30 million tons of coal and this was 0.67 million tons less than what was produced in 2011. This decrease was attributed to an unexpected outage at the Coyote Power Station. With the proposed addition of the LM coal reserves, annual coal production from the Beulah Mine is projected to remain at approximately 3 million tons per year. As a result of the discontinuation of the coal supply contract with the Coyote Power Station in May 2016, DWC estimates that only 1.67 million tons of federal coal will be produced from the LM tract. However, DWC is actively pursuing extensions to existing coal contracts. Securing a coal contract extension would enable DWC to mine additional coal from the LM tract.

The LM tract consists primarily of cropland (199 acres) and native grassland (88 acres). The remaining acreage consists of tame pastureland, woodland, wetland, roads and ponds. Figure 2, Aerial Photograph of Lease Modification Area, provides the current land utilization on the LM tract. Coal will be removed from approximately 100 acres of the 320 acre LM tract. An additional 35 acres of the LM tract will be disturbed by the mining process.

DWC has sufficient permitted recoverable reserves within its current mining permit, KSRB-8603, to support an additional two to three years of coal production. Addition of the LM coal reserves to the permit area could support an additional 2 years of production. If the federal coal lease NDM 041765 is modified to include the LM tract, and the PSC approves the mine permit revision, coal production from the LM tract is projected to occur in the summer of 2014 and continue through the spring of 2016.

Coal within the LM tract area will be produced primarily from the Beulah-Zap seam, which ranges from 10 to 12 feet in thickness. The Schoolhouse seam, where present and constitutes a mineable thickness and is of suitable quality, is also recovered during mining operations. It overlies the Beulah-Zap seam and the thickness of the interburden between both seams is fairly constant, ranging between 45.5' and 48.8'. DWC has stated that data has indicated the Schoolhouse seam within the LM tract is of marginal quality and is not included in their reserve base. However, they have indicated that additional sampling of the Schoolhouse seam will occur during mining activities. If the quality of the seam meets customer specifications, it will be recovered. For this analysis, the BLM has decided to include the Schoolhouse seam in the reserve base of the LM tract, with the assumption that it can be blended with the higher quality Beulah-Zap seam.

The Schoolhouse seam consists of two coal benches separated by a parting ranging in thickness between 6.2' and 9.8'. The cumulative thickness of the coal benches ranges between 6.0' and 7.9'. In addition, each bench contains partings. Due to the irregular nature in the vertical position of these partings within both benches, and as a result of their variable areal extent, DWC plans on recovering approximately 1.5 feet of coal from each bench (quality dependent) of the Schoolhouse seam, resulting in 3.0 feet of net recoverable coal. The mineable portion of the Beulah-Zap seam constitutes 260 acres of the 320 acre LM tract. On the other 60 acres of the LM tract, the seam will not be mined due to the necessity to layback for mine planning purposes prior to entering the drainage located on the southeast side of the tract. Recoverable coal reserves for the Beulah-Zap seam are 4,316,139 tons for the LM tract.

The mineable portion of the Schoolhouse seam constitutes 160 acres of the 320 acre LM tract. On the other 160 acres of the LM tract, the Schoolhouse seam was not deposited, eroded, or oxidized due to its shallow depth. Recoverable coal reserves for the Schoolhouse seam are 836,160 tons for the LM tract. Total recoverable reserves for the LM tract are 5,152,299 tons.

NO ACTION ALTERNATIVE

The No Action alternative provides a baseline to analyze and compare the impacts to the Proposed Action. In this alternative, the lease modification would not be approved. The federal coal reserves in the LM tract would be bypassed by the Beulah mining operation.

There would be approximately 35 acres of associated surface disturbance on the LM tract for topsoil buffers, roads, and ponds if the Proposed Action does not occur. The LM tract would be bypassed, but mining operations would occur adjacent to the LM tract. By bypassing the federal coal reserves in the LM tract, the opportunity to extend the life of the mine approximately 2 years would be forfeited.

Table 3 shows how the No Action and Proposed Action alternatives affect lease acreage, surface disturbance area, coal reserves, mine life, and production at the Beulah Mine.

Table 3 - Summary and Comparison of Alternatives

	No Action Alternative (LM Tract not Leased)	Proposed Action Alternative (LM Tract Leased)
Acreage Added to Mine Lease	0 acres	320 acres
Beulah Mine Current Leases		
• Federal Coal	2,381.1 acres	2,701.1 acres
• Private Coal	8,989.3 acres	8,989.3 acres
• State Coal	1,203.2 acres	1,203.2 acres
Total Surface Disturbance	8,677.9 acres	8,997.9 acres
Recoverable Coal Reserves Added	None Added	5.15 million tons
Annual Mine Production	3 million tons	3 million tons
Life of Mine Extension	No change	2 years

ADDITIONAL ALTERNATIVES THAT WERE CONSIDERED

Leasing the LM Tract with Special Stipulations Applied to the Lease

This alternative was considered, but due to the lack of potential resource-related and coal recovery issues associated with mining the LM tract, it was eliminated from further review.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL IMPACTS

INTRODUCTION

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

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

Critical elements of the human environment are those elements that are subject to the requirements specified in statute, regulation, or executive order that 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 Proposed Action. Table 4 provides the critical element checklist for resources potentially affected by the Proposed Action.

Table 4 – Critical Element Checklist for Resources Potentially Affected by the Proposed Action

CRITICAL ELEMENTS		
Determination*	Resource	Rationale for Determination
PI	Air Quality	Pollutants would continue to be emitted for an additional 2 years as a result of the Proposed Action. It is not expected that any air quality standards will be exceeded because previous site-specific monitoring demonstrated compliance and the mine operates in compliance with an air quality permit issued by the North Dakota Department of Health.
NP	Areas of Critical Environmental Concern	There are no ACECs within the North Dakota Field Office Planning Area.
PI	Climate Change	Greenhouse gases (GHG) and black soot would continue to be emitted for an additional 2 years as a result of the Proposed Action. It is not expected that the quantity of GHG emissions from mining the LM tract would cause a noticeable change in climate because the annual carbon dioxide equivalent emissions from the mine are approximately 0.00004 percent of total global emissions.
NI	Cultural Resources	Five prehistoric and three historic archeological sites occur on the LM tract. Following their evaluation, a finding of “No Historic Properties Affected” was issued by the BLM regarding the proposed lease modification.

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 and low-income populations.” The Proposed Action is not expected to have a disproportionately high and adverse effect on human health or on social economic impacts of surrounding communities.
NI	Farmland (Prime or Unique)	The LM tract contains approximately 2.1 acres of prime farmland.
NP	Floodplains	The LM tract does not occur within any floodplain.
PI	Invasive, Non-native Species	There could be an increase in noxious weed presence associated with LM tract disturbance.
NP	Native American Religious Concerns	None were identified during the scoping process.
NP	Threatened, Endangered or Candidate Plant or Animal Species	A USFWS letter has concurred with BLM’s finding that no T&E species are present.
NP	Waste (hazardous or solid)	There are no known waste sites on the LM tract.
PI	Water Quality (drinking/groundwater)	Water issues will be analyzed in this EA.
NI	Wetlands/Riparian Zones	The LM tract being reviewed contains riparian zones but most riparian areas will not be mined or disturbed. Approximately 0.15 acres of seasonal or more permanent wetlands will be disturbed. DWC plans to layback prior to entering the drainage located in southeast corner of LM tract.
NP	Wild and Scenic Rivers	There are no federal Wild and Scenic Rivers present within the North Dakota Field Office Planning Area.
NP	Wilderness	There is no designated Wilderness or Wilderness Study Areas present within the North Dakota Field Office Planning Area.

***Possible Determinations:**

NP: Not present in the LM tract area.

NI: Present in the LM tract area, but not affected to the degree that requires detailed analysis.

PI: Present in the LM tract area and may be impacted to some degree. Will be analyzed in the Affected Environment/Environmental Impacts section of the EA. NOTE: PI does not infer impacts are likely to be significant.

The affected environment and environmental effects have been analyzed in depth in DWC’s *Permit Application Package, KRSB-8603*. The following sections will summarize and reference data from the Beulah Mine Permit Application package along with other data available, particularly other environmental documents that were prepared for the Beulah Mine. A copy of the Permit Application package document may be obtained from the North Dakota Public Service Commission.

GENERAL SETTING

The Beulah Mine is located in the glaciated portion of the Missouri Plateau in the Great Plains physiographic province. The topography of the area is characterized by gently rolling to hummocky upland surfaces with occasional prominent buttes rising up to 200 feet above the surrounding land surface. These uplands are dissected by a series of generally northwesterly to southeasterly trending glacial melt-water channels which often contain small, underfit intermittent streams that are tributaries of the Knife River. The Knife River is located approximately two miles north of the Beulah Mine area with a northeasterly flow to its confluence with the Missouri River, about twenty miles northeast of the town of Beulah, ND. The maximum relief in the area is approximately 400 feet (Permit Application Package, Section 2.1).

The LM tract is located in Mercer County, approximately 4 miles south, and 3.5 miles west of Beulah, ND. Communities within 50 miles of the tract include; Beulah, Zap, Hazen, Hanover, Golden Valley, Dodge, Washburn, New Salem, Judson, Halliday, Pick City, Riverdale, Stanton, and Center.

The climate of west-central North Dakota is classified as a semi-arid continental climate. The annual temperature patterns associated with this type of climate are more extreme than most places in the United States. The passage of mid-latitude storm systems is typical of the climate of this area, and the day-to-day weather changes can also be quite extreme because of these migrating systems. Perhaps the most dramatic feature of this area's weather and climate is its variability; extreme values of temperature and precipitation often occur in the region. Mining operations must be protected from a rapidly changing environment, both on a day-to-day, and a season-to-season basis (Permit Application Package, Section 2.11).

Mean monthly high and low temperatures in Mercer County are typical of the extremes associated with a continental climate. January daily minimums are about 1°F with daily maximum near 21 degrees F. July daily low temperatures average 55 degrees with highs near 85 degrees F. A change of 50°F within a 24-hour period can occur with the passage of arctic cold fronts during the winter or with the sudden development of warm, strong westerly winds (called chinooks), which generally occur in late winter or early spring. The length of the growing season also varies dramatically from year to year, but the average length is approximately 120 days for the region (Permit Application Package, Section 2.11).

Precipitation is generally derived from warm, moist air that originates from the south. The mean annual precipitation in Mercer County is 16 inches per year, with the majority occurring from April through June, usually in the form of localized heavy showers and thunderstorms. Winters tend to be relatively dry, with most months having one inch or less of precipitation, usually snowfall. Heavy snowfalls seldom occur in the area, but events exceeding 10 inches have occurred during springtime blizzards (Permit Application Package, Section 2.11).

According to the United States Geological Survey, the mean wind speed and direction for the Bismarck area (the closest weather station) is 10.8 miles per hour from the west-northwest. The highest recorded wind speed was 72 miles per hour, which has been recorded during the months of July and August (USGS, 2006).

Summarizing the Beulah 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 through the Cenozoic eras. The LM tract lies within the southeastern portion of the basin which contains approximately 11,000 to 12,000 feet of sedimentary rocks which have a general regional dip of about one degree to the northwest. Sandstone, shale, siltstone, dolomite, limestone, coal, and evaporates of varying thicknesses comprise the rock column in the Williston Basin (Carlson and Anderson, 1970).

