

United States Department of the Interior  
Bureau of Land Management

Environmental Assessment-DOI-BLM-MT-C030-2011-0079-EA  
July 12, 2011

**North Dakota Field Office Oil and Gas Leasing EA for July 2011**  
**Location: North Dakota Field Office**

**Location:** North Dakota Field Office (see attached Appendix A for list of lease parcels by number and legal description and Map 1.1.1)

---

U.S. Department of the Interior  
Bureau of Land Management  
North Dakota Field Office  
99 23<sup>rd</sup> Ave W, Suite A  
Dickinson, ND 58601  
Phone: (701) 227-7700  
Fax: (701) 227-7701





United States Department of the Interior

BUREAU OF LAND MANAGEMENT  
North Dakota Field Office  
99 23<sup>rd</sup> Avenue West – Suite A  
Dickinson, North Dakota 58601-2619



In Reply Refer To:  
1600/3100 (MTC030)

[www.blm.gov/mt](http://www.blm.gov/mt)

January 31, 2011

Dear Reader:

The Bureau of Land Management (BLM) North Dakota Field Office has prepared an environmental assessment (EA) to analyze the potential effects from offering 116 nominated lease parcels for competitive oil and gas leasing in a sale tentatively scheduled to occur on July 12, 2011.

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 March 1, 2011 to be considered. Comments may be submitted using one of the following methods:

Email: [MT\\_North\\_DakotaFO\\_Lease\\_EA@blm.gov](mailto:MT_North_DakotaFO_Lease_EA@blm.gov)

Mail: North Dakota Field Office  
Attn: Dave Hodgson  
99 23<sup>rd</sup> 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. Based on our analysis, parcels recommended for leasing in our assessment would be included as part of a competitive oil and gas lease sale tentatively scheduled to occur on July 12, 2011.

Prior to issuance of any leases, 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](http://www.blm.gov/mt). From this home page, go to the heading titled "Frequently Requested," where you will find a number of links to information about our oil and gas program. Current and updated information about our environmental assessments can be found on the link titled "Competitive Oil and Gas Lease Sale Information" listed under the heading "Frequently Requested". Once there, click on "2011", where you will find the NDFO EA for the July 12, 2011 lease sale for your review.

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

Sincerely,



Lonny R. Bagley  
Field Manager

North Dakota Field Office Oil and Gas Leasing EA for July 2011

DOI-BLM-MT-C030-2011-0079-EA

CONTENTS

	<u>Page</u>
1.0 PURPOSE and NEED .....	1
1.1 Introduction.....	1
1.2 Purpose and Need for the Proposed Action .....	2
1.3 Conformance with BLM Land Use Plan(s) .....	3
1.4 Identification of Issues .....	3
2.0 DESCRIPTION OF ALTERNATIVES, INCLUDING PROPOSED ACTION.....	4
2.1 Alternative A – No Action .....	4
2.2 Alternative B- Proposed Action .....	4
2.3 Alternative C- BLM Preferred Action.....	5
3.0 AFFECTED ENVIRONMENT .....	6
3.1 Introduction.....	6
3.2 Air Resources .....	7
3.3 Soil Resources.....	18
3.4 Water Resources .....	18
3.5 Vegetation Resources.....	19
3.6 Special Status Species.....	22
3.7 Fish and Wildlife.....	28
3.8 Cultural Resources .....	30
3.9 Native American Religious Concerns.....	34
3.10 Paleontology .....	35
3.11 Lands and Realty.....	36
3.12 Minerals .....	38
3.13 Visual Resources.....	41
3.14 Recreation and Travel Management.....	41
3.15 Livestock Grazing.....	41
3.16 Economic Conditions.....	44
3.17 Social and Environmental Justice .....	49
4.0 ENVIRONMENTAL IMPACTS .....	50
4.1 Assumptions and Reasonably Foreseeable Development Scenario Summary .....	50
4.2 Air Resources.....	57
4.3 Soil Resources.....	63
4.4 Water Resources .....	64
4.5 Vegetation Resources .....	65
4.6 Special Status Species .....	66
4.7 Fish and Wildlife .....	71
4.8 Cultural Resources.....	71
4.9 Native American Religious Concerns.....	73
4.10 Paleontology .....	74
4.11 Lands and Realty.....	75

4.12 Minerals.....	76
4.13 Visual Resources.....	77
4.14 Recreation and Travel Management.....	77
4.15 Livestock Grazing.....	78
4.16 Economic Conditions.....	79
4.17 Social and Environmental Justice .....	84
4.18 Cumulative Impacts .....	85
5.0 CONSULTATION & COORDINATION.....	90
5.1 Persons, Groups, & Agencies Consulted.....	90
5.2 Summary of Public Participation.....	91
5.3 List of Preparers.....	92
6.0 REFERENCES .....	93

## FIGURES

- 3.2.1.1. Ozone concentrations in ppm, 2008 (fourth highest daily maximum 8-hour concentration).
- 3.2.1.2. Change in ozone concentrations in ppm, 2001-2003 vs. 2006-2008 (3-year average of the annual 4<sup>th</sup> highest daily maximum 8-hour concentration).
- 3.2.1.3. Trends in haze index (deciview) on clearest days, 1998-2007).
- 3.2.1.4. Trends in haze index (deciview) on haziest days, 1998-2007.
- 3.2.2.1. Regional climate summary of spring temps (March-May) for the West-North-Central Region (MT, ND, SD, and WY) from 1895-2007 (source: NOAA website).
- 3.2.2.2. Regional climate summary of spring temps (March-May) for the West-North-Central Region (MT, ND, SD, and WY) from 1991-2005 (source: NOAA website).

## TABLES

- 3.2.1. Air data AQ index report (North Dakota); USEPA, 2004-2009)
- 3.4.1. Impaired Surface Water in Project Area
- 3.5.2.1. Noxious weeds in North Dakota
- 3.6.1 Aquatic sensitive or specials status wildlife species in the analysis area
- 3.6.2 List of sensitive bird species found in North Dakota
- 3.12.1 Existing development activity (BLM NDFO)
- 3.12.2 O&G leasing and existing development within townships containing lease parcels
- 3.12.3 Oil and Gas Leasing and Existing Development Abbreviations Key
- 3.15.1 Lease parcels within grazing allotments
- 3.16.1 Current Contributions of Federal Oil and Gas Leasing, Exploration, Development, and Production to the Local Economy
- 4.1.1 Disturbance associated with new drilled wells and existing new wells (short-term disturbance-two years; BLM NDFO)
- 4.1.2. Disturbance associated with new drilled wells and existing active wells (long-term disturbance; BLM NDFO)
- 4.2.1 BLM component of projected annual emissions of greenhouse gases associated with oil and gas exploration and development activity in the North Dakota Field Office.

- 4.2.2.1. Selected Methane Emission Reductions Reported Under the USEPA Natural Gas STAR Program
- 4.16.1 Summary of Estimated Annual Economic Impacts by Alternative
- 4.16.2 Comparison of Estimated Average Annual Economic Impacts
- 4.16.3 Employment and Income by Major Industry by Alternative
- 4.18.1 Projected non-BLM GHG emissions associated with the North Dakota FO Reasonably Foreseeable Development Scenario for fluid mineral exploration and development.
- 5.1.1 List of individuals, agencies, and organizations consulted regarding this EA
- 5.1.2 List of Preparers

## MAPS

- 1.1.1 General Map of Nominated Lease Parcels
- 4.1.1 RFD Scenario for Development Potential

## APPENDICES

- Appendix A – Descriptions of Parcels and Lease Stipulations by Parcel
- Appendix B – Stipulations Key
- Appendix C – Parcel Maps by County

# North Dakota Field Office Oil and Gas Leasing EA for July 2011

DOI-BLM-MT-C030-2011-0079-EA

## 1.0 PURPOSE & NEED

### 1.1 Introduction

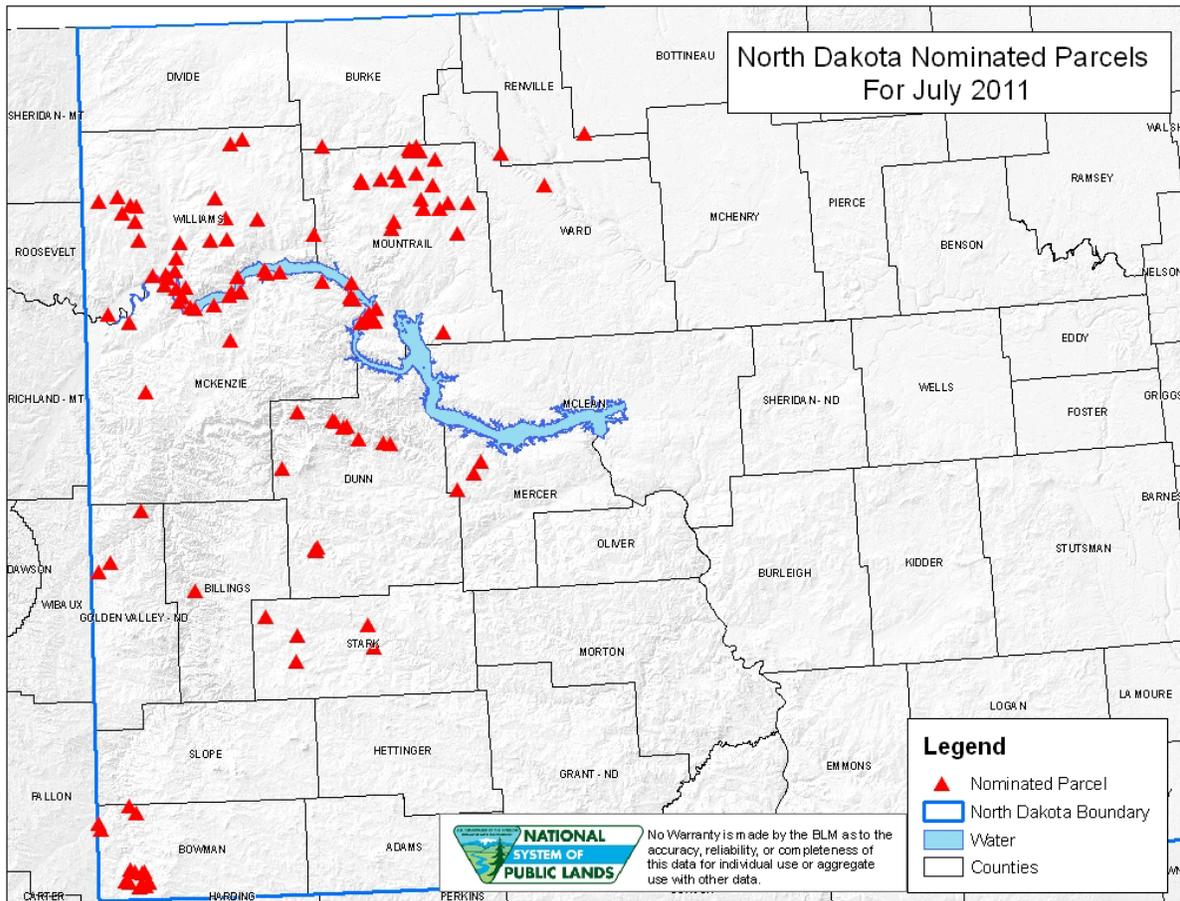
It is the policy of the Bureau of Land Management (BLM) to make mineral resources available for use and to encourage development of mineral resources to meet national, regional, and local needs. This policy is based in various laws, including the Mineral Leasing Act of 1920 and the Federal Land Policy and Management Act of 1976. The Federal Onshore Oil and Gas Leasing Reform Act of 1987 (Sec. 5102(a)(b)(1)(A)) directs the BLM to conduct quarterly oil and gas lease sales in each state whenever eligible lands are available for leasing.

The Montana State Office (MSO) conducts mineral estate lease auctions for lands managed by the federal government, whether the surface is managed by the Department of the Interior (BLM or Bureau of Reclamation), United States Forest Service (USFS), or other departments and agencies. In some cases, the BLM holds subsurface mineral rights on split estate lands where the surface estate is owned by another party other than the federal government.

Oil and gas companies file Expressions of Interest (EOI) to nominate parcels for leasing by the BLM. From these EOIs, the MSO provides draft parcel lists to the appropriate field offices for review. BLM field offices then review legal descriptions of nominated parcels to determine: if they are in areas open to leasing; if new information has come to light which might change previous analyses conducted during the land use planning process; if there are special resource conditions of which potential bidders should be made aware; and which stipulations should be identified and included as part of a lease. Ultimately, all of the lands in proposed lease sales (including those covered by this Environmental Assessment [EA]) are nominated by the oil and gas industry and, therefore, represent areas of high interest.

This EA has been prepared to disclose and analyze the environmental consequences of leasing 116 parcels located in the North Dakota Field Office (NDFO) to be included in as part of a competitive oil and gas lease sale tentatively scheduled to occur July 12, 2011.

All 116 nominated parcels are located in western North Dakota within the NDFO planning area (see Map 1.1.1). 19 parcels are located, in whole or in part, on BLM surface-controlled acreage. The 116 parcels (herein referred to as the “study area”) are located within 13 counties in North Dakota. The counties included in the study area are: Billings, Bottineau, Bowman, Burke, Dunn, Golden Valley, McKenzie, Mercer, Mountrail, Renville, Stark, Ward, and Williams.



**Map 1.1.1 General Map of Nominated Lease Parcels**

**1.2 Purpose and Need for the Proposed Action**

The purpose of offering parcels for competitive oil and gas leasing is to allow private individuals or companies to explore for and develop oil and gas resources for sale on public markets.

This action is needed to help meet the energy needs of the people of the United States. By conducting lease sales, the BLM provides for the potential increase of energy reserves for the U.S., a steady source of significant income, and at the same time meets the requirement identified in the Energy Policy Act, Sec. 362(2), Federal Oil and Gas Leasing Reform Act of 1987, and the Mineral Leasing Act of 1920, Sec. 17.

The decision to be made in the Proposed Action for this EA is whether to sell oil and gas leases on the parcels in question, and, if so, what stipulations would be identified as required for specific parcels at the time of lease sale.

### **1.3 Conformance with Land Use Plan(s)**

This EA is tiered to the decisions, information, and analysis contained in the North Dakota RMP (April 1988) and its associated Environmental Impact Statement (EIS), the governing land use plan for the NDFO. A more complete description of activities and impacts related to oil and gas leasing, development, production, etc. can be found on pages 9-10 in Chapter 2 of the RMP/EIS.

The parcels to be offered are within areas open to oil and gas leasing. Site-specific analysis was conducted during the fall and winter of 2010 by NDFO resource specialists who relied on professional knowledge of the areas involved, review of existing databases and file information, and site visits to ensure that appropriate stipulations had been attached to specific parcels.

At the time of this review it is unknown whether a particular parcel will be sold and a lease issued. It is also unknown when, where, or if future well sites, roads, and facilities might be proposed. Assessment of projected activities and impacts was based on potential well densities discerned from the Reasonably Foreseeable Development (RFD) Scenario developed. Detailed site-specific analysis of activities associated with any particular parcel would occur when a lease holder submits an application for permit to drill (APD).

The proposed oil and gas leasing project would not be in conflict with any local, county, or state laws or plans.

### **1.4 Public Scoping and Identification of Issues**

Public scoping for this project was conducted through a 15-day scoping period advertised on the BLM MSO website and posting on the NDFO website NEPA notification log ([http://www.blm.gov/mt/st/en/fo/north\\_dakota\\_field.html](http://www.blm.gov/mt/st/en/fo/north_dakota_field.html)). Scoping was initiated December 17, 2010; however, comments were received through January 19, 2011. Several scoping comments pertained to oil and gas leasing, while other scoping comments were specific to potential future development concerns. (Refer to Section 5.2 for a more complete summary of the scoping comments received).

Issues identified through scoping related to oil and gas leasing include: Protect water sources, protect cultural areas, terrain suitability, and the identification of State Wildlife Management Areas. In addition to the issues identified above, two comments were in regards to occupied buildings and residential zones.

## **2.0 DESCRIPTION OF ALTERNATIVES, INCLUDING PROPOSED ACTION**

### **2.1 Alternative A - No Action**

For EAs on externally initiated Proposed Actions, the No Action Alternative generally means that the Proposed Action would not take place. In the case of a lease sale, this would mean that all expressions of interest to lease (parcel nominations) would be denied or rejected.

The No Action Alternative would exclude all 116 parcels within the NDFO from the lease sale. Surface management would remain the same and ongoing oil and gas development would continue on surrounding federal, private, and state leases.

### **2.2 Alternative B- Proposed Action**

The Proposed Action Alternative would be to offer 116 parcels of federal minerals for oil and gas leasing, covering 31,339 acres administered by the NDFO. The parcels are located in western North Dakota. Parcel number, size, and detailed locations and associated stipulations are listed in Appendix A.

Of the 31,339 acres of federal mineral estate considered in this EA, approximately 4,351 acres (19 parcels in whole or part) are managed by the BLM, and 7,253 acres (38 parcels in whole or part) are managed by other federal agencies. The remaining parcels are split estate.

In the instance of the parcels which are split estate, the BLM provided courtesy notification to private landowners that their lands would be included in this lease sale. If any activity were to occur on such split estate parcels, the lessee and/or operator would be responsible for adhering to BLM requirements as well as reaching an agreement with the private surface landowners regarding access, surface disturbance and reclamation.

Standard lease terms, conditions, and operating procedures, as well as additional stipulations as listed in Appendix A would apply to the split estate parcels. Standard operating procedures for oil and gas development include measures to protect the environment and resources such as groundwater, air, wildlife, historical and prehistorical concerns, and others as mentioned in the 1988 RMP on pages 7 through 22. Lease stipulations (as required by 43 CFR 3131.3) would be attached to the parcels to address site-specific concerns or new information not previously identified in the land use planning process. Once sold, the lease purchaser would have the right to use as much of the leased lands as is reasonably necessary to explore and drill for all of the oil and gas within the lease boundaries, subject to the stipulations attached to the lease (43 CFR 3101.1-4).

Standard operating procedures, best management practices and required conditions of approval and the application of lease stipulations change over time to meet overall RMP objectives. In

some cases new lease stipulations may need to be developed and these types of changes may require an RMP amendment.

Oil and gas leases would be issued for a 10-year period and would continue for as long thereafter as oil and gas is produced in paying quantities. If a lessee fails to produce oil and gas, does not make annual rental payments, does not comply with the terms and conditions of the lease, or relinquishes the lease; the lease would terminate and would be available for releasing in the future.

Drilling wells on a lease would not be permitted until the lease owner or operator secures approval of a drilling permit and a surface use plan specified at 43 CFR 3162.

### **2.3 Alternative C-BLM Preferred Alternative**

Under the BLM Preferred Alternative 87 of the 116 lease parcels would be offered with RMP lease stipulations and/or lease notices as necessary (Appendix A) for competitive oil and gas lease sale and lease issuance.

Of the approximately 19,406 acres of federal mineral estate considered in this Alternative, approximately 1,426 acres (7 parcels in whole or part) are managed by the BLM, and 5,065 acres (27 parcels in whole or part) are managed by other federal agencies. The remaining parcels are split estate.

In the instance of the parcels which are split estate, the BLM provided courtesy notification to private landowners that their lands would be included in this lease sale. If any activity were to occur on such split estate parcels, the lessee and/or operator would be responsible for adhering to BLM requirements as well as reaching an agreement with the private surface landowners regarding access, surface disturbance and reclamation.

Standard lease terms, conditions, and operating procedures, as well as additional stipulations as listed in Appendix A would apply to the split estate parcels. Standard operating procedures for oil and gas development include measures to protect the environment and resources such as groundwater, air, wildlife, historical and prehistorical concerns, and others as mentioned in the 1988 RMP on pages 7 through 22. Lease stipulations (as required by 43 CFR 3131.3) would be attached to the parcels to address site-specific concerns or new information not previously identified in the land use planning process. Once sold, the lease purchaser would have the right to use as much of the leased lands as is reasonably necessary to explore and drill for all of the oil and gas within the lease boundaries, subject to the stipulations attached to the lease (43 CFR 3101.1-4).

Standard operating procedures, best management practices and required conditions of approval and the application of lease stipulations change over time to meet overall RMP objectives. In

some cases new lease stipulations may need to be developed and these types of changes may require an RMP amendment.

Fourteen lease parcels (8,996 federal mineral acres) have been found to contain priority sage-grouse habitat. Greater sage-grouse conservation areas are being considered in the NDFO's on-going planning efforts; therefore, all 14 lease parcels would be deferred at this time pending further review and analysis.

Eleven lease parcels (7,627 federal mineral acres) in whole or in part have been found in areas classified as high according to the Potential Fossil Yield Classification (PFYC) system map. Areas with high potential paleontological yields are being considered in the NDFO's on-going planning efforts; therefore, all 11 lease parcels would be deferred at this time pending further review and analysis.

Twelve lease parcels (3,292 federal mineral acres) have been found to contain sensitive cultural sites. Additional cultural protection measures are being considered in the NDFO's on-going planning efforts; therefore, all 12 lease parcels would be deferred at this time pending further review and analysis.

Five lease parcels (1,325 federal mineral acres) require additional tribal consultation; therefore, all 5 lease parcels would be deferred until further tribal consultation is completed.

Some of the parcels listed above, which would be deferred in this alternative, have greater sage-grouse, cultural, and paleontological importance. Therefore, some of the acreages are overlapping.

### **3.0 AFFECTED ENVIRONMENT**

#### **3.1 Introduction**

This chapter describes the existing environment (i.e., the physical, biological, social, and economic values and resources) that could be affected by implementation of the alternatives described in Chapter 2.

All 116 parcels are located in western North Dakota, which is located in the Northern Mixed Grass Prairie, known for its high diversity of vegetation types and topography. Vegetation is comprised of both tall and short grass as well as both warm and cool season grasses. A variety of grass-like plants, forbs, shrubs, and trees also add to the vegetation diversity of this rangeland type.

Western North Dakota is comprised of gently rolling hills, buttes, badlands, wetlands, riparian areas, and river breaks. Lands in North Dakota are primarily privately owned and are mainly

utilized for agricultural uses. Lands that are not restricted by topography or soil constraints generally have been cultivated for crop production. Lands that have limitations from crop production are generally rangelands or pasture lands. Rangelands and pasture lands can be native, but can also be improved or rehabilitated croplands. Rehabilitated croplands are usually evident due to their near monoculture of introduced cool season grasses such as crested wheatgrass or smooth brome.

Temperatures throughout North Dakota fluctuate widely on an annual, seasonal, and daily basis. Annual mean temperatures range from 37°F in the northeast to about 43°F in the southwest. Temperature extremes can range from below -40°F to over 110°F. Average July temperature is about 69°F, and average January temperature is 10°F. Average annual precipitation varies from 13 inches in the northwest to about 20 inches in the east with up to 70 percent of the precipitation falling as rain between May and July. Precipitation is mainly derived from air masses originating from the Gulf of Mexico. Winters are long and cold with snow accumulations from November or December through March. Windy conditions are common due to the greatly fluctuating temperatures and lack of physical barriers. Prevailing winds are from the north-northwest at an average speed of 12 miles per hour (mph). Winds of 25-30 mph will often last for six hours and can last as long as 15 hours. Winds in excess of 30 mph have lasted more than six hours. Severe weather may occur almost any time during the year. Blizzards are a common occurrence during winter and early spring. High winds and hail frequently occur in connection with summer thunderstorms (NDFO RMP, 1988).

Specific components of the environment that may be affected by this project are discussed below. Only those aspects of the affected environment that are potentially impacted by these leases are described in detail.

The following aspects of the affected environment were determined to not be present, or not potentially impacted by these projects include: Lands with Wilderness Characteristics, Cave and Karst Resources, Forest Products, and Special Designations. Therefore; these resources and resource uses will not be discussed further in this EA.

### **3.2 Air Resources**

Air quality and climate are the components of air resources, which include applications, activities, and management of the air resource. Therefore, the BLM must consider and analyze the potential effects of BLM and BLM-authorized activities on air resources as part of the planning and decision making process.

The Environmental Protection Agency (EPA) has the primary responsibility for regulating air quality, including seven nationally regulated ambient air pollutants. Regulation of air quality is also delegated to some states. Air quality is determined by atmospheric pollutants and chemistry, dispersion meteorology and terrain, and also includes applications of noise, smoke

management, and visibility. Climate is the composite of generally prevailing weather conditions of a particular region throughout the year, averaged over a series of years.

### 3.2.1 Air Quality

Project area air quality is very good. The EPA air quality index (AQI) is an index used for reporting daily air quality (<http://www.epa.gov/oar/data/geosel.html>). It tells how clean or polluted an area's air is and whether associated health effects might be a concern. The AQI focuses on the potential health effects a person may experience within a few hours or days after breathing polluted air. EPA calculates the AQI for the five major criteria air pollutants regulated by the Clean Air Act (CAA): ground-level ozone, particulate matter, carbon monoxide, sulfur dioxide, and nitrogen dioxide. For each of these pollutants, EPA has established national air quality standards to protect public health. An AQI value of 100 generally corresponds to the national air quality standard for the pollutant, which is the level EPA has set to protect public health. The following terms help interpret the AQI information:

- **Good** - The AQI value is between 0 and 50. Air quality is considered satisfactory and air pollution poses little or no risk.
- **Moderate** - The AQI is between 51 and 100. Air quality is acceptable; however, for some pollutants there may be a moderate health concern for a very small number of people. For example, people who are unusually sensitive to ozone may experience respiratory symptoms.
- **Unhealthy for Sensitive Groups** - When AQI values are between 101 and 150, members of "sensitive groups" may experience health effects. These groups are likely to be affected at lower levels than the general public. For example, people with lung disease are at greater risk from exposure to ozone, while people with either lung disease or heart disease are at greater risk from exposure to particle pollution. The general public is not likely to be affected when the AQI is in this range.

In the context of ozone, all areas throughout Montana and the Dakotas are currently meeting federal standards in all locations. Light and dark blue circles in Figure 3.2.1.1 indicate standards being met in 2008. Open circles in Figure 3.2.1.2 indicate static trends.

For haze, trends appear to be improving for the clearest days (Figure 3.2.1.3), while there are no apparent trends for the haziest days (Figure 3.2.1.4).

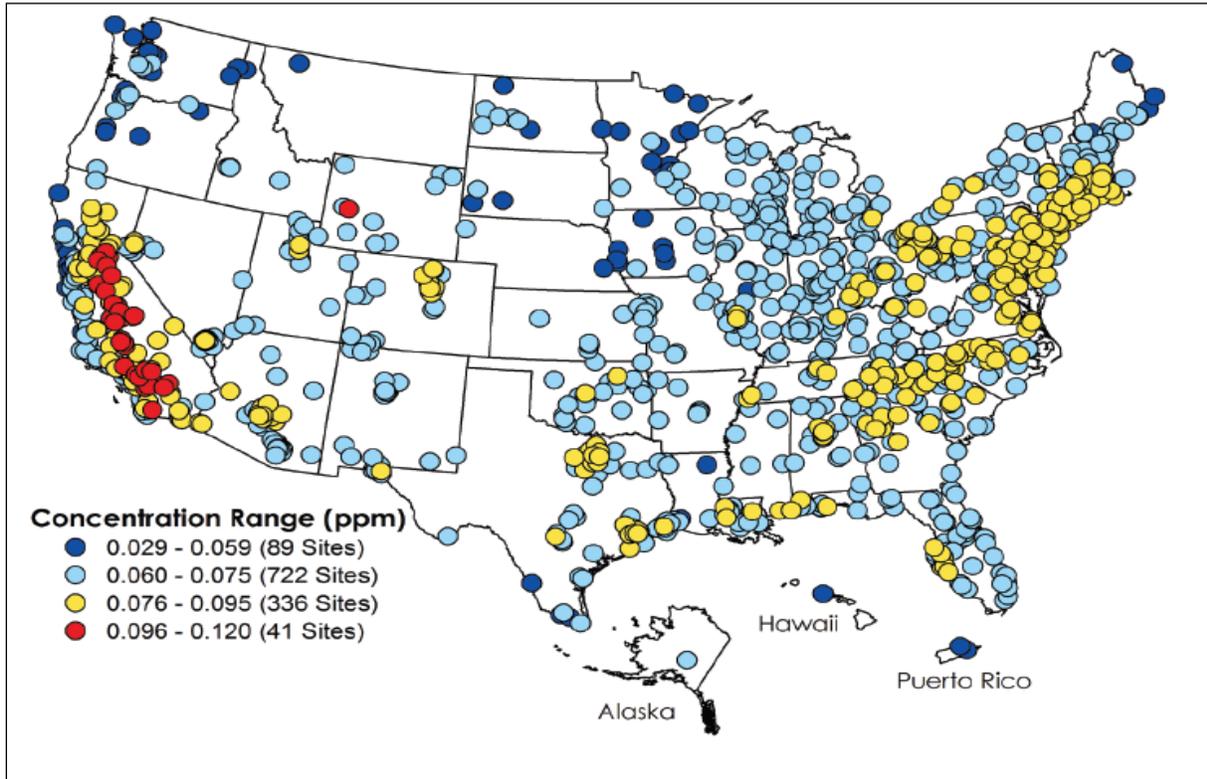
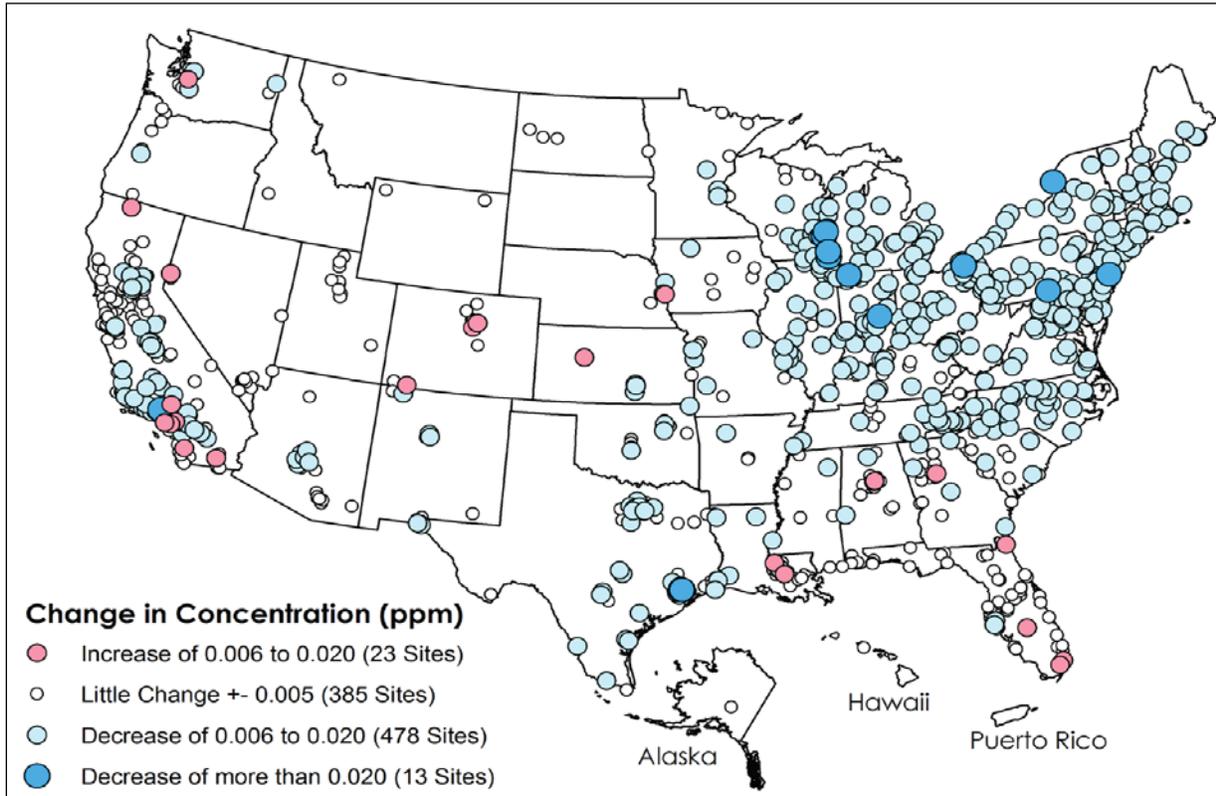


Figure 3.2.1.1. Ozone concentrations in ppm, 2008 (fourth highest daily maximum 8-hour concentration).



**Figure 3.2.1.2. Change in ozone concentrations in ppm, 2001-2003 vs. 2006-2008 (three-year average of the annual fourth highest daily maximum 8-hour concentrations).**

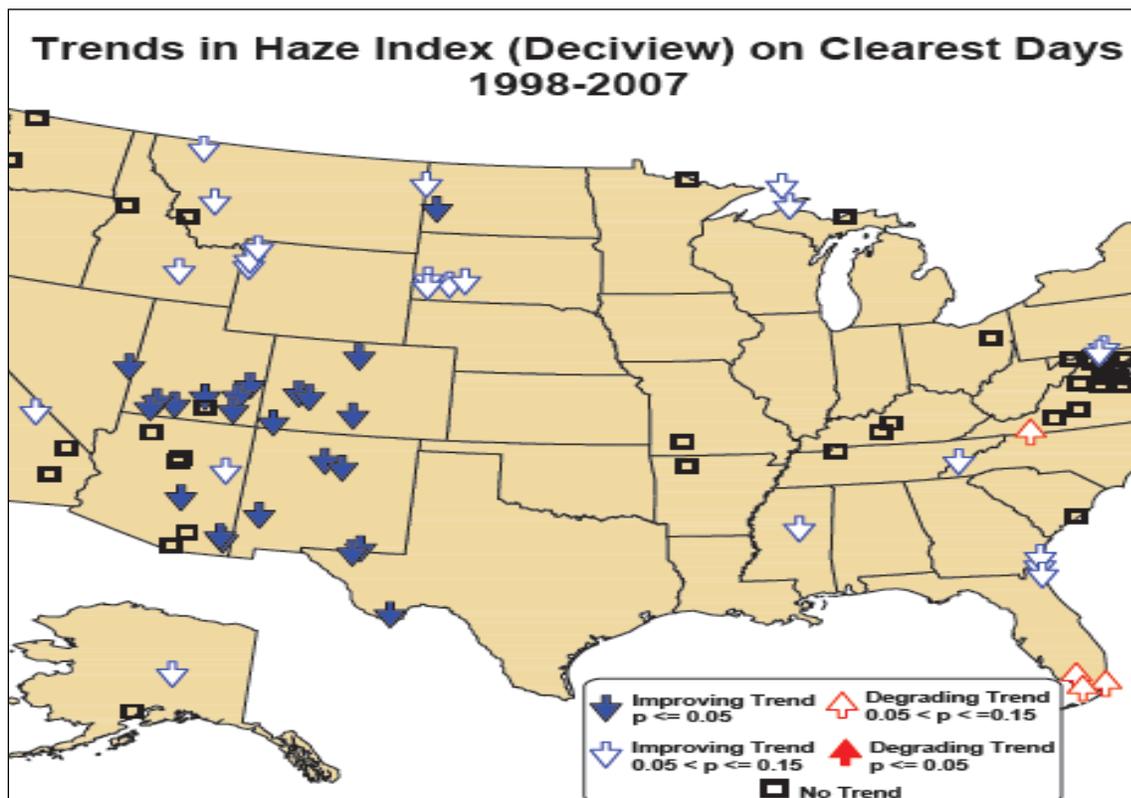


Figure 3.2.1.3. Trends in haze index (deciview) on clearest days, 1998-2007.