DWC is currently mining two lignite seams at the Beulah Mine, the Beulah-Zap and Schoolhouse seams. The Beulah-Zap seam ranges from 10 to 12 feet in thickness across the mine permit area. The Schoolhouse seam, where present and constitutes a minable thickness and is of suitable quality, may also be recovered. The Schoolhouse seam is located approximately 50 feet above the Beulah-Zap seam.

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 clinker 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 eight miles from the LM tract. No known uranium, bentonite, sand, gravel, or clinker resources exist on the LM tract.

ENVIRONMENTAL IMPACTS

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

Proposed Action Alternative

In this alternative, the lease modification action would be approved and federal coal lease NDM 041765 would be modified to include the LM tract. Approximately 135 of the 320 acres of the LM tract would be disturbed as a result of mining operations. Reclamation would occur after mining has been completed in accordance to the PSC requirements. A discussion of the potential impacts that would occur as a result of implementation of the Proposed Action alternative is described below and in the other relevant documents listed in Chapter 1.

No Action Alternative

In this alternative, the lease modification action would not be approved. As a result, the federal coal reserves would be bypassed by the Beulah mining operation. The opportunity to extend the life of the mine by approximately 2 years would be forfeited because the recovery of federal coal would not occur. There would be approximately 35 acres of associated surface disturbance on the tract because coal would be removed up to the northern boundary of the tract which would require topsoil removal buffers and the construction of roads and ponds on the LM tract. Mining operations would continue adjacent to the LM tract.

AIR QUALITY

The air quality of any region is controlled primarily by the magnitude and distribution of pollutant emissions and the regional climate. Pollutant transport 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 (CAA), its amendments, and supporting regulations. Under CAA regulations, emissions of criteria air pollutants, greenhouse gases (GHGs), and hazardous air pollutants (HAPs) are limited through air quality permitting programs and rules affecting specific types of emission sources.

The U.S. Environmental Protection Agency (EPA) delegated CAA implementation authority to the North Dakota Department of Health, Environmental Health Section, which has the primary responsibility to regulate air quality in North Dakota. The state implements programs to ensure compliance with National Ambient Air Quality Standards (NAAQS) and North Dakota Ambient Air Quality Standards (NDAAQS), and also limits air quality degradation under the Prevention of Significant Deterioration (PSD) Program. North Dakota air quality regulations are located in the Air Pollution Control Rules of the State of North Dakota under Chapter 23-25 of the Century Code. North Dakota air quality regulations can be found at the following website: <http://www.legis.nd.gov/information/acdata/pdf/33-15-02.pdf>.

The PSD program applies to areas that are in compliance with the NAAQS. The Beulah Mine and the surrounding area meet the NAAQS and the PSD program and allow moderate increases in emissions while maintaining compliance with state of North Dakota or federal standards (NDAAQS and NAAQS).

DWC currently holds air pollution control permit O81011 from the North Dakota Department of Health, Environmental Health Section, which expires on May 22, 2016. A copy of this permit may be obtained by contacting the North Dakota Department of Health. The Department of Health monitored the mine for several years after the permit was originally issued using on-site monitoring stations. Due to demonstrated compliance with ambient air quality standards, DWC no longer has on-site air quality monitoring. Consultation with the North Dakota Department of Health determined that there are currently no known violations of air quality at the DWC Beulah Mine.

The nearest ambient air quality monitor is known as the Beulah North monitor (Air Quality System identification number 38-057-0004) and is located approximately 4 miles north of the mine. This monitor is operated by the North Dakota Department of Health. Based on quality-assured data from 2008 through 2010, the monitor indicates compliance with each criteria air pollutant monitored at the site. Based on calculations from data included in the North Dakota Department of Health's *North Dakota Air Quality Data Summary* report (2011), ambient concentrations as a percentage of the NAAQS and NDAAQS are summarized below in Table 5:

Table 5 – Ambient Air Pollutant Concentrations as a Percentage of NAAQS

Pollutant	Averaging Time	Percentage of NAAQS	Basis
O ₃	8 hours	79%	Three-year average of 4 th highest daily maximum 8-hour averages
NO ₂	1 hour	24%	Three-year average of 98 th percentile values
PM ₁₀	24 hour	29%	2 nd highest value in 2010
PM _{2.5}	24 hour	40%	Three-year average of 98 th percentile values
	Annual	42% ¹	Three-year annual average
SO ₂	1 hour	48%	Three-year average of 99 th percentile values

O₃ = ozone

NO₂ = nitrogen dioxide

PM₁₀ = particulate matter with a diameter less than or equal to 10 microns

PM_{2.5} = particulate matter with a diameter less than or equal to 2.5 microns

SO₂ = sulfur dioxide

¹Effective March 18, 2013, the annual PM_{2.5} NAAQS was revised from 15.0 µg/m³ to 12 µg/m³. This percentage reflects a comparison to the 12 µg/m³ standard.

No Action Alternative

If the No Action alternative is implemented, mining operations would continue on lands adjacent to the LM tract and emissions would continue to be produced at their current rate. The Beulah Mine would produce coal from state, private, and other federal leases. Approximately 3 million tons of coal would be mined and processed each year and DWC would continue the same mining practices it currently employs. Air quality standards are not expected to be exceeded if DWC adheres to its current mining practices.

Proposed Action Alternative

Direct and Indirect Impacts of the Proposed Action

DWC operates the Beulah Mine under authority granted by the North Dakota Department of Health, Environmental Health Section, under Air Pollution Control Permit to Operate No. 081011. The LM tract area is covered under the existing permit with coal production of approximately 3 million tons per year. Through the air quality permit, North Dakota Department of Health have set standards that ensure the Proposed Action meets requirements of state and federal air quality regulations. The Department of Health also inspects the facility to ensure compliance with air quality permit provisions.

Approximately 3 million tons of coal would be mined and processed each year at the Beulah Mine and DWC would follow the same mining practices they currently employ. It is not expected that mining operations would exceed air quality standards if current mining practices are maintained. This alternative could extend the life of the mine for approximately 2 years therefore, an additional 2 years of emissions could be introduced to the environment.

SOILS

Using the NRCS Web Soil Survey, the major soil types occurring in the LM tract area are:

- Flaxton fine sandy loam, 0-6% slopes;
- Flaxton-Williams complex, 3-6% slopes; and
- Cabba loam, 15-35% slopes.

The other soil types in the area are:

- Belfield-Daglum silt loams, 2-6% slopes;
- Krem loamy fine sand, 0-6% slopes;
- Arnegard loam, 0-2% slopes; and
- Ringling-Cabba complex, 9-35% slopes.

The Flaxton series consists of deep, well-drained soils occurring on uplands. These soils formed in material weathered from wind or water deposited loamy sediments and occur below glacial till. Permeability is moderately rapid in the upper part and moderately slow in the lower part, with slopes ranging from 1-15%.

The Cabba series consists of shallow, well-drained, moderately permeable soils occurring on residual uplands. These soils formed in material weathered from soft loamy bedrock with slopes ranging from 9-50%.

Belfield series are well-drained soils that are medium textured and moderately fine textured. These soils are degraded solodized – Solonetz soils in the Chestnut soil zone. They developed in stratified, silty and clayey material weathered from shale comprising the Fort Union formation. Permeability is moderately slow in the lower part of the profile.

The Krem series consists of deep, well-drained soils developed on sand-mantled glacial till uplands. These soils formed in material weathered from wind or water deposited sandy sediments and glacial till. Permeability is rapid in the upper part and moderately slow in the lower part, with slopes ranging from 1-15%.

Arnegard series are deep, dark-colored, well-drained Chestnut soils that have a medium-texture to moderately fine textured solum. These soils developed in local alluvium washed in from adjacent fine sandy loams and other loamy soils present in upland areas. They occur on concave slopes in drainage-ways or swales and are also present at the toe of slopes. The slopes range from 0-6%.

The Ringling series consist of very deep, excessively-drained soils that formed in material derived from thermally-altered shale, sandstone, or from argillite and porcellanite (clinker). They are 12 to 20 inches deep and occur over fragmented material. These soils occur on sedimentary plains and hills. Slopes are variable, ranging from 2 to 90%.

DWC has indicated that approximately 2.1 acres of prime farmland exist on the LM tract (see Figure 2). In addition, there are approximately 224 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)). Special reclamation standards apply to soils that have productivity that is defined as prime farmland. 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)). There are no special handling requirements for farmland of statewide importance.

No Action Alternative

If the No Action alternative is implemented, the federal coal reserves in the LM tract would be bypassed. There would be approximately 35 acres of associated surface disturbance on the LM tract for topsoil buffers, roads, and ponds. Mining operations would continue to occur adjacent to the LM tract.

**Proposed Action Alternative
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 the pre-mining soils. Pre-mining soils occur as a soil series and are often combined into units which are distinguished by physical and chemical characteristics, depth, location on the landscape, and other criteria. Prior to mining, the operator is required to map the soils, test them for physical and chemical properties, suitability for growth, and provide a plan for salvage and replacement.

If the Proposed Action is implemented, it is anticipated that coal removal would occur on the LM tract in the summer of 2014 through the spring of 2016. Table 6 indicates the amount of topsoil and subsoil that will be removed and replaced from LM tract between 2014 and 2018:

Table 6 - Topsoil/Subsoil Removal and Replacement Volumes for the LM Tract

Year	Topsoil Removed, yds ³	Subsoil Removed, yds ³	Topsoil Replaced, yds ³	Subsoil Replaced, yds ³
2014	154,073	308,146		
2015	213,162	426,324		
2016	224,657	449,314	154,073	308,146
2017	197,432	394,864	213,162	426,324
2018			224,157	449,314

Mining operations impact soils by potentially changing soil structure, texture, organic content, infiltration, permeability, water-holding capacity, soil plant nutrient levels, soil microbial composition and activity, and soil fertility. Mining exposes lower soil units and overburden material that could contain chemical components at levels which could be harmful to plants and animals. Stockpiling soils for several years before they are 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.

Although 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 mining would provide an adequate layer of productive material to be spread on reclaimed (reshaped) overburden surfaces during reclamation. The PSC's "Rules Governing Reclamation of Surface-Mined Land" (April 2007), requires all soils within the mine permit area to be identified and surveyed, which includes determining the thickness of topsoil and subsoil layers to be retained, prior to removal.

Soil material would either be stockpiled for later redistribution or hauled directly to reshaped overburden that is ready for soil spreading. 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, thus trapping water-eroded sediments before they can move offsite.

Vegetative cover would be restored on re-spread soils as quickly as possible to provide stability 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 reclamation in accordance with performance standards stipulated in the PSC rules. It is expected that the area disturbed from mining the LM tract area will be successfully reclaimed. The reclamation will create soil conditions that are different from pre-mining conditions due to soil mixing and disturbance, but proper reclamation practices will return soils to productivity.

WATER

A detailed study of the water resources in the Beulah Mine area is included in the DWC Permit Application Package KRSB-8603 and summarized below:

Surface Water

The Beulah Mine is located within the Knife River drainage basin, approximately 23 miles south of Lake Sakakawea. The Knife River's headwater is located in west-central North Dakota near Fairfield. The river generally runs east-northeast along its course to the Missouri River. In the Beulah-Zap area, after passing through sedimentation ponds, runoff from the Beulah mining operation enters the Knife River. Discharge of water from areas disturbed by surface mining activities must comply with all applicable state laws and regulations. The North Dakota Public Service Commission requires a monthly average of less than 35 Total Suspended Solids for sedimentation pond discharge. The Knife River has a drainage area of approximately 1,408 square miles just downstream of Brush Creek. In the vicinity of the mine permit area, the river

flows generally northeast across Mercer County, discharging into the Missouri River near Stanton, ND.