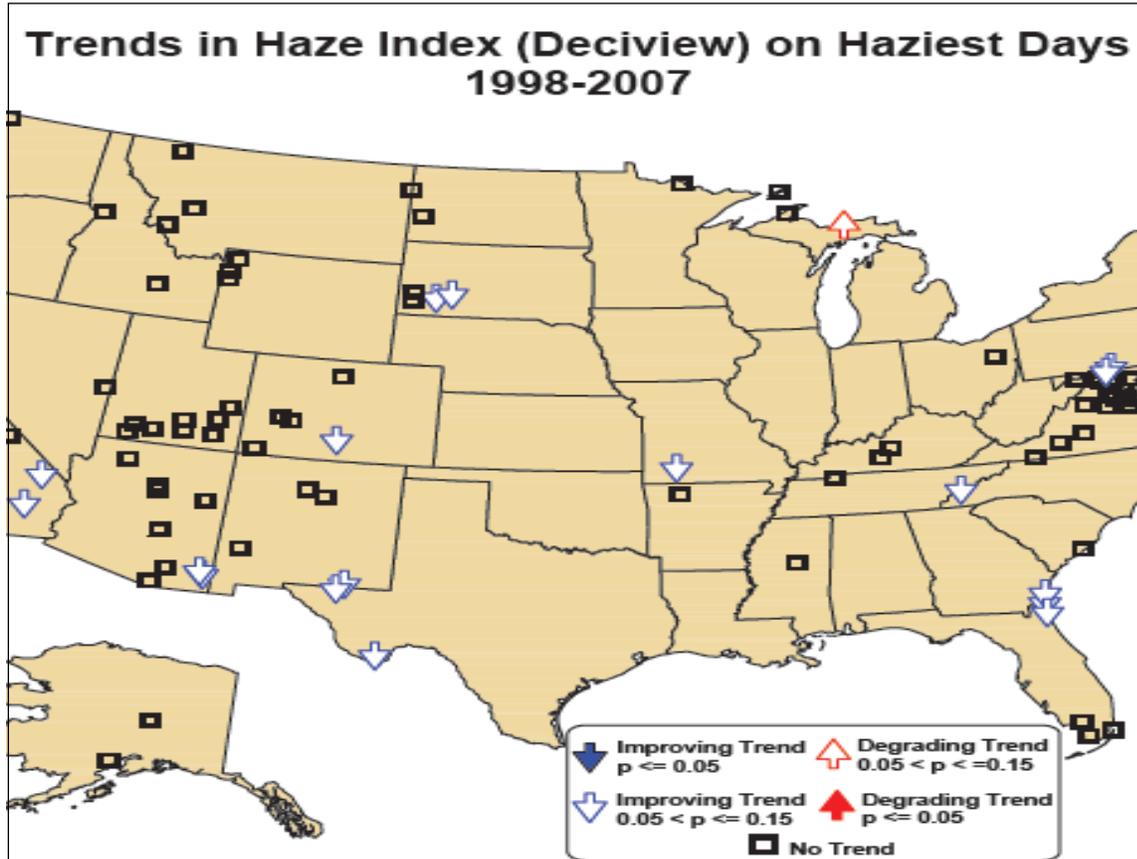


Figure 3.2.1.4. Trends in haze index (deciview) on haziest days, 1998-2007.

The AQI data in Table 3.2.1 show that there is little risk to the general public from air quality in North Dakota (99 percent of the days are rated “good” with 1 percent being “moderate”). While  $PM_{2.5}$  does pose a slightly elevated health risk in Cass County (in far eastern North Dakota where there is no surface or subsurface BLM management responsibility), the risk is very short-term occurring about one day per year.

Table 3.2.1 US EPA – Air Data Air Quality Index Report							
See <a href="http://www.epa.gov/airnow/aqibroch/">http://www.epa.gov/airnow/aqibroch/</a>							
(2004-2009)							
Counties with > 500 acres of BLM managed resources.							
BLM - Surface and Subsurface							
BLM – Subsurface							
County	State	# Days with Data	# Days rated Good	# Days Rated Mod	# Days Rated Unhealthy for Sensitive Groups	# Days Rated Unhealthy	Maxi AQI value
Billings Co	ND	1,681	1,653	28	0	0	80
Burke Co	ND	1,796	1,780	16	0	0	80
Burleigh Co	ND	1,367	1,340	26	1	0	102
Cass Co	ND	1,794	1,721	67	3	3	162
Dunn Co	ND	1,793	1,783	10	0	0	77
McKenzie Co	ND	1,796	1,760	36	0	0	87
McLean Co	ND	1,168	1,168	0	0	0	27
Mercer Co	ND	1,796	1,762	34	0	0	77
Oliver Co	ND	1,795	1,786	9	0	0	71
Williams Co	ND	1,727	1,720	7	0	0	55
Morton Co	ND	366	361	5	0	0	56
N.Dak Totals		17,079	16,834	238	4	3	
N.Dakota Percentages			99 percent	1 percent	0 percent	0 percent	

In 2008 lands within the NDFO were in compliance with all air quality standards. The following information presents the worst case scenario as they reflect the highest recorded monitoring data from across the state. This includes the more populated areas, such as Cass County, where there is no BLM management responsibility. Sulfur Dioxide reached 55.3 percent of the standard (one hour); nitrogen dioxide reached 10.9 percent; carbon monoxide reached 18.5 percent (one hour), Ozone reached 82.6 percent, PM<sub>2.5</sub> reached 68 percent (24-hour), and PM<sub>10</sub> reached 72 percent of the standard. This indicates that current air quality is very good, falling well below applicable standards.

### 3.2.2 Climate Change

Climate change is defined by the Intergovernmental Panel on Climate Change (IPCC) as “a change in the state of the climate that can be identified (e.g., by using statistical tests) by changes

in the mean and/or the variability of its properties, and persist for an extended period, typically decades or longer. It refers to any change in climate over time, whether due to natural variability or as a result of human activity.” (IPCC 2007a). Climate change and climate science are discussed in detail in the Climate Change Supplementary Information Report for Montana, North Dakota, and South Dakota, Bureau of Land Management (Climate Change SIR 2010). This document is incorporated by reference into this EA.

The Intergovernmental Panel on Climate Change (as cited in Climate Change SIR, 2010) states, “Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level.” Global average temperature has increased approximately 1.4°F since the early 20<sup>th</sup> century (Climate Change SIR, 2010). Warming has occurred on land surfaces, oceans and other water bodies, and in the troposphere (lowest layer of earth’s atmosphere, up to 4-12 miles above the earth). Other indications of global climate change described by IPCC 2007b (Climate Change SIR, 2010) include:

- Rates of surface warming increased in the mid-1970s and the global land surface has been warming at about double the rate of ocean surface warming since then;
- Eleven of the last 12 years rank among the 12 warmest years on record since 1850;
- Lower-tropospheric temperatures have slightly greater warming rates than the earth’s surface from 1958-2005.

As discussed and summarized in Climate Change SIR (2010), earth has a natural greenhouse effect wherein naturally occurring gases such as water vapor, CO<sub>2</sub>, methane, and N<sub>2</sub>O absorb and retain heat. Without the natural greenhouse effect, earth would be approximately 60°F cooler (Climate Change SIR, 2010). Current ongoing global climate change is believed by scientists to be linked to the atmospheric buildup of greenhouse gases (GHGs), which may persist for decades or even centuries. Each GHG has a global warming potential that accounts for the intensity of each GHG’s heat-trapping effect and its longevity in the atmosphere (summarized in Climate Change SIR, 2010). The buildup of GHGs such as CO<sub>2</sub>, methane, N<sub>2</sub>O, and halocarbons since the start of the industrial revolution has substantially increased atmospheric concentrations of these compounds compared to background levels. At such elevated concentrations, these compounds absorb more energy from the earth’s surface and re-emit a larger portion of the earth’s heat back to the earth rather than allowing the heat to escape into space than would be the case under more natural conditions of background GHG concentrations.

A number of activities contribute to the phenomenon of climate change, including emissions of GHGs (especially carbon dioxide and methane) from fossil fuel development, large wildfires, and activities using combustion engines; changes to the natural carbon cycle; and changes to radiative forces and reflectivity (albedo). It is important to note that GHGs will have a sustained climatic impact over different temporal scales due to their differences in global warming

potential (described above) and lifespans in the atmosphere. For example, CO<sub>2</sub> proper may last 50 to 200 years in the atmosphere while methane has an average atmospheric life time of 12 years (Climate Change SIR, 2010).

North Dakota, Montana, and South Dakota are all in the lower third of GHG-emitting states (by volume). North Dakota ranks 37, Montana ranks 42, and South Dakota ranks 43. Only Hawaii and Idaho have lower emissions than Montana and South Dakota among western states ([http://assets.opencrs.com/rpts/RL34272\\_20071205.pdf](http://assets.opencrs.com/rpts/RL34272_20071205.pdf), Ramseur 2007). Montana, North Dakota, South Dakota combine for 1.8 percent of the United States' (U.S.) greenhouse gas emissions.

Some information and projections of impacts beyond the project scale are becoming increasingly available. Chapter 3 of the Climate Change SIR (2010) describes impacts of climate change in detail at various scales, including the state scale when appropriate. The following bullet points summarize potential changes identified by the EPA (EPA, 2008) that are expected to occur at the regional scale, where the proposed action and its alternatives are to take place. The EPA identifies this area as part of the Mountain West and Great Plains

(<http://www.epa.gov/Region8/climatechange/pdf/ClimateChange101FINAL.pdf>):

- The region is expected to experience warmer temperatures with less snowfall.
- Temperatures are expected to increase more in winter than in summer, more at night than in the day, and more in the mountains than at lower elevations.
- Earlier snowmelt means that peak stream flow would be earlier, weeks before the peak needs of ranchers, farmers, recreationists, and others. In late summer, rivers, lakes, and reservoirs would be drier.
- More frequent, more severe, and possibly longer-lasting droughts are expected to occur.
- Crop and livestock production patterns could shift northward; less soil moisture due to increased evaporation may increase irrigation needs.
- Drier conditions would reduce the range and health of ponderosa and lodgepole pine forests, and increase the susceptibility to fire. Grasslands and rangelands could expand into previously forested areas.
- Ecosystems would be stressed, and wildlife such as the mountain lion, black bear, long-nose sucker, marten, and bald eagle could be further stressed.

Other impacts could include:

- Increased particulate matter in the air as drier, less-vegetated soils experience wind erosion.
- Shifts in vegetative communities which could threaten plant and wildlife species.
- Changes in the timing and quantity of snowmelt which could affect both aquatic species and agricultural needs.

Projected and documented broad-scale changes within ecosystems of the U.S. are summarized in the Climate Change SIR (2010). Some key aspects include:

- Large-scale shifts have already occurred in the ranges of species and the timing of the seasons and animal migrations. These shifts are likely to continue (Climate Change SIR, 2010). Climate changes include warming temperatures throughout the year and the arrival of spring an average of 10 days to two weeks earlier through much of the U.S. compared to 20 years ago. Multiple bird species now migrate north earlier in the year.
- Fires, insect epidemics, disease pathogens, and invasive weed species have increased, and these trends are likely to continue. Changes in timing of precipitation and earlier runoff increase fire risks.
- Insect epidemics and the amount of damage that they may inflict have also been on the rise. The combination of higher temperatures and dry conditions have increased the western U.S. and Canada. Warmer winters allow beetles to survive the cold season, which would normally limit populations, while concurrently, drought weakens trees, making them more susceptible to mortality due to insect attack.

More specific to North Dakota, additional projected changes associated with climate change described in Section 3 of the Climate Change SIR (2010) include:

- Temperature increases in North Dakota are predicted to be between 3 to 5°F at mid-21<sup>st</sup> century and between 5 to 10°F at the end of the 21<sup>st</sup> century over most of the state. As the mean temperature rises, more heat waves are predicted to occur. In the late 21<sup>st</sup> century, the number of days per year with temperatures above 100°F is predicted to be between 10 and 45, depending on the level of GHG emissions, with the largest increase in the number days over 100°F occurring in the southern portion of the state.
- Precipitation increases are predicted to be 15-20 percent, and 20-30 percent in spring in North Dakota by the late 21<sup>st</sup> century. Precipitation is also predicted to decrease slightly in summer, and remain relatively unchanged in the fall.
- For the western portion of the state, annual median runoff is expected to decrease between 2 and 5 percent by mid-21<sup>st</sup> century, while runoff in the northeastern part of the state would increase by 5-10 percent.
- Crop yields may increase in North Dakota, associated with predicted temperature increases.
- North Dakota's Prairie Pothole wetlands are expected to decline in quality, due to their shallow depths and rapid evaporation rates. Shrinking wetlands may lead to decreases in waterfowl populations.
- Wildland fire risk is predicted to continue to increase due to climate change effects on temperature, precipitation, and wind. One study predicted an increase in median annual area burned by wildland fires in the western portion of North Dakota, based on a 1°C global average temperature increase, to be 393 percent.

While long-range regional changes might occur within this project area, it is impossible to predict precisely when they could occur. The following example summarizing climate data for

the West North Central Region (MT, ND, SD, WY) illustrates this point at the regional scale. A potential regional effect of climate change is earlier snowmelt and associated runoff. This is directly related to springtime temperatures. Over a 112-year record, overall warming is clearly evident with temperatures increasing 0.21 degrees per decade (Figure 3.2.2.1). This would suggest that runoff may be occurring earlier than in the past. However, data from 1991-2005 indicates a 0.45 degree per decade cooling trend (Figure 3.2.2.2). This example is not an anomaly, because several other 15-year windows can be selected to show either

, and the eruption of large volcanoes (summarized in Climate Change SIR, 2010). This information illustrates the difficulty of predicting actual regional or site-specific changes or conditions which may be due to climate change during any specific time frame.

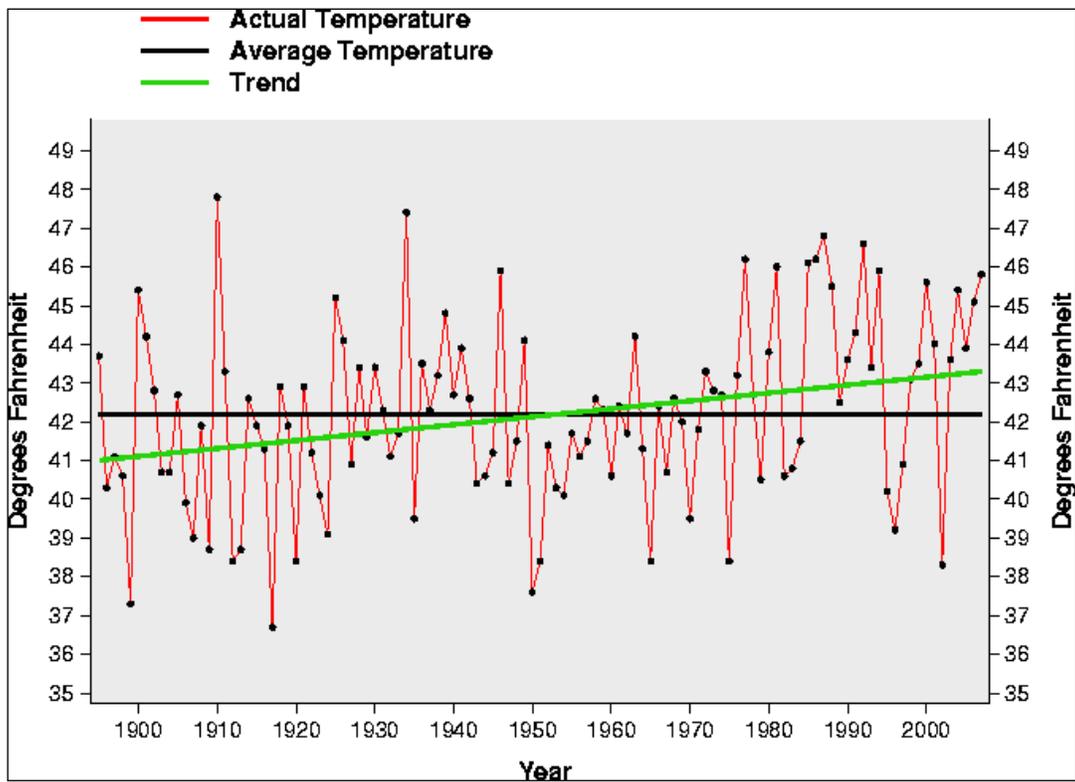


Figure 3.2.2.1. Regional climate summary of spring temperatures (March-May) for the West North Central Region (MT, ND, SD, WY), from 1895-2007. (Source: NOAA website – <http://www.ncdc.noaa.gov/oa/climate/research/cag3/wn.html>)

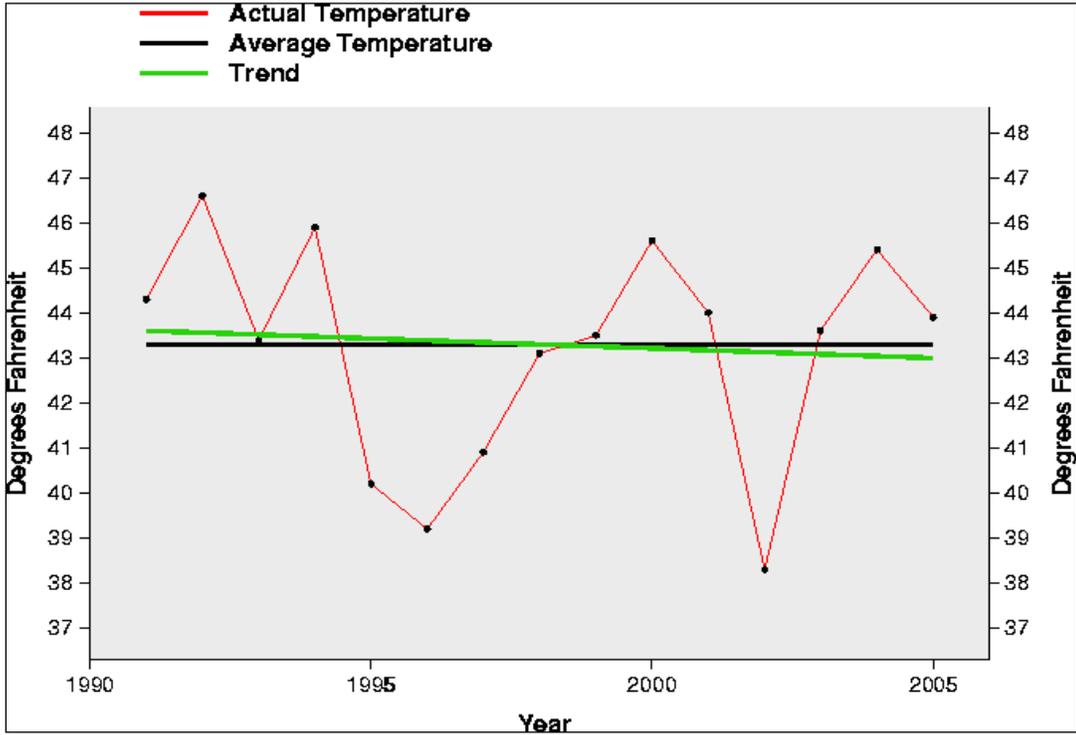


Figure 3.2.2.2. Regional climate summary of spring temperatures (March-May) for the West North Central Region (MT, ND, SD, WY), from 1991-2005. (Source: NOAA website – <http://www.ncdc.noaa.gov/oa/climate/research/cag3/wn.html>)

### 3.3 Soil Resources

The west-central part of the state is covered with drift remnants of glacial till. Topography in this area is undulating to strongly rolling (3-15 percent slopes) with extensive areas of hilly and steep slopes (greater than 15 percent) along Lake Sakakawea (the Missouri River Breaks) and some of the tributaries of the Missouri River, (e.g., Knife River). These soils have formed in the shale and sandstone (Cabba, Morton), alluvium in potholes and depressions (Parnell, Tonka), and glacial till (Williams, Bowbells, Zahl) (NDFO RMP, 1988).

The proposed lease area includes many soil types and complexes, including several that are sensitive and that could be adversely impacted by oil and gas-related activities. These types include those that have high erosion ratings, those with steep slopes, and those with limitations related to construction activities and reclamation.

### 3.4 Water Resources

#### Hydrology – Surface Water Quality

None of the parcels contain perennial or intermittent streams that have been identified as impaired by the North Dakota Department of Health.

Lease parcels that are within surface water of Lake Sakakawea will not have detrimental effects to the lake; parcels will include a no surface occupancy (NSO) stipulation preventing surface occupation of the parcel for exploration. However, parcels may still be accessed through horizontal drilling, but that should have no effect on surface water quality. See Appendix A for more detail.

### **Hydrology – Ground Water**

The quality and availability of ground water varies greatly across the three-state region (Montana, North Dakota, and South Dakota). Aquifers in western Montana are typically in unconsolidated, alluvial valley-fill materials within intermontane valleys. The intermontane valley aquifers often yield relatively large quantities of high quality water compared to relatively shallow water wells. Because many wells are being constructed in these aquifers as development encroaches, fractured bedrock aquifers surrounding the intermontane valleys are becoming important. Residents in eastern Montana and the Dakotas commonly get their ground water from aquifers consisting of unconsolidated, alluvial valley-fill materials, glacial outwash, or consolidated sedimentary rock formations. Aquifers that residents most commonly used in this area include the Fort Union, Hell Creek, Fox Hills, Judith River, and Eagle consolidated formations. In some areas east of the Rocky Mountains, near-surface thick shale deposits such as those of the Colorado Group and Bearpaw (Pierre) Shale severely limit the economic availability of water to wells or provide water of quality too poor for most uses.

### **3.5 Vegetation Resources**

As described in the Introduction to this EA, all the lease parcels are located in western North Dakota, which is located in the Northern Mixed Grass Prairie. The Northern Mixed Grass Prairie is known for its diverse vegetation types, soil types, and topography. Vegetation is comprised of both tall and short grass as well as both warm and cool season grasses. A variety of grass-like plants, forbs, shrubs, and trees also add to the vegetation diversity of this rangeland type. Many of these plant species are found in woody draws and riparian/wetland zones.

#### **3.5.1 Vegetation Communities**

Six major vegetation communities have been identified for the study area: native mixed grass prairie, wooded draws, agricultural lands, improved or restored pastures, riparian-wetlands, and other disturbed vegetative communities.

As a whole, the North Dakota landscape is comprised of a mosaic pattern. Settlement and privatization of most of the state has led to this pattern; therefore, large blocks of vegetative communities free of human disturbances are rare.

#### **Native Mixed Grass Prairie**

The native mixed grassland community is dominated by perennial grasses. Perennial grasses can be both warm season and cool season grasses, and they can also be both tall and short grasses. Some of the more common grasses include: western wheatgrass (*Pascopyrum smithii*), needle-and-thread (*Hesperostipa comata*), green needlegrass (*Nassella viridula*), blue grama (*Bouteloua gracilis*), and prairie junegrass (*Koeleria macrantha*). Various forbs and shrubs are present but occur as a minor species composition component throughout the community. Many of these species occur in woody draws.

### **Wooded Draw**

The wooded draw habitat type develops in ravines where the microclimate, primarily greater moisture, is suitable for the growth and development of trees. The major species include green ash, American elm, cottonwood, and quaking aspen. Wooded draws also support a variety of shrub species including chokecherry, American plum, western snowberry, buffaloberry, red-osier dogwood, Missouri gooseberry, and juneberry. (North Dakota RMP/EIS, 1988).

### **Improved or Restored Pasture**

Improved pastures consists of cultivated areas planted with introduced forage species, including crested wheatgrass and smooth brome (*Bromus inermis*) and intermediate wheatgrass (*Thinopyrum intermedium*) and alfalfa (*Medicago sativa*), planted specifically for the improved forage production for livestock consumption.

Restored pastures may include sub-marginal agricultural lands that have been restored due to poor crop production and/or high erosion potential. Historically, restored pastures were dominated by a monoculture of crested wheatgrass. These crested wheatgrass seedings are still present today and are essentially unchanged from when they were planted. They can be visible on aerial photographs, and grass, forb, and shrub species composition are similar from one crested seeding to another. More recent restoration activities of agricultural lands use a combination of crested wheatgrass, smooth brome, intermediate wheatgrass, or species native to Northern Mixed Grass Prairie.

### **Agriculture**

The agriculture community is comprised of monocultures of crops which may include small grains, alfalfa, corn, sunflowers, or other crops grown primarily as supplemental feed sources for livestock production operations. These areas have been completely disturbed from the native vegetation potentials.

### **Riparian-Wetlands**

Riparian-wetland areas are among the most productive and important ecosystems, comprising approximately one percent of all national public lands. Characteristically, riparian-wetland areas display a greater diversity of plant, fish, wildlife, and other animal species and vegetative structure than adjoining ecosystems. Some of the more common vegetative species that occur in

these areas include: prairie cordgrass, switchgrass, Canada wildrye, western wheatgrass, sedges (*Carex spp.*), rushes (*Juncus spp.*), willow, chokecherry, buffaloberry, and plains cottonwood. Healthy riparian systems filter and purify water as it moves through the riparian-wetland zone, reduce sediment loads and enhance soil stability, provide micro-climate moderation when contrasted to temperature extremes in adjacent areas, and contribute to ground water recharge and base flow (USDI, BLM, 1987b).

Prairie potholes are depressional wetlands created by the scouring action of glaciers. The formerly glaciated landscape within the study area is pockmarked with a number of these potholes, which fill with snowmelt and rain in the spring. Some prairie pothole marshes are temporary, while others may be essentially permanent. Submerged and floating aquatic plants take over the deeper water in the middle of the potholes, while bulrushes and cattails grow closer to shore.

### **Other Disturbed Vegetation Communities**

Other disturbed vegetation communities include human disturbances or alterations to the landscape. These disturbances include, but are not limited to: infrastructure developments (e.g., roads, powerlines, pipelines, and fences), chemical applications, livestock grazing, farming and ranching, and industrial and commercial facilities. Invasive, non-native grasses such as smooth brome and crested wheatgrass are commonly found on these disturbed areas. For example, smooth brome was planted in many road ditches and has encroached into areas bordering road ditches. This is often true for native prairie sites adjacent to roadways; therefore, these sites often have a smooth brome component due to its ability to spread by creeping rhizomes.

Wildfire prevention, manipulation, and suppression activities are also human alterations on natural processes that have altered vegetation communities in western North Dakota.

### **3.5.2 Noxious Weeds**

Noxious weeds occur randomly in isolated pockets within the study area. No known populations are located within the parcels, but all of North Dakota has the potential for infestation. The following table (Table 3.5.2.1) shows the noxious weeds in North Dakota.

<b>Common Name</b>	<b>Scientific Name</b>
Absinth wormwood	<i>Artemisia absinthium</i>
Canada thistle	<i>Cirsium arvense</i>
Dalmatian toadflax	<i>Linaria genistifolia</i>
Diffuse knapweed	<i>Centaurea diffusa</i>
Field bindweed	<i>Convolvulus arvensis</i>
Leafy spurge	<i>Euphorbia esula</i>
Musk thistle	<i>Carduus nutans</i>

Purple loosestrife	<i>Lythrum salicaria</i>
Russian knapweed	<i>Acroptilon repens</i>
Saltcedar	<i>Tamarix ramosissima</i>
Spotted knapweed	<i>Centaurea maculosa</i>

**Table 3.5.2.1. Noxious weeds in North Dakota**

### 3.6 Special Status Species

#### 3.6.1 Special Status Animals Species

A number of animal species are priority species for BLM and could be found occupying habitats associated with the proposed lease nominations. Special status species (SSS) are species that are limited in number or that have observed a steady decline in their numbers across their range.

The **Special Status Species** designation includes **sensitive** and state listed as well as federally **proposed, listed, and candidate** species.

**Sensitive** species are those designated as sensitive by a BLM state director, usually in cooperation with the state agency responsible for managing the species and state natural heritage programs. They are those species that: (1) could become endangered in or extirpated from a state or within a significant portion of its distribution; (2) are under status review by the U.S. Fish and Wildlife Service (FWS); (3) are undergoing significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution; (4) are undergoing significant current or predicted downward trends in population or density such that federal listed, proposed, candidate, or state-listed status may become necessary; (5) typically have small and widely dispersed populations; (6) inhabit ecological refugia or other specialized or unique habitats; or (7) are state-listed but which may be better conserved through application of the BLM Sensitive Species Status.

**State Listed (or Species of Conservation Priority)** this designation includes species in decline at the state level whose population levels are not well known but are thought to be in decline.

**Proposed** species are species that have been officially proposed for listing as threatened or endangered by the Secretary of the Interior, and a proposed rule has been published in the Federal Register.

**Listed** species are designated as threatened or endangered by the Secretary of the Interior under the provisions of the Endangered Species Act, and a final rule for the listing has been published in the Federal Register.

**Candidate** species are designated as candidates for listing as threatened or endangered by the FWS, and listings have been published in the Federal Register.

### 3.6.1.1 Aquatic Wildlife

The analysis area contains sufficient habitat for five fish, one amphibian, and one reptile that are special status species. All of these species depend on perennial and intermittent streams or rivers with intact floodplains, wetlands and riparian areas that are properly functioning. Threats to the aquatic species include but are not limited to habitat modification, small population size, limited natural reproduction, hybridization, pollution and contaminants.

Species	USFWS Status	BLM Sensitive	In Range	Suitable Habitat present
Blue sucker	none	Sensitive	Yes	Yes
Northern Redbelly X Finescale Dace	none	Sensitive	Yes	Yes
Paddlefish	none	Sensitive	Yes	Yes
Sicklefin chub	none	Sensitive	Yes	Yes
Sturgeon Cub	none	Sensitive	Yes	Yes
Snapping Turtle	none	Sensitive	Yes	Yes
Plains spadefoot	none	Sensitive	Yes	Yes

**Table 3.6.1. Aquatic sensitive or special status wildlife species in the analysis area**

### 3.6.1.2 Terrestrial Wildlife

Evaluation of wildlife values at the landscape scale as a first step is key to understanding potential impacts of a large project. Various agencies and non-governmental organizations have evaluated wildlife values, including terrestrial conservation species, species richness, game quality, etc. and have been mapped to various degrees at the landscape level.

Lease parcels were reviewed utilizing these GIS overlays to assess potential aquatic, terrestrial and other habitat values. This course-scale landscape analysis of wildlife resources provides one tool for understanding the context of the wildlife values at a large scale. Fine-scaled tools, data, and resource information based on inventory and monitoring data, as well as local knowledge from BLM and NDGF employees, are used to further examine resource issues at the site-specific level.

The analysis area covers a wide variety of habitat consistent with the Northern Great Plains. Lease parcels are located within sagebrush grasslands, short and mixed grass prairies, riparian and woody draw habitats, wetland habitats and others. See section 3.5 for a detailed description of vegetation.

### **Grassland Birds**

Several of the proposed lease nomination areas provide excellent habitat for a suite of sensitive bird species associated with northern mixed-grass and short-grass prairie habitats. The mixed-grass prairie contains both warm season grasses and cool season grasses such as blue grama, needle-and-thread, prairie junegrass, western snowberry, and western wheatgrass.

Some of the more common species which depend on these habitats are: Swainson's hawk (*Buteo swainsoni*), ferruginous hawk (*Buteo regalis*), golden eagle (*Aquila chrysaetos*), long-billed curlew (*Numenius americanus*), marbled godwit (*Limosa fedoa*), burrowing owl (*Athene cunicularia*), Sprague's pipit (*Anthus spragueii*), Le Conte's sparrow (*Ammodramus leconteii*), Baird's sparrow (*Ammodramus bairdii*), logger-head shrike (*Lanius ludovicianus*), black tern (*Chlidonias niger*), Nelson's sharp-tailed sparrow (*Ammodramus nelsonii*), willet (*Catoptrophorus semipalmatus*), Wilson's phalarope (*Phalaropus tricolor*), and the yellow rail (*Coturnicops noveboracensis*). [see table 3.6.2 for a complete list]

Most birds found within the analysis area are migratory. Populations of some of these species are declining as a consequence of land use practices and other factors. Many species of grassland birds nest and raise their young on these lease parcels. Neo-tropical migrants exhibit quite variable habitat requirements and are found in most habitat types.

### **Mammals and Reptiles**

Four sensitive species of mammals and three species of reptiles have the potential to be found within the analysis area. Several species of bats which are commonly found in close relation to conifer stands and rocky outcroppings, prairie dogs and the swift fox completes the list. Swift fox sightings were last observed in Mercer and Golden Valley Counties in 1976 and 1990 respectively.

<b>Birds</b>	<b>Scientific Name</b>	<b>Global Rank</b>	<b>State Rank</b>	<b>NDGF Rank</b>
<b>Baird's Sparrow</b>	<i>Ammodramus bairdii</i>	<b>G4</b>	<b>SU</b>	<b>Level 1</b>
<b>Black Tern</b>	<i>Chlidonias niger</i>	<b>G4</b>	<b>SU</b>	<b>Level 1</b>
<b>Brewer's Sparrow</b>	<i>Spizella breweri</i>	<b>G5</b>	<b>S3</b>	<b>Level 3</b>
<b>Burrowing Owl</b>	<i>Athene cunicularia</i>	<b>G4</b>	<b>SU</b>	<b>Level 2</b>
<b>Chestnut-collared Longspur</b>	<i>Calcarius ornatus</i>	<b>G5</b>	<b>SU</b>	<b>Level 1</b>
<b>Common Loon</b>	<i>Gavia immer</i>	<b>G5</b>	<b>S4</b>	<b>Not Ranked</b>
<b>Dickcissel</b>	<i>Spiza americana</i>	<b>G5</b>	<b>SU</b>	<b>Level 2</b>
<b>Ferruginous Hawk</b>	<i>Buteo regalis</i>	<b>G4</b>	<b>SU</b>	<b>Level 1</b>
<b>Franklin's Gull</b>	<i>Larus pipixcan</i>	<b>G4, G5</b>	<b>SU</b>	<b>Level 1</b>

<b>Golden Eagle</b>	<i>Aquila chrysaetos</i>	<b>G5</b>	<b>S3</b>	<b>Level 2</b>
<b>Greater Sage-grouse</b>	<i>Centrocercus urophasianus</i>	<b>G4</b>	<b>SU</b>	<b>Level 2</b>
<b>Le Conte's Sparrow</b>	<i>Ammodramus leconteii</i>	<b>G4</b>	<b>SU</b>	<b>Level 2</b>
<b>Loggerhead Shrike</b>	<i>Lanius ludovicianus</i>	<b>G4</b>	<b>SU</b>	<b>Level 2</b>
<b>Long-billed Curlew</b>	<i>Numenius americanus</i>	<b>G5</b>	<b>S2</b>	<b>Level 1</b>
<b>Marbled Godwit</b>	<i>Limosa fedoa</i>	<b>G5</b>	<b>SU</b>	<b>Level 1</b>
<b>McCown's Longspur</b>	<i>Calcarius mccownii</i>	<b>G4</b>	<b>S2</b>	<b>Level 3</b>
<b>Nelson's Sharp-tailed Sparrow</b>	<i>Ammodramus nelsonii</i>	<b>G5</b>	<b>SU</b>	<b>Level 1</b>
<b>Northern Goshawk</b>	<i>Accipiter gentilis</i>	<b>G5</b>	<b>SU</b>	<b>Not Ranked</b>
<b>Peregrine Falcon</b>	<i>Falco peregrinus</i>	<b>G4, T4</b>	<b>S1</b>	<b>Level 3</b>
<b>Sedge Wren</b>	<i>Cistothorus platensis</i>	<b>G5</b>	<b>SU</b>	<b>Level 2</b>
<b>Sprague's Pipit</b>	<i>Anthus spragueii</i>	<b>G4</b>	<b>S3</b>	<b>Level 1</b>
<b>Swainson's Hawk</b>	<i>Buteo swainsoni</i>	<b>G5</b>	<b>SU</b>	<b>Level 1</b>
<b>White-faced Ibis</b>	<i>Plegadis chihi</i>	<b>G5</b>	<b>SU</b>	<b>Not Ranked</b>
<b>Willet</b>	<i>Catoptrophorus semipalmatus</i>	<b>G5</b>	<b>SU</b>	<b>Level 1</b>
<b>Wilson's Phalarope</b>	<i>Phalaropus tricolor</i>	<b>G5</b>	<b>SU</b>	<b>Level 1</b>
<b>Yellow Rail</b>	<i>Coturnicops noveboracensis</i>	<b>G4</b>	<b>S2</b>	<b>Level 1</b>
<b>Snapping Turtle</b>	<i>Chelydra serpentina</i>	<b>n/a</b>	<b>n/a</b>	<b>Level 2</b>
<b>Western Hog-nosed snake</b>	<i>Heterodon nasicus</i>	<b>n/a</b>	<b>n/a</b>	<b>Level 3</b>
<b>Long-legged myotis</b>	<i>Myotis volans</i>	<b>n/a</b>	<b>n/a</b>	<b>Level 3</b>
<b>Long-eared myotis</b>	<i>Myotis evotis</i>	<b>n/a</b>	<b>n/a</b>	<b>Level 3</b>
<b>Black-tailed Pr. Dog</b>	<i>Cynomys ludovicianus</i>	<b>n/a</b>	<b>n/a</b>	<b>Level 1</b>
<b>Swift Fox</b>	<i>Vulpes velox</i>	<b>n/a</b>	<b>n/a</b>	<b>Level 2</b>

Table 3.6.2. presents sensitive bird/mammal/reptile species found in North Dakota and includes their global, state, and North Dakota Game and Fish (NDGF) ranks.

The State of North Dakota employs the standardized ranking system to denote global (or range-wide) and state status (Nature Serve, 2006). NDGF assigns numeric ranks ranging from 1 (highest risk, greatest concern) to 5 (demonstrably secure), reflecting the relative degree of risk to the species' viability, based on available information.

### 3.6.2.1 Threatened, Endangered, Candidate, and Proposed Species

Threatened, endangered, candidate, or proposed bird species may occupy habitat infrequently or seasonally within the analysis area. These species include:

Interior Least Tern--*Sterna antillarum athalassos* (Endangered)  
Whooping Crane--*Grus Americana* (Endangered)  
Piping Plover --*Charadrius melodus* (Threatened)  
Pallid Sturgeon-- *Scaphirhynchus albus* (Endangered)  
Dakota Skipper Butterfly-- *Hesperia dacotae* (Candidate)  
Greater Sage Grouse-- *Centrocercus urophasianus* (Candidate)  
Spragues pipit--*Anthus spraguui* (Candidate)

The Black-footed Ferret (*Mustela nigripes*) and the Gray Wolf (*Canis lupis*) are not known to occur within the planning area. Occasional sightings of wolves have been reported, but no documented home range has been identified.

#### ***Interior Least Tern***

The interior least tern was listed as endangered in 1985. From mid-May to mid-August, interior least terns use sparsely vegetated sandbars or shoreline salt flats of lakes along the Missouri River system including Lake Sakakawea. They are not found on any other water body or waterway in North Dakota.

#### ***Whooping Crane***

The whooping crane was listed as endangered in 1967. North Dakota lies directly in the middle of the major migratory path utilized by the remaining wild bird population. Sightings have been recorded in all the counties within the study area with the exception of McKenzie and Bowman counties. Palustrine wetland and cropland ponds are used during the migration for feeding and roosting. There has not been any recording nesting activity in North Dakota for more than 90 years. Recovery actions to protect and restore whooping cranes are outlined in the 2005 FWS Recovery Plan and can be found at: ([http://ecos.fws.gov/docs/recovery\\_plan/070604\\_v4.pdf](http://ecos.fws.gov/docs/recovery_plan/070604_v4.pdf))

#### ***Piping Plover***

Preferred habitat for the piping plover is generally characterized as exposed, sparsely vegetated shores and islands of shallow alkali lakes and impoundments. Salt-encrusted, alkali, or sub-saline semi-permanent lakes, ponds, and rivers with wide shorelines of gravel, sand, or pebbles are preferred.

The piping plover was listed as threatened in 1985. Critical habitat was designated in North Dakota in 2002 for the entire Lake Sakakawea boundary, the Missouri River as well as areas in Mountrail, Williams, Ward and Burke counties. Several parcels were identified as having

critical habitat associated with them. The FWS estimated approximately 2,000 breeding pairs were located in North Dakota in 1993, compared to 11,000 breeding pairs in 1967 (<http://www.fws.gov/mountain-prairie/species/birds/pipingplover/>)

### ***Pallid Sturgeon***

The pallid sturgeon was listed in 1990. Pallid sturgeons are found in the upper reaches of the Missouri River in North Dakota near the confluence with the Yellowstone River and in the Yellowstone River proper. However, the confluence is continuous with Lake Sakakawea, and this species may be found throughout the entire system. The pallid sturgeon is adapted for living close to the bottom of large, silty rivers with swift currents. They prefer habitat consisting of sand flats and gravel bars.

### ***Dakota Skipper Butterfly – Candidate Species***

The Dakota skipper butterfly species may occupy habitat infrequently or seasonally within the analysis area, however, it is not known to occupy any nominated lease parcels. The following counties in the analysis area have recorded sightings: Burke, Bottineau, Dunn, McHenry, McKenzie, Mountrail, and Ward.

The Dakota skipper can survive only in undisturbed, tall grass and mid-grass prairie. In the western part of North Dakota, the skipper can be found in ungrazed native pastures with little bluestem, needle-and-thread, and purple coneflower. Bluestem grass is a favorite food plant for the larval stage of the skipper. Dakota skippers rarely travel more than one-half mile in their entire lifetime.

### ***Sprague's Pipit – Candidate Species***

A 12 month finding for the Sprague's Pipit was published in the Federal Register by the Fish and Wildlife Service (USFWS) on September 15, 2010, warranting the listing of the Sprague's Pipit as a Federal protected species, but precluded the listing due to higher priority species. The species is currently on the candidate species list.

The Sprague's pipit is a relatively small (4–6 inches long and weighs 0.8-0.9 ounces) passerine endemic to the North American grasslands. It has a plain buff colored face with a large eye-ring. The Sprague's pipit is a ground nester that requires grassland habitats, preferably larger non-fragmented undisturbed habitat, at least 80 acres in size. It feeds mostly on insects, spiders, and some seeds.

Sprague's pipits are strongly tied to native prairie (land which has never been plowed) throughout their life cycle (Owens and Myres 1973, pp. 705, 708; Davis 2004, pp. 1138-1139; Dechant et al. 1998, pp. 1-2; Dieni et al. 2003, p. 31; McMaster et al. 2005, p. 219). They are rarely observed in cropland (Koper et al. 2009, p. 1987; Owens and Myres 1973, pp. 697, 707; Igl et al. 2008, pp. 280, 284) or land in the Conservation Reserve Program (a program whereby

marginal farmland is planted primarily with grasses) (Higgins et al. 2002, pp. 46-47). Sprague's pipits will use nonnative planted grassland (Higgins et al. 2002, pp. 46-47; Dechant et al. 1998, p. 3; Dohms 2009, pp. 77-78, 88). Vegetation structure may be a better predictor of occurrence than vegetation composition (Davis 2004, pp. 1135, 1137).

Potential habitats for the Sprague's Pipit exist throughout western North Dakota.

### **Greater Sage Grouse – Candidate Species**

On March 5, 2010, USFWS concluded sage grouse warrants protection under the Endangered Species Act. However, USFWS determined the listing of the species is precluded by the need to take action on higher priority species. Sage grouse was placed on the list of species that are candidates under the Endangered Species Act.

Sage grouse are a native prairie grouse species that are considered sagebrush obligates and depend on sagebrush for survival. In addition to sagebrush grasslands, sage grouse may also use mesic areas during brood rearing or during the summer/late summer season for habitat. Sage grouse habitat delineations have been developed for the sage grouse conservation alternatives being considered in the future NDFO RMP planning effort. This delineation effort resulted in the identification of sage grouse habitat characteristics important to the conservation of the species. These characteristics may include nesting habitat, brood rearing habitat, winter habitat, and connectivity to those habitats. Sage grouse are only found in Bowman, Slope and southern Golden Valley counties in North Dakota.

Bowman county has fourteen parcels nominated that are located in Sage Grouse Core habitat as defined by ND Game and Fish Department and BLM. These fourteen parcels are located in close proximity to known active and/or historic leks and contain significant sage grouse habitat.

### **3.6.2 Special Status Plant Species**

There are no known threatened or endangered plant species in the study area and no special status plant species identified for North Dakota.

### **3.7 Fish and Wildlife**

A diversity of wildlife habitat, topography, and vegetation types exists across the analysis area. This diversity across western North Dakota and the analysis area provides habitat for many wildlife species in addition to those previously mentioned.

Current and historic land uses across the lease parcels include grazing, farming, hunting, energy development, and others. Consequently, some areas contain large contiguous blocks of well-functioning habitats, while other areas are composed of small, fragmented patches of native habitats. In some areas, existing anthropogenic disturbance at some frequency has been attributed to reducing habitat suitability for some species of wildlife intolerant to human activities.

Wildlife species and habitat surveys have been conducted throughout the analysis area at various times and for various species. The entire area has not been comprehensively surveyed for all wildlife resources; however, a combination of past surveys provides insight into what species have been documented, and what other species are expected within those habitat types.

Big game species in the analysis area include mule deer, white-tailed deer, pronghorn antelope, and elk.

White-tailed deer are the most abundant big game species and use the greatest variety of habitats, generally preferring riparian corridors, along creeks and rivers, as well as woody draws and grasslands (NDGF web site). Habitat diversity appears to be a good indicator of intensity of deer use. In mule deer habitats, diversity of vegetation usually followed topographic diversity; thus, rugged topography may be the ultimate factor influencing mule deer use of an area (Mackie et. al, 1998).

Winter range is often part of year-round habitat in western North Dakota. Winter ranges are typically in areas of rougher topography and are often dominated by shrub species that provide crucial browse during winter months. Escape and thermal cover are also important for maintenance and survival. Thick stands of ponderosa pine and juniper are examples of important escapes and thermal cover used by mule deer in the analysis area while woody draws, shelterbelts and farmsteads provide winter cover for white-tailed deer.

Pronghorn antelope are sparsely distributed across the analysis area with Bowman County being the core area. They are generally associated with grasslands and shrublands, but they will also use agricultural fields. Winter ranges for pronghorn antelope generally occur within sagebrush grasslands with at least greater densities of big sagebrush than the surrounding areas.

Elk are primarily associated with the timbered portion of the breaks and the riparian bottoms along the river corridors. The riparian areas are used in conjunction with the upland areas for forage and security purposes. The riparian bottoms become increasingly important during the drought periods when upland reservoirs become dry.

The potential for big game movements or migrations through western North Dakota are not fully understood. At a local level, it is reasonable to assume big game movements occur at least seasonally. Migration corridors have not been identified through any of the lease parcels.

The analysis area provides habitat for sharp-tailed grouse, turkeys, Hungarian partridge, and pheasants.

In addition to sage grouse, sharp-tailed grouse are the other native prairie grouse species in the analysis area. Sharp-tailed grouse generally prefer hardwood draws, riparian areas, and prairie grasslands intermixed with shrubs such as chokecherry and buffaloberry. NDGF survey data on sharp-tailed grouse leks is sporadic throughout much of the study area. No known sharp-tailed grouse leks are located on the existing lease parcels.

Wild turkeys, pheasants, and Hungarian partridge are all species that have been introduced to western North Dakota and would be expected to utilize available habitats within some of the lease parcels.

### **3.7.1 WATERFOWL**

A portion of the lease parcels are north of the Missouri River and fall within the Prairie Pothole Region of North Dakota. Statewide, this region encompasses nearly 37,000 square miles and is one of the most important waterfowl-producing areas within North America. Region wide, more than half of all the annual duck production in North America occurs within the entire 300,000 square miles of prairie potholes.

From the mid-1950s to the mid-1970s, approximately 458,000 acres per year of wetland habitat was lost to agriculture and drainage within the Prairie Pothole Region. This loss has increased the importance of wetland habitat, even though the study area makes up less than 1/10 percent of the pothole region in North America. While natural wetlands are crucial for waterfowl nesting, reservoirs become increasingly important during the dry years. Often, they are the only water sources for waterfowl during extended drought periods.

Most species of North American waterfowl have been found nesting within the study area, and many of these species are common migrants. Common nesters found here include: mallard (*Anas platyrhynchos*), Canada goose (*Branta canadensis*), gadwall (*Anas strepera*), blue-winged teal (*Anas discors*), and northern shoveler (*Anas clypeata*).

The North American Waterfowl Management Plan was developed in 1988 because of the decline of waterfowl production in the United States and Canada (FWS, August 15, 2007; [http://library.fws.gov/Bird\\_Publications/nawmp\\_98.pdf](http://library.fws.gov/Bird_Publications/nawmp_98.pdf)). The plan has been divided into various localized “Joint Ventures” such as the Prairie Pothole Joint Venture and the Great Plains Joint Venture, which encompass the entire study area. Joint venture projects not only benefit waterfowl but also provide needed habitat for various guilds of resident and migratory birds.

### **3.8 Cultural Resources**

The Bureau of Land Management (BLM) manages and protects cultural resources on public land for the purpose of public interpretation, cultural importance to Native American Indians or other cultural groups, and for scientific research. Mandatory legislation is outlined for the protection of cultural resources in 36 CFR 800. Under Section 106 of the National Historic Preservation

Act (NHPA) of 1966, as amended, historic properties are evaluated for their significance or “eligibility” for nomination to the National Register of Historic Places. Potential effects to sites evaluated as eligible, potentially eligible, and Traditional Cultural Properties must be considered. Protection or mitigation treatments are used to avoid or reduce adverse affects.

Common prehistoric archaeological site types in North Dakota are lithic artifact scatters, earthlodge villages, stone circles (tipi ring camps), short-term camp sites, stone cairns, rock art, and Knife River Flint tool stone quarries. Also common to a lesser degree are animal bone concentrations resulting from game drives, vision quest stations, eagle-trapping pits, stone alignments, and scatters of artifacts that include ceramics or factory-made trade goods. Well-stratified, multiple-component sites, which are typically significant sites, have been found in remnant alluvial fans, stream terraces, and spring deposits, and in the terraces lining the Missouri and Little Missouri rivers. Common historic archaeological sites in the state are the remains of homesteads, farmsteads, dumps, school and churches, roads, railroad grades, trails, trading posts, and military forts.

A literature search (Class I) of records at the North Dakota State Historical Society was conducted for all of the nominated lease parcels and immediate vicinity to determine what types and number of known cultural resources are present within or adjacent to the nominated lease parcels (Howell 2010; Shierts 2009, 2010). Additional cultural resource information was reviewed for the general area in the North Dakota RMP/EIS and the North Dakota Statewide Comprehensive Historic Preservation Plan (North Dakota Historical Society: 2009). Requests for additional cultural information, culturally sensitive areas, or areas of concern were made to the tribal historic preservation offices and other interested tribes in North Dakota, Montana, and Minnesota.

Following are the results of the Class I inventories. Of the 116 lease parcels being reviewed for Alternatives B, and C, 83 lease parcels have been partially covered by previous cultural resource inventories. Many of the proposed leases are located along the Missouri River Corridor. This corridor area or Missouri River shoreline has been surveyed in sample form since the 1940s (T. Adamczyk; G. Leaf, R. Mattison; G. Metcalf and T. White; B. Noisat etal; and R. P. Winham etal.) Early 1940’s and 1950’s shoreline inventories were considered more of an overview than a field survey. Other projects conducted in the mid-1970’s and mid-1980’s are reconnaissance or sample type surveys also in the trench areas. Although these inventories documented the majority of the sites known for this area; the age of the project and type of ground surface coverage does not meet with today’s standards for Class III cultural resource survey coverage. Therefore; acres of coverage from these projects inside the lease parcels were not calculated or considered for these parcels.

Other surveys conducted inside the proposed lease parcels consist primarily of linear surveys with narrow corridors such as highways, roads, transmission, telephone, and fiber optic cable

lines, water, gas and oil pipelines, seismic lines, and a fence. Other surveys that also do not offer much survey coverage area were completed for small recreation areas; 10-acre oil well pads; gravel and borrow pits; a wind farm and communication tower; dams; boat ramps; and a water treatment plant.

Federal land projects including adjustments, exchanges, acquisitions, and surface tract inventories offer more opportunity for larger block surveys; however, projects completed inside the nominated lease parcels still do not offer much coverage. Based on the age and type of previous large block river shoreline surveys, and the small scale of other previous projects, it is estimated less than 10 percent of the leases have received adequate cultural resource coverage.

<b>Cultural Resource Survey Type</b>	<b>Number of Surveys</b>
BLM Land Adjustment	1
BLM Land Parcels	24
Land Acquisition	1
Land Exchange	1
Fiber Optic/Telephone	12
Roads	10
Highway	23
Gravel Pit/Borrow Areas	5
Oil Well Pads	33
Wind Farm	1
Seismic Lines	11
Transmission/Power Lines	8
Communication Towers	1
Coal Lease/Mine Lands	5
Camp Ground	1
Water/Gas Pipelines	25
Fence	1
Dam	2
Water Treatment Plant	1
Lake Boat Ramp	2
New Town Colony Site Survey	1
<b>Shoreline Reconnaissance Survey Projects Inside Parcels</b>	<b>No. Parcels Surveyed</b>
1974/1975 Missouri River Shoreline Reconnaissance Survey	6
1976 Missouri River Shoreline Reconnaissance Survey	4
1986 Missouri River Shoreline Reconnaissance Survey	15
1987 Missouri River Shoreline Reconnaissance Survey	11

**Table 3.8.1. Previous Cultural Resource Surveys in Lease Parcels**

Previous surveys projects documented a large number of cultural resources within and adjacent to the proposed lease parcels. Numbers show 43 of the 116 nominated lease parcels under review contain 107 previously documented cultural resource sites. The radius adjacent to the lease was also reviewed for sites, and in high site density areas this review radius was moved out to 1-mile. There are 42 nominated parcels show that contain 122 cultural resource sites in the radius of the parcel. Most of these sites are located on the Missouri and Little Missouri River terraces with some completely inundated or close to the water’s edge. The known sites located inside the lease parcels and number of site occurrences inside leases are listed in Table 3.8.2.

<b>Cultural Resource Site Type</b>	<b>Number of Site Feature Types</b>
Grave	1
Stone Circle	19
Rock Cairn	1
Eagle Catching Pits	1
Prehistoric Cultural Material Scatters	30
Sparse Lithic (Stone Tools/Flakes) Scatters	10
Prehistoric Depression/Mound/Lithic Scatter	1
Isolated Find: Small Lithic (Stone Tools/Flakes) Scatters	24
Historic Homesteads	2
Historic Farmsteads	2
Historic Bridges	1
Historic Shed	1
Historic Dump	1
Historic Coal Mines	9
Historic hearth and corral	1
Isolated Find: Historic deposits	3

**Table 3.8.2. Cultural Resource Types and Numbers inside Lease Parcels.**

Other cultural resource projects completed in the nominated parcels include historic overviews and paleontological reviews; cemetery and historic sites surveys; historic bridges; phase I projects for recreation areas and trails; and site evaluation, mitigations, and monitoring projects. Only 11 cultural resource evaluation projects or mitigation projects have been conducted. With so little evaluation of cultural sites, many or approximately 63 of the sites known inside nominated parcels are unevaluated for the National Register of Historic Places (NRHP).

Inventory data is not available for 33 of the nominated parcels and portions of the remaining 83 parcels. Based on topography in and surrounding the nominated lease parcels, and known cultural summary information, it was determined that inventory considerations could be deferred until a specific development is proposed. A professional assessment of the lease parcels’ potential for cultural resources eligible to the NRHP will be conducted during on-the-ground

inventories of proposed developments prior to issuance of a permit for development. In all cases, the standard lease notice and the following stipulation identified in IM-2005-003 should be attached to the leases:

This lease may be found to contain historic properties and/or resources protected under the National Historic Preservation Act (NHPA), American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, E.O. 13007, or other statutes and executive orders. The BLM will not approve any ground disturbing activities that may affect any such properties or resources until it completes its obligations under applicable requirements of the NHPA and other authorities. The BLM may require modification to exploration or development proposals to protect such properties, or disapprove any activity that is likely to result in adverse effects that cannot be successfully avoided, minimized or mitigated.

### **3.9 Native American Religious Concerns**

BLM's management of Native American Religious concerns is guided through its 8120 Manual: *Tribal Consultation Under Cultural Resources Authorities* and 8120 Handbook: *Guidelines for Conducting Tribal Consultation*. Further guidance for consideration of fluid minerals leasing is contained in BLM Washington Office Instruction Memorandum 2005-003: Cultural Resources, Tribal Consultation, and Fluid Mineral Leasing. The 2005 memo notes leasing is considered an undertaking as defined in the National Historic Preservation Act. Generally areas of concern to Native Americans are referred to as "Traditional Cultural Properties" (TCPs) which are defined as cultural properties eligible for the National Register because of its association with cultural practices or beliefs that (a) are rooted in that community's history and (b) are important in maintaining the continuing cultural identity of the community.

Based on a settlement agreement between the BLM and the Mandan, Hidatsa, and Arikara Nation (MHAN), additional guidance for lease parcel reviews is provided in BLM Instruction Memorandum MT-2009-14: The agreement provides that upon receipt of lease nominations inside the exterior boundary of the Fort Berthold Indian Reservation, the NDFO will notify by letter the MHAN Tribal Chairperson and Tribal Historic Preservation Officer. The locations of lease parcels that are being reviewed must be presented so MHAN representatives can offer information on TCPs or other sensitive areas or concerns.

Summary reports that included the site and survey information for each lease parcel were sent to tribal historic preservation officers and tribal chairmen from the Turtle Mountain Band of the Chippewa (TMBC) Tribe; the Standing Rock Sioux Tribe (SRST); the MHAN; the Spirit Lake Tribe of Fort Totten, ND; the Northern Cheyenne Tribe, of Lamedeer MT; and the Lower Sioux Indian Community of Morton, MN (June 2009; March 2010; December 2010).

Additional consultation for lease parcels was conducted in the form of telephone conversations with the MHAN Tribal Historic Preservation Office representatives (Mr. Perry Brady--July 27, 2009, and Mr. Pete Coffey--July 30, 2009) and the TMBC Tribal Historic Preservation Office (March 23, 2010). Additionally, correspondence relative to concerns with the potential lease parcels was discussed during a meeting with the MHAN Tribal Historic Preservation Office on May 19, 2010.

Results of this correspondence include: A written comment letter (dated 6/17/10) from the MHAN Tribal Historic Preservation Office stating concerns for archaeological sites inside some of these leases under review. A statement of general concern for avoidance of stone circle features and other sensitive rock alignments was made by Mr. Kade Ferris, TMBC, Tribal Historic Preservation Office, for overall project management and standard operating procedures (telephone conversation 3/23/2010).

### **3.10 Paleontology**

According to Section 6301 of the Paleontological Resource Protection Act of 2009 Omnibus Public Lands Bill, Subtitle D, SEC. 6301, defines paleontological resources as “any fossilized remains, traces, or imprints of organisms, preserved in or on the earth’s crust, that are of paleontological interest and that provide information about the history of life on earth” All vertebrate fossils, be they fossilized remains, traces, or imprints of vertebrate organisms, are considered significant.

The geologic formations containing paleontological resources in the western part North Dakota extend into several of the neighboring states and Canada, with only minor sedimentary or depositional differences. The formations encompass the last of the dinosaurs in the Cretaceous Period to the rapid development of early mammals in the Paleocene and Eocene Epochs of the Tertiary Period. These formations are found in eastern Montana, northeastern Wyoming, northwestern Nebraska, western South Dakota and North Dakota, and southernmost Saskatchewan and Manitoba.

The late Cretaceous/early Tertiary formations in the northern Great Plains region are world renowned for their dinosaur and early mammal fossils; most of the major museums in the United States have fossils from this region. Historically, most of the research and collecting occurred in Montana and Wyoming; however, recent finds have shown that similar fossils are preserved in equivalent formations in North and South Dakota. The Eocene/Oligocene/Miocene formations have also produced a huge number of significant mammal fossils over the last 130 years. Most paleontologic localities recorded with BLM offices resulted from researchers performing field work. A few localities have been found during BLM-required mitigation of surface-disturbing activities. Some localities are simply local knowledge. The investigation of illegal collecting activities has revealed the location of some fossils.

Areas in North Dakota were grouped together where the exposed or underlying bedrock had the potential to produce significant numbers of the material of interest. Values were assigned based on potential fossil yield of vertebrates or other scientifically significant fossils in bedrock formations known for North Dakota. These values are as follows:

- (1) **Very Low** – Class 1: Igneous and metamorphic geologic units-not likely to contain recognizable fossils.
- (2) **Low** – Class 2: Sedimentary geologic units- not likely to contain vertebrate fossils or scientifically significant non-vertebrate fossils.
- (3) **Moderate or Unknown** –Class 3: Fossiliferous sedimentary geologic units – content varies in significance, abundance, and predictable occurrence. Some units of unknown potential.
- (4) **High** –Class 4: are considered Class 5 fossils that do not have the potential for human or natural degradation.
- (5) **Very High** –Class 5: Highly fossiliferous geologic units- regularly produce vertebrate fossils or scientifically significant vertebrate fossils. Situated to be subject to human or natural degradation.

A review of Potential Fossil Yield Category (PFYC) formations indicates all or part of 11 lease parcels are located within PFYC formations rated 4 or 5. The parcels were identified within two of the five geologic formations that are considered significant PFYC formations to the field office; Hell Creek and Ludlow. Previous research projects on BLM land and paleontological surveys in southwestern North Dakota have located significant fossil remains.

### **3.11 Lands and Realty**

The lands proposed for competitive leasing of the federal mineral estate are a mix of BLM administered lands (federal surface and minerals), other federal agencies, and private lands overlying federal minerals, and located in western North Dakota within the NDFO planning area. Of the 116 parcels nominated for leasing, 19 parcels are located, in whole or in part, on BLM surface containing approximately 4,351 acres. These parcels are located in the counties of Bowman, Golden Valley, McKenzie, and Mountrail.

Parcels NDM 97300 (B1,D,M,EM,ET,EU,and EL,) have authorized BLM issued rights-of-way, to include roads, overhead power lines, oil and gas pipelines, water pipelines, and railroad. These encumbered parcels are within the counties listed above, excepting McKenzie County.

Parcel NDM 97300-B1: T. 156 N., R. 88 W., Sec. 17, SWNE, 5<sup>th</sup> PM, Mountrail County, North Dakota. ROW NDM 0027624 issued to Great Northern Railway Company for railroad transportation.

Parcel NDM 97300-D: T. 155 N., R. 91 W., Sec. 7, NWSE, 5<sup>th</sup> PM, Mountrail County, North Dakota. ROW NDM 0063758 issued to Corps of Engineers (COE) for buried communication cable for the Air Force.

Parcel NDM 97300-M: T. 144 N., R. 103 W., Sec. 18, Lots 1,2, NE, NESE, S2SE, 5<sup>th</sup> PM, Golden Valley County, North Dakota. ROW NDM 044368 issued to Bear Paw Energy for a buried o/g pipeline, NDM 044368B issued to Tesoro High Plains Pipeline for buried crude oil pipeline, NDM 044466 issued to Belle Fourche Pipeline for a buried crude oil pipeline, NDM 053904 issued to Golden Valley County for a road, NDM 073742 issued to Reservation Telecooperative for buried communication cable, NDM 082182 issued to Golden Valley County for a road, and NDM 098129 issued to ND State Water Commission for a buried water facility/pipeline.

Parcel NDM 97300-EM: T. 132 N., R. 105 W., Sec. 6, Lots 1-4, 5<sup>th</sup> PM, Bowman County, North Dakota. ROW NDM 045339 issued to ND Department of Transportation for a highway, NDM 086658 issued to Consolidated Telephone for buried communication cable.

Parcel NDM 97300-ET: T. 129 N., R. 105 W., Sec. 2, S2NE, 5<sup>th</sup> PM, Bowman County, North Dakota. ROW NDBLM 0035981 issued to Slope Electric Cooperative for an overhead power transmission line, NDM 059798 issued to Bowman County for a road, NDM 072946 issued to Consolidated Telcom for a buried communication line, and NDM 072948 issued to Slope Electric Cooperative for an overhead power line.

Parcel NDM 97300-EU: T. 129 N., R. 105 W., Sec. 5, SENW, 5<sup>th</sup> PM, Bowman County, North Dakota. ROW NDM 072946 issued to Consolidated Telephone for buried communication cable, Sec. 14, SWNW, ROW NDM 072948 issued to Slope Electric Cooperative for an overhead power line, and Sec. 23, SESE, ROW NDBLM 0035981 issued to Slope Electric Cooperative for a power transmission line.

Parcel NDM 97300-EL: T. 132 N., R. 106 W., Sec. 12, NENE, 5<sup>th</sup> PM, Bowman County, North Dakota. ROW NDBIS 0024202 issued to Williston Basin Interstate Pipeline (WBI) for a buried natural gas pipeline, NDM 072955 issued to WBI for a buried natural gas pipeline and NDM 0052680 issued to MDU Resources Group, Inc. for an overhead power transmission line.

Five of the nominated lease parcels, approximately 892 acres, are either U.S. Fish and Wildlife Service ( FWS) property or have a wetland or grassland easements encumbering the surface. Wetland easements restrict draining, burning, filling, or leveling of wetlands and the grassland easement protects the native grasslands from being disturbed. The easements are perpetual. The following nominated parcels are encumbered with an easement: NDM 97300-B, NDM 97300-B3, NDM 97300-B5, and NDM 97300-C1.

Renewable energy includes biomass, geothermal, solar power, and wind. As demand has increased for clean and viable energy, the opportunity for renewable energy sources available on BLM public lands is considered as part of our multiple use objectives. Developing renewable

energy projects depends on market trends and market value. The primary limiting factors in site selection include access to power transmission interconnects, acquisition of permits, and power purchase agreements between the producer and owner of the power lines.

Currently, there is no biomass, geothermal, solar power, or wind projects within the study area of the aforementioned parcels.

### **3.12 Minerals**

#### **3.12.1 Fluid Minerals**

It is the policy of the BLM to make mineral resources available for disposal and to encourage development of these resources to meet national, regional, and local needs, consistent with national objectives of an adequate supply of minerals at reasonable prices. At the same time, the BLM strives to assure that mineral development occurs in a manner which minimizes environmental damage and provides for the reclamation of the lands affected.

#### **Federal Oil and Gas Lease Information and Federal, State and Private Oil and Gas Development Activity within the External Boundaries of the NDFO**

The USFS manages large areas of land within the boundaries of the NDFO that contain federal oil and gas lease acreage. Currently, there are 1,784 federal oil and gas leases covering approximately 960,583 acres in the State of North Dakota. Existing production activity holds approximately 42 percent of this lease acreage. Approximately 80 percent of this federal oil and gas lease acreage is within the boundaries of the USFS Dakota Prairie National Grasslands.