Runoff from the Beulah Mine area discharges into five tributaries; a northeast tributary which discharges into Brush Creek, a north and two northwest tributaries, each discharging into the Knife River, and a southwest tributary, which discharges west into Coyote Creek. Brush Creek, located east of the LM tract, flows in a northerly direction. It has a total drainage area of approximately 33 square miles. Coyote Creek, located west of the LM tract, also flows in a northerly direction. Coyote Creek has a drainage area of approximately 65.2 square miles.

The quality of surface water in the area varies considerably with flow. During snowmelt periods, when high flow rates occur, water quality is relatively good. During low flow periods, however, the quality of the surface water deteriorates significantly. Exhibit 2.2.3 (Permit Application Package) contains statistical summaries of water quality analyses taken from both USGS gage stations located on the Knife River, and from the USGS gage stations located on Brush Creek and Coyote Creek. Total dissolved solids (TDS) for the Knife River at Golden Valley range from a high of 1,560 mg/l to a low of 259 mg/l, with a mean of 795 mg/l, from a total of six samples obtained at the station. Total dissolved solids for the Knife River at Hazen, range from a high of 1,890 mg/l to low of 128 mg/l, with a mean of 1,011 from 133 samples. Total dissolved solids for Brush Creek range from 2,540 mg/l to 180 mg/l, with a mean of 1,187 mg/l, from 86 samples. Coyote Creek exhibits similar TDS values, having a range of 2,420 mg/l to 159 mg/l, with a mean of 1,204 mg/l, and a sample size of 51.

Because of the wide seasonal and annual fluctuation in stream flow, the use of water from the streams located near the LM tract which include the Knife River, Brush Creek, and Coyote Creek, are limited (Permit Application Package, Section 2.2).

No alluvial valley floors or floodplains are present in the LM tract area.

Groundwater

Groundwater is analyzed in the Permit Application Package, Section 2.1 and is summarized below.

There are three shallow aquifers that occur within the mine permit area. These aquifers include the Fox Hills/basal Hell Creek aquifer, upper Hell Creek/lower Cannonball-Ludlow aquifer, and the lower Bullion Creek aquifer.

Sandstone units comprising the upper portion of the Fox Hills and basal portion of the Hell Creek formations form an extensive regional aquifer that occurs approximately 1,000 to 1,300 feet below the mine permit area. Total aquifer thickness ranges from 150 to 350 feet with water production averaging approximately 0.3 gallons per minute, per foot.

The fine to medium grained sandstone in the upper portion of the Hell Creek and the lower part of the Cannonball-Ludlow formations also form a regional aquifer. Wells completed within this unit should produce 5 to 100 gallons per minute.

The shallowest aquifer is the Bullion Creek formation aquifer which is restricted to the Knife River drainage basin and adjacent areas to the north and south of the mine permit area. The lower part of the Bullion Creek formation consists of discontinuous sand units with the thickness of the aquifer varying from 0-200 feet. This aquifer produces about 10 gallons per minute.

No Action Alternative

If the No Action alternative is implemented, the federal coal reserves in the LM tract would be bypassed. Water quality may be impacted because mining operations would continue adjacent to the LM tract. However, if DWC continues to follow its current mining practices, it is not expected that water quality standards would be exceeded.

Proposed Action Alternative

Direct and Indirect Impacts of the Proposed Action

Existing ephemeral drainages could be altered during mining of the LM tract, but they would be restored to a stable state following reclamation. Any surface runoff generated from storm-flow would be diverted around the tract 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.

There is an intermittent stream occurring in an unnamed drainage that flows through the southeastern corner of the LM tract. However, this drainage will not be disturbed by mining.

Surface coal mining impacts groundwater quantity in two ways: (1) aquifers are removed and replaced with unconsolidated backfill during reclamation, and (2) groundwater levels in aquifers adjacent to the mine are lowered as a result of seepage and dewatering into the open pit. There are no groundwater aquifers that will be affected by the Proposed Action because all of the aquifers in the LM tract area are deeper than the proposed mining operations.

Disturbance from mining might reduce water quality in shallow groundwater aquifers. If this were to make any existing wells unusable, DWC would provide replacement water from a deeper aquifer. Water quality in replaced overburden would be similarly impacted, reducing its value as a future source of groundwater.

The Proposed Action is not expected to violate any water quality standards.

VEGETATION

Field investigation and the use of aerial photography (see Figure 2) indicate that the proposed 320 acre LM tract consists of approximately 199 acres of cropland, 87.6 acres of native grassland (range), 25.1 acres of tame pastureland, 4.6 acres of woodland, 1.2 acres of wetland, and the remaining 2.5 acres consists of roads and ponds. Land use and vegetation patterns reflect local and regional economic conditions along with climatic, geologic, and soil factors.

No special-status plant species have been found on the LM tract and there are no threatened or endangered plant species in the mine permit area. A complete list of vegetation can be found in the DWC Permit Application Project 2.6 (Permit Application Package KRSB-8603, Section 2.6).

The vegetative survey of the area determined that non-native noxious weeds are known to occur within the mine permit area. These include Absinth wormwood, leafy spurge, field bindweed, and Canada thistle (Permit Application Package KRSB-8603, Section 2.6). However, the BLM weed specialist did not note the presence of any noxious weeds on the LM tract during the field examination, indicating that they are well-controlled.

No Action Alternative

If the No Action alternative is implemented, the federal coal reserves in the LM tract would be bypassed. However, there would be approximately 35 acres of associated surface disturbance on the LM tract for topsoil buffers, roads, and ponds because DWC intends to mine coal up to the northern boundary of the LM tract. Mining operations would continue on lands adjacent to the LM tract and those areas would be used for haul roads, stockpiles, and other mine-related operations that would disturb and remove vegetation which could potentially introduce noxious weeds and other invasive non-native species on the LM tract.

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

Vegetation would be removed during coal mining and by the disturbance related to the construction of haul roads, placement of topsoil and subsoil stockpiles, and other mine-related activities. DWC estimates that it will disturb approximately 135 acres of the LM tract during mining operations. After mining operations have completed, the land will be reclaimed back to the land use type that the landowner prefers. Reclamation is conducted in accordance with the approved mine permit and inspected 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), within the current permit area, DWC 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 grassland, pastureland, hay land, cropland, sediment pond edges, stockpiles, and shelterbelts. Mechanical or chemical treatments will be used on noxious weeds depending on the nature of the problem and other site-related factors. Mechanical treatment will be carried out by a rotary mower prior to the maturation of the weed seed population, as a whole. Herbicide application will be conducted by a certified applicator and will occur during recommended periods for the major target weeds. The annually farmed areas will be treated by either cultivation (tillage) or herbicide application as normally practiced in the region (Permit Application Package KSRB-8603, Section 3.7).

FISHERIES AND WILDLIFE

DWC has conducted wildlife inventory/survey work in the mine permit area since the early 1980s, with bi-annual reports submitted to the North Dakota Game and Fish Department to determine population trend and impact information. Modification to the survey areas have been made to remain current with mine expansion. Several different habitat types are found throughout the survey area which directly influence the species composition and to some degree, population numbers. Cropland and native range comprise the majority of the LM tract area. Range condition appears to be in fair to good condition and no grass clipping or measurements have been recently obtained. Pastureland tends to be dominated by Kentucky bluegrass, smooth brome, and crested wheatgrass.

The influence of heavy, season-long grazing by domestic livestock and the invasion of non-native, undesirable cool season plants have had a direct effect on wildlife usage and overall population totals. Tillage for small grain crops has also influenced wildlife usage within the proposed LM tract area.

Surveys have identified 23 different mammal species occurring within the mine permit area that include 3 game, 9 furbearer, and 11 small mammal species. White-tailed deer are the primary mammalian species occurring within the mine permit area. Observation records indicate the white-tailed deer utilize the tall shrub areas approximately 37 percent, native grass areas 16 percent, and re-vegetated areas (reclaimed) 20 percent of the time. Pronghorn antelope utilize native rangeland approximately 60 percent of the time and small mammalian usage is the highest in un-grazed shelterbelt areas.

Avian surveys indicate approximately 98 species of birds are located within the mine permit area, compared to 264 different species for Mercer County. Un-grazed shelterbelts have the highest species diversity followed by woody draws. Avian diversity is lacking in the native grasslands, most likely due to the lack of residual cover, grass species composition, as well as structural height concerns. The structural height concerns are shortened grass height attributed to cattle grazing.

Surveys resulted in 12 different raptor species being identified, including Swainson's hawk, American kestrel, marsh hawk, and burrowing owl. Sharp-tailed grouse are also present within the mine permit area. An active lek is located approximately 0.5 miles north/northwest of the LM tract.

Approximately 0.15 acres of the overall 2.1 acres of seasonal or more permanent wetlands on the LM tract will be disturbed by mining.

Detailed lists of wildlife observed in and around the proposed LM tract can be found in the Dakota Westmoreland Permit Application Package in Section 2.5, Wildlife Inventory Plan.

The BLM consulted with the U.S. Fish and Wildlife Service (FWS) regarding threatened and endangered (T&E) species on October 25, 2011. The FWS responded on December 29, 2011, concurring with the BLM that the LM tract area was absent of any non-migratory T&E species

and, therefore, would not have any effect on non-migratory species. However, the FWS did determine the development of the LM tract “may affect, not likely to adversely affect” the migratory population of the whooping crane. The Aransas Wood Buffalo Population (AWBP) of endangered whooping cranes is the only self-sustaining migratory population of whooping cranes in the wild. Whooping cranes in the AWBP annually migrate through North Dakota during their spring and fall migrations. They make numerous stops along their migration route to feed and roost before moving on. The proposed LM tract is located in the primary whooping crane migration corridor where most confirmed whooping crane sightings have previously occurred. There is suitable roosting and feeding habitat for whooping cranes in the LM tract area.

The FWS concurs that impacts could be effectively minimized by temporarily stopping mining activities on the LM tract if a whooping crane is sited within the tract area. Also, DWC has proposed not to mine approximately 45 acres along the eastern boundary of the 320 acre tract where an unnamed drainage contains an intermittent stream (see Figure 2). This mitigation measure would adequately address potential impacts to the Aransas Wood Buffalo Population of whooping cranes.

No Action Alternative

If the No Action alternative is implemented, the federal coal reserves in the LM tract would be bypassed. There would be approximately 35 acres of associated surface disturbance on the tract because coal would be removed up to the northern boundary of the tract which would require topsoil removal buffers and the construction of roads and ponds on the LM tract. Mining operations would continue on lands adjacent to the LM tract. Adjacent habitat would be removed at a rate of approximately 160 to 170 acres per year. Wildlife habitat on the LM tract has already been altered to varying degrees by tillage for small grain farming and haying. Intact areas of native prairie have been converted and/or degraded by different grazing practices since early the European settlement, thereby reducing wildlife value considerably.