Information regarding the numbers and status of wells on federal, private/State, and Indian lands within the external boundary of the NDFO is displayed in Table 3.12.1. Numbers of townships, lease acres within those townships, and development activity for all jurisdictions are summarized in Table 3.12.2.

If a lease parcel receives interest and oil and gas lease sales lead to lease issuance, exploration or development activity could occur during the term of the lease. Exploration and development proposals in the future would require a separate environmental document to consider specific proposals and address site-specific resource concerns.

	FEDERAL WELLS	PRIVATE AND STATE WELLS	INDIAN
Drilling Well(s)	104	41	31
Producing Gas Well(s)	115	86	0
Producing Oil Well(s)	682	4,788	107
Water Injection Well(s)	196	731	0
Shut-in Well(s)	27	62	5
Temporarily Abandoned Well(s)	60	316	3

**Table 3.12.1. Existing Development Activity**

	Billings	Bottineau	Bowman	Burke	Dunn	Golden Valley	McKenzie	Mercer	Mountrail	Renville	Stark	Ward	Williams
Number of Townships Containing Lease Parcels	1	1	8	1	7	2	14	3	14	1	5	1	22
Total Acres Within Applicable Township(s)	22,975	22,935	149,488	22,923	159,719	45,980	324,429	69,056	323,342	23,081	115,660	23,120	504,783
Acres Federal O&G Minerals	3,432	319	37,974	93	56,283	5,053	46,757	7,737	18,846	350	1,392	33	17,444
Percent of Township(s)	14.9	1.4	25.4	0.4	35	11	14.4	11.2	5.8	1.5	1.2	.1	3.5
Acres Leased Federal O&G Minerals	3,272	0	26,698	0	48,352	3,476	35,656	2,245	10,739	0	0	0	4,934
Percent of Township(s)	14.2	0	17.9	0	30	7.6	11	3.3	3.3	0	0	0	1
Acres Leased Federal O&G Minerals Suspended	0	0	0	0	0	0	0	0	0	0	0	0	0
Percent of Township(s)	0	0	0	0	0	0	0	0	0	0	0	0	0
Federal Wells	1 DRG 10 POW 1 TA	0	57 PGW 10 GINJ 8 DRG 59 POW 2 TA 39 WIW	0	1 DRG 1 OSI	3 POW 1 OSI 1 WDW	3 POW 4 DRG	0	1 POW 4 DRG 1 WDW	0	0	0	1 TA
Private and State Wells	12 POW 3 WIW	1 POW 2 DRG	57 PGW 76 POW	57 PGW 76 POW	5 WDW 9 DRG	8 POW 1 WDW	3 WIW 3 WDW	1 POW	108 POW 1 OSI	1 TA	4 DRG 8 POW	0	5 WIW 10 TA

	4 TA 1 HGW	1 TA	4 TA 63 WIW 3 OSI 1 WDW 3 DRG	4 TA 63 WIW 3 OSI 1 WDW 3 DRG	29 POW 1 TA 1 WIW		13 TA 94 POW 4 PGW 1 GIW 11 DRG		58 DRG 4 WDW				5 WDW 1 OSI 107 POW 1 HWIW 1 PGW 41 DRG
Indian Wells	0	0	0	0	8 DRG 3 POW	0	5 DRG 8 POW 2 TA 1 OSI	0	1 POW	0	0	0	0

**Table 3.12.2. Oil and Gas Leasing and Existing Development within Townships Containing Lease Parcels**

Acronym	Description
DRG	Drilling Well
HGW	Horizontal Gas Well
HWIW	Horizontal Water Injection Well
OSI	Oil Well-Shut In
PGW	Producing Gas Well
POW	Producing Oil Well
TA	Temporarily Abandoned
WDW	Water Disposal Well
WIW	Water Injection Well

**Table 3.12.3 Oil and Gas Leasing and Existing Development Abbreviations Key**

### **3.12.2 Solid Minerals**

#### **Coal**

There is no current coal production in the lease parcel areas. Information was verified utilizing the economic coal deposits GIS layer. No proposed lease parcels are lying over any leased coal deposits.

#### **Locatable Minerals**

Locatable minerals are minerals or materials subject to disposal and development through the Mining Law of 1872 (as amended). These generally include metallic minerals such as gold and silver and other materials not subject to lease or sale. There is currently no locatable mineral production or potential for production in the lease parcel areas.

#### **Salable Minerals**

Salable minerals are common varieties of mineral materials such as sand, gravel, and stone, as well as petrified wood. Common mineral materials may be sold or disposed of through free use permits under the provision of the Materials Act of July 31, 1947, amended July 23, 1955, and September 25, 1962. Salable minerals will be dealt with at the application for permit to drill (APD) stage.

### **3.13 Visual Resources**

BLM Visual Resource classifications are only applied to BLM surface, as such, the affected environment for visual resources only consists of approximately 4,351 acres of BLM - administered surface in the analysis area. The NDFO does not currently have Visual Resource Classifications established for any lands found within the analysis area.

### **3.14 Recreation and Travel Management**

BLM only manages recreational opportunities and experiences on BLM-administered surface. The affected environment consists of approximately 4,351 acres of BLM-administered public lands (surface). Recreational activities enjoyed by the public on BLM lands within the analysis area include hunting, hiking, camping, fishing, photography, off-road vehicle activities, picnicking, and winter activities such as snowmobiling. Benefits and experiences enjoyed by recreational users include opportunities for solitude, spending time with families, enhancing leisure time, improving sports skills, enjoying nature and enjoying physical exercise.

### **3.15 Livestock Grazing**

Eighteen of the lease parcels are located within 15 BLM grazing allotments. Table 3.15.1 identifies allotment specific information for each of the lease parcels. All 15 allotments are operated by ranches using the allotments for cow-calf and yearling operations. Most allotments have several range improvements such as fences, stock ponds, pipelines, springs, windmills, seedings, wells, and access roads for livestock management purposes.

<b>Allotment Number</b>	<b>Allotment Name</b>	<b>Parcel ID</b>	<b>Allotment Category*</b>	<b>Livestock Type</b>	<b>Season of Use</b>	<b>Number of Lessees</b>	<b>County</b>	<b>Surface Ownership</b>
20662	Rattlesnake	NDM97300-B2	C	Cattle	03/01-02/28	1	Mountrail	BLM
593	Bierie	NDM97300-B2	C	Cattle	03/01-02/28	1	Mountrail	BLM
20609	Concho	NDM97300-D	C	Cattle	03/01-02/28	1	Mountrail	BLM
10657	Fenton	NDM97300-Q	C	Cattle	03/01-02-28	1	Dunn	Private surface with unfenced BLM in allotment.
20616	Dietz Draw	NDM97300-M	C	Cattle	03/01-02/28	1	Golden Valley	BLM
20633	Sevenmile	NDM97300-ET NDM97300-EU NDM97300-EW NDM97300-EO NDM97300-EP NDM97300-EQ	C	Cattle	03/01-02/28	1	Bowman	BLM and Private Surface
20638	Mud Butte	NDM97300-EU NDM97300-EV NDM97300-EP NDM97300-	C	Cattle	03/01-02/28	1	Bowman	BLM and Private Surface

		EQ						
10642	Long Grass	NDM97300-EU	C	Cattle	03/01-02/28	1	Bowman	BLM
20650	Worser Creek	NDM97300-EM NDM97300-EL	C	Cattle	03/01-02/28	1	Bowman	BLM and Private Surface
10590	Cedar Hills	NDM97300-ER	M	Cattle	06/01-11/24	1	Bowman	BLM
10631	Box Elder	NDM97300-ER NDM97300-ES	C	Cattle	05/01-06/15 09/15-09/30	1	Bowman	BLM and Private Surface
20614	Antelope Butte	NDM97300-EK NDM97300-EH	M	Cattle	03/01-02/28	1	Bowman	BLM and Private Surface
10595	Brushy Draw	NDM97300-EK	C	Cattle	03/01-02/28	1	Bowman	Private surface with unfenced BLM in allotment.
20659	Tatanka	NDM97300-EH	C	Cattle	05/15-11/20	1	Bowman	BLM
20665	Three Way	NDM97300-Y	C	Cattle	06/01-11/30	2	Dunn	Private surface with unfenced BLM in allotment.

**Table 3.15.1 – Lease parcels within grazing allotments**

### **3.16 Economic Conditions**

#### **Introduction**

Certain existing demographic and economic features influence and define the nature of local economic and social activity. Among these features are the local population, the presence and proximity of cities or regional business centers, longstanding industries, infrastructure, predominant land and water features, and unique area amenities. The affected local economy is made up of 13 counties in North Dakota (Billings, Bottineau, Bowman, Burke, Dunn, Golden Valley, McKenzie, Mercer, Mountrail, Renville, Stark, Ward, and Williams) within the BLM ND Field Office boundaries that have federal oil and gas leases. The distribution of these economic effects is based on acres leased and levels of production as well as business patterns.

As of January 12, 2011, there were 960,583 acres of federal minerals leased for oil and gas. Of these, BLM made leasing decisions on 206,242 acres.

#### **Affected Environment**

The 13-county local economy had an estimated 2009 population of about 140,000 people. Total employment was estimated to be 106,000 jobs; there were an estimated 62,000 households; there were 200 NAICS industrial sectors represented in the local economy; average income per household was \$97,263; and total personal income was \$6,009 million (IMPLAN, 2009). The local economy includes 22 percent of the ND population and many of the larger business centers in Western North Dakota. Within this local economy, there were 1.32 people per job and 0.58 households per job.

#### **Nature of the Oil and Gas Industry in North Dakota:**

According to the Independent Petroleum Association of America (IPAA, 2010), a total of 519 wells were drilled in North Dakota in 2007. Of these, 473 were oil wells, 11 were gas wells, and 35 were reported as dry holes. North Dakota produced 42,249,000 bbls of oil and 18,546 MMCF of natural gas. North Dakota had 153 active operators in 2007.

Leasing and production of federal oil and gas minerals in North Dakota is major economic activity. Oil and gas production from federal minerals in FY 2010 was 8.18 million barrels of oil and 8,010,507 mcf of processed and unprocessed natural gas. Oil and gas bonus bids paid on federal leases amounted to \$45.8 million and federal lease rents were \$1.03 million.

Disbursements of oil and gas royalty revenues to the state and counties amounted to \$16,586,188 and disbursements to the state and counties from rents and bonuses amounted to \$21,240,096 (Office of Natural Resource Revenues, 2011).

Local economic effects of leasing federal minerals for oil and gas exploration, development, and production are influenced by the number of acres leased, number of wells drilled, and estimated levels of production. These activities influence local employment, income, and public revenues (indicators of economic impacts).

**Leasing:**

The remainder of this analysis will focus on federal minerals for which BLM makes leasing decisions.

As of January 12, 2011, BLM made leasing decisions on 206,242 acres or roughly 21 percent of the federal minerals currently leased in North Dakota. Annual lease rental is paid on 89,291 acres that are not held by production. Estimated total annual average BLM lease bonus and rental revenue to the federal government is about \$9.8 million. Lease rents were not paid on 116,951 acres that were held by production. Instead, royalties are paid on oil and gas production from these leases.

Federal oil and gas leases generate a one-time lease bid as well as annual rents. The minimum lease bid is \$2.00 per acre; however, in FY2010, the bonus bids in North Dakota averaged \$47.68 for every acre of federal oil and gas minerals that was leased in the state. In addition, lease rental is \$1.50 per acre per year for the first five years and \$2.00 per acre per year thereafter. Typically, oil and gas leases expire after 10 years unless held by production. Annual lease rentals continue until one or more wells are drilled that result in production and associated royalties. Within the ND Field Office, about 57 percent of the BLM leased acres are held by production.

Mineral revenues distribution to the state and counties from lease bonus bids, rents, and royalties depends on the whether the minerals are public domain minerals or minerals acquired by the federal government. How acquired mineral revenues are distributed to the state and counties is further influenced by the authority under which the minerals were acquired and what federal agency manages surface resources.

Currently, 54 percent of the BLM managed minerals are classified as public domain minerals and 49 percent of the federal leasing revenues from these minerals are distributed to the state. For revenues received from public domain lands, the state of North Dakota distributes 50 percent of these revenues among the counties in which the minerals were produced. The other 50

percent of funds that North Dakota receives is distributed to school districts (ND state code 15.1-27-25).

About 45 percent of minerals managed by the BLM are acquired minerals. A weighted average of 36 percent of federal revenues from the acquired mineral estate in North Dakota is distributed to the state/counties.

The federal government collects an estimated annual average of about \$9.99 million in lease bids and rent from BLM managed leases; of which an estimated \$4.3 million are distributed to the state/local governments

**Production:**

In 2010, production from BLM federal minerals in ND Field equaled an estimated 1.757 million barrels of oil and 1,719,896 MCF of natural gas (Office of Natural Resource Revenue, 2011). Oil and gas leasing and production influences fiscal conditions of local governments and school districts through contributions to oil/gas production taxes, and distribution of federal mineral royalty payments on production from public mineral estate. Local oil and gas exploration, development, and production as well as oil and gas transmission all support jobs and income in the local economy.

Federal oil and gas production in North Dakota is subject to production taxes or royalties. The federal oil and gas royalty revenues equal 12.5 percent of the value of production (43 CFR 3103.3.1). Currently, 49 percent of the federal royalty revenues from public domain minerals are distributed to the state. In North Dakota, 50 percent of the royalty revenues that the state receives from mineral production are redistributed to the counties of production (North Dakota Code 15.1-27-25).

Federal royalties on production from BLM managed acquired federal minerals are distributed differently. An average 36 percent of these federal royalties are distributed to the state and counties. Of this, about six percent is distributed directly to the counties of production.

Based on 2007 statewide average well head prices for oil and gas, estimated annual BLM federal oil and gas mineral production royalty revenues in FY 2010 were \$16.4 million. About \$7.1 million of the production royalties were distributed to state/local governments. The contributions of BLM federal mineral production to local economies vary among the counties. The counties that received the largest federal payments were Dunn, Bowman, McKenzie, and Billings.

**Local Economic Contribution:**

The economic contribution to a local economy is measured by estimating the employment and labor income generated by 1) payments to counties associated with the leasing, rent, and production of federal minerals, 2) local royalty payments associated with production of federal oil and gas, and 3) economic activity generated from drilling and associated activities. Activities related to oil and gas leasing, exploration, development, and production form a basic industry that brings money into the state and region and creates jobs in other sectors. The North American Industry Classification System (NAICS) is the standard used by Federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy. Extraction of all (federal and non-federal) oil and natural gas (NAICS sector 20), drilling oil and gas wells (NAICS sector 28), and support activities for oil and gas operations (NAICS sector 29) supported an estimated 6,195 total jobs and \$457.7 million in total employee compensation and proprietor's income in the local economy (IMPLAN, 2009).

In 2010, estimated average annual total federal revenues from BLM managed federal oil and gas leasing, rents, and royalty payments were \$26.4 million. Federal revenues distributed to the state of North Dakota were an estimated \$11.4 million per year. An estimated \$4.2 million was distributed to the counties of production. These revenues help fund traditional county functions such as enforcing laws, administering justice, collecting and disbursing tax funds, providing for orderly elections, maintaining roads and highways, providing fire protection, and keeping records. Other county functions that may be funded include administering primary and secondary education and operating clinics/hospitals, county libraries, county airports, local landfills, and county health systems.

The estimated annual local economic contribution associated with federal leases, rents, drilling, production, and royalty payments combined to support about 1,770 total local jobs and \$98.4 million in local labor income, respectively (IMPLAN, 2009). This amounts to about two percent of the local employment and local income. The NAICS aggregated sectors that experience the most influence from oil and gas related leasing, exploration, development, and production are mining, retail trade, wholesale trade, and Health Care & Social Assistance. Table 3.16.1 shows the current contributions of leasing federal oil and gas minerals and the associated exploration, development, and production of federal oil and gas minerals to the local economy.

Industry	Employment (jobs)		Labor Income (Thousands of 2009 dollars)	
	Area Totals	Federal BLM-managed O&G -Related	Area Totals	Federal BLM-managed O&G-Related
Agriculture	8,766	1	\$373,969	\$94
Mining	7,104	913	\$537,836	\$63,126
Utilities	1,528	7	\$168,183	\$809
Construction	7,678	32	\$382,216	\$1,600
Manufacturing	2,637	4	\$135,446	\$180
Wholesale Trade	4,180	85	\$264,821	\$5,370
Transportation & Warehousing	3,596	51	\$256,454	\$3,580
Retail Trade	10,658	99	\$285,871	\$2,523
Information	1,372	15	\$72,398	\$804
Finance & Insurance	4,793	68	\$153,544	\$2,118
Real Estate & Rental & Leasing	1,980	33	\$76,438	\$1,840
Prof, Scientific, & Tech Services	2,998	80	\$145,862	\$4,180
Mngt of Companies	192	10	\$13,626	\$737
Admin, Waste Mngt & Rem Serv	3,590	31	\$86,322	\$694
Educational Services	696	8	\$8,613	\$95
Health Care & Social Assistance	10,165	83	\$420,940	\$3,552
Arts, Entertainment, and Rec	1,383	12	\$22,006	\$171
Accommodation & Food Services	6,914	62	\$110,769	\$957
Other Services	5,204	55	\$145,821	\$1,434
Government	20,244	118	\$1,141,555	\$4,503
Total	105,677	1,767	4,802,690	98,366
Federal BLM-managed O&G as Percent of Total	---	1.67%	---	2.05%

**Table 3.16.1. Current Contributions of Federal Oil and Gas Leasing, Exploration, Development, and Production to the Local Economy (Source: IMPLAN, 2009)**

### **3.17 Social and Environmental Justice:**

This section focuses on western North Dakota where the lease acreage being examined is located. Almost all of the lease acreage is located within eight counties (Bowman, Williams, Mountrail, McKenzie, Dunn, Golden Valley, Stark and Mercer). The 2009 county populations range from less than 5,000 in Bowman, Golden Valley and Dunn Counties to over 20,000 in Stark and Williams Counties. The larger communities in the vicinity which provide oil and gas industry support include Dickinson in Stark County (2009 population 16,265), Williston in Williams County (2009 population 13,014), Sidney in Richland County, Montana (2009 population 4,843), Bowman in Bowman County (2009 population 1,515) and Watford City in McKenzie County (2009 population 1,399). In addition, there are many smaller incorporated and unincorporated communities in the vicinity of the leases.

The population density (persons per square mile) for the eight counties in 2000 ranged from 1.8 in Dunn County to nearly 17 in Stark County where Dickinson is located. These figures are compared to a statewide figure of 9.4 and a national figure of 90. The areas in the vicinity of the leases are home to farms and ranches. Oil and gas exploration and/or production is already occurring in the vicinity of these leases. Approximately 40% of the acreage being considered is split-estate where BLM does not manage the surface acreage.

In 2008, the percent American Indian ranged from less than 1% in Bowman and Golden Valley Counties to more than 20% in McKenzie and Mountrail Counties. The percent of the population living below the poverty level in 2009 ranged from less than 10% in Mercer, Bowman and Williams Counties to more than 14% in Mountrail and McKenzie Counties. Some of the leases are near the Fort Berthold Indian Reservation, which is located in McLean, Mountrail, Dunn, McKenzie, Mercer, and Ward counties. Concerns regarding 17 leases were received during consultation with Tribes interested in the area. (See 3.9 Native American Religious Concerns.)

The social environment of these counties is described in detail in North Dakota Resource Management Plan Analysis of the Management Situation (2009).

## 4.0 ENVIRONMENTAL IMPACTS

### 4.1 Assumptions and Reasonably Foreseeable Development Scenario (RFD) Summary

At this stage of the leasing process, the act of leasing parcels would not result in any activity that might affect various resources. Even if parcels are leased, it remains unknown whether development would actually occur, and if so, where specific facilities would be placed. This would not be determined until the BLM receives an APD in which more detailed information about proposed activities and facilities would be clarified for particular lease parcels. Therefore, this EA discusses potential effects that could occur in the event of development.

Upon receipt of an APD, the BLM would initiate a more site-specific NEPA analysis to more fully analyze and disclose site-specific effects of specifically identified activities. In all potential exploration and development scenarios, the BLM would require the use of best management practices (BMPs) documented in “Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development,” also known as the “Gold Book” (USDI and USDA 2007). The BLM could also identify APD Conditions of Approval, based on site-specific analysis, that could include moving the well location, restrict timing of the project, or require other reasonable measures to minimize adverse impacts (43 CFR 3101.1-2 Surface use rights; Lease Form 3100-11, Section 6) to protect sensitive resources, and to ensure compliance with laws, regulations, and land use plans.

Environmental consequences are discussed below by alternative to the extent possible at this time for the resources described in Chapter 3. As per NEPA regulations at 40 CFR 1502.14(f), 40 CFR 1502.16(h), and 40 CFR 1508.20, mitigation measures to reduce, avoid, or minimize potential impacts of the proposed action are identified by resource below.

The following assumptions are from the RFD developed for the NDFO RMP revision ([http://www.blm.gov/mt/st/en/fo/north\\_dakota\\_field/rmp/RFD.html](http://www.blm.gov/mt/st/en/fo/north_dakota_field/rmp/RFD.html).) The BLM administers approximately 324,269 acres of federal minerals (for fluid minerals) within the NDFO. The RFD forecasts and maps the oil and gas development potential in the North Dakota planning area.

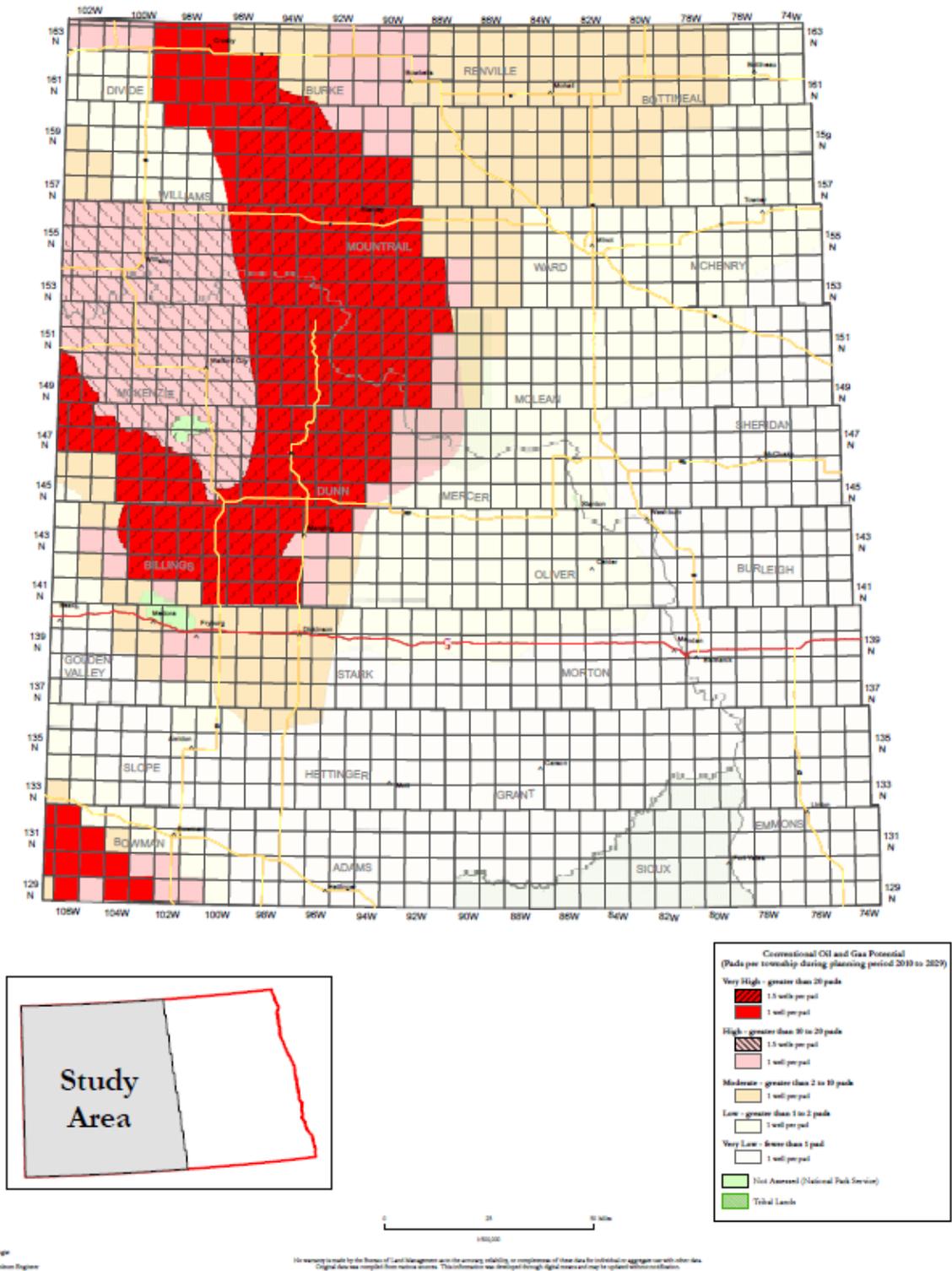
A version of this map is reproduced with this EA as **Map 4.1.1**. For the RFD , very high potential forecasts more than 20 well pads ; high potential forecasts 10 to 20 well pads; moderate potential forecasts two to 10 well pads; low potential forecasts one to two well pads; and very low potential forecasts less than one well per township over the life of the plan.

A hypothetical coalbed natural gas (CBNG) play is assumed in the planning area in the Williston Basin. Pilot projects would contain 16 to 25 wells. A total of 150 wells are forecasted allowing for some exploration activity and preliminary development.

Directional and horizontal drilling has, in the past several years, become important in the planning area. Drilling depths (measured depth) are from 4,413 to 21,727 feet for oil wells and 4,173 to 19,954 feet for gas wells. However, most of the oil wells have a measured depth of between 13,000 and 16,000 feet, and the measured depths of gas wells are typically within the 13,000 to 16,000 foot range.

The majority of the oil and gas wells in the planning area have historically been drilled vertically. However, of the 2,983 wells spud in the planning area between January 1998 and December 2007, only 787 were vertical wells. Vertical well depths in North Dakota range from a few hundred feet in the northeast part of the study area to over 15,000 feet in the central Williston Basin. Disturbance projections from the RFD are presented in Tables 4.1.1 and 4.1.2. Measured depths in the southwest part of the state range from 1,300 feet to 9,500 feet.

Oil and gas (excluding coalbed gas) development potential and projected pad densities and associated wells within the North Dakota Study Area for 2010 through 2029



Map 4.1.1. RFD Scenario for Development Potential

Well Pads			Acres of Surface Disturbance			
Type	Total	BLM Managed	Access Roads	Well Pad	Total	BLM Managed
New Exploratory and Development Coalbed Gas Well Pads (2010-2029)	150	7	0.6	0.5	165	8
New Exploratory and Development Gas Well Pads (2010-2029)	315	34	0.6	0.5	347	40
New Exploratory and Development Oil Well Pads; 1.5 wells/pad (2010-2029)	3,691	402	2.9	4.2	26,206	2,945
New Exploratory and Development Oil Well Pads 1.0 wells/pad (2010-2029)	2,609	284	2.9	4	18,002	2,023
<b><i>Total New Exploratory and Development Well Pads</i></b>	<b><i>6,765</i></b>	<b><i>727</i></b>			<b><i>44,720</i></b>	<b><i>5,017</i></b>
Existing Active Gas Well Pads (as of August 2010)	211	121	0.3	0.25	116	71
Existing Active Oil Well Pads (as of August 2010)	6,760	851	1.5	1.75	21,970	2,857
<b><i>Total Existing and Projected Well Pads</i></b>	<b><i>6,971</i></b>	<b><i>972</i></b>			<b><i>22,086</i></b>	<b><i>2,928</i></b>
<b>Total Well Pads</b>	<b>13,736</b>	<b>1,699</b>	<b>Total Short-Term Disturbance</b>		<b>66,806</b>	<b>7,945</b>

**Table 4.1.1. Disturbance Associated With Existing Well Pads and Projected Active Well Pads for the Baseline Scenario (Short-Term Disturbance)**

Well Pads			Acres of Surface Disturbance			
Type	Total	BLM Managed	Access Roads	Well Pad	Total	BLM Managed
New Producing Coalbed Gas Well Pads (2010-2029)	135	6	0.3	0.25	74	4
New Producing Gas Well Pads (2010-2029)	293	21	0.3	0.25	161	12
New Producing Oil Well Pads; 1.5 wells/pad (2010-2029)	3,248	353	1.5	1.75	10,556	1,186
New Producing Oil Well Pads; 1.0 wells/pad (2010-2029)	2,035	221	1.5	1.75	6,614	743
<i>Total New Producing Well Pads</i>	<i>5,711</i>	<i>602</i>			<i>17,405</i>	<i>1,945</i>
Existing Active Gas Well Pads (as of August 2010) <sup>1</sup>	203	116	0.3	0.25	111	68
Existing Active Oil Well Pads (as of August 2010) <sup>1</sup>	5,881	740	1.5	1.75	19,114	2,486
<i>Total Existing and Projected Well Pads</i>	<i>6,084</i>	<i>857</i>			<i>19,225</i>	<i>2,554</i>
Total Well Pads	11,795	1458	Total Long-Term Disturbance		36,631	4,499

<sup>1</sup>minus abandonments during August 2010-December 2029 period

**Table 4.1.2. Disturbance Associated With Existing Well Pads and Projected Producing Well Pads for the Baseline Scenario (Long-Term Disturbance)**

New oil and gas wells projected to be drilled in the NDFO RFD from 2010 through 2029 total as many as 8,460 in the planning area. Up to 150 of these wells could be coalbed gas wells. Of the other remaining wells (those drilled in areas of very high, high or moderate potential areas) the majority are projected to be drilled in and around existing fields in the deeper portion of the Williston Basin and along the Cedar Creek anticline. Those wells drilled in areas of low or very low potential are projected for areas generally not proven productive by historical drilling, but which still may contain hydrocarbons based on U.S. Geological Survey assessment data. The BLM component of oil and conventional gas activity within the RFD is expected to be approximately 11.4 percent of all activity.

The context of alternatives considered in this EA relative to these assumptions is described below.

#### **Alternative A (No Action Alternative)**

Under the No Action Alternative, the proposed parcels would not be leased. There would be no new impacts from oil and gas production on the parcel lands. No additional natural gas or crude oil would enter the public markets, and no royalties would accrue to the federal or state treasuries. The No Action Alternative would result in the continuation of the current land and resource uses on the parcels.

Unless specifically indicated by resource area, no further analysis of the No Action Alternative is presented in the following sections.

#### **Alternative B Assumptions**

By itself, the act of leasing the parcels would have no impact on any natural resources in the area administered by the NDFO. Standard terms and conditions as well as special stipulations would apply to the lease parcels. All impacts would link to as yet undetermined future levels of lease development.

If the lease parcels are developed, short-term impacts would be stabilized or mitigated rapidly (within two to five years). Long-term impacts are those that would substantially remain for more than five years. The 116 parcels are located in Billings, Bottineau, Bowman, Burke, Dunn, Golden Valley, McKenzie, Mercer, Mountrail, Renville, Stark, Ward, and Williams counties.

All parcels are within that portion of the NDFO where a hypothetical CBNG play could occur according to the RFD projection. The RFD assumes a total projection of 150 CBNG wells for the entire planning area, primarily for exploration purposes.

Fifty-five parcels (approximately 12,680 acres) are located in an area of very high potential. Projected development within the very high potential area is greater than 20 well pads per year.

Thirty-six parcels (approximately 10,280 acres) are located in an area of high potential. Projected development within the high potential area is 10 to 20 well pads per year.

Sixteen parcels (approximately 4,690 acres) are located in an area of moderate potential. Projected development within the moderate potential area is 2 to 10 well pads per year.

Eight parcels (approximately 3,280 acres) are located in an area of low potential. Projected development within the low potential area is 1 to 2 well pads per year.

One parcel (approximately 310 acres) are located in an area of very low potential. Projected development within the very low potential area is less than 1 well pad per year.

For the purposes of this EA and based on the location of these parcels in the Williston Basin, any future development activity that would occur would probably be oil production. Short-term disturbance would be 2.9 acres for access roads and flow lines and four acres per well pad. Long-term disturbance would be 1.5 acres for access roads and 1.75 acres per well pad. Many of the parcels would probably require the formation of a communitization agreement (CA) to facilitate development. Actual well drilling and surface disturbance activity may occur on fee or state lands, not on the federal lease parcels.

### **Alternative C Assumptions**

By itself, the act of leasing the parcels in Alternative C. would have no impact on any natural resources in the area administered by the NDFO. Standard terms and conditions as well as special stipulations would apply to the lease parcels. All impacts would link to as yet undetermined future levels of lease development. The same assumptions would be applied from Alternative A for the 29 parcels being deferred in this alternative.

The remaining 87 parcels are located in Billings, Bottineau, Burke, Dunn, Golden Valley, McKenzie, Mercer, Mountrail, Renville, Stark, Ward, and Williams counties. If the lease parcels are developed, short-term impacts would be stabilized or mitigated rapidly (within two to five years). Long-term impacts are those that would substantially remain for more than five years.

All parcels are within that portion of the NDFO where a hypothetical CBNG play could occur according to the RFD projection. The RFD assumes a total projection of 150 CBNG wells for the entire planning area, primarily for exploration purposes.

Thirty-five parcels (approximately 5,600 acres) are located in an area of very high potential. Projected development within the very high potential area is greater than 20 well pads per year.

Twenty-seven parcels (approximately 6,400 acres) are located in an area of high potential. Projected development within the high potential area is 10 to 20 well pads per year.

Sixteen parcels (approximately 4,690 acres) are located in an area of moderate potential. Projected development within the moderate potential area is 2 to 10 well pads per year.

Eight parcels (approximately 3,280 acres) are located in an area of low potential. Projected development within the low potential area is 1 to 2 well pads per year.

One parcel (approximately 310 acres) are located in an area of very low potential. Projected development within the very low potential area is less than 1 well pad per year.

For the purposes of this EA and based on the location of these parcels in the Williston Basin, any future development activity that would occur would probably be oil production. Short-term disturbance would be 2.9 acres for access roads and flow lines and four acres per well pad. Long-term disturbance would be 1.5 acres for access roads and 1.75 acres per well pad. Many of the parcels would probably require formation of a communitization agreement (CA) to facilitate development. Actual well drilling and surface disturbance activity may occur on fee or state lands, not on the federal lease parcels.

## **4.2 Air Resources**

### **4.2.1 Direct and Indirect Effects**

#### **Air Quality**

Leasing the subject parcels would have no direct impacts on air quality. Any potential effects on air quality from activities on these lease parcels would occur if and when the leases were developed.

Potential impacts of development could include increased airborne soil particles blown from new well pads or roads; exhaust emissions from drilling equipment, compressors, vehicles, and dehydration and separation facilities; and potential releases of GHGs and volatile organic compounds during drilling or production activities. The amount of increased emissions cannot be precisely quantified at this time since it is not known for certain how many wells might be drilled, the types of equipment needed if a well were to be completed successfully (e.g., compressor, separator, dehydrator), or what technologies may be employed by a given company for drilling any new wells. The degree of impact would also vary according to the characteristics of the geologic formations from which production occurs and according to the scope of specific activities proposed in an APD.

Current monitoring data show that the criteria pollutants fall well below applicable air quality standards, indicating very good air quality. The potential level of development and mitigation

(section 4.2.2.) is expected to maintain this level of air quality by limiting emissions. In addition to the limited level of development, pollutants would be regulated through the use of state-issued air quality permits or air quality registration processes developed to maintain air quality below applicable standards.

**Greenhouse Gas (GHG) Emissions at the North Dakota FO and Project Scales**

Sources of GHGs associated with development of lease parcels may include construction activities, operations, and facility maintenance in the course of oil and gas exploration, development, and production. Estimated GHG emissions are discussed for these specific aspects of oil and gas activity because the BLM has direct involvement in these steps. However, the current proposed activity is to offer parcels for lease. No specific development activities are currently proposed or potentially being decided upon for any parcels being considered in this EA. Potential development activities would be analyzed in a separate NEPA analysis effort if the BLM receives an APD for any of the parcels considered here.

Anticipated GHG emission estimates presented in this section are taken from the Climate Change SIR (2010). Data are derived from GHG emissions calculators developed by Air Resource Specialists at the BLM National Operations Center in Denver, CO, based on methods described in Climate Change SIR (2010). Based on the RFD assumptions summarized above for the NDFO, Table 4.2.1 discloses projected annual greenhouse gas source emissions from BLM-permitted activities associated with the RFD (note: the source year selected to disclosed the estimated GHG emissions was the year with the highest expected combined construction and production emissions for oil and gas sources in the planning area).

Source	BLM Long-Term Greenhouse Gas Emissions in tons/year				Emissions (metric tons/yr)
	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	Co <sub>2e</sub>	CO <sub>2e</sub>
Conventional Natural Gas	562.7	116.7	0.01	3,106.03	2,736.9
Coal Bed Natural Gas	3,822.02	49.22	0.07	4,876.9	4,425.5
Oil	547,165.01	1,132.1	7.44	573,246.9	520,187.7
<b>Total</b>	<b>551,549.7</b>	<b>1,298.02</b>	<b>7.52</b>	<b>581,829.8</b>	<b>527,350</b>

**Table 4.2.1. BLM component of projected annual emissions of GHGs associated with oil and gas exploration and development activity in the NDFO.**

Under Alternative A, there would be no GHG emissions that would result from this project because under this alternative no additional parcels would be leased.

To estimate potential GHG emissions associated with the action alternative for this project, the following approach was used:

1. The proportion of each project level action alternative relative to the total RFD was calculated based on total acreage of parcels under consideration for leasing (and/or lifting of lease suspensions) relative to the total acreage of federal mineral acreage available for leasing in the RFD.
2. This ratio was then used as a multiplier with the total estimated GHG emissions for the entire RFD (with highest year emission output used) to estimate GHG emissions for that particular alternative.

Under Alternative B (the Proposed Action), approximately 31,339 acres of federal minerals would be leased. These acres constitute 9.66 percent of the total federal mineral estate of 324,269 acres identified for the North Dakota RFD. Therefore, based on the approach described above to estimate GHG emissions, 9.66 percent of the total estimated BLM emissions of 527,350 metric tons/year would be approximately 50,966 metric tons/year of CO<sub>2</sub>e if the parcels within Alternative B were to be developed.

Under Alternative C (the BLM Preferred Action), approximately 19,406 acres of federal minerals would be leased. These acres constitute 5.98 percent of the total federal mineral estate of 324,269 acres identified for the North Dakota RFD. Therefore, based on the approach described above to estimate GHG emissions, 5.98 percent of the total estimated BLM emissions of 527,350 metric tons/year would be approximately 31,559 metric tons/year of CO<sub>2</sub>e if the parcels within Alternative C were to be developed.

### **Climate Change**

The assessment of GHG emissions and climate change is in its formative phase. As summarized in the Climate Change SIR (2010), climate change impacts can be predicted with much more certainty over global or continental scales. Existing models have difficulty reliably simulating and attributing observed temperature changes at small scales. On smaller scales, natural climate variability is relatively larger, making it harder to distinguish changes expected due to external forcings (such as contributions from local activities to GHGs). Uncertainties in local forcings and feedback also make it difficult to estimate the contribution of GHG increases to observed small-scale temperature changes (Climate Change SIR, 2010).

It is currently not possible to know with certainty the net impacts from developing lease parcels on climate. The inconsistency in results of scientific models used to predict climate change at the global scale, coupled with the lack of scientific models designed to predict climate change on regional or local scales, limits the ability to quantify potential future impacts of decisions made at this level. It is therefore beyond the scope of existing science to relate a specific source of GHG or sequestration with the creation or mitigation of any specific climate-related environmental effects. Although the effects of greenhouse gas emissions in the global aggregate are well-documented, it is currently impossible to determine what specific effect greenhouse gas emissions resulting from a particular activity might have on the environment (for additional

information on environmental effects typically attributed to climate change, please refer to the cumulative effects discussion below).

While it is not possible to predict effects on climate change from potential GHG emissions discussed above in the event of lease parcel development for alternatives considered in this EA, the act of leasing does not produce any GHG emissions in and of itself. Releases of GHGs would occur at the exploration/development stage.

#### **4.2.2 Mitigation**

The BLM encourages industry to incorporate and implement BMPs to reduce impacts to air quality by reducing emissions, surface disturbances, and dust from field production and operations. Measures may also be required as conditions of approval (COA) on permits by either the BLM or the applicable state air quality regulatory agency. The BLM also manages venting and flaring of gas from federal wells as described in the provisions of Notice to Lessees (NTL) 4A, Royalty or Compensation for Oil and Gas Lost.

Some of the following measures could be imposed at the development stage:

- flare or incinerate hydrocarbon gases at high temperatures to reduce emissions of incomplete combustion;
- install emission control equipment of a minimum 95 percent efficiency on all condensate storage batteries;
- install emission control equipment of a minimum 95 percent efficiency on dehydration units, pneumatic pumps, produced water tanks;
- vapor recovery systems where petroleum liquids are stored;
- tier II or greater, natural gas or electric drill rig engines;
- secondary controls on drill rig engines;
- no-bleed pneumatic controllers (most effective and cost effective technologies available for reducing volatile organic compounds (VOCs));
- gas or electric turbines rather than internal combustions engines for compressors;
- nitrogen oxides (NO<sub>x</sub>) emission controls for all new and replaced internal combustion oil and gas field engines;
- water dirt and gravel roads during periods of high use and control speed limits to reduce fugitive dust emissions;
- interim reclamation to re-vegetate areas of the pad not required for production facilities and to reduce the amount of dust from the pads.
- co-locate wells and production facilities to reduce new surface disturbance;
- directional drilling and horizontal completion technologies whereby one well provides access to petroleum resources that would normally require the drilling of several vertical wellbores;
- gas-fired or electrified pump jack engines;

- install velocity tubing strings;
- cleaner technologies on completion activities (i.e., green completions) and other ancillary sources;
- centralized tank batteries and multi-phase gathering systems to reduce truck traffic;
- forward looking infrared (FLIR) technology to detect fugitive emissions; and
- air monitoring for NOx and ozone (O3).

More specific to reducing greenhouse gas emissions, Section 6 of the Climate Change SIR (2010) identifies and describes in detail commonly used technologies to reduce methane emissions from natural gas, coalbed natural gas, and oil production operations. Technologies discussed in Climate Change SIR (2010) and as summarized below in Table 4.2.2.1 (reproduced from Table 6-2 in Climate Change SIR (2010)) displays common methane emission technologies reported under the EPA Natural Gas STAR Program and associated emission reduction, cost, maintenance and payback data.

Source Type / Technology	Annual Methane Emission Reduction <sup>1</sup> (Mcf/yr)	Capital Cost Including Installation (\$)	Annual Operating and Maintenance Cost (\$)	Payback (Years or Months)	Payback Gas Price Basis (\$/Mcf)
<b>Wells</b>					
Reduced emission (green) completion	7,000 <sup>2</sup>	\$1K – \$10K	>\$1,000	1 – 3 yr	\$3
Plunger lift systems	630	\$2.6K – \$10K	NR	2 – 14 mo	\$7
Gas well smart automation system	1,000	\$1.2K	\$0.1K – \$1K	1 – 3 yr	\$3
Gas well foaming	2,520	>\$10K	\$0.1K – \$1K	3 – 10 yr	NR
<b>Tanks</b>					
Vapor recovery units on crude oil tanks	4,900 – 96,000	\$35K – \$104K	\$7K – \$17K	3 – 19 mo	\$7
Consolidate crude oil production and water storage tanks	4,200	>\$10K	<\$0.1K	1 – 3 yr	NR
<b>Glycol Dehydrators</b>					
Flash tank separators	237 – 10,643	\$5K – \$9.8K	Negligible	4 – 51 mo	\$7
Reducing glycol circulation rate	394 – 39,420	Negligible	Negligible	Immediate	\$7
Zero-emission dehydrators	31,400	>\$10K	>\$1K	0 – 1 yr	NR

Source Type / Technology	Annual Methane Emission Reduction <sup>1</sup> (Mcf/yr)	Capital Cost Including Installation (\$)	Annual Operating and Maintenance Cost (\$)	Payback (Years or Months)	Payback Gas Price Basis (\$/Mcf)
<b>Pneumatic Devices and Controls</b>					
Replace high-bleed devices with low-bleed devices					
End-of-life replacement	50 – 200	\$0.2K – \$0.3K	Negligible	3 – 8 mo	\$7
Early replacement	260	\$1.9K	Negligible	13 mo	\$7
Retrofit	230	\$0.7K	Negligible	6 mo	\$7
Maintenance	45 – 260	Negl. to \$0.5K	Negligible	0 – 4 mo	\$7
Convert to instrument air	20,000 (per facility)	\$60K	Negligible	6 mo	\$7
Convert to mechanical control systems	500	<\$1K	<\$0.1K	0 – 1 yr	NR
<b>Valves</b>					
Test and repair pressure safety valves	170	NR	\$0.1K – \$1K	3 – 10 yr	NR
Inspect and repair compressor station blowdown valves	2,000	<\$1K	\$0.1K – \$1K	0 – 1 yr	NR
<b>Compressors</b>					
Install electric compressors	40 – 16,000	>\$10K	>\$1K	>10 yr	NR
Replace centrifugal compressor wet seals with dry seals	45,120	\$324K	Negligible	10 mo	\$7
<b>Flare Installation</b>	2,000	>\$10K	>\$1K	None	NR

**Table 4.2.2.1. Selected Methane Emission Reductions Reported Under the EPA Natural Gas STAR Program <sup>1</sup>**

Source: Multiple USEPA Natural Gas STAR Program documents. Individual documents are referenced in Climate Change SIR (2010).

<sup>1</sup> Unless otherwise noted, emission reductions are given on a per-device basis (e.g., per well, per dehydrator, per valve, etc).

<sup>2</sup> Emission reduction is per completion, rather than per year.

K = 1,000

mo = months

Mcf = thousand cubic feet of methane

NR = not reported

yr = year

In the context of the oil sector, additional mitigation measures to reduce GHG emissions include methane reinjection and CO<sub>2</sub> injection. These measures are discussed in more detail in Section 6.0 of the Climate Change SIR (2010).

In an effort to disclose potential future GHG emissions reductions that might be feasible in individual field offices, the BLM estimated GHG emissions reductions based on the RFD for the Miles City FO. For analysis purposes, the Miles City Field Office RFD was selected based on the high potential development scenario. Similar emissions reductions may be possible in other Montana, North Dakota and South Dakota Field Offices. For emissions sources subject to BLM (federal) jurisdiction, the estimated emissions reduction represent approximately 51 percent reduction in total GHG emissions compared to the estimated Miles City FO federal GHG emissions inventory (Climate Change SIR, as updated October 2010, Section 6.5 and Table 6-3). The emissions reductions technologies and practices are identified as mitigation measures that could be imposed during development. (Note: except for the light-duty vehicle GHG emission standards, no federal or state regulations mandate these GHG emissions reductions).

### **4.3 Soil Resources**

At this stage (lease sale) there are no impacts to soil resources. Impacts (both direct and indirect) would occur if the lease is developed in the future. The potential impacts would be analyzed on a site-specific basis during the APD stage prior to development.

#### **4.3.1 Direct and Indirect Effects**

While the act of leasing a tract would produce no impacts, the development of the leases would result in reasonably foreseeable disturbances to soils. Construction and operation of well pads, access roads, pipelines, power lines, reserve pits, and other facilities would result in the exposure of mineral soil, soil compaction, loss of soil productivity, and increased susceptibility to wind and water erosion. The likelihood and magnitude of these occurrences is dependent upon local site characteristics, climatic events, and the specific mitigation applied. To protect slopes or fragile soils, surface disturbance would not be allowed on slopes of more than 30 percent (refer to Appendix A for a detailed description of stipulations that would be applied for the proposed action).

#### **4.3.2 Mitigation**

If exploration/development were to occur, a number of measures would be taken to prevent, minimize, or mitigate impacts to soil resources. The operator would stockpile the topsoil from the surface of well pads and then use it for surface reclamation. Once this topsoil is applied and vegetation is reestablished, the impacts would be remediated.

Reserve pits would be re-contoured and reseeded as described in the COAs attached to the APD. Upon abandonment of wells and/or when access roads are no longer in service, the authorized officer would issue instructions and/or orders for surface reclamation/restoration of the disturbed areas as described in the attached COAs.

Road constructions requirements and regular maintenance would alleviate potential impacts to access roads from water erosion damage. Lease stipulations regarding steep slopes and erosive soils would minimize potential impacts. To protect slopes or fragile soils, surface disturbance would not be allowed on slopes of more than 30 percent.

Additional mitigation measures and/or BMPs would be assigned once a site-specific plan of development is proposed.

#### **4.4 Water Resources**

At this stage (lease sale) there are no impacts to water resources. Impacts (both direct and indirect) would occur if and when the lease is developed in the future. The potential impacts would be analyzed on a site-specific basis during the APD stage prior to development.

##### **4.4.1 Direct and Indirect Effects**

The action of leasing the parcel itself would not have any impact on water resources. The subsequent development of the leases could result in reasonably foreseeable disturbances to hydrologic resources. Stipulations regarding steep slopes, erosive soils, and activities on floodplains and in wetlands would minimize potential impacts (refer to Appendix A).

The development of the lease (construction and operation of well pads, access roads, pipelines, power lines, reserve pits, and other facilities) would create surface disturbances that can subsequently lead to surface and ground water degradation through non-point source pollution. The likelihood and magnitude of these occurrences is dependent upon local site characteristics, climatic events, and the success of specific mitigation measures applied. Potential impacts would be addressed in more detail at the APD stage.

##### **4.4.2 Mitigation**

If exploration/development were to occur, a number of measures would be taken to prevent, minimize, or mitigate impacts to water resources. The operator would stockpile the topsoil from the surface of well pads and then use it for surface reclamation. Once this topsoil is applied and vegetation is reestablished, the impacts would be remediated.

The use of plastic-lined reserve pits would reduce or eliminate the risk of drilling fluid seeping into the soil and eventually reaching ground water. Spills or produced fluids (e.g., saltwater, oil, and/or condensate in the event of a breach, overflow, or spill from storage tanks) could result in contamination of the soils onsite or offsite and may potentially impact surface and groundwater resources in the long term. The casing and cementing requirements imposed on proposed wells would reduce or eliminate the potential for groundwater contamination from drilling mud and other surface sources.

Reserve pits would be re-contoured and reseeded as described in the COAs attached to the APD. Upon abandonment of wells and/or when access roads are no longer in service, the authorized officer would issue instructions and/or orders for surface reclamation/restoration of the disturbed areas as described in attached COAs.

Road construction requirements and regular maintenance would alleviate potential impacts to access roads from water erosion damage. To protect slopes or fragile soils, surface disturbance would not be allowed on slopes of more than 30 percent.

Additional mitigation measures and/or BMPs would be assigned once a site-specific plan of development is proposed.

#### **4.5 Vegetation Resources**

At this stage (lease sale) there are no impacts to vegetation resources. Impacts (both direct and indirect) would occur when the lease is developed in the future. The potential impacts would be analyzed on a site-specific basis at the APD stage prior to development.

##### **4.5.1 Direct and Indirect Effects**

Although there are no direct or indirect impacts to vegetation resources at the leasing stage, the following assumptions can be made about potential future direct and indirect effects at the time of development.

Impacts to native vegetation would depend on the native vegetation type and the level of disturbance of the lease parcels. The lease parcels contain a combination of native prairie, riparian, agricultural lands, improved pastures, and woodland vegetation communities. Habitat disturbance in grasslands generally has less of an impact than disturbance in riparian-wetlands and woodlands. Since shrubs and trees take longer to reestablish, rehabilitation times are expected to be longer than those in grass-dominated areas. Riparian-wetlands can be very sensitive, but natural vegetation can reestablish very quickly as long as disturbances do not alter the structural and functioning components of the site. Agricultural, improved pastures, restored pastures, and other disturbed sites have all been manipulated and disturbed. To return these lands back to their current existing environment would be easier than restoring native vegetation communities. These areas are already seeded with plant species that are competitive in nature that were selected for their ability to establish effectively. Overall, the impacts associated with well pads and roads would be very site-specific and are not expected to significantly affect this vegetation at the community scale. The footprint of the disturbance is also expected to be a small proportion of the habitat area.

Potential impacts to individual plants include direct mortality from earth excavation or crushing by vehicles. Noxious weeds can be introduced by equipment used for developing sites or supporting road systems. If noxious weeds were to establish, further expansion of the noxious

weed could continue after ground disturbing activities have been completed. With proper weed control and preventative measures, noxious weed establishment and expansion would be expected to be isolated and short term.

#### **4.6 Special Status Species**

At this stage (lease sale) there are no impacts to special status species. Impacts (both direct and indirect) could occur if and when the lease is developed in the future. The potential impacts would be analyzed on a site-specific basis at the APD stage prior to development.

The use of standard lease terms and stipulations on these lands (refer to Appendix A) would minimize, but not preclude impacts to wildlife. Oil and gas development which results in surface disturbance could directly and indirectly impact aquatic and terrestrial wildlife species. These impacts could include loss or reduction in suitability of habitat, improved habitat for undesirable (non-native) competitors, species or community shift to species or communities more tolerant of disturbances, nest abandonment, mortalities resulting from collisions with vehicles and power lines, electrocutions from power lines, barriers to species migration, habitat fragmentation, increased predation, habitat avoidance, and displacement of wildlife species resulting from human presence. The scale, location, and pace of development, combined with implementation of mitigation measures and the specific tolerance of the species to human disturbance all influence the severity of impacts to wildlife species and habitats, including Threatened, Endangered, Candidate, Proposed, and other special status species.

##### **4.6.1 Direct and Indirect Effects**

Should any or all of the nominated parcels be developed in the future, it is expected there would not be any significant impacts as stated in Section 4.5. However, listed below, by species, is the rationale utilized in the analysis.

##### **Piping Plover/Least Turn.**

Critical habitats have been established for North Dakota for piping plovers. Lease parcels located along the Missouri River and Lake Sakakawea all are within these established critical habitats. Four additional parcels in Mountrail County also have critical habitat associated with them.

Existing stipulations from the North Dakota RMP (1988) requires a No Surface Occupancy (NSO) stipulation associated with all wetlands (for analysis purposes, Lake Sakakawea is viewed as a wetland by BLM). The stipulation would not allow surface disturbance/development activities to occur within 200 feet of known wetlands. The 200 feet could also be adjusted to accommodate site specific concerns at the APD stage. As a result of this stipulation, impacts are not expected to nesting habitats within these areas. Due to the NSO stipulation associated with wetlands and the identified critical habitats, issuing the proposed lease parcels would have no affect on piping plovers and least terns.

**Pallid Sturgeon.**

Potential impacts from development could include: overland oil spills, underground spills from activities associated with horizontal drilling or other practices, spills from drilling mud or other extraction and processing chemicals, and surface disturbance activities that create a localized erosion zone. Oil spills and other pollutants from the oil extraction process could harm the endangered pallid sturgeon in two different ways. First, toxicological impacts from direct contact could have immediate lethal effects to eggs, juveniles, and adults. Second, toxic effects to lower food web levels (e.g. aquatic macro-invertebrates) would indirectly affect the pallid sturgeon species by degrading water quality and degrading or eliminating food resources. Other aquatic species would experience the same type of direct and indirect impacts.

Currently, in the North Dakota RMP there are no stipulations specific to Pallid sturgeon habitat. However, a floodplain stipulation (NSO 11-39 and NSO 11-36, see Appendix A) would not allow surface occupancy in the 100-year floodplain boundary of the Missouri and Yellowstone Rivers, respectively. Additionally, Pallid Sturgeons would be protected by stipulation NSO 11-37 (see Appendix A) which would not allow surface disturbance/development activities to occur within 200 feet of known wetlands. BLM considers the Yellowstone and Missouri Rivers wetlands habitat.

BLM has determined that issuing leases for the parcels along the Missouri River and Lake Sakakawea will have no affect on the pallid sturgeon. If development were to occur, additional mitigation would be included as conditions of approval at the APD stage. These conditions could include the placement of earthen berms and oil skimmers (a culvert device placed in drainages which is intended to block oil from entering streams) which should help protect pallid sturgeon habitat in case of oil spills by greatly reducing the potential for spills to reach pallid sturgeon habitat.

**Whooping Crane.**

The majority of the parcels occur in the whooping crane migratory corridor through North Dakota, excluding those in Bowman and Golden Valley counties. BLM has determined that the act of issuing leases within the whooping crane migration corridor will not affect the whooping crane. However, impacts to whooping cranes are possible from subsequent oil and gas development activities that would be permitted at the APD stage. At this time, stipulations are limited to protect any known whooping crane migration staging areas. Line strikes, collisions with vehicles, habitat fragmentation, and other anthropogenic activities can disturb, displace, or cause direct mortality of whooping cranes.

Therefore, if development of these leases in known whooping crane feeding/staging/resting areas is proposed, BLM would work with the USFWS pursuant to section 7(a)(2) of ESA. An outcome of the conferencing process may be that conditions of approval are attached to the

permit or the permit may not be approved. Other BMP's would also be developed through consultation, including minimizing disturbance, adherence to Avian Powerline Interaction Committee (APLIC) guidelines, and others as deemed appropriate.

### **Dakota Skipper Butterfly**

The majority of the parcels occur in counties where the Dakota Skipper (skipper) has been positively identified. Bottineau, Burke, Dunn, McClean, McHenry, Mountrial, and Ward all have remaining native prairies required for the skipper to varying degrees. BLM has determined the act of issuing leases within these counties will not affect the skipper. However, impacts to skippers are possible from subsequent oil and gas development activities should the lease be developed, and would be analyzed at the APD stage. At this time, stipulations are limited to protect any known skipper habitats. Drilling pads, roads, collisions with vehicles, habitat fragmentation, and other anthropogenic activities can disturb, displace, or cause direct mortality of skippers.

Therefore, if development of these leases in known skipper areas is proposed, BLM would work with the USFWS pursuant to section 7(a)(2) of ESA. An outcome of the conferencing process may be that conditions of approval are attached to the permit or the permit may not be approved. Other BMP's would also be developed through consultation, including minimizing disturbance, adherence to conservation plans and others as deemed appropriate.

### **Sprague's Pipit**

Energy development (oil, gas, and wind) and associated roads and facilities increase the fragmentation of grassland habitat. A number of studies have found that Sprague's pipits appear to avoid non-grassland features in the landscape, including roads, trails, oil wells, croplands, woody vegetation, and wetlands (Dale et al. 2009, pp. 194, 200; Koper et al. 2009, pp. 1287, 1293, 1294, 1296; Greer 2009, p. 65; Linnen 2008, pp. 1, 9-11, 15; Sutter et al. 2000, pp. 112-114). Sprague's pipits avoid oil wells, staying up to 350 meters (m)[1148 feet (ft)] away (Linnen 2008, pp. 1, 9-11), magnifying the effect of the well feature itself. Oil and gas wells, especially at high densities, decrease the amount of habitat available for breeding territories. ([Federal Register: September 15, 2010 (Volume 75, Number 178)]

The leasing action will have no effect on the pipit however, potential suitable habitat exists for the Sprague's pipit across the entire lease area, excluding those inundated by Lake Sakakawea; however, inventories have not been conducted within the parcels. Therefore, wildlife inventories would need to be conducted at APD stage of development to determine the presence or absence of Sprague's pipits. The ESA Section 7 Stipulation (16-3) and lease notice is issued with those leases and would be applied if Sprague's pipits are found in the area. If Sprague's pipits are found in the proposed development area, informal consultation with USFWS would be initiated, and Conditions of Approval would be applied for the protection of habitat to ensure there would be no measurable direct negative effect to Sprague's pipits.

## **Sage Grouse**

It has been shown that oil and gas development negatively impacts sage grouse. Based on recent research, the current oil and gas stipulations for sage grouse are considered ineffective to ensure that sage grouse can persist within fully developed areas. With regard to existing restrictive stipulations applied by the BLM, (Walker et al. 2007a) research has demonstrated that the 0.4-km (0.25 miles) NSO lease stipulation is insufficient to conserve breeding sage-grouse populations in fully developed gas fields because this buffer distance leaves 98 percent of the landscape within 3.2 km (2 miles) open to full-scale development. Full-field development of 98 percent of the landscape within 3.2 km (2 miles) of leks in a typical landscape in the Powder River Basin reduced the average probability of lek persistence from 87 percent to 5 percent (Walker et al. 2007a).

Other studies also have assessed the efficacy of existing BLM stipulations for sage grouse. Impacts to leks from energy development are most severe near the lek, and remained discernable out to distances more than 6 km (3.6 miles) (Holloran 2005, Walker et al. 2007a), and have resulted in the extirpation of leks within gas fields (Holloran 2005, Walker et al. 2007a). Holloran (2005) shows that lek counts decreased with distance to the nearest active drilling rig, producing well, or main haul road, and that development influence counts of displaying males to a distance of between 4.7 and 6.2 km (2.9 and 3.9 miles). All well-supported models in Walker et al. (2007a) indicate a strong effect of energy development, estimated as proportion of development within either 0.8 km (0.5 miles) or 3.2 km (2 miles), on lek persistence. Buffer sizes of 0.25 mi., 0.5 mi., 0.6 mi. and 1.0 mi. result in an estimated lek persistence of 5 percent, 11 percent, 14 percent, and 30 percent. Lek persistence in the absence of CBNG development averages approximately 85 percent. Models with development at 6.4 km (4 miles) had considerably less support, but the regression coefficient indicated that impacts were still apparent out to 6.4 km (4 miles) (Walker et al. 2007a). Tack (2009) found impacts of energy development on lek abundances (numbers of males per lek) out to 7.6 miles.

The 2 mile timing stipulation attached to the respective parcels in this proposal only applies between March 1 to June 15, and development can occur within the 2 miles outside of those dates. Not all lease parcels would be expected to see full field development, although effects would most likely mirror these studies to some degree proportionate to the amount of development that occurs outside of the stipulated timeframe.

Under Alternative B, ¼ mile NSO buffer and 2 mile timing limit buffer would apply where relevant. Alternative C the nominated parcels within the sage grouse core area would be deferred for further analysis.

Under the C Alternative fourteen parcels are proposed for deferral pending further study due to sage grouse concerns. Approximately 8,996 acres would be further analyzed to determine what leasing impacts would have on sage grouse populations.

BLM Sensitive Animal Species and Other Fish and Wildlife. Approximately 25-30 of the sensitive species listed for North Dakota have the potential to occur within the study area. Species occurrence and densities tend to be dynamic in nature especially during the seasonal changes experienced within the study area. Annual statewide surveys are completed for trends and do not reflect on individual parcels. Impacts would be dependent on the location of surface disturbance if any drilling activities would take place and would be relative to populations of the species in question.

Should drilling occur on the lease parcels, impacts could include loss of habitat from development infrastructure, mortalities resulting from collisions with vehicles and power lines, electrocution on power lines, and displacement of wildlife species from initial disturbance caused by human presence. Indirect impacts would include habitat fragmentation and subsequent vehicle traffic, human presence, and other continual development activities.

Based on the RFD, a wide range of direct habitat loss is possible. Initial disturbance would change the occupation of those areas to disturbance-oriented species (i.e. horned larks), or species with more tolerance for disturbances. These changes would also be expected to decrease the diversity of wildlife. Although bladed corridors would be reclaimed after the facilities are constructed, some changes in vegetation would occur along the reclaimed areas. The goal of reclamation is to restore disturbed areas to pre-disturbed conditions. The outcome of reclamation, unlike site restoration, will therefore not always mimic pre-disturbance conditions and offer the same habitat values to wildlife species. Sagebrush obligates, including some species of songbirds and sage grouse, would be most affected by this change.

It is anticipated that some development may occur adjacent to existing disturbances of some type. Depending on proximity and species tolerance, wildlife species within these areas would either have acclimated to the surrounding conditions, previously been displaced by construction activities, or may be caused to be displaced to other areas with or without preferred habitat.

### **Mitigation**

Additional mitigation will occur as conditions of approval at the APD stage. The mitigation measures might include the placement of earthen berms and oil skimmers (in ephemeral drainages where fish passage will not be blocked) which should help protect aquatic wildlife habitat in case of oil spills.

Should future drilling occur, mitigation measures would consider the types of impact, the rareness of the species, the population size, and the species' potential response to the

disturbance. Additional COAs would be developed to minimize habitat disturbance; lowering impacts on sensitive animal species at the site-specific scale. On the landscape scale impacts would be negligible.

Stipulations protecting Golden Eagles have been placed on fifteen nominated parcels. The stipulation prohibits construction, seismic exploration, or other development from taking place between February 15 and July 15. Additional measures would be taken to prevent, minimize, or mitigate impacts to fish and wildlife animal species from exploration and development activities at the APD stage. Prior to authorization, activities would be evaluated on a case-by-case basis, and the project would be subject to mitigation measures. Mitigation could include rapid revegetation, project relocation, or pre-disturbance wildlife species surveying. If oil and gas development is proposed in suitable habitat for threatened or endangered species, consultation with the USFWS would occur to determine if additional terms and conditions would need to be applied.

#### **4.7 Fish and Wildlife**

At this stage (lease sale), there are no impacts to fish and wildlife. Impacts (both direct and indirect) could occur if and when the lease is developed in the future. The potential impacts would be analyzed on a site-specific basis at the APD stage prior to development.

##### **4.7.1 Direct and Indirect Effects**

Should any or all of the nominated parcels be developed in the future, it is expected there would be limited impacts as stated in Section 4.6. However, the BLM would address applications for permits to drill on a case-by-case basis where clear, precise locations can be analyzed for potential impacts. Currently, special stipulations would be placed on the lease nominations where applicable to facilitate resource protection (refer to Appendix A).

#### **4.8 Cultural Resources**

##### **4.8.1 Direct and Indirect Effects**

At this stage (lease sale), there are no impacts to cultural resources. Impacts (both direct and indirect) could occur if and when the lease is developed in the future. The potential impacts would be analyzed on a site-specific basis at the APD stage prior to development. Potential impacts to cultural resources at the APD stage include damage to archaeological sites through construction activities and the possible removal of, or damage to, archaeological materials due to increased human activity.

##### **Alternative A**

No action to lease these parcels would be taken; therefore, there would be no effects to cultural resources.

##### **Alternative B**

The Proposed Action Alternative would be to offer 116 parcels of federal minerals for oil and gas leasing, covering 31,339 acres administered by the NDFO. The parcels are located in western North Dakota. Parcel number, size, and detailed locations and associated stipulations are listed in Appendix A.

Of the 116 parcels, 107 contain known cultural sites. Of the 107 sites, 1 is eligible for nomination to the National Register of Historic Places (NRHP); 63 sites are unevaluated or have an unknown status; and 43 sites are determined not eligible for the NRHP.

### **Alternative C**

Under the BLM Preferred Alternative 87 of the 116 lease parcels would be offered with RMP lease stipulations and/or lease notices as necessary (Appendix A) for competitive oil and gas lease sale and lease issuance.

Twelve lease parcels (3,292 federal mineral acres) have been found to contain sensitive cultural sites. Additional cultural protection measures are being considered in the NDFO's on-going planning efforts; therefore, 12 lease parcels would be deferred at this time pending further review and analysis.

An additional 5 lease parcels (1,325 federal mineral acres) require additional tribal consultation; therefore, 5 lease parcels would be deferred until further tribal consultation is completed.

Seventeen parcels would be deferred until ground verification of cultural resource location; consultation with the Historic Preservation Offices can be conducted; or revision of the RMP. This reduction in acres and lease parcels would offer protection to 46 of the 107 sites inside the lease parcels.

#### **4.8.2 Mitigation**

Specific mitigation measures, including but not limited to, site avoidance, excavation or data recovery would have to be determined when site-specific development proposals are received. However, in most surface-disturbing situations cultural resources would be avoided by project redesign or relocation. Should a cultural property be unavoidable, significant properties would be site-specifically mitigated prior to implementation of a project.