Proposed Action

Direct and Indirect Impacts of the Proposed Action

If coal mining occurs on the LM tract, approximately 135 acres of habitat will be removed at a rate of about 77 acres per year. Ground nesting songbirds and large and small mammals will be temporarily displaced as the mining operation progresses onto the LM tract. 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 population levels. Reclamation of the LM tract with native grasses would replace some of the altered habitat. Reclamation is conducted in accordance with the approved mine permit and inspected by the PSC. Mitigation measures suggested by the FWS and DWC will minimize any concerns for the migrating population of whooping cranes utilizing the area.

CULTURAL RESOURCES

Cultural resources are defined as the physical remains of past human activity, generally inclusive of all manifestations more than 50 years old. Cultural resources can be classified as artifacts, features, sites, districts, or landscapes. The goal of cultural resource management is conservation of archaeological and historical remains and to provide information for research, public interpretation and enjoyment, and for appreciation by future generations. Prehistoric resources are physical locations with remains that are the result of human activities occurring prior to written records. Historic period resources are remains left by human activity after written records were common. These resources are most commonly recorded as sites, clusters of artifacts, and/or features with definable boundaries (Williams 2008). Known cultural resources will be protected pursuant to 36 CFR 60, the National Historic Preservation Act (1996, as amended)(NHPA), 36 CFR 800, Protection of Historic Properties [section 106, (1966, as amended)], 16 U.S.C. 47aa-47mm, the Archaeological Resources Protection Act (1970, as amended), and 25 U.S.C. 3001, and the Native American Graves and Repatriation Act (1990).

This current lease modification and mine expansion is included in the “Dakota Westmoreland Corporation West Beulah Mine Expansion: 2012 Evaluative Testing of Five Archeological Sites” in Mercer County, North Dakota. This report consists of Phase II evaluative testing by the Department of Anthropology, University of North Dakota (UND) of five prehistoric cultural sites (32ME2260, 32ME2261, 32ME2262, 32ME2263, and 32ME2265) to determine their eligibility for the National Register of Historic Places (NRHP). Three historic sites (32ME2266, 32ME2424, and 32ME2276), were also evaluated, but not tested, to determine their eligibility for the NRHP. Seven of the eight sites mentioned above were originally discovered during the “Dakota Westmoreland Corporation West Beulah Mine Expansion: 2007 Class III Cultural Resources Inventory” conducted by UND for a previous proposed coal mine expansion (Jackson et al. 2008). Historic site (32ME2424) was discovered and evaluated during the 2012 testing work described in this report. As a result of mining the LM tract, all eight sites would be completely destroyed during the mining process.

According to standard practice, the site evaluation process conducted by UND followed the basic tenants applied to prehistoric archeological sites in assessing their eligibility for the National Register of Historic Places (NRHP). Under Criterion D, a prehistoric archeological site is considered significant and NRHP-eligible if it can be demonstrated to potentially possess important information. UND researchers determined that the five prehistoric sites were evaluated as not archeologically significant due to a lack of important research potential, as well as the loss of physical contextual integrity as a result of cultivation at four of the five sites. The BLM archeologist agrees with the methods and results of their testing, as well as their finding of “No Historic properties Affected” by the proposed surface mining project. No further archeological work or other management considerations are recommended for sites 32ME2260, 32ME2261, 32ME2262, 32ME2263, or 32ME2265.

The three historic sites (32ME2266, 32ME2424, and 32ME2276), include an abandoned farmyard or rural residence with standing structures recorded as architectural site 32ME2276, and a homestead site recorded as archeological site 32ME2266. These two sites were evaluated as not significant and not NRHP-eligible based on the 2007 survey data, and the North Dakota

State Historic Preservation Office (NDSHPO) have concurred with these evaluations during consultations conducted after the 2007 Class III Survey. The third historic site, another homestead site recorded as site 32ME2424, was discovered and recorded during the course of the present project. UND has evaluated it as not significant and not eligible for the NRHP under any of the four criteria for inclusion, based on the condition of the site and artifacts present. The BLM archeologist agrees with the evaluation presented in the report of the three historic sites, as well as their finding of “No Historic properties Affected” by the proposed project. No further archeological work or other management considerations are recommended for the sites 32ME2266, 32ME2424, and 32ME2276.

The BLM considers a finding of no significant impact and no significant sites affected by the proposed mine expansion. The NDSHPO was consulted (a copy of the “Dakota Westmoreland Corporation West Beulah Mine Expansion: 2012 Evaluative Testing of Five Archeological Sites” report with a formal cover letter was sent on January 23, 2013) to meet obligations under NHPA and regulations, found at 36CFR800, and they agreed with our findings (NDSHPO response letter dated January 20, 2013).

No Action Alternative

If the No Action alternative is implemented, the federal coal reserves in the LM tract would be bypassed. There would be approximately 35 acres of associated surface disturbance on the tract because coal would be removed up to the northern boundary of the tract which would require topsoil removal buffers and the construction of roads and ponds on the LM tract. There will be no impacts to cultural resources eligible for the National Register of Historic Places (NRHP). Mining operations would continue on lands adjacent to the LM tract.

Proposed Action Alternative

Direct and Indirect Impacts of the Proposed Action

There will be no impacts to cultural resources eligible for the National Register of Historic Places (NRHP). The BLM consulted with the NDSHPO on this proposed lease modification and it concurred that the Proposed Action would not affect cultural resources eligible for the NRHP.

RECREATION

Recreation opportunities within the LM tract are limited. The major recreational use of this area is for hunting purposes and permission must be obtained from DWC, who is the landowner.

No Action Alternative

If the No Action alternative is implemented, there would be approximately 35 acres of associated surface disturbance on the tract because coal would be removed up to the northern boundary of the tract which would require topsoil removal buffers and the construction of roads and ponds on the LM tract. Existing recreational uses would continue in their current limited capacity on the undisturbed portion of the LM tract.

Proposed Action Alternative

Direct and Indirect Impacts of the Proposed Action

All of the recreational opportunities would be displaced from the LM tract during mining. Following reclamation, the area would be returned to its original state and recreational opportunities would be returned to their original capacity.

WILDERNESS STUDY AREAS

There are no wilderness areas or wilderness study areas associated with the LM tract.

ECONOMIC FACTORS

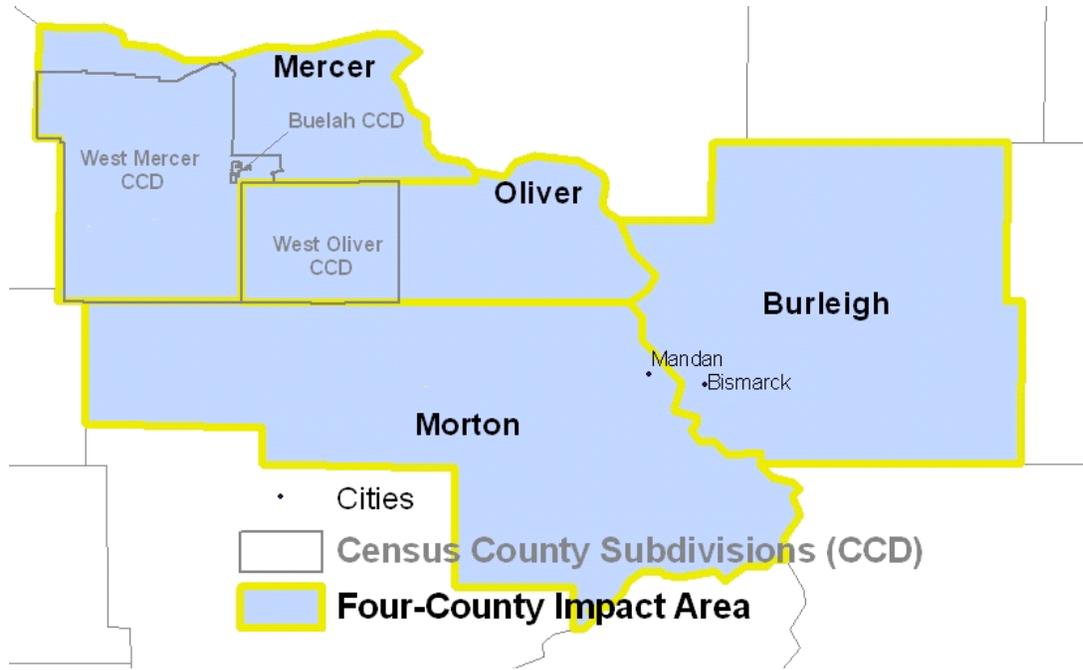
Introduction

The proposed mining of coal from the DWC LM tract has the potential to affect local social and economic conditions. Certain defining features of every area influence and shape the nature of local economic and social 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 Mercer and the surrounding counties influence the relationship between BLM mineral estate and local social and economic activity.

Impact Area

In order to accurately portray this relationship to current BLM land management policy, the social and economic geographic scope of analysis must be defined. The economic effects from coal mining feasibly extend beyond the immediate vicinity of the mine. Therefore, the effects of the DWC lease modification within a larger geographic region must be examined. In this manner, the area social and economic characteristics and effects of the lease modification on the social and economic environment are dependent on the extent of the area being examined. The economic information in this EA is presented at two geographic scales, based on available data: the larger county area and the smaller census county subdivision (CCD) area (Figure 3). Impacts and characteristics of Burleigh, Morton, Mercer and Oliver counties are presented alongside impacts and characteristics of just Mercer County, given economic linkages between the counties. Environmental Justice is also examined at both the county and at the CCD levels.

Figure 3 - Economic Impact Areas



Affected Environment

Population Change

Population change in Mercer County between 1970 and 2009 increased by 1,703 people, a 28 percent increase, and increased in the four-county impact area by 46,158 people, a 66 percent increase. While growth in the four-county impact area over this period outpaced the state (5 percent) and the nation (51 percent), growth in Mercer County was slower than the nation but faster than the state (Figure 4). Mercer County has experienced a 36 percent decrease in its population since 1984, falling from 12,290 to 7,873 people.