Where there are large concentrations of cultural resources and important archaeological sites along the river banks and bluff tops adjacent to the Missouri and Little Missouri Rivers, Garrison Reservoir, and Lake Sakakawea measures would be implemented to avoid these areas. The use of directional and horizontal drilling techniques could provide the ability to locate surface facilities away from the shoreline and would reduce impacts to these resources.

Each nominated lease parcel would have the standard lease notice attached and the special cultural resource stipulation as written in IM 2005-003. Refer to Appendix A of this document for pertinent parcel-specific lease stipulations as needed.

## **4.9 Native American Religious Concerns**

### **4.9.1 Direct and Indirect Effects**

At this stage (lease sale), there are no impacts to Native American religious practices and Traditional Cultural Properties (TCPs). Impacts (both direct and indirect) could occur if and when the lease is developed in the future. The potential impacts would be analyzed on a site-specific basis at the APD stage prior to development.

The BLM WO IM-2005-003 notes that while a lease does not authorize specific on-the-ground activities, and no ground disturbance can occur without further authorization from BLM and the surface management agency, but unless proscribed by stipulation, lessees can expect to drill somewhere on a lease unless precluded by law. A lease sale would not interfere with the performance of traditional ceremonies and rituals pursuant to the American Indian Religious Freedom Act (AIRFA) or EO 13007. It would not prevent tribes from visiting sacred sites or prevent possession of sacred objects.

A review of the lease parcels in Appendix A indicates that no previously reported TCPs would be directly or indirectly impacted, however some of the lease parcels are located inside the exterior boundary of the Fort Berthold Indian Reservation. Information pertaining to TCP's and culturally sensitive areas was requested for parcels that are located inside the boundary of the reservation. Written information on archaeological sites and areas of concern was received; however, no information pertaining to sensitive cultural areas was delineated inside the lease parcels. Five parcels have not had complete consultation; therefore, these parcels are recommended for deferral until review can be completed. For those parcels where no inventory data is available or where no information is available for TCPs, BLM is proposing to apply Standard Lease Notice 16-1.

Leases of concern to the Mandan, Hidatsa, and Arikara Nation received in their written comment letter are included in the list of leases recommended for deferral. Deferral is recommended until further review and ground inspection can be complete with the Tribal Historic Preservation Office.

The comment regarding protection of stone circle and rock alignment sites was considered while reviewing the Class I information for the 116 parcels. Two parcels that contain numerous features of this nature were recommended for deferral based on a need for ground verification and additional consultation with Tribal Members.

Based on the need for additional consultation on leases inside the exterior boundary of the Fort Berthold Indian Reservation, the following lease parcels are recommended for deferral (NDM 97300-AN, AO, IB, KO, FF, GG). These parcels should be deferred until further review and information can be obtained from the Tribal Historic Preservation Office or Chairman.

No action to lease these parcels would be taken; therefore, there would be no effects in Alternative A. Direct and indirect impacts would be less for Alternative C than Alternative B, based on the recommendation to defer 17 parcels for further consultation, site verification, or RMP revision.

## **4.10 Paleontology**

### **4.10.1 Direct and Indirect Effects**

Significant paleontological resources occur regularly on land underlain by the Hell Creek and Ludlow formations in western North Dakota. The surface disturbances associated with oil and gas exploration and development activities could have direct and indirect effects to paleontological resources primarily in areas classified as Potential Fossil Yield Classification (PFYC) 4 or 5 areas. Mitigation will be a consideration for all surface-disturbing activities. The Niobrara, Pierre Shale, Fox Hills, Bullion Creek, Arikaree formations and the White River Group, are known for significant fossil finds in North Dakota; however, these finds are not common. Isolated significant finds can also occur in most of the geologic formations or units in the state; however, these finds are typically rare.

As a section of the Omnibus Public Lands Act (March 30, 2009), the Paleontological Resources section of the Act (Title VI, Subtitle D) specifically addressed management of paleontological resources on public lands. As a result of this act, a map of the planning area which shows the area according to its potential fossil yield was developed to provide a tool for predicting the potential management areas have for fossil locales. The BLM PFYC classification system outlines BLM's approach to assessment and mitigation of paleontological resources. The PFYC system uses five classes for geologic units: Class 1: Very Low; Class 2, Low; Class 3, Moderate (3a), or Unknown (3b); Class 4, High; and Class 5, Very High. This classification approach is meant to reflect the probability of impacting significant fossils. The intent of the classification system is to eliminate or reduce adverse impacts to paleontological resources from authorized actions.

#### **Alternative A**

No action to lease these parcels would be taken; therefore, there would be no effects to Paleontological resources.

#### **Alternative B**

Of the 116 nominated lease parcels, eleven parcels are in areas classified as high according to the PFYC system map. The remaining nominated parcels are located in areas considered moderate

or unknown. Presently, there are known localities of previous research areas for significant fossil or paleontological resources inside or adjacent to the nominated parcels; therefore, the potential for direct or indirect affects to paleontological resources is high.

### **Alternative C**

Eleven lease parcels (7627.09 federal mineral acres) in whole or in part are within areas classified as high according to the PFYC. Areas with high potential paleontological yields are being considered in the NDFO's on-going planning efforts; therefore, 11 lease parcels would be deferred at this time pending further review and analysis.

#### **4.10.2 Mitigation**

Specific mitigation measures could include, but are not limited to, site avoidance or excavation. These measures would be determined when site-specific development proposals are received. For known highly significant paleontological resources, the act of leasing a nominated parcel would not impact paleontological resources; however, subsequent development could have impacts on those resources. For areas known to contain or have the potential to contain paleontological resources a survey should be conducted when a specific development may impact those resources.

As per Washington Office Instruction Memorandums (IM) 2008-009, 10/15/2007 and 2009-011, 10/10/2008, each nominated lease parcel would have the standard lease notice and special paleontological resource stipulation attached. Refer to Appendix A of this document for pertinent parcel-specific lease stipulations as needed.

### **4.11 Lands and Realty**

#### **4.11.1 Direct and Indirect Effects**

Leasing the parcels would have no direct impacts on lands and realty. Any potential effects from the sale of leases would occur at the time the leases are developed.

Facilities associated with oil and gas development on the parcels could cause disturbance to the existing rights-of-way on federal surface on seven of the tracts (Parcels NDM 97300-B1, D, M, EM, ET, EU, and EL). Additional rights-of-way could be required across federal surface for "off-lease" or third party facilities required for potential development of the parcel.

#### **4.11.2 Mitigation**

Measures would need to be taken to avoid disturbance to or impacting the seven existing rights-of-way on federal surface on parcels NDM 97300-B1, D, M, EM, ET, EU, and EL in the event of any exploration and development activities on the leased parcels. Any new "off-lease" or third party rights-of-way required across the federal surface for future exploration and/or development would be subject to stipulations to protect other resources as determined by environmental analyses which would be completed on a case-by-case basis.

## **4.12 Minerals**

### **4.12.1 Fluid Minerals**

Stipulations applied to various areas with respect to occupancy, timing limitation, and control of surface use would have the greatest effects on oil and gas exploration and development. Leases issued with major constraints such as no surface occupancy may decrease some lease values, increase operating costs, and, to a lesser extent, require relocation of well sites and modification of field development. Leases issued with moderate constraints such as timing limitations and controlled surface use stipulations may result in similar but reduced impacts and delays in operations and uncertainty on the part of operators regarding restrictions.

If areas are deferred, some development plans could be delayed, relocated, or completely dropped because of the need to include federal acreage as part of an exploration or development plan.

#### **4.12.1.1 Direct and Indirect Effects**

Under the Proposed Action, all of the lease parcel areas would be recommended for oil and gas leasing at this time. Approximately 46 percent of the areas would be offered for lease subject to major constraints. Approximately 54 percent would be offered for lease subject to moderate constraints. No parcels would be offered for lease subject only to standard terms and conditions.

### **4.12.2 Solid Minerals**

#### **4.12.2.1 Direct and Indirect Effects**

##### **Coal**

None of the parcels fall within the boundaries of existing coal mines. Thus, there are no conflicts between the proposed lease parcels and existing coal mines and coal leases. Therefore, the special stipulation pertaining to surface coal mines does not need to be applied.

It is the policy of the BLM to encourage oil and gas and coal companies to resolve conflicts between themselves; when requested, the BLM will assist in facilitating agreements between the companies. The BLM will also exercise authority provided in the leases, applicable statutes, and regulations to manage federal mineral development in the public's best interest (Washington Office IM 2003-253).

##### **Locatables**

There is currently no locatable mineral production or potential for production in the lease parcel areas. If potential mineral development conflicts arise in the future, issues would be addressed during the APD review process, and/or the conflict would be resolved between the private parties through customary corporate and legal procedures.

##### **Salables**

Salable minerals will be dealt with at the APD stage. However, disposal of salable minerals is a discretionary decision of the authorized officer and thus future potential resource development conflicts would be avoided either by not issuing sales contracts in oil and gas development locations or conditioning the APD or sand and gravel contract to avoid conflicts between operations.

#### **4.13 Visual Resources**

##### **4.13.1 Direct and Indirect Effects**

Leasing the parcels would have no direct impacts on visual resources. Any potential effects from the sale of leases would occur at the time the leases are developed.

While the act of leasing federal minerals produces no visual impacts, subsequent development (indirect effects) of a lease parcel would result in some level of modification to the existing landscape.

##### **4.13.2 Mitigation**

All new oil and gas development would implement, as appropriate for the site, BLM Best Management Practices for Visual Resource Management (VRM), regardless of the VRM class. This includes, but would not be limited to, proper site selection, reduction of visibility, minimizing disturbance, selecting color(s)/color schemes that blend with the background and reclaiming areas that are not in active use. Repetition of form, line, color and texture when designing projects would reduce contrasts between landscape and development. Wherever practical, no new development would be allowed on ridges or mountain tops. Overall, the goal would be to maintain the visual qualities or scenic value that currently exists.

#### **4.14 Recreation and Travel Management**

##### **4.14.1 Direct and Indirect Effects**

Leasing the parcels would have no direct impacts on recreation and travel management. Any potential effects from the sale of leases would occur at the time the leases are developed.

Recreation impacts may exist where oil and gas development and recreational user conflicts may occur. In areas where a high level of oil and gas development is likely, there may be user conflicts between motorized recreationists (OHV activities), hunting, target shooting, camping, fishing, river use, picnicking, and winter activities such as snowmobiling and the oil and gas/industrial activities. The intensity of these impacts is moderate and could exist in both the short-term (exploration and construction phases of oil and gas development) and in the long-term (producing wells, maintenance of facilities, etc.).

Where there are other land use activities occurring, including oil and gas development, in areas frequented by recreationists, the public may perceive these areas as inaccessible or unavailable because of the facilities or recreationists may use lease roads to access areas for recreational

activities. Potential public safety hazards/risks include: moving equipment, operator vehicles, transport vehicles for oil and gas, oil and gas wells, etc. However, this will be addressed in more detail at the development stage.

As oil and gas development occurs, new routes may be created which often attract recreationists seeking additional or new areas to explore for motorized recreational opportunities. Motorized recreational opportunities could be enhanced through the additional opportunities to explore; however, user conflicts and public safety issues could result from the use of the new travel routes. The creation of routes from oil and gas activities could lead to a proliferation of user-created motorized routes, resulting in adverse impacts to the scenic qualities of the area and increased level of surface disturbance. These impacts would be isolated to BLM-administered public lands and could be minimized and avoided through mitigation and reclamation of industrial routes when no longer needed.

Foreseeable changes in recreation use levels include demand for recreational use of public land to increase. Increases could be expected in, but not limited to, hunting, fishing, hiking, camping, wildlife viewing, and dispersed recreational uses. This could increase the incidence of conflict between recreationists involved in motorized activities and non-motorized activities.

#### **4.15 Livestock Grazing**

##### **4.15.1 Direct and Indirect Effects**

At this stage (lease sale) there would be no impacts to livestock grazing. Impacts (both direct and indirect) would occur if a lease is developed in the future. The potential impacts would be analyzed on a site specific basis prior to oil and gas development and during the APD stage of development.

Impacts possible at the APD stage of development would include a loss of forage as a result of drill-site development which includes the pad, reserve pit, earthen pit, roads, surface facilities, pipelines, powerlines, and herbicide use. In some cases there may be a temporary loss of AUMs. Short term shifts in grazing intensities, cattle distribution, and utilization levels could occur as a worst case scenario. The cumulative number of AUMs removed from a grazing allotment would have to be considered at the APD stage of development. Short-term and long-term impacts associated with AUM losses would be apparent in rangeland monitoring efforts.

##### **4.15.2 Mitigation**

Mitigation would be deferred to the site specific APD stage of development. BMPs would be incorporated into COAs.

Fencing of facilities would be considered as needed to minimize conflicts between oil and gas exploration/development and livestock grazing. The carrying capacity, stocking rates, and utilization objectives for an allotment would have to be analyzed with the removal of acreage

from the allotment. Well locations should not be placed in a location that will impair range improvement usefulness and maintenance. Any linear features (i.e. roads and pipelines) that disturb range improvements should mitigate such disturbance by repairing the range improvement to the prior condition or better.

## 4.16 Economic Conditions

### 4.16.1 Direct and Indirect Effects

#### Alternative A:

Economic impacts associated with Alternative A would be similar to those described in the economic section of the Affected Environment. These effects are summarized in Table 4.16.1 and Table 4.16.2.

Activity	Alternative		
	A	B	C
Existing Acres leased*	960,583	960,583	960,583
Existing Acres Leased (BLM)	206,242	206,242	206,242
<i>Acres that would be leased based on this EA</i>	0	31,339	19,406
Total acres leased	206,242	237,581	225,648
Acres held by production*	116,951	116,951	116,951
Total acres leased for which lease rents would be paid	89,291	120,630	108,697
Lease rental first 5 years (\$1.50/acre)	66,968	90,472	81,522
Lease rental second 5 years (\$2.00/acre)	89,291	120,630	108,697
Average annual bonus (\$47.68/ac.)	9,833,619	11,327,862	10,758,897
Total annual federal lease and rental revenue	9,989,877	11,538,964	10,949,116
Distribution to State/local government	4,297,645	4,964,062	4,710,310
Annual oil production (bbl)**	1,756,877	2,023,839	1,922,188
Annual gas production (MCF)**	1,719,896	1,981,239	1,881,727

Federal oil royalty (bblx\$67.91x0.125)	14,913,693	17,179,866	16,316,972
Federal gas royalty (MCFx\$6.94x0.125)	1,492,010	1,718,725	1,632,398
Total annual Federal O&G royalties	16,405,703	18,898,591	17,949,370
Distribution to State/local government	7,057,733	8,130,174	7,721,819
Total annual Federal revenues	26,395,580	30,437,555	28,898,486
Total annual State/local revenues	11,355,378	13,094,236	12,432,129
Total annual revenue distributed to counties	4,220,653	4,866,965	4,620,868
*LR2000, BLM, 2011			
**Estimated 2009 federal production level			

**Table 4.16.1 Summary of Estimated Annual Economic Impacts by Alternative**

Alternative	Acres Available for Lease	Change in Revenue to Local Counties	Change in Total Employment (full and part-time jobs)	Change in Total Local Wage and Proprietor's Income (\$1000)	Change in Local Population	Change in Number of Households
Alt. A	0	0	0	0	0	0
Alt. B	31,339	\$646,312	269	\$14,952	355	156
Alt. C	19,406	\$400,215	167	\$9,263	220	97

**Table 4.16.2 Comparison of Estimated Average Annual Economic Impacts**

**Alternative B:**

**Public Revenues related to leasing, rent, and production:** Leasing an additional 31,339 acres of federal minerals (Alternative B) would increase estimated annual oil and gas leasing and rent revenues to the federal government by \$1.5 million. Estimated annual leasing and rent revenues that would be distributed to state/local governments would increase by about \$666,000. Annual federal oil and gas royalties would increase by an estimated \$2.5 million with Alternative B.

Production royalties distributed to the state/counties would increase by an estimated \$1.1 million annually.

Total annual federal revenues related to leasing 237,581 acres of federal minerals and associated annual rent and royalty revenues related to annual production of federal minerals would amount to an estimated \$30.4 million. This would be an estimated annual increase of \$4.0 million compared to Alternative A. Total annual revenues distributed to the state and counties would be an estimated \$13.1 million, an estimated \$1.7 million more than with Alternative A.

**Local Economic Contribution:**

The estimated combined total annual employment and income supported by federal oil and gas leasing, distributions of royalties to local governments, drilling wells, and production would amount to about 2,040 total jobs and \$113.3 million within the local economy (IMPLAN, 2009). Table 4.16.3 shows that this would be an annual increase of about 270 total jobs and \$15.0 million in labor income over levels anticipated with Alternative A. There would also be a corresponding increase in local population of about 360 people and 160 households.

**Conclusion:** Total federal contribution of Alternative B (leasing an additional 31,339 acres of BLM-managed federal minerals and anticipated related exploration, development, and production of oil and gas) would have negligible effects on local population, total local employment, number of households, average income per household, and total personal income, e.g. the effects would be about 0.2 percent of current levels and the effects would be spread over a 13 county area. The economic effects would continue to be spread unevenly among the counties. Leasing the additional acres and anticipated exploration, development, and production under alternative B would provide about \$1.7 million per year of additional funds for North Dakota and for county functions such as enforcing laws, administering justice, collecting and disbursing tax funds, providing for orderly elections, maintaining roads and highways, providing fire protection, and keeping records. Other state and county functions that may be funded include administering primary and secondary education and operating clinics/hospitals, county libraries, county airports, local landfills, and county health systems. Demand for these services would also increase as total local employment and population increase. Leasing the additional acres and anticipated exploration, development, and production would not change local economic diversity (as indicated by the number of economic sectors), economic dependency (where one or a few industries dominate the economy), or economic stability (as indicated by seasonal unemployment, sporadic population changes and fluctuating income rates)..

**Alternative C:**

**Public Revenues related to leasing, rent, and production:**

Leasing an additional 19,406 acres of federal minerals (Alternative C) would increase estimated annual oil and gas leasing and rent revenues to the federal government by about \$960,000.

Estimated annual leasing and rent revenues that would be distributed to state/local governments would increase by about \$410,000. Annual federal oil and gas royalties would increase by an estimated \$1.5 million with Alternative C. Royalties distributed to the state/counties would increase by an estimated \$664,000 annually.

Total annual federal revenues related to leasing 225,648 acres of BLM-federal minerals and associated annual rent and royalty revenues related to annual production of federal minerals would amount to an estimated \$28.9 million. This would be an estimated annual increase of \$2.5 million compared to Alternative A. Total annual revenues distributed to the state and counties would be an estimated \$12.4 million, an estimated \$1.1 million more than with Alternative A.

Industry	Total Jobs Contributed			Total Income Contributed (\$1000)		
	Alt. A	Alt. B	Alt.C	Alt. A	Alt. B	Alt.C
Agriculture	1	1	1	\$94	\$108	\$102
Mining	913	1,052	999	\$63,126	\$72,718	\$69,068
Utilities	7	8	8	\$809	\$932	\$885
Construction	32	37	35	\$1,600	\$1,843	\$1,751
Manufacturing	4	4	4	\$180	\$207	\$196
Wholesale Trade	85	98	93	\$5,370	\$6,186	\$5,876
Transportation & Warehousing	51	58	55	\$3,580	\$4,124	\$3,917
Retail Trade	99	114	109	\$2,523	\$2,907	\$2,761
Information	15	18	17	\$804	\$926	\$879
Finance & Insurance	68	78	74	\$2,118	\$2,440	\$2,318
Real Estate & Rental & Leasing	33	38	36	\$1,840	\$2,119	\$2,013
Prof, Scientific, & Tech Services	80	92	87	\$4,180	\$4,815	\$4,573
Mngt of Companies	10	12	11	\$737	\$849	\$807

Admin, Waste Mngt & Rem Serv	31	35	34	\$694	\$800	\$760
Educational Services	8	9	8	\$95	\$109	\$104
Health Care & Social Assistance	83	96	91	\$3,552	\$4,092	\$3,887
Arts, Entertainment, and Rec	12	14	13	\$171	\$197	\$187
Accommodation & Food Services	62	71	68	\$957	\$1,102	\$1,047
Other Services	55	64	60	\$1,434	\$1,652	\$1,569
Government	118	136	129	\$4,503	\$5,192	\$4,929
Total Federal Contribution	1,767	2,036	1,934	\$98,366	\$113,318	\$107,629
Percent Change from Current	0.0%	15.2%	9.4%	0.0%	15.2%	9.4%

**Table 4.16.3 Employment and Income by Major Industry by Alternative**

**Local Economic Contribution:**

The estimated combined total annual employment and income supported by federal oil and gas leasing, distributions of royalties to local governments, drilling wells, and production would amount to about 1,930 total jobs and \$107.6 million within the local economy (IMPLAN, 2009). Table 4.16.3 shows that this would be an annual increase of about 170 total jobs and \$9.3 million in labor income over levels anticipated with Alternative A. There would also be a corresponding increase in local population of about 220 people and 100 households.

**Conclusion:**

Total federal contribution of Alternative C (leasing an additional 19,406 acres of BLM-managed federal minerals and anticipated related exploration, development, and production of oil and gas) would have negligible effects on local population, total local employment, number of households, average income per household, and total personal income, e.g. the effects would be about 0.2 percent of current levels and the effects would be spread over a 13 county area. The economic effects would continue to be spread unevenly among the counties. Leasing the additional acres and anticipated exploration, development, and production under alternative C would provide about \$1.1 million per year of additional funds for North Dakota and for county functions such as enforcing laws, administering justice, collecting and disbursing tax funds, providing for orderly elections, maintaining roads and highways, providing fire protection, and

keeping records. Other county functions that may be funded include administering primary and secondary education and operating clinics/hospitals, county libraries, county airports, local landfills, and county health systems. Demand for these services would also increase as total local employment and population increase. Leasing the additional acres and anticipated exploration, development, and production would not change local economic diversity (as indicated by the number of economic sectors), economic dependency (where one or a few industries dominate the economy), or economic stability (as indicated by seasonal unemployment, sporadic population changes and fluctuating income rates).

#### **4.17 Social and Environmental Justice**

##### **4.17.1 Direct and Indirect Effects**

###### **Impacts Common to All Alternatives.**

No alternative would affect the demographics, social trends, or social organization in the area.

##### **4.17.1 Direct and Indirect Effects**

###### **Alternative A**

The No Action alternative would result in the continuation of the current land and resource uses and would cause no social or environmental justice impacts.

###### **Alternative B**

While the act of leasing federal minerals itself would result in no social impacts, subsequent development of a lease may generate impacts to people living near or using the area in the vicinity of the lease. Oil and gas exploration, drilling, or production could create an inconvenience to these people due to increased traffic and traffic delays, noise and visual impacts. This could be especially noticeable in rural areas where oil and gas development has been minimal. The amount of inconvenience would depend on the activity affected, traffic patterns within the area, noise levels, length of time, and season these activities occurred, etc. Creation of new access roads into an area could allow increased public access and exposure of private property to vandalism. For leases where the surface is privately owned and the subsurface is federally owned, surface owner agreements, standard lease stipulations, and BMPS could address many of the concerns of private surface owners.

Depending on the distribution of the development, new employment and population may benefit the smaller communities in the area. See Direct and indirect Effects to Economic Conditions.

There would be no disproportionate effects to low income or American Indian populations from leasing. However, concerns about lease development were received from interested Tribes. There are low income people in the counties, but they do not appear to be associated with any specific BLM resources or activities.

## **Alternative C**

The social effects would be the same as for Alternative B but leasing would be deferred until further information is available on the tracts of concern to American Indians. In addition, depending on the distribution of the development, new employment and population may benefit the smaller communities in the area, but not as much as for Alternative B. See Direct and indirect Effects to Economic Conditions."

### **4.18 Cumulative Impacts**

Cumulative impacts are those impacts resulting from the incremental impact of an action when added to other past, present, and reasonably foreseeable actions regardless of what agency or person undertakes such other actions. This section describes cumulative impacts associated with this project on resources. The ability to assess the potential cumulative impacts at the leasing stage for this project is limited for many resources due to the lack of site-specific information for potential future activities. Upon receipt of an APD for any of the lease parcels addressed in this document, more site-specific planning would be conducted in which the ability to assess contributions to cumulative impacts in a more detailed manner would be greater due to the availability of more refined site-specific information about proposed activities.

#### **4.18.1 Past, Present and Reasonably Foreseeable Future Actions**

Past, present, or reasonably foreseeable future actions that have or could affect the same components of the environment as the Proposed Action in project area include mineral exploration and development, livestock grazing and range improvements, road construction, agriculture, recreational activities, subdivision of private lands, energy/utility infrastructure development, vehicle travel, wild and prescribed fire activities and water flow alterations and diversions. Much of this activity has, and is expected to continue, occurred on private surface lands, which comprise a majority of the total land ownership in the project area.

#### **4.18.2 Cumulative Impacts by Resource**

##### **4.18.2.1 Greenhouse Gas Emissions and Cumulative Impacts on Climate Change**

The cumulative effects analysis area for air resources is the NDFO, with additional discussion at statewide, national, and global scales for GHG and climate change.

This section incorporates an analysis of the contributions of the Proposed Action to GHG emissions, followed by a general discussion of potential impacts to climate change. Potential emissions relate to those derived from potential exploration and development of fluid minerals.

Additional emissions beyond the control of the BLM, and outside the scope of this analysis, would also occur during any needed refining processes as well as the end uses of final products.

Projected GHG emissions for this project and the NDFO RFD are compared below with recent, available inventory data at the state, national, and global scales. GHG emissions inventories can vary greatly in their scope and comprehensiveness. State, national, and global inventories are not necessarily consistent in their methods or in the variety of GHG sources that are inventoried (Climate Change SIR, 2010). However, comparisons of emissions projected by the BLM for its oil and gas production activities are made with those from inventories at other scales provide a context for the potential contributions of GHGs associated with this project.

As discussed in the Air Quality section of Chapter 4, total long-term projected BLM GHG emissions from the RFD are 527,350 metric tons/year CO<sub>2</sub>e. Potential emissions under Alternative B would be approximately 0.6 percent of this total. Table 4.18.1 displays projected GHG emissions from non-BLM activities included in the NDFO RFD. Total projected emissions of non-BLM activities in the RFD are 4,369,454 metric tons/year of CO<sub>2</sub>e. When combined with projected annual BLM emissions, this totals 4,896.8 metric tons/year CO<sub>2</sub>e. Potential GHG emissions under Alternative B would be 0.121 percent of the estimated emissions for the entire RFD. Potential incremental emissions of GHGs from exploration and development of fluid minerals under Alternative B would be minor in the context of projected GHG contributions from the entire RFD for the NDFO.

**Table 4.18.1. Projected non-BLM GHG emissions associated with the North Dakota FO Reasonably Foreseeable Development Scenario for fluid mineral exploration and development.**

Source	Non-BLM Long-Term Greenhouse Gas Emissions in tons/year				Emissions (metric tons/yr)
	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	Co <sub>2</sub> e	CO <sub>2</sub> e
Conventional Natural Gas	4,273.3	850.9	0.05	22,156.4	20,105.8
Coal Bed Natural Gas	32,407.3	412.2	0.58	41,243.1	37,425.8
Oil	4,538,510.4	17,153.1	52.69	4,751,738.5	4,311,922.4
<b>Total</b>	<b>4,575,191</b>	<b>18,416.2</b>	<b>53.37</b>	<b>4,815,138</b>	<b>4,369,454</b>

**North Dakota’s Contribution to U.S. and Global Greenhouse Gases (GHGs)**

While North Dakota has not completed a GHG inventory, the “CRS Report to Congress: State Greenhouse Gas Emissions Comparison and Analysis” reports that emissions are 57 million metric tons of carbon equivalent (MMTCO<sub>2</sub>E) compared to 6,737 million metric tons nationally (Ramseur 2007, [http://assets.opencrs.com/rpts/RL34272\\_20071205.pdf](http://assets.opencrs.com/rpts/RL34272_20071205.pdf)). This equates to approximately 0.8 percent of U.S. and 0.1 percent of global emissions. Individual source groups are not available but are likely similar to those in Montana.

GHG emissions were inventoried for North Dakota, but include CO<sub>2</sub> emissions from fossil fuel combustion only. In 2007, these total emissions were approximately 49 million metric tons of CO<sub>2</sub>e (summarized in Climate Change SIR, 2010). Alternative B represents approximately 0.01 percent of these total GHG emissions based on the 2007 inventory.

The EPA (Climate Change SIR, 2010) published an inventory of U.S. GHG emissions which indicated gross U.S. emissions of 6,957 million metric tons and net emissions of 6,016 million metric tons (when CO<sub>2</sub> sinks were considered) of CO<sub>2</sub>e in 2008. Potential annual emissions under Alternative B would amount to approximately 0.00005 percent of gross U.S. total emissions. Global GHG emissions for 2004 (Climate Change SIR, 2010) indicated approximately 49 gigatonnes (10<sup>9</sup> metric tons) of CO<sub>2</sub>e emitted. Potential annual emissions under Alternative B would amount to approximately 0.000006 percent of this global total.

As indicated in the Air Quality section of Chapter 4 above, although the effects of greenhouse gas emissions in the global aggregate are well-documented, it is currently not credibly possible to determine what specific effect GHG emissions resulting from a particular activity might have on climate or the environment. If exploration and development occur on the lease parcels considered under Alternative B, potential GHG emissions described above would incrementally contribute to the total volume of GHGs emitted to the atmosphere, and ultimately to climate change.

Mitigation measures identified in the Air Quality section of Chapter 4 above may be in place at the APD stage to reduce GHG emissions from potential oil and gas development as a result of this project. This is likely because many operators working in Montana, South Dakota, and North Dakota are currently EPA Natural Gas STAR Program Partners, and future regulations may require GHG emission controls for a variety of industries, including the oil and gas industry (Climate Change SIR, 2010).

#### **4.18.2.2 Cumulative Impacts of Climate Change**

As previously discussed in section 4.1.1, it is difficult to impossible to identify the specific impacts of climate change on specific resources within the project area. Some information and projections of impacts beyond the project scale are becoming increasingly available. Chapter 3 of the Climate Change SIR (2010) describes impacts of climate change in detail at various scales, including the state scale when appropriate. Effects of climate change on resources are described in Chapter 3 of this EA and in Climate Change SIR (2010).

#### **4.18.2.3 Cumulative Impacts of Other Resources**

Although impacts are discussed by pertinent resource below, the Proposed Action, when considered in combination with other past, present and reasonably foreseeable activities occurring on federal, state, and private lands, would not significantly contribute to any

cumulative impacts. The ability to assess the potential cumulative impacts at the leasing stage for this project is limited for many resources due to the lack of site-specific information for potential future activities. Upon receipt of an APD for any of the lease parcels addressed in this document, more site-specific planning would be conducted in which the ability to assess contributions to cumulative impacts in a more detailed manner would be greater due to the availability of more refined site-specific information about proposed activities.

### **Soil Resources**

In general, the above actions could have cumulative impacts on soil resources by causing surface disturbance which contribute to soil compaction, erosion, and subsequent sedimentation. Some of these impacts can be mitigated or avoided through proper design, construction, maintenance, and implementation of BMPs at the site-specific planning stage.

### **Water Resources**

Where facilities cross or are close to waterways, the likelihood of project impacts would increase. These impacts could include increased sedimentation; increased salt loading; contamination by petroleum products, chemicals, or produced waters; and flow alterations. Similarly, possible leaks from reserve and evaporation pits could degrade surface and ground water quality. Impacts can be reduced or avoided through proper project design, construction, maintenance activities, and implementation of best management practices.

Specific locations, development techniques, and mitigation procedures are undeveloped as of yet; therefore, specific descriptions of potential effects are unattainable at this time.

Authorization of proposed projects would require full compliance with BLM directives and stipulations that relate to surface and groundwater protection.

### **Vegetation**

In general, the above actions could have cumulative impacts on vegetative resources including the direct destruction of vegetation through earth moving, vehicle traffic, limited vegetative production through soil compaction and limited water infiltration, and introduction of invasive and/or noxious weed species.

### **Fish and Wildlife**

Generally speaking construction of roads, production well pads, and other facilities would result in long term (>5 years) loss of habitat and forage in the analysis area if the leases are developed. This would be in addition to acres disturbed, or habitats fragmented from various other adjacent activities. As new development occurs, direct and indirect impacts would continue to stress wildlife populations, most likely displacing the larger, mobile animals into adjacent habitat, and increasing competition with existing local populations. Non-mobile animals would be affected by increased habitat fragmentation and interruptions to preferred nesting habitats.

Certain species are localized to some areas and rely on very key habitats during critical times of the year. Disturbance or human activities that would occur in winter range for big game, nesting and brood-rearing habitat for grouse and raptors could displace some or all of the species using a particular area or disrupt the normal life cycles of species. Wildlife and habitat in and around the project would be influenced to different degrees by various human activities. Some species and/or a few individuals from a species group may be able to adapt to these human influences over time.

With the addition of various forms of stipulations, mitigation, and terms and conditions applied during the development stage, the assessed resources of concern are not expected to approach conditions where additional stresses associated with the proposed action and, past, present and future foreseeable actions will have consequential cumulative effects.

### **Cultural Resources**

Federal undertakings are required to comply with the National Historic Preservation Act and adverse effects mitigated. Non-federal undertakings on private lands as identified above can lead to artifact breakage, compaction, and mixing of temporal assemblages and vandalism.

### **Economics**

#### **Alternative B**

The cumulative effects of federal mineral leasing within the local economy as well as the specific effects of leasing an additional 31,339 acres under Alternative B are presented in the previous analysis. These effects are summarized in Tables 4.16.1, 4.16.2, and 4.16.3. The oil and gas industry would continue to be a major influence on the local economy; however the total demographic and economic characteristics of the local economy would change little with the economic activity associated with leasing the additional acres of federal minerals.

#### **Alternative C**

The cumulative effects of federal mineral leasing within the local economy as well as the specific effects of leasing an additional 19,406 acres under Alternative C are presented in the previous analysis. These effects are summarized in Table 4.16.1, 4.16.2, and 4.16.3. The oil and gas industry would continue to be a major influence on the local economy; however the total demographic and economic characteristics of the local economy would change very little with the economic activity associated with leasing the additional acres of federal minerals.

## 5.0 CONSULTATION AND COORDINATION:

### 5.1 Persons, Agencies, and Organizations Consulted

Table 5.1.1 lists persons, agencies, and organizations that were consulted or coordinated with during development of this EA along with the findings and conclusions associated with consultations.

**Table 5.1.1. List of individuals, agencies and organizations consulted or coordinated with regarding on this EA**

Name	Purpose & Authorities for Consultation or Coordination	Findings & Conclusions
U.S. Army Corps of Engineers	COE Surface – SME	Stipulation Recommendations
U.S. Fish and Wildlife Service	T&E Species	Addressed with 2006 “backlog” consultation and 1988 (RMP) Section 7 consultation. Further comments to be addressed during comment period.
North Dakota Game and Fish Department	Resident species and habitats	To be addressed during comment period
Tribal Historic Preservation Officer, and Review and Compliance Officer for the Mandan, Hidatsa, and Arikara Nation	National Historic Preservation Act, Section 106 Reference (36 CFR 800)	Pending Review and Comment
Tribal Historic Preservation Officer from the Turtle Mountain Band of Chippewa Indians	National Historic Preservation Act, Section 106 Reference (36 CFR 800)	Pending Review and Comment
Tribal Historic Preservation Officer from the Standing Rock Sioux Tribe	National Historic Preservation Act, Section 106 Reference (36 CFR 800)	Pending Review and Comment
Tribal Chair Person Spirit Lake Sioux	National Historic Preservation Act, Section 106 Reference (36 CFR 800)	Pending Review and Comment
Tribal Historic Preservation Officer Lower Sioux Indian Community (Minnesota)	National Historic Preservation Act, Section 106 Reference (36 CFR 800)	Pending Review and Comment
Dennis Roller, North Dakota State Auditor’s Office	Distribution of federal royalties to counties	Amount of the total federal royalties paid to McClean, Mercer, and Williams counties that were related to federal coal leases and production.
Joe Mirrisette, North Dakota Office of Management and Budget	State distribution of revenues from the Mineral Leasing Act	State distribution of revenues from the Mineral Leasing Act

## **5.2 Summary of Public Participation**

### **Scoping**

Public scoping for this proposed leasing project was conducted through a 15-day scoping period advertised on the BLM Montana State Office website and posting on the NDFO website NEPA notification log. Scoping was initiated December 17, 2011; however, scoping comments were received through January 19, 2011. Surface owner notification letters were also distributed briefly explaining the oil and gas leasing process and planning process. The surface owner notification letter requested written comments regarding any issues or concerns that should be addressed in the environmental analysis. A total of 131 surface owner notification letters were distributed for the oil and gas leasing analysis process for the NDFO.

The BLM received seven written comment letters and one phone/verbal comments. The written and verbal communication resulted in a total of eight individual scoping comments received pertaining to oil and gas leasing in North Dakotas.

Of the eight total comments, two were comments regarding occupied buildings or residential areas. One comment was updating landowner information. One comment was in support of leasing due to economic concerns. One comment had concerns regarding springs and artesian wells during development. One comment had site specific terrain and cultural concerns. One comment addressed State Wildlife Management Areas. And one comment had specific suggestions for at the time of development, suggestions included; road construction, electric lines, fence crossings, facility fencing, informational signs, and compensation.

**Table 5.1.2. List of Preparers**

<b>Name</b>	<b>Title</b>	<b>Responsible for the Following Section(s) of this Document</b>
Brenda Shierts	Cultural Resources Specialist	Cultural Resources, Native American Religious Concerns, and Paleontology
Derek Enderud	Natural Resources Specialist	Soil, Water, Solid Minerals, and Fluid Minerals
David Hodgson	Natural Resources Specialist	Vegetation, Visual Resources, Recreation and Travel Management, Noxious Weeds, and EA Lead
Tim Zachmeier	Wildlife Biologist	Fish & Wildlife, Special Status Animal and Plant Species
Linda Gisvold	Realty Specialist	Lands & Realty
Thad Barrett	Rangeland Management Specialist	Livestock Grazing
John Thompson	Planning & Environmental Specialist	Economic Conditions
Mike Philbin	Hydrologist	Air, Climate
Joan Trent	Sociologist	Social Conditions

## 6.0 REFERENCES

- Bald Eagle Protection Act of 1940 (16 U.S.C. 668-668d, 54 Stat. 250) as amended -- Approved June 8, 1940, and amended by P.L 86-70 (73 Stat. 143) June 25, 1959; P.L. 87-884 (76 Stat. 1346) October 24, 1962; P.L. 92-535 (86 Stat. 1064) October 23, 1972; and P.L. 95-616 (92 Stat. 3114) November 8, 1978.
- Canadian Wildlife Service and U.S. Fish and Wildlife Service. 2007. International recovery plan for the whooping crane. Ottawa: Recovery of Nationally Endangered Wildlife (RENEW), and U.S. Fish and Wildlife Service, Albuquerque, New Mexico. 162 pp. [http://ecos.fws.gov/docs/recovery\\_plan/070604\\_v4.pdf](http://ecos.fws.gov/docs/recovery_plan/070604_v4.pdf)
- Center for Climate Strategies (CCS). 2007. Montana Greenhouse Gas Inventory and Reference Case Projections 1990-2020. Center for Climate Strategies and Montana Department of Environmental Quality. September 2007.
- Climate Change. 2010. Climate Change Supplementary Information Report for Montana, North Dakota, and South Dakota, Bureau of Land Management. Report on Greenhouse Gas Emissions and Climate Change for Montana, North Dakota, and South Dakota. Technical report prepared for the Montana/Dakotas Bureau of Land Management by URS Corporation. URS Project 22241790.
- Dale, B.C., T.S. Wiens, and L.E. Hamilton. 2009. Abundance of three grassland songbirds in an area of natural gas infill drilling in Alberta, Canada. Pages 194-204 in T.D. Rich, C. Arizmendi, D.W. Demarest, and C. Thompson, editors. Proceedings of the 4<sup>th</sup> International Partners in Flight Conference. 13-16 February 2008. McAllen, Texas. <http://www.partnersinflight.org/pubs/McAllenProc/index.cfm> (9 July 2010).
- Davis, S.K. 2004. Area sensitivity in grassland passerines: effects of patch size, patch shape, and vegetation structure on bird abundance and occurrence in southern Saskatchewan. *Auk* 121:1130-1145.
- Dieni, J.S. and S.L. Jones. 2003. Grassland songbird nest site selection patterns in northcentral Montana. *Wilson Bulletin* 115:32-40.
- Distribution of Mineral Royalty by County*. (2010). Retrieved July 21, 2010 from Office of North Dakota State Treasurer: <http://www.nd.gov/ndtreas/index.htm>.
- Dohms, K.M. 2009. Sprague's Pipit (*Anthus spragueii*) nestling provisioning and growth rates in native and planted grasslands. M.S. thesis, University of Regina, Regina, Saskatchewan, Canada.

- Hagen, S.K., P.T. Isakson, and S.R. Dyke. 2005. North Dakota comprehensive wildlife conservation strategy. North Dakota Game and Fish Department. Bismarck, North Dakota <http://gf.nd.gov/conservation/cwcs.html> (12 october 2006)
- Higgins, K.F., D.E. Naugle, and K.J. Forman. 2002. A case study of changing land use practices in the Northern Great Plains, U.S.A.: an uncertain future for waterbird conservation. *Waterbirds* 25:Special Publication 2:45-50.
- Holloran, M. J, and S. H. Anderson. 2005b. Spatial Distribution of Greater Sage-Grouse nests in Relatively Contiguous Sagebrush Habitats. *The Condor*, 107:742–752.
- Holloran, M.J. 2005. Greater Sage Grouse (*Centrocercus urophasianus*) population response to natural gas field development in western Wyoming. Dissertation, University of Wyoming, Laramie, USA.
- Holloran, M.J. 2005. Greater Sage-Grouse (*Centrocercus urophasianus*) Population Response to Natural Gas Development in Western Wyoming. December, 2005. (Doctoral Dissertation, University of Wyoming). Laramie, WY. Available at: <http://www.uwyo.edu/wycoopunit/showthesis.asp?thesisid=182>.
- Holloran, M.J. and S.H. Anderson. 2005a. Greater sage-grouse population response to natural gas development in western Wyoming: are regional populations affected by relatively localized disturbances? In Wildlife Management Institute (Ed.), *Transactions from the 70th North American Wildlife and Natural Resources Conference* (March 16–19, 2005, Arlington, VA). Wildlife Management Institute.
- Igl, L.D. and D.H. Johnson. 1997. Changes in breeding bird populations in North Dakota: 1967-1992-93. *Auk* 114:74-92.
- IMPLAN, 2009. Minnesota IMPLAN Group 2009.
- Independent Petroleum Association of America, The Oil and Gas Producing Industry in Your State 2008-2009, ND, p. 78.
- Koper, N., D.J. Walker, and J. Champagne. 2009. Nonlinear effects of distance to habitat edge on Sprague's pipits in southern Alberta, Canada. *Landscape Ecology* 24: 1287-1297.
- Linnen, C.G. 2008. Effects of oil and gas development on grassland birds. Unpublished report, prepared for Petroleum Technology Alliance Canada. Saskatoon, Saskatchewan, Canada.

- Mackie, R.J., D. Pac, K. Hamlin, and G. Dusek. 1998. Ecology and Management of Mule Deer and White-tailed Deer in Montana. Fed. Aid in Wildlife Restor. Proj. W-120-R. Mont. Dept. Fish, Wildl. And Parks, Helena. 180 pgs.
- McMaster. D.G., J.H., and S.K. Davis. 2005. Grassland birds nesting in haylands of southern Saskatchewan: landscape influences and conservation priorities. *Journal of Wildlife Management* 69:211-221.
- Migratory Bird Treaty Act of 1918 (16 U.S.C. 703-712; Ch. 128; July 13, 1918; 40 Stat. 755) as amended by: Chapter 634; June 20, 1936; 49 Stat. 1556; P.L. 86-732; September 8, 1960; 74 Stat. 866; P.L. 90-578; October 17, 1968; 82 Stat. 1118; P.L. 91-135; December 5, 1969; 83 Stat. 282; P.L. 93-300; June 1, 1974; 88 Stat. 190; P.L. 95-616; November 8, 1978; 92 Stat. 3111; P.L. 99-645; November 10, 1986; 100 Stat. 3590 and P.L. 105-312; October 30, 1998; 112 Stat. 2956.
- Minerals Management Service (MMS)*. (2010). Retrieved July 21, 2010 from Total Reported Royalty by Revenues, North Dakota, FY2009: <http://www.mms.gov/index.htm>.
- Morrisette, Joe, North Dakota Office of Management and Budget, 7/8/2010
- North Dakota State Auditor's Office, Dennis Roller, 7/13/2010
- North Dakota State Historic Preservation Office (NDSHPO), Archaeology and Historic Preservation Division. *HISTORIC PRESERVATION IN NORTH DAKOTA, 2010-2015: A Statewide Comprehensive Plan*, December 2009. State Historical Society of North Dakota, <http://www.history.nd.gov/hp/plancopy.html>.
- North Dakota QuickFacts. (2010). Retrieved July 13, 2010 from U.S. Census Bureau: <http://quickfacts.census.gov/qfd/index.html> .
- Owens, R.A., and M.T. Myers. 1973. Effects of agriculture upon populations of native passerine birds of an Alberta fecue grassland. *Canadian Journal of Zoology* 51:697-713.
- Sutter, G.C., S.K. Davis, and D.C. Duncan. 2000. Grassland songbird abundance along roads and trails in southern Saskatchewan. *Journal of Field Ornithology* 71:110-116.
- Tack, J.D. 2010. Sage Grouse and the Human Footprint: Implications for Conservation of Small and Declining Populations. Thesis. University of Montana, Missoula, MT. USA.

- U.S Department of the Interior Bureau of Land Management, 2008. *BLM Annual Report, 2008, Federal Oil and Gas Leases Issued in FY2008*. (2010). Retrieved July 21, 2010 from DOI: BLM: Montana/Dakotas Home Page: <http://www.blm.gov/mt/st/en.html>.
- U.S Department of the Interior Bureau of Land Management, 2008. BLM Annual Report, 2008, Federal Total Reported Royalty Revenues.
- U.S Department of the Interior Bureau of Land Management, 2010. BLM LR2000, 2010, Authorized Leases/Leases Held by Production, May 21, 2010.
- U.S Department of the Interior Bureau of Land management, 2009. Instruction Memorandum No. MT-2009-039. 2009 Montana/Dakota's Special Status Species List.
- U.S Department of the Interior Bureau of Land Management, Instruction Memorandum No. 2003-253, August 21, 2003.
- U.S Department of the Interior Bureau of Land Management, 1988, North Dakota Resource Management Plan and Environmental Impact Statement, April 22, 1988.
- U.S. Department of the Interior Bureau of Land Management, 2009, *Oil & Gas Reasonable Foreseeable Development (RFD) Scenario*. (2009). Retrieved from Bureau of Land Management Website : [http://www.blm.gov/mt/st/en/fo/north\\_dakota\\_field/rmp/rfd.html](http://www.blm.gov/mt/st/en/fo/north_dakota_field/rmp/rfd.html).
- U.S. Department of the Interior Bureau of Land Management, 1987b, Riparian area management policy: national policy statement, January 22, 1987.
- U.S. Department of the Interior Bureau of Land Management, 1992, Miles City District Oil and Gas RMP/EIS Amendment, December 1992.
- U.S. Department of the Interior and United States Department of Agriculture. 2007. Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development. BLM/WO/ST-06/021+3071/REV 07. Bureau of Land Management. Denver, Colorado. 84 pp.
- USDA, NRCS. 2010. The PLANTS Database (<http://plants.usda.gov>, 9 November 2010). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.
- U.S. Department of Mineral Management Service (MMS). 2008. Stacy Browne 2008. USEPA. 2008. Knowledge Building Series: Climate Change 101. EPA Climate Change Information, USEPA Region 8.

- U. S. Fish and Wildlife Service. 2010. Black-footed ferret website <http://www.fws.gov/mountain-prairie/species/mammals/blackfootedferret/>
- U.S. Fish and Wildlife Service (USFWS) 2010. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Department of the Interior, Fish and Wildlife Service, Washington, DC. FWS/OBS-79/31. <http://www.fws.gov/wetlands/> USGS 2009. National Hydrography Dataset (NHD). <http://nhd.usgs.gov/> accessed 11/2009.
- U.S Fish and Wildlife Service (USFWS) 2010. Pallid Sturgeon species description and ESA status and review. [http://www.fws.gov/mountain-prairie/missouririver/moriver\\_pallidsturgeon.htm](http://www.fws.gov/mountain-prairie/missouririver/moriver_pallidsturgeon.htm)
- U.S. Fish and Wildlife Service. 1989. Black footed ferret survey guidelines for compliance with the Endangered Species Act. 15 pgs.
- U.S. Fish and Wildlife Service. 2002. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Northern Great Plains Breeding Population of the Piping Plover; Final Rule 50 CFR Part 17. 57638 Federal Register / Vol. 67, No. 176. <http://www.fws.gov/mountain-prairie/species/birds/pipingplover/>.
- U.S. Fish and Wildlife Service. 2010. Endangered and Threatened Wildlife and Plants; 12-Month Finding on a Petition to List Sprague's Pipit as Endangered or Threatened throughout Its Range.
- Walker, B. L., D, E. Naugle, K.E. Doherty. 2007. Greater Sage Grouse Population Response to Energy Development and Habitat Loss. *Journal of Wildlife Management* 71(8):2644-2654; 2007).

**APPENDIX A: Lease Parcel Summary Table - BLM NDFO**

**APPENDIX A - NORTH DAKOTA FIELD OFFICE**

PARCEL NUMBER	PARCEL DESCRIPTION	PROPOSED FOR LEASING ALTERNATIVE B	PROPOSED FOR LEASING ALTERNATIVE C	PROPOSED FOR DEFERRAL/NO LEASING ALTERNATIVE C
<b>NDM 97300-A8</b>	T. 159 N, R. 83 W, 5TH PM, ND SEC. 33 NE; BOTTINEAU COUNTY 160.00 AC <b>50% U.S. MINERAL INTEREST ACQ</b>	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	
<b>NDM 79010-AP</b>	T. 157 N, R. 85 W, 5TH PM, ND SEC. 35 NWNE; WARD COUNTY 40.00 AC PD	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	
<b>NDM 79010-AQ</b>	T. 158 N, R. 86 W, 5TH PM, ND SEC. 18 LOTS 3,4; SEC. 18 E2SW; SEC. 19 W2NE; RENVILLE COUNTY 234.53 AC <b>50% U.S. MINERAL INTEREST ACQ</b>	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	
<b>NDM 97300-B1</b>	T. 156 N, R. 88 W, 5TH PM, ND SEC. 17 SWNE EXCL 4.56 AC IN RR ROW AS DESC BY M&B; MOUNTRAIL COUNTY 35.44 AC PD	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	

**APPENDIX A - NORTH DAKOTA FIELD OFFICE**

PARCEL NUMBER	PARCEL DESCRIPTION	PROPOSED FOR LEASING ALTERNATIVE B	PROPOSED FOR LEASING ALTERNATIVE C	PROPOSED FOR DEFERRAL/NO LEASING ALTERNATIVE C
<p><b>NDM 97300-FY</b></p>	<p>T. 145 N, R. 89 W, 5TH PM, ND            SEC. 7 SE;            SEC. 8 NWNE,N2NW,SWNW;            MERCER COUNTY            320.00 AC  <b>50% U.S. MINERAL INTEREST ACQ</b></p>	<p>CR 16-1 (ALL LANDS)            CSU 12-5 (ALL LANDS)            LN 14-12 (ALL LANDS)            STANDARD 16-3 (ALL LANDS)            TES 16- 2 (ALL LANDS)</p>	<p>CR 16-1 (ALL LANDS)            CSU 12-5 (ALL LANDS)            LN 14-12 (ALL LANDS)            STANDARD 16-3 (ALL LANDS)            TES 16- 2 (ALL LANDS)</p>	
<p><b>NDM 97300-FX</b></p>	<p>T. 146 N, R. 89 W, 5TH PM, ND            SEC. 19 NE;            SEC. 34 SE;            SEC. 35 NW;            MERCER COUNTY            480.00 AC  <b>50% U.S. MINERAL INTEREST ACQ</b></p>	<p>CR 16-1 (ALL LANDS)            CSU 12-5 (ALL LANDS)            LN 14-12 (ALL LANDS)            LN 14-15 (ALL LANDS)            STANDARD 16-3 (ALL LANDS)            TES 16- 2 (ALL LANDS)</p>	<p>CR 16-1 (ALL LANDS)            CSU 12-5 (ALL LANDS)            LN 14-12 (ALL LANDS)            LN 14-15 (ALL LANDS)            STANDARD 16-3 (ALL LANDS)            TES 16- 2 (ALL LANDS)</p>	
<p><b>NDM 97300-Z</b></p>	<p>T. 155 N, R. 89 W, 5TH PM, ND            SEC. 22 NE;            SEC. 23 E2;            SEC. 24 W2SW;            MOUNTRAIL COUNTY            560.00 AC  <b>50% U.S. MINERAL INTEREST ACQ</b></p>	<p>CR 16-1 (ALL LANDS)            CSU 12-5 (ALL LANDS)            LN 14-12 (ALL LANDS)            STANDARD 16-3 (ALL LANDS)            TES 16- 2 (ALL LANDS)</p>	<p>CR 16-1 (ALL LANDS)            CSU 12-5 (ALL LANDS)            LN 14-12 (ALL LANDS)            STANDARD 16-3 (ALL LANDS)            TES 16- 2 (ALL LANDS)</p>	

**APPENDIX A - NORTH DAKOTA FIELD OFFICE**

<b>PARCEL NUMBER</b>	<b>PARCEL DESCRIPTION</b>	<b>PROPOSED FOR LEASING ALTERNATIVE B</b>	<b>PROPOSED FOR LEASING ALTERNATIVE C</b>	<b>PROPOSED FOR DEFERRAL/NO LEASING ALTERNATIVE C</b>
<b>NDM 97300-B2</b>	T. 156 N, R. 89 W, 5TH PM, ND SEC. 3 SENW; SEC. 7 LOTS 1,2; SEC. 27 NWNE; MOUNTRAIL COUNTY 95.80 AC PD	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) NSO 11-33 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) NSO 11-33 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	
<b>NDM 97300-B3</b>	T. 156 N, R. 89 W, 5th PM, ND SEC. 19 NE; MOUNTRAIL COUNTY 160.00 AC <b>50% U.S. MINERAL INTEREST ACQ</b>	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) LN 14-13 (ALL LANDS) LN 14-15 (ALL LANDS) NSO 11-33 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) LN 14-13 (ALL LANDS) LN 14-15 (ALL LANDS) NSO 11-33 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	
<b>NDM 97300-B4</b>	T. 157 N, R. 89 W, 5TH PM, ND SEC. 20 LOT 2; MOUNTRAIL COUNTY 29.70 AC PD	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) NSO 11-33 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) NSO 11-33 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	

**APPENDIX A - NORTH DAKOTA FIELD OFFICE**

<b>PARCEL NUMBER</b>	<b>PARCEL DESCRIPTION</b>	<b>PROPOSED FOR LEASING ALTERNATIVE B</b>	<b>PROPOSED FOR LEASING ALTERNATIVE C</b>	<b>PROPOSED FOR DEFERRAL/NO LEASING ALTERNATIVE C</b>
<b>NDM 97300-B5</b>	T. 158 N, R. 89 W, 5TH PM, ND SEC. 21 SENE,SW,E2SE; SEC. 22 NWSW; MOUNTRAIL COUNTY 320.00 AC <b>50% U.S. MINERAL INTEREST ACQ</b>	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) LN 14-13 (ALL LANDS) LN 14-15 (ALL LANDS) NSO 11-33 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) LN 14-13 (ALL LANDS) LN 14-15 (ALL LANDS) NSO 11-33 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	
<b>NDM 97300-FW</b>	T. 145 N, R. 90 W, 5TH PM, ND SEC. 33 NE; MERCER COUNTY 160.00 AC <b>50% U.S. MINERAL INTEREST ACQ</b>	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	
<b>NDM 97300-GG</b>	T. 151 N, R. 90 W, 5TH PM, ND SEC. 15 NE; SEC. 22 SE; MOUNTRAIL COUNTY 320.00 AC <b>50% U.S. MINERAL INTEREST ACQ</b>	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	DEFER (ALL LANDS)	DEFER (ALL LANDS)

**APPENDIX A - NORTH DAKOTA FIELD OFFICE**

<b>PARCEL NUMBER</b>	<b>PARCEL DESCRIPTION</b>	<b>PROPOSED FOR LEASING ALTERNATIVE B</b>	<b>PROPOSED FOR LEASING ALTERNATIVE C</b>	<b>PROPOSED FOR DEFERRAL/NO LEASING ALTERNATIVE C</b>
<b>NDM 97300-IF</b>	T. 156 N, R. 90 W, 5TH PM, ND SEC. 4 PORTION OF SWSW NOT ACQ BY FWS; MOUNTRAIL COUNTY 10.00 AC <b>50% U.S. MINERAL INTEREST ACQ</b>	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (All Lands) STANDARD 16-3 (ALL LANDS) TES 16- 2(ALL LANDS)	
<b>NDM 97300-GF</b>	T. 156 N, R. 90 W, 5TH PM, ND SEC. 21 NWNE; MOUNTRAIL COUNTY 40.00 AC PD	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) LN 14-13 (ALL LANDS) LN 14-15 (ALL LANDS) NSO 11-33 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) LN 14-13 (ALL LANDS) LN 14-15 (ALL LANDS) NSO 11-33 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	
<b>NDM 97300-EI</b>	T. 157 N, R. 90 W, 5TH PM, ND SEC. 3 NESE; MOUNTRAIL COUNTY 40.00 AC PD	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	

**APPENDIX A - NORTH DAKOTA FIELD OFFICE**

<b>PARCEL NUMBER</b>	<b>PARCEL DESCRIPTION</b>	<b>PROPOSED FOR LEASING ALTERNATIVE B</b>	<b>PROPOSED FOR LEASING ALTERNATIVE C</b>	<b>PROPOSED FOR DEFERRAL/NO LEASING ALTERNATIVE C</b>
<b>NDM 97300-B6</b>	T. 158 N, R. 90 W, 5TH PM, ND SEC. 2 LOTS 3,4; SEC. 2 S2NW; SEC. 3 LOTS 1,2; SEC. 3 S2NE; MOUNTRAIL COUNTY 321.92 AC <b>50% U.S. MINERAL INTEREST ACQ</b>	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	
<b>NDM 97300-B</b>	T. 158 N, R. 90 W, 5TH PM, ND SEC. 4 SWSW EXCL 21.00 AC DESC BY M&B JURIS FWS; SEC. 4 S2SE EXCL 34.50 AC DESC BY M&B JURIS FWS; SEC. 4 N2S2,SESW; MOUNTRAIL COUNTY 264.50 AC <b>50% U.S. MINERAL INTEREST ACQ</b>	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) LN 14-13 (ALL LANDS) LN 14-15 (ALL LANDS) NSO 11-33( ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) LN 14-13 (ALL LANDS) LN 14-15 (ALL LANDS) NSO 11-33( ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	

**APPENDIX A - NORTH DAKOTA FIELD OFFICE**

<b>PARCEL NUMBER</b>	<b>PARCEL DESCRIPTION</b>	<b>PROPOSED FOR LEASING ALTERNATIVE B</b>	<b>PROPOSED FOR LEASING ALTERNATIVE C</b>	<b>PROPOSED FOR DEFERRAL/NO LEASING ALTERNATIVE C</b>
<b>NDM 97300-C1</b>	T. 158 N, R. 90 W, 5TH PM, ND SEC. 9 NE EXCL 92.00 AC DESC BY M&B JURIS FWS; MOUNTRAIL COUNTY 68.00 AC <b>50% U.S. MINERAL INTEREST ACQ</b>	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) LN 14-13 (ALL LANDS) LN 14-15 (ALL LANDS) NSO 11-33( ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) LN 14-13 (ALL LANDS) LN 14-15 (ALL LANDS) NSO 11-33( ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	
<b>NDM 97300-B7</b>	T. 158 N, R. 90 W, 5TH PM, ND SEC. 11 SENE; MOUNTRAIL COUNTY 40.00 AC PD	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	

**APPENDIX A - NORTH DAKOTA FIELD OFFICE**

<b>PARCEL NUMBER</b>	<b>PARCEL DESCRIPTION</b>	<b>PROPOSED FOR LEASING ALTERNATIVE B</b>	<b>PROPOSED FOR LEASING ALTERNATIVE C</b>	<b>PROPOSED FOR DEFERRAL/NO LEASING ALTERNATIVE C</b>
<b>NDM 97300-A</b>	<p>T. 155 N, R. 91 W, 5TH PM, ND SEC. 5 LOT 3; MOUNTRAIL COUNTY 39.83 AC PD</p> <p>The land in this parcel is within Communitization Agreement (CA) NDM 99439 which covers Lot 3 of Section 5 and communitizes the Bakken Formation. The CA was effective May 1, 2009.</p> <p>These lands are committed to the CA, joinder is not required. The CA operator may require the successful bidder to pay certain administrative and operating costs.</p>	<p>CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)</p>	<p>DEFER (ALL LANDS)</p>	<p>DEFER (ALL LANDS)</p>
<b>NDM 97300-D</b>	<p>T. 155 N, R. 91 W, 5TH PM, ND SEC. 7 NWSE; MOUNTRAIL COUNTY 40.00 AC PD</p>	<p>CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)</p>	<p>CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)</p>	

**APPENDIX A - NORTH DAKOTA FIELD OFFICE**

<b>PARCEL NUMBER</b>	<b>PARCEL DESCRIPTION</b>	<b>PROPOSED FOR LEASING ALTERNATIVE B</b>	<b>PROPOSED FOR LEASING ALTERNATIVE C</b>	<b>PROPOSED FOR DEFERRAL/NO LEASING ALTERNATIVE C</b>
<b>NDM 79010-AB</b>	T. 157 N, R. 91 W, 5TH PM, ND SEC. 2 POR OF LOTS 1,2,3 ACQ BY FWS; MOUNTRAIL COUNTY 90.00 AC <b>50% U.S. MINERAL INTEREST ACQ</b>	CR 16-1 (ALL LANDS) LN 14-12 (ALL LANDS) NSO 11-59 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	CR 16-1 (ALL LANDS) LN 14-12 (ALL LANDS) NSO 11-59 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	
<b>NDM 97300-B8</b>	T. 157 N, R. 91 W, 5TH PM, ND SEC. 8 SW; MOUNTRAIL COUNTY 160.00 AC <b>50% U.S. MINERAL INTEREST ACQ</b>	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) LN 14-15 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) LN 14-15 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	
<b>NDM 97300-B9</b>	T. 157 N, R. 91 W, 5TH PM, ND SEC. 13 SENW; MOUNTRAIL COUNTY 40.00 AC PD	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	

**APPENDIX A - NORTH DAKOTA FIELD OFFICE**

<b>PARCEL NUMBER</b>	<b>PARCEL DESCRIPTION</b>	<b>PROPOSED FOR LEASING ALTERNATIVE B</b>	<b>PROPOSED FOR LEASING ALTERNATIVE C</b>	<b>PROPOSED FOR DEFERRAL/NO LEASING ALTERNATIVE C</b>
<b>NDM 79010-DE</b>	T. 157 N, R. 92 W, 5TH PM, ND SEC. 9 BED OF LAKE RIPAR TO LOTS 1,2 DESC BY M&B; MOUNTRAIL COUNTY 125.28 AC <b>50% U.S. MINERAL INTEREST ACQ</b>	CR 16-1 (ALL LANDS) LN 14-12 (ALL LANDS) NSO 11-39 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	CR 16-1 (ALL LANDS) LN 14-12 (ALL LANDS) NSO 11-39 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	
<b>NDM 79010-DF</b>	T. 157 N, R. 92 W, 5TH PM, ND SEC. 16 BED OF LAKE RIPAR TO LOTS 1-6 DESC BY M&B; MOUNTRAIL COUNTY 268.91 AC PD	CR 16-1 (ALL LANDS) LN 14-12 (ALL LANDS) LN 14-15 (ALL LANDS) NSO 11-33 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	CR 16-1 (ALL LANDS) LN 14-12 (ALL LANDS) LN 14-15 (ALL LANDS) NSO 11-33 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	

**APPENDIX A - NORTH DAKOTA FIELD OFFICE**

<b>PARCEL NUMBER</b>	<b>PARCEL DESCRIPTION</b>	<b>PROPOSED FOR LEASING ALTERNATIVE B</b>	<b>PROPOSED FOR LEASING ALTERNATIVE C</b>	<b>PROPOSED FOR DEFERRAL/NO LEASING ALTERNATIVE C</b>
<b>NDM 97300-A6</b>	T. 147 N, R. 93 W, 5TH PM, ND SEC. 34 LOTS 1,2,3,4; DUNN COUNTY 116.26 AC PD	CR 16-1 (ALL LANDS) LN 14-12 (ALL LANDS) NSO 11-39 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS) COE 18-1 (ALL COE LANDS) COE 18-2 (ALL COE LANDS) COE 18-7 (ALL COE LANDS)	CR 16-1 (ALL LANDS) LN 14-12 (ALL LANDS) NSO 11-39 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS) COE 18-1 (ALL COE LANDS) COE 18-2 (ALL COE LANDS) COE 18-7 (ALL COE LANDS)	
<b>NDM 97300-AN</b>	T. 147 N, R. 93 W, 5TH PM, ND SEC. 34 LOTS 5,9; SEC. 34 NWSE; SEC. 36 LOTS 1-8; SEC. 36 S2NW,N2SW,NWSE; DUNN COUNTY 643.17 AC ACQ	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS) COE 18-1 (ALL COE LANDS) COE 18-2 (ALL COE LANDS) COE 18-7 (ALL COE LANDS)	DEFER (ALL LANDS)	DEFER (ALL LANDS)

**APPENDIX A - NORTH DAKOTA FIELD OFFICE**

<b>PARCEL NUMBER</b>	<b>PARCEL DESCRIPTION</b>	<b>PROPOSED FOR LEASING ALTERNATIVE B</b>	<b>PROPOSED FOR LEASING ALTERNATIVE C</b>	<b>PROPOSED FOR DEFERRAL/NO LEASING ALTERNATIVE C</b>
<b>NDM 79010-BD</b>	T. 152 N, R. 93 W, 5TH PM, ND SEC. 6 LOTS 3,5; SEC. 6 SENW; MCKENZIE COUNTY 130.95 AC ACQ	CR 16-1 (ALL LANDS) LN 14-12 (ALL LANDS) NSO 11-39 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS) COE 18-1 (ALL COE LANDS) COE 18-2 (ALL COE LANDS) COE 18-7 (ALL COE LANDS)	CR 16-1 (ALL LANDS) LN 14-12 (ALL LANDS) NSO 11-39 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS) COE 18-1 (ALL COE LANDS) COE 18-2 (ALL COE LANDS) COE 18-7 (ALL COE LANDS)	
<b>NDM 97300-AO</b>	T. 152 N, R. 93 W, 5TH PM, ND SEC. 13 S2NE,S2; MOUNTRAIL COUNTY 400.00 AC ACQ	CR 16-1 (ALL LANDS) LN 14-12 (ALL LANDS) NSO 11-39 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS) COE 18-1 (ALL COE LANDS) COE 18-2 (ALL COE LANDS) COE 18-7 (ALL COE LANDS)	DEFER (ALL LANDS)	DEFER (ALL LANDS)