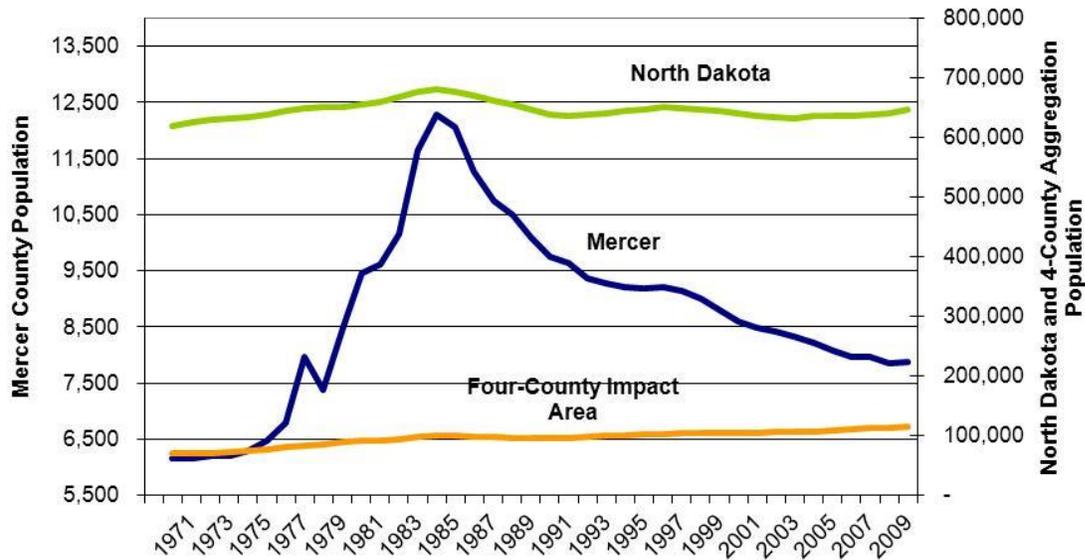


Figure 4 - Population Change for Mercer County and the Four-County Impact Area (Source: US Department of Commerce, 2011)

Employment and Income

In 2009, employment within Mercer County made up 7 percent of total employment in the larger four-county impact area. Employment within both Mercer County and the larger four-county impact area is distributed amongst industry sectors and displayed below in Appendix B, Table 12. While the government (17 percent) and health and social services (15 percent) were the largest components of employment in the four-county impact area in 2009, the utilities (17 percent) and the construction (17 percent) sectors were the largest in Mercer County (IMPLAN, 2009). 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 (Mercer County), to an average percent of employment in that industry, for a larger reference area (the four-county impact area). For a given industry, when the percent employment in the analysis region is greater than in the reference area, local employment specialization exists in that industry (USDA Forest Service, 1998). Using this criterion, and applying the 2009 data, Mercer County can be characterized as specialized with respect to several industries (Appendix B, Table 12). In order of their degree of specialization (most to least specialized), these industries are: utilities, mining, construction, and agriculture, forestry, fishing and hunting (IMPLAN, 2009).

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 2009, labor earnings were the largest sources of income accounting for 72 percent of all income within Mercer County and 68 percent in the four-county impact area. Non-labor sources of income, such as (2) investment income and (3) transfer payments, accounted for 28 and 32 percent, respectively in both Mercer County and the four-county impact area. While the government (20 percent), and health and social services (16 percent), were the largest sources of labor income in

2009, within the four-county impact area, the utilities (34 percent), construction (21), and the mining (16 percent) sectors, were the largest sectors in Mercer County (IMPLAN, 2009). Utilizing the same criterion used above to examine employment specialization, Mercer County can be characterized as specialized with respect to labor income in the utilities, construction, mining, and agriculture, forestry, fishing and hunting sectors (Appendix B, Table 13).

Mining

In 2010, North Dakota was the ninth largest coal producer in the nation (EIA, 2011). Coal-fired power plants provide nearly all of North Dakota’s electricity generation and North Dakota brings in only a small amount of coal from other states (EIA, 2009). Sixty percent of the state’s coal production originated from Mercer County in 2010, which amounted to 0.2 percent of national production (Table 7). While coal mining is important to the North Dakota’s economy, federal coal production has only accounted for less than nine percent of the total state production over the last decade. Annual coal removal from the Beulah Mine has averaged 3 million tons and was 10.4 percent of the state’s total production in 2010. This included mining from federal, state, and private mineral estate.

Table 7 – 2010 North Dakota Coal Production

State and County	Number of Mines	Production (Thousand Short Tons)
North Dakota	4	28,949
McLean	1	7,571
Mercer	2	17,490
Oliver	1	3,888
U.S. Total	1,285	1,084,368

Source: Energy Information Administration (EIA), 2011

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 state (Table 7), data on mining employment and labor income are not available from the U.S. Department of Commerce at a county level¹, however, estimates are available from the Economic Profile System (EPS-HDT, 2012). From 1998 to 2009, estimated mining employment as a share of total employment went from 32.5 to 33.4 percent in Mercer County, while decreasing in the larger four-county impact area, from 3.24 percent to 2.72 percent (EPS, 2009). In 2010, the average annual mining wage in the state was \$82,501, which was more than twice the average wage of all private and public sectors (\$39,332) in the state (US Department of Commerce, 2011b). Data for 2009, presented in Appendix B, show that mining made up 1.3 and 9.7 percent of employment and 2.7 and 15.7 percent of labor income in the four-county impact area and Mercer County, respectively

¹ Information has been suppressed by the U.S. Department of Commerce to avoid disclosure of confidential information relating to firms in the area.

(IMPLAN, 2009). Despite the relatively few mining operations in the area, these data indicate Mercer County can be considered specialized with respect to the mining industry.

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 coal-related revenues (bonus payments and royalties) received by the BLM are distributed back to the counties in the mine area. Fifty percent of the fees received by the BLM for leasing and 25 percent of federal royalties from sales of coal are returned to counties where the mining activities occur (1920 Mineral Lands Leasing Act, 41 Stat. 437; North Dakota Century code, 15.1-27-25). Since 2001, federal royalties from the sale of coal in the state have decreased by 53 percent from \$1,541,275 to \$728,153 in 2011 (DOI, 2012).

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 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 2009 IMPLAN data which was determined to be the economic impact area for this EA, and would include a multi-regional analysis of Mercer County and the larger four-county area that encompasses, Burleigh, Mercer, 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 LM tract at the Beulah 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 impact to the local economy (Table 8), and are estimated using IMPLAN. Potential limitations to 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 modification is 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 federal coal removal under this alternative.

Proposed Action Alternative

Direct and Indirect Impacts of the Proposed Action

Economic Impact Analysis

Table 8 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 the BLM mineral estate will occur over a two-year period, the estimated impact of jobs and labor income would be spread out over the period from 2014 to 2016. 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. Within Mercer County, the Proposed Action could contribute 288 direct part and full-time jobs associated with coal removal in addition to 112 indirect and induced, part and full time jobs (for a total of and 400 part and full time jobs), spread over two years. Payments to Mercer County from federal royalty disbursements and coal severance taxes could contribute roughly 38 direct, and 3 indirect and induced (for a total of 41), part and full-time jobs, spread over two years in Mercer County.

In total, coal removal from the BLM mineral estate and associated payments under the Proposed Action are expected to contribute approximately 325 direct and 440 total, part and full-time jobs and \$35 million of total labor income in Mercer County, spread over two years. As we increase the size of the impact area to include Burleigh, Morton and Oliver counties in addition to Mercer County, employment and labor income impacts also increase to 442 total jobs and \$35.2 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 8 - Employment and Labor Income Generated from Federal Coal Removal and County Payments under the Proposed Action (IMPLAN, 2009)

	Employment (# Full and Part-Time Jobs)			Labor Income (2012 \$)		
	Total	Direct	Indirect & Induced	Total	Direct	Indirect & Induced
Mercer County Impact Area						
Minerals	399.2	287.7	111.5	\$33,596,915	\$29,260,144	\$4,336,771
Payments to Counties	40.7	37.6	3.1	\$1,486,204	\$1,387,969	\$98,235
Mercer County Total	439.9	325.3	114.6	\$35,083,119	\$30,648,113	\$4,435,006
Four-county Impact Area						
Minerals	401.5	287.7	113.8	\$33,692,825	\$29,260,144	\$4,432,681
Payments to Counties	40.7	37.6	3.1	\$1,486,709	\$1,387,969	\$98,740
Four-county Total	442.2	325.3	116.9	\$35,179,534	\$30,648,113	\$4,531,421

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 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 four-county impact area, and the CCDs surrounding the Beulah Mine (Figure 3), are of interest. The share of 2010 population by race and ethnicity are displayed in Table 9 below². In the year 2010, the share of population described as white was greater in the counties and in the CCDs of the impact area, than in the state. In Mercer County, the share those identifying alone as Black or African American, Asian, native Hawaiian and other Pacific Islander, and those identified with two or more races, or Hispanic, were greater than the four-county area, in 2010. West Oliver CCD contained a population identified as Hispanic that was greater than both Mercer County and the four-county impact area. Beulah City CCD contained a share of those identified as American Indian that was greater than the state, Mercer County, and the four-county impact area (Department of Commerce, 2011c). While the difference in percentage between the different geographies is sometimes small, and may not be considered “meaningful” as defined by the CEQ, larger concentrations of these groups likely exist at smaller scales within each CCD. Thus, it is safe to

² Race and ethnicity shares do not add to 100 percent because Hispanics can be of any race.

say that populations in the impact area can likely be defined according to the CEQ’s definition of minority populations.

Table 9 - Population by Race and Ethnicity

	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)
North Dakota	90.5%	1.1%	5.3%	0.9%	0.1%	0.6%	1.6%	2.0%
Four County Area	95.8%	0.0%	4.2%	0.0%	0.0%	0.0%	0.0%	0.1%
Mercer County	95.4%	0.7%	3.0%	0.5%	0.0%	0.0%	0.5%	0.3%
Beulah City CCD	93.9%	0.0%	6.1%	0.0%	0.0%	0.0%	0.0%	0.0%
West Mercer CCD	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
West Oliver CCD	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%

Source: US Department of Commerce, 2011c

In addition to race, the concentration of people living under the poverty level is of interest during 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 2010, the percentage of the population living below poverty in West Mercer CCD (9.6 percent) was greater than share in Mercer County and the four-county impact area (6.2 percent and 6.5 percent). The percentage of those living below poverty in West Oliver CCD was also greater than percentage in the four-county impact area (6.5 percent) (US Department of Commerce, 2011c). Thus, the census data indicates that low income populations, as defined by CEQ, likely exist within the impact area.

While minority and low-income populations may exist in the area, the Proposed Action is 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 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.

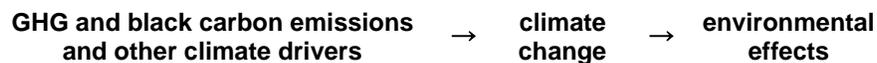
CLIMATE CHANGE

The term “climate change” refers to a “significant and persistent change in the mean state of the climate, or its variability. Climate change occurs in response to changes in some aspect of Earth’s environment: these include regular changes in Earth’s orbit about the sun, re-arrangement of continents through plate tectonic motion, or anthropogenic modification of the atmosphere” (U.S. Global Climate Change Research Program [USGCRP] 2009). 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 (CO₂e) concentrations to increase dramatically and contribute to 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.”

Climatic changes, while impacts in and of themselves, can affect other aspects of the environment including desert distribution, sea level, species distribution, species survivability, ocean salinity, availability of fresh water, and disease vectors. These effects can vary from region to region over time. Some agricultural regions may become more arid while others become wetter; some mountainous areas may experience greater summer precipitation, yet their snowpack disappears.

Thus, the causes and effects of climate change can be depicted by the following chain of events:



GHGs include carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), water vapor, and several other gases. When released into the atmosphere, GHGs impede the escape of reflected solar radiation and heat from the Earth’s surface back into space. The accumulation of GHGs in the atmosphere exerts a “greenhouse effect” on the earth’s temperature. GHG emissions can be anthropogenic (human-made) or naturally occurring (e.g., volcanic activity). Black carbon also contributes to global warming by reducing albedo and absorbing heat, which can contribute to radiative heating. Soot can also heat the air around it. In addition to GHG and black carbon emissions, other contributors to global warming include aerosols, changes in land use, and variations in cloud cover and solar radiation that affect the absorption, scattering, and emissions of radiation within the atmosphere and at the Earth’s surface. Though the average global temperature has increased almost 2°F over the past century, temperatures have not changed evenly from region to region. Because temperature is a part of climate, the phenomenon of global warming is both an element of, and a driving force behind climate change (IPCC 2007).

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 2008a). Although the effects of GHG emissions and other contributions to climate change in the global aggregate can be estimated, it is currently impossible to determine what effect a small localized change in GHG emissions resulting from a specific activity might have on climate change and any resulting environmental effects. It is therefore, not currently possible to associate any particular action with the creation or mitigation of any specific climate-related environmental effects. However, it is known that certain actions may contribute to the phenomenon (and therefore the effects of) climate change, even though specific climate-related environmental effects cannot be directly attributed to them.

Diesel-powered machinery and vehicles are the largest sources of GHG and black carbon emissions at the Beulah Mine. Other fuels, such as gasoline, natural gas, and coal are not combusted at the facility. During 2011, facility operations consumed approximately 1,761,000 gallons of diesel, which is considered to be the representative annual consumption rate for the life of the mine. Based on EPA emission factors, CO₂ emissions are estimated to be 10.15 kilograms per gallon of diesel combusted, which totals approximately 19,706 short tons of CO₂ (EPA 2008b). Estimated emissions of methane and nitrous oxide emissions are negligible at 1.6 short tons of CO₂e. Methane liberation from surface coal mines is low since outgassing from coal seams near the surface has already occurred. Methane is not vented from the Beulah Mine. EPA requires certain types of stationary sources to obtain permits if GHG emissions are 25,000 short tons per year or more. GHG emissions from the mine would be less than this threshold.

Black carbon is also emitted by sources at the mine. Black carbon, a component of soot, is a byproduct of incomplete combustion and stays in the atmosphere for days or weeks. Black carbon can also contribute to visibility impairment over the short term. Because black carbon has a short lifetime, warming effects are generally limited to regional impacts (Jacobson testimony 2007). There is a strong possibility that black carbon is the second leading cause of global warming after CO₂ and that reducing black carbon is the fastest way to reducing global warming (Jacobson testimony 2007).

Black carbon from diesel fuel combustion can be controlled. Diesel particulate filters (DPFs) are a proven, off-the-shelf technology that can reduce black carbon emissions by 90 percent or more (Clean Air Task Force 2009). However, the addition of a trap can decrease mileage and slightly increase CO₂ emissions (Jacobson testimony 2007). Black carbon can be estimated from diesel fuel consumption. Based on an emission rate of 1.2 grams of black carbon per gallon of diesel fuel (Clean Air Task Force 2009), black carbon emissions from the DWC facility are estimated to be 2.3 short tons per year.

The United States emits approximately 6.1 percent of the globally-emitted fossil fuel and biofuel from black carbon. Primary U.S. sources of black carbon are non-road vehicles, on-road vehicles, stationary source stack emissions, and fugitive sources. Black carbon emissions from the Beulah Mine comprise a very small portion of total U.S. sources.

No Action Alternative

If the No Action alternative is implemented, mining operations would continue on lands adjacent to the LM tract and GHG and black carbon emissions would continue to be produced at their current rate. The Beulah Mine would produce coal from other state, private, and federal leases. Approximately 3 million tons of coal would be mined and processed each year and DWC would continue the same mining practices it currently employs. GHG and black carbon emissions would continue to contribute to climate change. Black carbon settles out of the atmosphere quickly so the effects of these carbon emissions would be short-lived. However, CO₂, which is the primary GHG being released, would remain in the atmosphere for approximately 50–200 years (EPA 2010). CO₂'s lifetime varies because it is not destroyed in the atmosphere; instead, CO₂ moves between the ocean, the atmosphere, and land and plants. Some CO₂ is absorbed out of the atmosphere quickly, but some remains in the atmosphere for many years.

Proposed Action Alternative

Direct and Indirect Impacts of the Proposed Action

Direct impacts of the Proposed Action would include GHG and black carbon emissions similar to those that would be produced under the No Action alternative, with emission sources located on existing federal, state, and private leases. Indirect impacts include GHG emissions from coal combustion at the nearby Coyote Power Station and the Heskett Power Station, located just north of Mandan, ND. GHG emissions would be similar to emissions currently produced by the power stations.

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 actions. In this case, the immediate decision is whether to modify federal coal lease NDM 041765 by adding a 320 acre tract of contiguous federal coal reserves at the Beulah Mine. The additional reserves added to the lease will extend the life of the mine approximately two years. DWC does not plan to increase production at the mine as a result of the lease modification. The future of the Beulah Mine is dependent upon the outcome of the renegotiation of a coal supply contract with an existing customer.

The cumulative impacts related to coal mining would be the impacts from the Beulah mining operation combined with the impacts from the two other active surface coal mining operations in the area; the Center and Freedom mines. Production at both of these mines is expected to remain at current levels into the future. Within the last year, two applications to lease additional federal coal reserves were submitted to the BLM from BNI Coal Ltd., owners of the Center Mine. The additional reserves are needed to extend the life of the mine at the current production rate. With the anticipation that the future production rates at the three area coal mines will remain constant, future cumulative impacts to the environment from these operations should be similar to what is occurring today.

DWC has sufficient permitted recoverable reserves within its current mining permit, KSRB-8603, to support an additional two to three years of coal production. Addition of the LM coal reserves to the permit area could support a minimum of two years of production. If the proposed lease modification action is approved, DWC intends to start mining the LM tract in the summer of 2014 through the spring of 2016. At this time, DWC only intends to recover approximately 1.67 million tons of the 5.15 million tons of recoverable lignite coal contained in the LM tract. This is attributed to the expiration of their coal supply contract (2.5 million tons/year) with the Coyote Power Station on May 1, 2016. DWC is currently in the process of negotiating a coal contract extension with an existing customer.

If DWC is successful at negotiating a contract extension with this customer, additional coal from the LM tract would be mined. However, if they are not successful in their contract extension negotiations, coal from the LM tract would be recovered at a lower rate until their coal supply contract with that customer expires. Beyond that point, the Beulah Mine may be forced to discontinue coal mining operations and any remaining coal reserves contained on the LM tract

would not be recovered by DWC. The mine would concentrate on full reclamation activities. When final reclamation activities are completed, the mine would close.

In addition to the proposed tract, DWC intends to incorporate additional coal reserves to Permit KRSB-8603. DWC has sufficient leased reserves to last until 2040. If the LM tract and adjacent lands are leased and permitted, it would extend the life of the mine to meet any foreseeable customer demand. After 2016, DWC has several options currently under consideration. Option A is to continue mining south from the west reserve area in sections 20, 21, 22, and 29 (T. 143 N., R. 88 W., Mercer County). Under current economic assumptions, Option A is the most logical scenario for future mine development. Option A includes leasing the 320 acre LM tract of federal coal located in the south half of section 22. Option B would move operations back to the east reserve area and open a box cut. Option C would include leasing 480 acres of federal coal located in section 30, T. 143 N., R. 87 W., Oliver County.

Appendix H of the *North Dakota RMP/EIS* identified cumulative impacts related to surface coal mining. In the analysis, a generic mining scenario considered a 5.5 million ton per year mine with a 40-year mine life. In this scenario, a mine operation would be expected to disturb land at a rate of approximately 475 acres per year, or 19,000 acres, over the 40 year mine life. It would take approximately 10 to 13 years to complete the first full cycle of mining; from the initial disturbance, coal removal, backfill placement, reclamation, through bond release. During full mine production, the approximate total area of land removed from agricultural production in any given year would range between 4,800-6,175 acres. During the reclamation process, soils would be continuously replaced on mined-out areas and land would be brought back into agricultural production on a regular basis over the life of the mine.

The DWC Beulah Mine is currently operating at less than the generic mine scenario capacity. The Beulah Mine has an average production rate of 3 million tons per year, averaging approximately 160 to 170 acres of disturbance annually. Therefore, analysis of the impacts identified in Appendix H can be used to understand the cumulative impacts related to leasing the LM tract in regards to the entire Beulah mining operation. A summary and site-specific analysis of the cumulative impacts is discussed below.

Topography

Topography would be modified within the Beulah Mine permit area following coal mining and reclamation. The topography in the general mine area lacks diversity, mainly consisting of flat terrain with some rolling hills. Following reclamation, post-mining topography is generally smoothed-out with more uniform slopes constructed in areas of higher relief.

Increased infiltration of surface water and reduced peak flows from drainages may occur as a result of reduced relief exhibited on the post-mining topography. Reclaimed lands may be less visually attractive to some users, but this observation diminishes over time.

Soils

DWC estimates that it disturbs approximately 160 to 170 acres per year during mining operations. Reclamation of mined areas should support a stable and productive native vegetation community of cropland, rangeland, and wildlife habitat. As the Beulah Mine advances, new areas are disturbed and mined-out areas are reclaimed to restore soil productivity and prevent erosion.

Water

There should be little or no cumulative impacts to water resources. Mining of the coal in the LM tract area will not intersect any aquifers. The shallowest aquifer in the Beulah Mine area is the Bullion Creek aquifer. It is located well below the Beulah-Zap seam, which is the lowest seam being mined by DWC at the Beulah Mine.

Air Quality and Climate Change

Air pollutants would continue to be emitted at the same rate that they are currently being emitted, and the Beulah Mine is expected to continue meeting applicable air quality regulations and permit provisions. The duration of emissions would be extended by 2-3 years with the leasing of the LM tract. Additional development in the area could potentially include oil and gas facilities, industrial facilities, and agricultural sources of emissions. If high-emitting future sources are planned, they would be subject to the air quality permitting process implemented by the North Dakota Department of Health Air Resources Division. Based on ambient air monitoring data available at this time, air quality is expected to remain good in the foreseeable future.

With regard to climate change, GHG and black carbon emissions would continue to be emitted at the current rate. GHG emissions would remain in the atmosphere and continue to contribute to climate change for many years after they are released, while black carbon emissions would fall out of the atmosphere relatively quickly. Indirect GHG emissions from coal combustion at end-user facilities would also continue at the existing rate.

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 that spend the resulting income. These contributions would accrue to Mercer County and the larger four-county area alongside impacts from other projects occurring on public and private lands in the area. For example, in 2009, total employment in the four-county impact area was 85,678 and labor income was \$3,592,513,000. If we assume contributions from the federal coal removal would be distributed equally during the course of mining, the annual employment contribution of 74 jobs and labor income of \$ 5,863,256 would make up 0.09 and 0.16 percent of the 2009 four-county impact area totals, respectively. Annual contributions within just Mercer County would make up 1.2 and 1.6 percent of total employment and labor income. 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 Proposed Action will 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.

Bakken Formation Oil Development

Oil production has increased significantly in North Dakota in the last several years due to technological advances in drilling and production methods that have facilitated the development of the oil-bearing Bakken formation. The Bakken formation underlies Mercer County. There have been three oil wells drilled in northwestern Mercer County to test the Bakken formation. None of these wells were successful. According to Ed Murphy, North Dakota State Geologist, the Bakken formation is not thermally-mature enough to produce oil in Mercer County (Donovan, 2013). Therefore, future development of the Bakken formation would have no effect on this Proposed Action or any other coal-related leasing or production activities in Mercer County.

4.0 CONSULTATION and COORDINATION

Consultation and Coordination

The BLM consulted with the U.S. Fish and Wildlife Service (FWS) regarding threatened and endangered species on October 25, 2011. The FWS responded with a letter dated November 29, 2011, concurring with the BLM that the proposed LM tract area was absent of any non-migratory threatened and endangered species and, therefore, would not have any effect on non-migratory species. However, the FWS did determine the proposed lease “may affect, not likely to adversely affect” the migratory population of the whooping crane.

In a letter dated April 9, 2009, the FWS concurred that impacts could be effectively minimized by stopping work in the area if a whooping crane is identified within the LM tract area for the duration of the time the whooping crane is present. Also, Dakota Westmorland has proposed not to mine approximately 45 acres along the eastern boundary of the 320 acre LM tract where an unnamed drainage contains an intermittent stream (see Figure 2, Map of Lease Modification and Beulah Mine Permit Areas). This mitigation measure would adequately address potential impacts to the Aransas Wood Buffalo Population of whooping cranes.

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).

Scoping for the original “Dakota Westmoreland Corporation West Beulah Mine Expansion: 2007 Class III Cultural Resources Inventory” (a formal cover letter and a copy of the report) was conducted with the Tribal Historic Preservation Offices (THPO) from the Three Affiliated Tribes (Mandan, Hidatsa, and Arikara), Cheyenne River Sioux Tribe, Standing Rock Sioux Tribe, and the Fort Peck Assiniboine and Sioux Tribe (Williams 2008). Additional scoping for interest in the mine expansion project was sent to the above-mentioned tribes in a letter dated October 27, 2008. One comment was received from the THPO at the Three Affiliated Tribes that requested notification if any Native American Graves Protection Resource Act (NAGPRA) issues arise within the boundary of the proposed project (Perry ‘No Tears’ Brady, November 12, 2008). The Dakota Westmoreland Corporation West Beulah Mine Expansion: 2012 Evaluative Testing of Five Archeological Sites” was sent to the Three Affiliated Tribes THPO’s office with a formal cover letter on January 23, 2013. To date, no comments or concerns have been received from the THPO office of the Three Affiliated Tribes.

The BLM considers a finding of no significant impact and no significant sites affected by the proposed mine expansion. The NDSHPO was consulted (a copy of the “Dakota Westmoreland Corporation West Beulah Mine Expansion: 2012 Evaluative Testing of Five Archeological Sites” report with a formal cover letter was sent on January 23, 2013) to meet obligations under NHPA and regulations, found at 36CFR800, and they agreed with our findings (NDSHPO response letter dated January 20, 2013).

The Office of Surface Mining was a cooperating agency which reviewed and provided comments on this EA. The North Dakota Public Service Commission also reviewed and provided comments on the document.

Table 10 provides a list of persons, agencies, and organizations that were consulted during this project:

Table 10 - List of Persons, Agencies and Organizations Consulted

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

- Bureau of Indian Affairs, Cora Jones, Aberdeen, SD
- Cheyenne River Sioux Tribe, Raymond Uses the Knife, Eagle Butte, SD
- Congressman Earl Pomeroy, Ross Keys, Bismarck, ND
- North Dakota Game and Fish Department, Bismarck, ND
- National Trust for Historic Preservation, Washington DC
- Office of Surface Mining, Gene Hay, Denver, CO
- Public Service Commission, Dean Moos, Bismarck, ND
- U.S. Army Corps of Engineers, Omaha District, Riverdale, ND
- USDA-NRCS, State Conservationist, Bismarck, ND
- Bureau of Indian Affairs, Fort Peck Agency, Poplar, MT
- Dakota Resource Council, Staff Director, Dickinson, N.D
- North Dakota Historical Society, Mr. Paul Picha, Bismarck, ND
- North Dakota Historical Society, Duane Klinner, Bismarck, ND
- Senator Kent Conrad, Bismarck, ND
- Senator Byron Dorgan, Bismarck, ND
- U.S. National Park Service, Valerie Naylor, Medora, ND
- Governor John Hoeven, State of North Dakota, Bismarck, ND
- Cheyenne River Sioux Tribe, Deirdre Desmond, Eagle Butte, SD
- Bureau of Indian Affairs, Carson Murdy, Aberdeen, SD
- Ducks Unlimited, Paul Bultsma, Bismarck, ND
- North Dakota Wildlife Society, North Dakota Chapter, Bismarck, ND
- North Dakota State Land Department, Rick Larsen, Bismarck, ND
- Public Service Commission, Jim Deutsch, Bismarck, ND
- Sierra Club, Bismarck, ND
- U.S. Fish and Wildlife Service, Jeff Towner, Bismarck, ND
- Ronald Ness, Bismarck, ND
- Cross Ranch Nature Conservancy, Center, ND
- U.S. EPA, Region 8, Denver, CO
- Andrea Stomberg, MDU, Bismarck, ND
- Jeff Buechler, Rapid City, SD
- Gerry Schlekeway, Pierre, SD
- Dr. John Hoganson, ND Geological Survey, Bismarck, ND
- Scott Jones, Lower Brule Sioux Tribe, Lower Brule, SD
- Oliver County Land Use, Center, ND
- Kent Albers, Hensler, ND
- Lyndon Bucher, Belle Fourche, SD
- Chance Davis, Heart Trail Ranch, Belle Fourche, SD
- Eric Rosenquist, Center, ND
- Carol Pavel, Whitewood, SD
- Dakota Westmoreland Corporation, Jesse Noel, Beulah, ND
- Dakota Westmoreland Corporation, Paula Gores, Beulah, ND
- Parry Brady, Three Affiliated Tribes, New Town, ND
- Dwaine Helmers, Hensler, ND
- Larry D. Dokken, Williston, ND

- Tobias Stroh, Dept. of Agriculture, Dickinson, ND
- Kyla Schneider, North Dakota Department of Health, Division of Air Quality, Bismarck, ND

Preparers and Contributors

Table 11 provides a list of preparers and contributors that worked on developing this document.

Table 11 - List of Preparers and Contributors

Name (and agency, if other than BLM)	Title	Responsible for the Following Section(s) of this Document
Greg Fesko	Geologist/Coal Program Coordinator	Introduction, Description of Alternatives, General Setting, Geology, Water, Cumulative Impacts
Susan Bassett	Air Quality Specialist	Air Quality, Climate Change
Eugene Hay - OSM	Project Manager	OSM Review
Justin Peters	Archeologist	Cultural Resources, Consultation
Tim Zachmeier	Wildlife Biologist	Soils, Vegetation, Fisheries and Wildlife, Recreation, Wilderness Study Areas
Henry Eichman - USFS	Economist	Environmental Justice, Social, Economics

5.0 REFERENCES

- Clean Air Task Force, 2009. *The Carbon Dioxide-Equivalent Benefits of Reducing Black Carbon Emissions from U.S. Class 8 Trucks Using Diesel Particulate Filters: A Preliminary Analysis*. Available at: <http://www.catf.us/resources/publications/view/100>.
- Coon, R.C. and L. Lestriz, 2007. *North Dakota Lignite Energy Industry's Contribution to the State Economy for 2006 and Projected 2007*. North Dakota State University, Department of Agribusiness and Economics, Fargo, N.D.
- Coon, R.C. and L. Lestriz, 2005. *North Dakota Lignite Energy Contribution to the State of Economy for 2004 and Projected 2005*. North Dakota State University, Department of Agribusiness and Economics, Fargo, N.D.
- Coon, R.C. and L. Lestriz, 2003. *North Dakota Lignite Energy Contribution to the State of Economy for 2002 and Projected 2003*. North Dakota State University, Department of Agribusiness and Economics, Fargo, N.D.
- Coon and Lestriz, 2001. *North Dakota Lignite Energy Contribution to the State of Economy for 2000 and Projected 2001*. North Dakota State University, Department of Agribusiness and Economics, Fargo, N.D.
- Croft, M.G., 1973, Water Resources Mercer and Oliver Counties, N.D.: Bulletin 56, Part III, North Dakota Geologic Survey, 81 p.
- Croft, M.G., 1970, Ground Water Basic Data Mercer and Oliver Counties, North Dakota: Bulletin 56, Part II, North Dakota Geologic Survey, 268 p.
- Dakota Westmoreland Corporation, 2008. *Federal Coal Lease Modification*. Beulah Mine, Oliver County, N.D.
- Dakota Westmoreland Corporation, 2006. *Permit Application Package KRSB-8603*, Beulah Mine, Mercer County, N.D.
- Donovan, Lauren (2013), 'Mercer County not Mature enough for Bakken' *Bismark Tribune*, April 13.
- Economic Profile System – Human Dimensions Toolkit, 2012. EPS-HDT, created by USDA Forest Service, Bureau of Land Management and Headwaters Economics. Can be accessed at: <http://headwaterseconomics.org/tools/eps-hdt>.
- Farmland Protection Policy Act (PL 97-98; 7 U.S.C. 4201 et seq.).
- Groenwald, G.H., 1980. *Potential Hydrogeochemical Impacts of Surface Mining in the Northern Great Plains in Surface Mining Hydrology, Sedimentology, and Reclamation*. University of Kentucky, Lexington, KY.

Groenwald, G.H. and R.W. Rehm, 1979. *Geology and Geohydrology of the Knife River Basin and Adjacent Areas of West Central North Dakota*. North Dakota Geological Survey Report of Investigations No. 64.

IMPLAN, 2009. Impacts for PLANning (IMPLAN). Minnesota IMPLAN Group, Inc. Version 3.0.82, Copyright 2011. Additional information available at www.implan.com

Intergovernmental Panel on Climate Change, 2007. *Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. [Core Writing Team, Pachauri, R.K and Reisinger, A. (eds.)]. Intergovernmental Panel on Climate Change (IPCC). www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr.pdf.

Jackson, Michael A. and Dennis Toom, 2009. Dakota Westmoreland Corporation West Beulah Mine Expansion: 2007 Expanded Test Excavations at Site 32ME2229 Mercer County, North Dakota. Contribution No. 418, UND Anthropology Research Department, University of North Dakota, Grand Forks, North Dakota 58202-7094.

Jackson, Michael A., Cynthia Kordecki, and Dennis L. Toom, 2007. Dakota Westmoreland Corporation West Beulah Mine Expansion: 2005 Evaluative Testing of Eleven Archeological Sites in Mercer County, North Dakota, Contribution No. 400. UND Anthropology Research Department, University of North Dakota, Grand Forks, North Dakota 58202-7094.

Jacobson testimony, 2007. Testimony for the Hearing on Black Carbon and Global Warming, House Committee on Oversight and Government reform, United States House of Representatives. October 18. Given by Mark Z. Jacobson, Atmosphere/Energy Program, Stanford University.

Kordecki, Cynthia, Greg L. Wermers, and Jeffery A. Heraus, 2007. Dakota Westmoreland Corporation West Beulah Mine Expansion: 2004 Class III Cultural Resource Inventory, Mercer County, North Dakota, Contribution No. 392. UNDAAR-West Anthropology Research Department, University of North Dakota, Grand Forks, North Dakota 58202-7094.

Miernyk, William H. 1965. *The elements of input-output analysis*. New York: Random House.

North Dakota Century Code, 2008. *Chapter 23-25*. Available at <http://www.legis.nd.gov/cencode/t23c25.pdf>

North Dakota Department of Health, *North Dakota Air Quality Data Summary*. 2010 Annual Report, published 2011. Available at http://www.ndhealth.gov/aq/ambient/Annual%20Reports/ANN_10.pdf.

North Dakota Department of Health, Air Pollution Control Minor Source Permit to Operate for the Dakota Westmoreland Corporation, Permit Number 081011, May 2011.
North Dakota Office of the State Tax Commissioner, 2006. *Coal*. <http://www.nd.gov/tax/coal/>.

North Dakota Office of the State Tax Commissioner, 2006. *Coal Tax Publications*.
<http://www.nd.gov/tax/coal/>.

North Dakota Office of the State Tax Commissioner, Nov. 2006. *2006 Edition of State and Local taxes: An Overview and Comparative Guide*.

Public Service Commission, State of North Dakota, 2008. *Citizen Participation in Surface Coal Mining Regulatory Program*. Available at:
<http://www.psc.state.nd.us/consinfo/youshouldknow/r-1-citizen-participation.pdf>

Public Service Commission, State of North Dakota, 2007. *Rules Governing Reclamation of Surface-Mined Land*. State Capitol, 12th Floor, Bismarck, N.D.

State of North Dakota, *Air Pollution Control Rules Article 33-15*. Available at
<http://www.legis.nd.gov/information/acdata/html/33-15.html>

United States Department of Agriculture Forest Service 1998. USDA Forest Service. Economic and Social Conditions of Communities: Economic and Social Characteristics of Interior Columbia Basin Communities and an Estimation of Effects on Communities from the Alternatives of the Eastside and Upper Columbia River basin DEIS.

United States Department of Agriculture-Natural Resources Conservation Service, 2009. *Web Soil Survey*. <http://websoilsurvey.nrcs.usda.gov/app/>

United States Department of Agriculture-Natural Resources Conservation Service, 1975. *Soil Survey of Mercer County, North Dakota*.

United States Department of Commerce, 2011. Bureau of Economic Analysis, Regional Economic Information System, Washington, D.C. Table CA30.

United States Department of Commerce, 2011b. Bureau of Labor Statistics Quarterly Census of Employment and Wages

United States Department of Commerce, 2011c. Census Bureau, American Community Survey Office, Washington, D.C.

United States Department of the Interior-Bureau of Land Management, 2009. *Environmental Assessment for the Dakota Westmoreland Corporation Coal Lease Modification NDM 041765*. North Dakota Field Office, MT-030-94-08.

United States Department of the Interior-Bureau of Land Management, 2009. *Environmental Assessment for BNI Coal LTD Lease by Application NDM 97633*. North Dakota Field Office, MT-030-93-08.

United States Department of the Interior-Bureau of Land Management, 2006. *Environmental Assessment for Spring Creek Coal Lease Application MTM 94378*. Miles City Field Office, MT-020-2007-34.

United States Department of the Interior-Bureau of Land Management, 2006. *Environmental Assessment for BNI Coal LTD Lease by Application NDM 95104*. North Dakota Field Office, MT-030-10-06.

United States Department of the Interior-Bureau of Land Management, 2005. *Coteau Properties Company Federal Coal Lease by Application (NDM 91535) for West Mine Area, Freedom Mine Mercer County, North Dakota Environmental Impact Statement*. North Dakota Field Office, BLM/MT/PL-05/006.

United States Department of the Interior-Bureau of Land Management, 1988. *North Dakota Resource Management Plan and Environmental Impact Statement Record of Decision*. North Dakota Field Office.

United States Department of the Interior-Bureau of Land Management, 1987. *Final North Dakota Resource Management Plan and Environmental Impact Statement*. North Dakota Field Office.

United States Department of the Interior-Bureau of Land Management, 1986. *Draft North Dakota Resource Management Plan and Environmental Impact Statement*. North Dakota Field Office.

United States Department of the Interior-Office of Natural Resources Revenue, 2012. Reported Royalties by State. Statistics page can be accessed at:
<http://www.onrr.gov/ONRRWebStats/default.aspx>

United States Department of the Interior-Office of Surface Mining Reclamation and Enforcement, 2008. *Mining Plan Decision Document, Federal Lease NDM 95104*.

United States Department of the Interior, USGS. *Climate of North Dakota*, 2007.
<http://www.npwr.usgs.gov/resource/habitat/climate/wind.htm>

United States Environmental Protection Agency, 2010. *Climate Change Indicators in the United States*. EPA 430-R-10-007. EPA, Washington, DC. April.
www.epa.gov/climatechange/indicators/pdfs/ClimateIndicators_full.pdf

United States Environmental Protection Agency, 2008a. *Climate Change – Science – State of Knowledge webpage*. Available online at:
<http://www.epa.gov/climatechange/science/stateofknowledge.html>

United States Environmental Protection Agency, 2008b. *Direct Emissions from Mobile Combustion Sources*. EPA 430-K-08-004. Available online at:
http://www.epa.gov/climateleadership/documents/resources/mobilesource_guidance.pdf

United States Global Change Research Program, 2009. *Climate Literacy – The Essential Principles of Climate Science*. Available at: <http://www.epa.gov/climatechange/basicinfo.html>.

Williams, Barry G. 2008. U.S. Department of the Interior Bureau of Land Management Environmental Assessment MT-030-89-08, June 2, 2008 for Dakota Westmoreland Federal Exploration License NDM 96918. On file BLM North Dakota Field Office, Dickinson, North Dakota.

Appendix A

Summary of Environmental Impacts

Resource	Proposed Action Alternative	No Action Alternative
Air Quality	Approximately 3 million tons of coal would be mined and processed annually from leased private, state, and federal coal, including the proposed LM tract. Mining the LM tract would add approximately 2 years to the life of the mine. By maintaining the current mining practice, it is not expected that operations would exceed air quality standards.	Approximately 3 million tons of coal will be mined and processed annually from private, state, and previously leased federal coal. By maintaining the current mining practice, it is not expected that operations would exceed air quality standards.
Soils	Approximately 789,324 cubic yards of topsoil and 1,578,648 cubic yards of subsoil would be removed from the LM tract during mining operations. Reclamation would occur following mining operations in accordance with PSC regulations.	Topsoil and subsoil would be removed from 35 acres of the LM tract. Mining operations would occur adjacent to the LM tract where removal of topsoil and subsoil would continue. Reclamation would occur following mining operations in accordance with PSC regulations.
Water Resources	Water quality would be slightly impacted by mining operations. With the use of sediment ponds and other mitigation measures required by the PSC, it is not expected that water quality standards would be exceeded.	Water quality would be slightly impacted by adjacent mining operations. With the use of sediment ponds and other mitigation measures required by the PSC, it is not expected that water quality standards would be exceeded. Mining operations could lower the water table and may reduce water quality.
Vegetation	Vegetation will be removed from approximately 135 acres of the LM tract during the mining operation. Land will be reclaimed back to the land use type the surface owner prefers, according to PSC standards.	Vegetation will be removed from 35 acres of the LM tract. Vegetation will also be removed from other areas of the mine. Land will be reclaimed back to the land use type the surface owner prefers, according to PSC standards.

<p>Fisheries and Wildlife</p>	<p>Ground nesting songbirds and large and small mammals will be temporarily displaced upon the initiation of mining operations on the LM tract. 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.</p>	<p>Topsoil and subsoil removal from 35 acres of the LM tract, and mining operations on adjacent lands would still occur and could displace a small amount of wildlife. Wildlife habitat within the LM tract has already been greatly altered by some cultivation 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 the early European settlement which has affected wildlife.</p>
<p>Cultural Resources</p>	<p>There would be no environmental impacts with associated disturbance because there are no important cultural resources that are present on the LM tract.</p>	<p>There would be minimal environmental impact to cultural resources because only 35 acres of the LM tract would be disturbed.</p>
<p>Recreation</p>	<p>The mine-related disturbance of the LM tract will displace recreational opportunities. Recreational opportunities are already limited on the LM tract.</p>	<p>Recreational opportunities will be displaced from 35 acres of the LM tract. Furthermore, recreational opportunities are already limited on the LM tract.</p>
<p>Climate Change</p>	<p>GHGs and black soot would be produced as part of the mining operation. Emissions would be emitted at the present rate and would continue for an additional two to three years as a result of leasing the federal coal on the LM tract.</p>	<p>GHGs and black soot would not be produced from the LM tract proposed for development. Mining operations on adjacent land would continue at the same rate and greenhouse and black soot emissions would continue to be introduced into the environment.</p>

Appendix B

Table 12 - Area Employment Distribution by Industry Sector, 2009 (Source: IMPLAN, 2009)

Sector	Four-county Impact Area		Mercer County	
	Percent	Absolute (full and part-time jobs)	Percent	Absolute (full and part-time jobs)
Accommodation and Food Services	6.6%	5,632	4.6%	291
Admin, Waste Management and Remedial Services ³	3.9%	3,316	4.8%	303
Agriculture, Forestry, Fishing and Hunting	3.4%	2,907	7.9%	503
Arts, Entertainment, and Recreation	1.4%	1,216	1.1%	71
Construction	7.1%	6,077	17.3%	1,098
Educational Services	1.5%	1,249	0.1%	8
Finance, Insurance, and Real Estate	4.9%	4,190	2.4%	152
Government	16.9%	14,501	10.2%	648
Health and Social Services	15.1%	12,912	7.4%	466
Information	1.3%	1,145	1.6%	99
Management of Companies	1.4%	1,234	0.0%	-
Manufacturing	3.3%	2,793	0.6%	41
Mining	1.3%	1,095	9.7%	612
Other Services	5.1%	4,396	2.6%	166
Professional - Scientific and Technical Services	4.8%	4,135	1.5%	96
Real Estate and Rental	3.3%	2,836	0.6%	38
Retail Trade	10.9%	9,331	7.6%	483
Transportation and Warehousing	2.9%	2,478	0.9%	59
Utilities	1.9%	1,641	17.4%	1,102
Wholesale Trade	3.0%	2,595	1.6%	104
Total	100.0%	85,678	100.0%	6,339

³ Admin, Waste Mngt & Rem Services refers to Administration, Waste Management and Remediation Services

Table 13 - Area Labor Income Distribution by Industry Sector, 2009 (Source: IMPLAN, 2009)

Sector	Four-county Impact Area		Mercer County	
	Percent	Absolute (millions \$)	Percent	Absolute (millions \$)
Accommodation and Food Services	2.7%	98	1.0%	\$4
Admin, Waste Management and Remedial Services ⁴	2.1%	76	1.6%	\$6
Agriculture, Forestry, Fishing, and Hunting	1.9%	68	3.4%	\$13
Arts, Entertainment, and Recreation	0.5%	17	0.2%	\$1
Construction	8.2%	295	21.3%	\$79
Educational Services	0.9%	31	0.0%	\$0
Finance, Insurance, and Real Estate	4.8%	174	1.2%	\$4
Government	19.7%	709	6.8%	\$25
Health and Social Services	16.3%	585	4.9%	\$18
Information	1.5%	55	1.8%	\$7
Management of Companies	3.5%	126	0.0%	\$0
Manufacturing	4.9%	176	0.5%	\$2
Mining	2.7%	98	15.7%	\$58
Other services	3.9%	141	1.4%	\$5
Professional - Scientific and Technical Services	5.3%	190	1.3%	\$5
Real Estate and Rental	0.6%	22	0.3%	\$1
Retail Trade	7.1%	254	3.0%	\$11
Transportation and Warehousing	3.6%	131	0.9%	\$3
Utilities	5.3%	190	33.6%	\$125
Wholesale Trade	4.3%	154	1.2%	\$5
Total	100.0%	3,593	100.0%	\$371

⁴ Admin, Waste Mngt & Rem Services refers to Administration, Waste Management and Remediation Services