**APPENDIX A - NORTH DAKOTA FIELD OFFICE**

<b>PARCEL NUMBER</b>	<b>PARCEL DESCRIPTION</b>	<b>PROPOSED FOR LEASING ALTERNATIVE B</b>	<b>PROPOSED FOR LEASING ALTERNATIVE C</b>	<b>PROPOSED FOR DEFERRAL/NO LEASING ALTERNATIVE C</b>
<b>NDM 97300-AP</b>	T. 152 N, R. 93 W, 5TH PM, ND SEC. 22 LOT 3; MOUNTRAIL COUNTY 29.24 AC PD	CR 16-1 (ALL LANDS) LN 14-12 (ALL LANDS) NSO 11-39 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS) COE 18-1 (ALL COE LANDS) COE 18-2 (ALL COE LANDS) COE 18-7 (ALL COE LANDS)	CR 16-1 (ALL LANDS) LN 14-12 (ALL LANDS) NSO 11-39 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS) COE 18-1 (ALL COE LANDS) COE 18-2 (ALL COE LANDS) COE 18-7 (ALL COE LANDS)	

**APPENDIX A - NORTH DAKOTA FIELD OFFICE**

<b>PARCEL NUMBER</b>	<b>PARCEL DESCRIPTION</b>	<b>PROPOSED FOR LEASING ALTERNATIVE B</b>	<b>PROPOSED FOR LEASING ALTERNATIVE C</b>	<b>PROPOSED FOR DEFERRAL/NO LEASING ALTERNATIVE C</b>
<p><b>NDM 97300-EX</b></p>	<p>T. 152 N, R. 93 W, 5TH PM, ND            SEC. 27 LOTS 1,3,4;            SEC. 27 SWNE;            SEC. 34 TR M1169 (0.46 AC);            SEC. 34 N2NW,W2SWNW;            MOUNTRAIL COUNTY            236.23 AC            PD</p>	<p>CR 16-1 (ALL LANDS)            CSU 12-5                SEC. 27 LOTS 1,3,4;                SEC. 27 SWNE;            LN 14-12 (ALL LANDS)            NSO 11-38                SEC. 34 W2SWNW;            NSO 11-39                SEC. 34 TR M1169;                SEC. 34 N2NW, W2SWNW            STANDARD 16-3 (ALL LANDS)            TES 16- 2 (ALL LANDS)            TL 13-21                SEC. 34 W2SWNW;            COE 18-1 (ALL COE LANDS)            COE 18-2 (ALL COE LANDS)            COE 18-7 (ALL COE LANDS)</p>	<p>CR 16-1 (ALL LANDS)            CSU 12-5                SEC. 27 LOTS 1,3,4;                SEC. 27 SWNE;            LN 14-12 (ALL LANDS)            NSO 11-38                SEC. 34 W2SWNW;            NSO 11-39                SEC. 34 TR M1169;                SEC. 34 N2NW,            W2SWNW            STANDARD 16-3 (ALL LANDS)            TES 16- 2 (ALL LANDS)            TL 13-21                SEC. 34 W2SWNW;            COE 18-1 (ALL COE LANDS)            COE 18-2 (ALL COE LANDS)            COE 18-7 (ALL COE LANDS)</p>	

**APPENDIX A - NORTH DAKOTA FIELD OFFICE**

PARCEL NUMBER	PARCEL DESCRIPTION	PROPOSED FOR LEASING ALTERNATIVE B	PROPOSED FOR LEASING ALTERNATIVE C	PROPOSED FOR DEFERRAL/NO LEASING ALTERNATIVE C
<b>NDM 97300-K0</b>	T. 152 N, R. 93 W, 5TH PM, ND SEC. 28 LOT 4; SEC. 33 LOTS 1,3,4; SEC. 33 NENE,S2NE; MOUNTRAIL COUNTY 256.24 AC PD	CR 16-1 (ALL LANDS) CSU 12-5 SEC. 33 LOT 4; SEC. 33 S2NE; LN 14-12 (ALL LANDS) NSO 11-38 SEC. 33 S2NE NSO 11-39 SEC. 28 LOT 4; SEC. 33 LOTS 1, 3; SEC. 33 NENE; STANDARD 16-3 (ALL LANDS) TES 16-2(ALL LANDS) TL 13-21 SEC. 33 S2NE; COE 18-1 (ALL COE LANDS) COE 18-2 (ALL COE LANDS) COE 18-7 (ALL COE LANDS)	DEFER (ALL LANDS)	DEFER (ALL LANDS)
<b>NDM 97300-IB</b>	T. 152 N, R. 93 W, 5TH PM, ND SEC. 32 LOTS 4,6; SEC. 32 SESE; MOUNTRAIL COUNTY 98.12 AC PD	CR 16-1 (ALL LANDS) LN 14-12 (ALL LANDS) NSO 11-39 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS) COE 18-1 (ALL COE LANDS) COE 18-2 (ALL COE LANDS) COE 18-7 (ALL COE LANDS)	DEFER (ALL LANDS)	DEFER (ALL LANDS)

**APPENDIX A - NORTH DAKOTA FIELD OFFICE**

<b>PARCEL NUMBER</b>	<b>PARCEL DESCRIPTION</b>	<b>PROPOSED FOR LEASING ALTERNATIVE B</b>	<b>PROPOSED FOR LEASING ALTERNATIVE C</b>	<b>PROPOSED FOR DEFERRAL/NO LEASING ALTERNATIVE C</b>
<b>NDM 97300-A3</b>	T. 152 N, R. 93 W, 5TH PM, ND SEC. 36 SW; MOUNTRAIL COUNTY 160.00 AC <b>50% U.S. MINERAL INTEREST ACQ</b>	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	
<b>NDM 97300-E2</b>	T. 153 N, R. 93 W, 5TH PM, ND SEC. 16 POR N2 EXCL 10.00 AC; SEC. 17 POR NESE (30.46 AC); MOUNTRAIL COUNTY 340.46 AC ACQ	CR 16-1 (ALL LANDS) CSU 12-5 SEC. 16 POR E2N2 EXCL 10.00 AC; LN 14-12 (ALL LANDS) NSO 11-39 SEC. 16 W2N2; SEC. 17 POR NESE (30.46 AC); STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS) COE 18-1 (ALL COE LANDS) COE 18-2 (ALL COE LANDS) COE 18-7 (ALL COE LANDS)	CR 16-1 (ALL LANDS) CSU 12-5 SEC. 16 POR E2N2 EXCL 10.00 AC; LN 14-12 (ALL LANDS) NSO 11-39 SEC. 16 W2N2; SEC. 17 POR NESE (30.46 AC); STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS) COE 18-1 (ALL COE LANDS) COE 18-2 (ALL COE LANDS) COE 18-7 (ALL COE LANDS)	

**APPENDIX A - NORTH DAKOTA FIELD OFFICE**

<b>PARCEL NUMBER</b>	<b>PARCEL DESCRIPTION</b>	<b>PROPOSED FOR LEASING ALTERNATIVE B</b>	<b>PROPOSED FOR LEASING ALTERNATIVE C</b>	<b>PROPOSED FOR DEFERRAL/NO LEASING ALTERNATIVE C</b>
<b>NDM 97300-I</b>	T. 153 N, R. 93 W, 5TH PM, ND SEC. 33 SENW,E2SW; MCKENZIE COUNTY 120.00 AC <b>50% U.S. MINERAL INTEREST ACQ</b>	CR 16-1 (ALL LANDS) LN 14-12 (ALL LANDS) NSO 11-39 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS) COE 18-1 (ALL COE LANDS) COE 18-2 (ALL COE LANDS) COE 18-7 (ALL COE LANDS)	CR 16-1 (ALL LANDS) LN 14-12 (ALL LANDS) NSO 11-39 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS) COE 18-1 (ALL COE LANDS) COE 18-2 (ALL COE LANDS) COE 18-7 (ALL COE LANDS)	
<b>NDM 97300-E3</b>	T. 153 N, R. 93 W, 5TH PM, ND SEC. 33 NWSW; MCKENZIE COUNTY 40.00 AC <b>50% U.S. MINERAL INTEREST ACQ</b>	CR 16-1 (ALL LANDS) LN 14-12 (ALL LANDS) NSO 11-39 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS) COE 18-1 (ALL COE LANDS) COE 18-2 (ALL COE LANDS) COE 18-7 (ALL COE LANDS)	CR 16-1 (ALL LANDS) LN 14-12 (ALL LANDS) NSO 11-39 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS) COE 18-1 (ALL COE LANDS) COE 18-2 (ALL COE LANDS) COE 18-7 (ALL COE LANDS)	

**APPENDIX A - NORTH DAKOTA FIELD OFFICE**

<b>PARCEL NUMBER</b>	<b>PARCEL DESCRIPTION</b>	<b>PROPOSED FOR LEASING ALTERNATIVE B</b>	<b>PROPOSED FOR LEASING ALTERNATIVE C</b>	<b>PROPOSED FOR DEFERRAL/NO LEASING ALTERNATIVE C</b>
<b>NDM 97300-A4</b>	T. 147 N, R. 94 W, 5TH PM, ND SEC. 6 LOTS 1,2,3; SEC. 6 SWSE; DUNN COUNTY 128.85 AC ACQ	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS) COE 18-1 (ALL COE LANDS) COE 18-2 (ALL COE LANDS) COE 18-7 (ALL COE LANDS)	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS) COE 18-1 (ALL COE LANDS) COE 18-2 (ALL COE LANDS) COE 18-7 (ALL COE LANDS)	
<b>NDM 97300-O</b>	T. 147 N, R. 94 W, 5TH PM, ND SEC. 27 NWNWNE; DUNN COUNTY 10.00 AC ACQ	CR 16-1 (ALL LANDS) LN 14-12 (ALL LANDS) NSO 11-38 (ALL LANDS) NSO 11-39 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS) TL 13-21 (ALL LANDS) COE 18-1 (ALL COE LANDS) COE 18-2 (ALL COE LANDS) COE 18-7 (ALL COE LANDS)	CR 16-1 (ALL LANDS) LN 14-12 (ALL LANDS) NSO 11-38 (ALL LANDS) NSO 11-39 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS) TL 13-21 (ALL LANDS) COE 18-1 (ALL COE LANDS) COE 18-2 (ALL COE LANDS) COE 18-7 (ALL COE LANDS)	

**APPENDIX A - NORTH DAKOTA FIELD OFFICE**

<b>PARCEL NUMBER</b>	<b>PARCEL DESCRIPTION</b>	<b>PROPOSED FOR LEASING ALTERNATIVE B</b>	<b>PROPOSED FOR LEASING ALTERNATIVE C</b>	<b>PROPOSED FOR DEFERRAL/NO LEASING ALTERNATIVE C</b>
<b>NDM 79010-AK</b>	T. 152 N, R. 94 W, 5TH PM, ND SEC. 1 E2 OF LOT 2; MCKENZIE COUNTY 28.75 AC ACQ	CR 16-1 (ALL LANDS) LN 14-12 (ALL LANDS) NSO 11-39 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS) COE 18-1 (ALL COE LANDS) COE 18-2 (ALL COE LANDS) COE 18-7 (ALL COE LANDS)	DEFER (ALL LANDS)	DEFER (ALL LANDS)
<b>NDM 79010-EO</b>	T. 153 N, R. 94 W, 5TH PM, ND SEC. 8 E2SW; MCKENZIE COUNTY 80.00 AC PD	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	
<b>NDM 79010-BE</b>	T. 159 N, R. 94 W, 5TH PM, ND SEC. 36 POR OF LAKE BED RIPAR TO LOTS 1,2,3 DESC BY M&B; BURKE COUNTY 85.95 AC PD	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	

**APPENDIX A - NORTH DAKOTA FIELD OFFICE**

<b>PARCEL NUMBER</b>	<b>PARCEL DESCRIPTION</b>	<b>PROPOSED FOR LEASING ALTERNATIVE B</b>	<b>PROPOSED FOR LEASING ALTERNATIVE C</b>	<b>PROPOSED FOR DEFERRAL/NO LEASING ALTERNATIVE C</b>
<b>NDM 97300-GM</b>	T. 138 N, R. 95 W, 5TH PM, ND SEC. 1 LOTS 1,2,3,4; SEC. 1 S2N2; STARK COUNTY 314.08 AC <b>50% U.S. MINERAL INTEREST ACQ</b>	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	
<b>NDM 97300-K9</b>	T. 139 N, R. 95 W, 5TH PM, ND SEC. 2 SW; STARK COUNTY 160.00 AC <b>50% U.S. MINERAL INTEREST ACQ</b>	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	
<b>NDM 97300-FF</b>	T. 147 N, R. 95 W, 5TH PM, ND SEC. 12 BED LTL MO RVR RIPAR TO LOTS 3,4 DESC BY M&B; DUNN COUNTY 7.56 AC PD	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) NSO 11-33 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	DEFER (ALL LANDS)	DEFER (ALL LANDS)

**APPENDIX A - NORTH DAKOTA FIELD OFFICE**

<b>PARCEL NUMBER</b>	<b>PARCEL DESCRIPTION</b>	<b>PROPOSED FOR LEASING ALTERNATIVE B</b>	<b>PROPOSED FOR LEASING ALTERNATIVE C</b>	<b>PROPOSED FOR DEFERRAL/NO LEASING ALTERNATIVE C</b>
<b>NDM 97300-FP</b>	T. 148 N, R. 95 W, 5TH PM, ND SEC. 34 FORMER LTL MO RVRBD RIPAR TO LOTS 1,5; DUNN COUNTY 47.55 AC PD	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) NSO 11-33 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) NSO 11-33 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	
<b>NDM 97300-FO</b>	T. 148 N, R. 95 W, 5TH PM, ND SEC. 34 FORMER LTL MO RVRBD RIPAR TO LOTS 2,3,4; DUNN COUNTY 54.34 AC ACQ	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) NSO 11-33 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) NSO 11-33 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	
<b>NDM 97300-C</b>	T. 155 N, R. 95 W, 5THPM, ND SEC. 13 NE; WILLIAMS COUNTY 160.00 AC <b>50% U.S. MINERAL INTEREST</b> ACQ	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	

**APPENDIX A - NORTH DAKOTA FIELD OFFICE**

<b>PARCEL NUMBER</b>	<b>PARCEL DESCRIPTION</b>	<b>PROPOSED FOR LEASING ALTERNATIVE B</b>	<b>PROPOSED FOR LEASING ALTERNATIVE C</b>	<b>PROPOSED FOR DEFERRAL/NO LEASING ALTERNATIVE C</b>
<b>NDM 97300-GI</b>	T. 142 N, R. 96 W, 5TH PM, ND SEC. 5 LOTS 1,2,3,4; SEC. 5 S2N2; SEC. 7 LOTS 1,2; SEC. 7 E2NW; DUNN COUNTY 476.79 AC <b>50% U.S. MINERAL INTEREST ACQ</b>	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) LN 14-15 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) LN 14-15 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2 (ALL LANDS)	
<b>NDM 97300-GU</b>	T. 142 N, R. 96 W, 5TH PM, ND SEC. 6 LOT 1; SEC. 6 S2NE,SENW; DUNN COUNTY 159.79 AC <b>50% U.S. MINERAL INTEREST ACQ</b>	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS)	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS)	
<b>NDM 97300-HE</b>	T. 143 N, R. 96 W, 5THPM, ND SEC. 32 S2SW; DUNN COUNTY 80.00 AC <b>50% U.S. MINERAL INTEREST ACQ</b>	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS)	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS)	

**APPENDIX A - NORTH DAKOTA FIELD OFFICE**

<b>PARCEL NUMBER</b>	<b>PARCEL DESCRIPTION</b>	<b>PROPOSED FOR LEASING ALTERNATIVE B</b>	<b>PROPOSED FOR LEASING ALTERNATIVE C</b>	<b>PROPOSED FOR DEFERRAL/NO LEASING ALTERNATIVE C</b>
<b>NDM 97300-Q</b>	T. 148 N, R. 96 W, 5TH PM, ND SEC. 20 BED OF LTL MO RIV RIPAR TO LOT 2 DESC BY M&B; DUNN COUNTY 0.40 AC PD	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) NSO 11-33 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS)	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) NSO 11-33 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS)	
<b>NDM 79010-EL</b>	T. 154 N, R. 96 W, 5TH PM, ND SEC. 26 ACCRETION TO LOTS 5,6 DESC BY M&B (2.07 AC); SEC. 26 LOTS 5,6; SEC. 29 ACCRETION TO LOT 5 DESC BY M&B (4.94 AC); SEC. 29 LOT 5; SEC. 30 ACCRETION TO LOT 7 DESC BY M&B (9.60 AC); SEC. 30 LOTS 7,8; SEC. 35 SESE; MCKENZIE COUNTY 138.31 AC PD	CR 16-1 (ALL LANDS) LN 14-12 (ALL LANDS) NSO 11-38 SEC. 35 SESE; NSO 11-39 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS) TL 13-21 SEC. 35 SESE; COE 18-1 (ALL COE LANDS) COE 18-2 (ALL COE LANDS) COE 18-7 (ALL COE LANDS)	DEFER (ALL LANDS)	DEFER (ALL LANDS)

**APPENDIX A - NORTH DAKOTA FIELD OFFICE**

<b>PARCEL NUMBER</b>	<b>PARCEL DESCRIPTION</b>	<b>PROPOSED FOR LEASING ALTERNATIVE B</b>	<b>PROPOSED FOR LEASING ALTERNATIVE C</b>	<b>PROPOSED FOR DEFERRAL/NO LEASING ALTERNATIVE C</b>
<b>NDM 97300-E</b>	T. 154 N, R. 96 W, 5TH PM, ND SEC. 31 LOTS 1,2; MCKENZIE COUNTY 80.24 AC ACQ	CR 16-1 (ALL LANDS) LN 14-12 (ALL LANDS) NSO 11-39 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2(ALL LANDS) COE 18-1 (ALL COE LANDS) COE 18-2 (ALL COE LANDS) COE 18-7 (ALL COE LANDS)	DEFER (ALL LANDS)	DEFER (ALL LANDS)
<b>NDM 97300-Y</b>	T. 146 N, R. 97 W, 5TH PM, ND SEC. 28 NE,N2NW,SWSW,NWSE; DUNN COUNTY 320.00 AC PD	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) LN 14-15 (ALL LANDS) NSO 11-38 SEC. 28 N2NW; STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS) TL 13-21 SEC. 28 N2NW;	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) LN 14-15 (ALL LANDS) NSO 11-38 SEC. 28 N2NW; STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS) TL 13-21 SEC. 28 N2NW;	

**APPENDIX A - NORTH DAKOTA FIELD OFFICE**

<b>PARCEL NUMBER</b>	<b>PARCEL DESCRIPTION</b>	<b>PROPOSED FOR LEASING ALTERNATIVE B</b>	<b>PROPOSED FOR LEASING ALTERNATIVE C</b>	<b>PROPOSED FOR DEFERRAL/NO LEASING ALTERNATIVE C</b>
<b>NDM 79010 DT</b>	T. 154 N, R. 97 W, 5TH PM, ND SEC. 25 ACCRETION TO LOTS 3,4,6,7 DESC BY M&B (315.20 AC); SEC. 25 LOTS 3,4,6,7; MCKENZIE COUNTY 450.28 AC PD	CR 16-1 (ALL LANDS) LN 14-12 (ALL LANDS) NSO 11-39 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS) COE 18-1 (ALL COE LANDS) COE 18-2 (ALL COE LANDS) COE 18-7 (ALL COE LANDS)	CR 16-1 (ALL LANDS) LN 14-12 (ALL LANDS) NSO 11-39 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS) COE 18-1 (ALL COE LANDS) COE 18-2 (ALL COE LANDS) COE 18-7 (ALL COE LANDS)	
<b>NDM 97300-AZ</b>	T. 156 N, R. 97 W, 5TH PM, ND SEC. 26 NW; WILLIAMS COUNTY 160.00 AC <b>50% U.S. MINERAL INTEREST ACQ</b>	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS)	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS)	
<b>NDM 97300-GH</b>	T. 159 N, R. 97 W, 5TH PM, ND SEC. 10 NE; SEC. 14 NW; SEC. 27 SE; WILLIAMS COUNTY 480.00 AC <b>50% U.S. MINERAL INTEREST ACQ</b>	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) NSO 11-33 SEC. 14 NW; SEC. 27 SE; STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS)	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) NSO 11-33 SEC. 14 NW; SEC. 27 SE; STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS)	

**APPENDIX A - NORTH DAKOTA FIELD OFFICE**

<b>PARCEL NUMBER</b>	<b>PARCEL DESCRIPTION</b>	<b>PROPOSED FOR LEASING ALTERNATIVE B</b>	<b>PROPOSED FOR LEASING ALTERNATIVE C</b>	<b>PROPOSED FOR DEFERRAL/NO LEASING ALTERNATIVE C</b>
<b>NDM 97300-F0</b>	T. 159 N, R. 97 W, 5TH PM, ND SEC. 20 S2N2; SEC. 30 W2NE,E2NW; WILLIAMS COUNTY 320.00 AC <b>50% U.S. MINERAL INTEREST ACQ</b>	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS)	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS)	
<b>NDM 97300-GN</b>	T. 138 N, R. 98 W, 5TH PM, ND SEC. 14 SESW,NESE,S2SE; STARK COUNTY 160.00 AC PD	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) LN 14-15 (ALL LANDS) NSO 11-38 SEC. 14 SESW, S2SE; STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS) TL 13-21 SEC. 14 SESW, S2SE;	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) LN 14-15 (ALL LANDS) NSO 11-38 SEC. 14 SESW, S2SE; STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS) TL 13-21 SEC. 14 SESW, S2SE;	

**APPENDIX A - NORTH DAKOTA FIELD OFFICE**

<b>PARCEL NUMBER</b>	<b>PARCEL DESCRIPTION</b>	<b>PROPOSED FOR LEASING ALTERNATIVE B</b>	<b>PROPOSED FOR LEASING ALTERNATIVE C</b>	<b>PROPOSED FOR DEFERRAL/NO LEASING ALTERNATIVE C</b>
<b>NDM 97300-GO</b>	T. 139 N, R. 98 W, 5TH PM, ND SEC. 13 POR OF SW DESC BY M&B; SEC. 13 SE; SEC. 14 SW; STARK COUNTY 441.70 AC <b>50% U.S. MINERAL INTEREST ACQ</b>	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS)	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS)	
<b>NDM 97300-FT</b>	T. 153 N, R. 98 W, 5TH PM, ND SEC. 21 LOTS 1,2,3,4; SEC. 21 S2N2; SEC. 22 LOTS 1,2; SEC. 22 S2NE,SWNW,N2SE; SEC. 23 LOTS 6,7; SEC. 23 N2SW; SEC. 27 LOT 4; WILLIAMS COUNTY 722.25 AC PD	CR 16-1 (ALL LANDS) LN 14-12 (ALL LANDS) NSO 11-39 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS) COE 18-1 (ALL COE LANDS) COE 18-2 (ALL COE LANDS) COE 18-7 (ALL COE LANDS)	CR 16-1 (ALL LANDS) LN 14-12 (ALL LANDS) NSO 11-39 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS) COE 18-1 (ALL COE LANDS) COE 18-2 (ALL COE LANDS) COE 18-7 (ALL COE LANDS)	

**APPENDIX A - NORTH DAKOTA FIELD OFFICE**

<b>PARCEL NUMBER</b>	<b>PARCEL DESCRIPTION</b>	<b>PROPOSED FOR LEASING ALTERNATIVE B</b>	<b>PROPOSED FOR LEASING ALTERNATIVE C</b>	<b>PROPOSED FOR DEFERRAL/NO LEASING ALTERNATIVE C</b>
<b>NDM 97300-FU</b>	T. 153 N, R. 98 W, 5TH PM, ND SEC. 21 LOTS 5,6,7; SEC. 22 LOT 3; SEC. 23 LOTS 1,4,5; SEC. 28 LOTS 1,2,3; SEC. 28 N2NE,SESW,SESE, SWSW,SESE; SEC. 29 LOT 5; MCKENZIE COUNTY 497.87 AC PD	CR 16-1 (ALL LANDS) LN 14-12 (ALL LANDS) NSO 11-38 SEC. 21 LOTS 6, 7; NSO 11-39 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS) TL 13-21 SEC. 21 LOTS 6, 7; COE 18-1 (ALL COE LANDS) COE 18-2 (ALL COE LANDS) COE 18-7 (ALL COE LANDS)	CR 16-1 (ALL LANDS) LN 14-12 (ALL LANDS) NSO 11-38 SEC. 21 LOTS 6, 7; NSO 11-39 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS) TL 13-21 SEC. 21 LOTS 6, 7; COE 18-1 (ALL COE LANDS) COE 18-2 (ALL COE LANDS) COE 18-7 (ALL COE LANDS)	

**APPENDIX A - NORTH DAKOTA FIELD OFFICE**

PARCEL NUMBER	PARCEL DESCRIPTION	PROPOSED FOR LEASING ALTERNATIVE B	PROPOSED FOR LEASING ALTERNATIVE C	PROPOSED FOR DEFERRAL/NO LEASING ALTERNATIVE C
<p><b>NDM 79010-DO</b></p>	<p>T. 153 N, R. 98 W, 5TH PM, ND                      SEC. 24 PORTION OF NWN;E;                      SEC. 24 PORTION OF E2SW;                      SEC. 24 S2NE,N2SE,SESE;                      MCKENZIE COUNTY                      315.20 AC  <b>50% U.S. MINERAL INTEREST</b>                      ACQ</p>	<p>CR 16-1 (ALL LANDS)                      LN 14-12 (ALL LANDS)                      NSO 11-38                              SEC. 24 PORTION OF                      E2SW;                      NSO 11-39 (ALL LANDS)                      STANDARD 16-3 (ALL LANDS)                      TES 16-2 (ALL LANDS)                      TL 13-21                              SEC. 24 PORTION OF                      E2SW;                      COE 18-1 (ALL COE LANDS)                      COE 18-2 (ALL COE LANDS)                      COE 18-7 (ALL COE LANDS)</p>	<p>DEFER (ALL LANDS)</p>	<p>DEFER (ALL LANDS)</p>
<p><b>NDM 79010-DQ</b></p>	<p>T. 153 N, R. 98 W, 5TH PM, ND                      SEC. 24 SENW,SWSE;                      MCKENZIE COUNTY                      80.00 AC                      PD</p>	<p>CR 16-1 (ALL LANDS)                      LN 14-12 (ALL LANDS)                      NSO 11-38                              SEC. 24 SWSE;                      NSO 11-39 (ALL LANDS)                      STANDARD 16-3 (ALL LANDS)                      TES 16-2 (ALL LANDS)                      TL 13-21                              SEC. 24 SWSE;                      COE 18-1 (ALL COE LANDS)                      COE 18-2 (ALL COE LANDS)                      COE 18-7 (ALL COE LANDS)</p>	<p>DEFER (ALL LANDS)</p>	<p>DEFER (ALL LANDS)</p>

**APPENDIX A - NORTH DAKOTA FIELD OFFICE**

<b>PARCEL NUMBER</b>	<b>PARCEL DESCRIPTION</b>	<b>PROPOSED FOR LEASING ALTERNATIVE B</b>	<b>PROPOSED FOR LEASING ALTERNATIVE C</b>	<b>PROPOSED FOR DEFERRAL/NO LEASING ALTERNATIVE C</b>
<b>NDM 97300-E7</b>	T. 154 N, R. 98 W, 5TH PM, ND SEC. 35 LOT 1; WILLIAMS COUNTY 24.30 AC PD	CR 16-1 (ALL LANDS) LN 14-12 (ALL LANDS) NSO 11-39 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS) COE 18-1 (ALL COE LANDS) COE 18-2 (ALL COE LANDS) COE 18-7 (ALL COE LANDS)	CR 16-1 (ALL LANDS) LN 14-12 (ALL LANDS) NSO 11-39 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS) COE 18-1 (ALL COE LANDS) COE 18-2 (ALL COE LANDS) COE 18-7 (ALL COE LANDS)	
<b>NDM 97300-AW</b>	T. 155 N, R. 98 W, 5TH PM, ND SEC. 10 NE; SEC. 20 NE; SEC. 21 NW; WILLIAMS COUNTY 480.00 AC <b>50% U.S. MINERAL INTEREST</b> ACQ	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS)	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS)	

**APPENDIX A - NORTH DAKOTA FIELD OFFICE**

PARCEL NUMBER	PARCEL DESCRIPTION	PROPOSED FOR LEASING ALTERNATIVE B	PROPOSED FOR LEASING ALTERNATIVE C	PROPOSED FOR DEFERRAL/NO LEASING ALTERNATIVE C
<p><b>NDM 97300-AY</b></p>	<p>T. 156 N, R. 98 W, 5TH PM, ND            SEC. 3 LOT 4;            SEC. 3 SWNW;            SEC. 4 LOT 1;            SEC. 4 S2NE;            SEC. 17 SE;            SEC. 26 SW;            SEC. 31 SE;            SEC. 34 W2NE,S2NW;            WILLIAMS COUNTY            865.76 AC  <b>50% U.S. MINERAL INTEREST ACQ</b></p>	<p>CR 16-1 (ALL LANDS)            CSU 12-5 (ALL LANDS)            LN 14-12 (ALL LANDS)            STANDARD 16-3 (ALL LANDS)            TES 16-2 (ALL LANDS)</p>	<p>CR 16-1 (ALL LANDS)            CSU 12-5 (ALL LANDS)            LN 14-12 (ALL LANDS)            STANDARD 16-3 (ALL LANDS)            TES 16-2 (ALL LANDS)</p>	
<p><b>NDM 97300-BU</b></p>	<p>T. 157 N, R. 98 W, 5TH PM, ND            SEC. 21 NE;            SEC. 26 NW;            SEC. 27 W2SW;            SEC. 28 NESW,S2S2,NESE;            SEC. 33 SW;            SEC. 34 NE;            WILLIAMS COUNTY            960.00 AC  <b>50% U.S. MINERAL INTEREST ACQ</b></p>	<p>CR 16-1 (ALL LANDS)            CSU 12-5 (ALL LANDS)            LN 14-12 (ALL LANDS)            STANDARD 16-3 (ALL LANDS)            TES 16-2 (ALL LANDS)</p>	<p>CR 16-1 (ALL LANDS)            CSU 12-5 (ALL LANDS)            LN 14-12 (ALL LANDS)            STANDARD 16-3 (ALL LANDS)            TES 16-2 (ALL LANDS)</p>	

**APPENDIX A - NORTH DAKOTA FIELD OFFICE**

<b>PARCEL NUMBER</b>	<b>PARCEL DESCRIPTION</b>	<b>PROPOSED FOR LEASING ALTERNATIVE B</b>	<b>PROPOSED FOR LEASING ALTERNATIVE C</b>	<b>PROPOSED FOR DEFERRAL/NO LEASING ALTERNATIVE C</b>
<b>NDM 97300-AR</b>	T. 140 N, R. 99 W, 5TH PM, ND SEC. 22 SE; STARK COUNTY 160.00 AC <b>50% U.S. MINERAL INTEREST ACQ</b>	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS)	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS)	
<b>NDM 97300-N</b>	T. 151 N, R. 99 W, 5TH PM, ND SEC. 13 SESE; MCKENZIE COUNTY 40.00 AC PD	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS)	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS)	

**APPENDIX A - NORTH DAKOTA FIELD OFFICE**

<b>PARCEL NUMBER</b>	<b>PARCEL DESCRIPTION</b>	<b>PROPOSED FOR LEASING ALTERNATIVE B</b>	<b>PROPOSED FOR LEASING ALTERNATIVE C</b>	<b>PROPOSED FOR DEFERRAL/NO LEASING ALTERNATIVE C</b>
<b>NDM 97300-E8</b>	T. 152 N, R. 99 W, 5TH PM, ND SEC. 4 LOTS 3,4,5,6,11,12; SEC. 4 SW; SEC. 5 LOTS 1,2,3,7,8; SEC. 5 SE; MCKENZIE COUNTY 680.85 AC PD	CR 16-1 (ALL LANDS) CSU 12-5 SEC. 4 LOTS 5, 6, 11, 12; SEC. 4 SW; SEC. 5 LOTS 7, 8; SEC. 5 SE; LN 14-12 (ALL LANDS) LN 14-15 SEC. 4 LOTS 5, 6, 11, 12; SEC. 4 SW; SEC. 5 LOTS 7, 8; SEC. 5 SE; NSO 11-39 SEC. 4 LOTS 3,4; SEC. 5 LOTS 1,2,3; STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS) COE 18-1 (ALL COE LANDS) COE 18-2 (ALL COE LANDS) COE 18-7 (ALL COE LANDS)	CR 16-1 (ALL LANDS) CSU 12-5 SEC. 4 LOTS 5, 6, 11, 12; SEC. 4 SW; SEC. 5 LOTS 7, 8; SEC. 5 SE; LN 14-12 (ALL LANDS) LN 14-15 SEC. 4 LOTS 5, 6, 11, 12; SEC. 4 SW; SEC. 5 LOTS 7, 8; SEC. 5 SE; NSO 11-39 SEC. 4 LOTS 3,4; SEC. 5 LOTS 1,2,3; STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS) COE 18-1 (ALL COE LANDS) COE 18-2 (ALL COE LANDS) COE 18-7 (ALL COE LANDS)	

**APPENDIX A - NORTH DAKOTA FIELD OFFICE**

<b>PARCEL NUMBER</b>	<b>PARCEL DESCRIPTION</b>	<b>PROPOSED FOR LEASING ALTERNATIVE B</b>	<b>PROPOSED FOR LEASING ALTERNATIVE C</b>	<b>PROPOSED FOR DEFERRAL/NO LEASING ALTERNATIVE C</b>
<b>NDM 97300-AV</b>	T. 155 N, R. 99 W, 5TH PM, ND SEC. 14 SE; WILLIAMS COUNTY 160.00 AC <b>50% U.S. MINERAL INTEREST ACQ</b>	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS)	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS)	

**APPENDIX A - NORTH DAKOTA FIELD OFFICE**

PARCEL NUMBER	PARCEL DESCRIPTION	PROPOSED FOR LEASING ALTERNATIVE B	PROPOSED FOR LEASING ALTERNATIVE C	PROPOSED FOR DEFERRAL/NO LEASING ALTERNATIVE C
<p><b>NDM 97300-E0</b></p>	<p>T. 152 N, R. 100 W, 5TH PM, ND                      SEC. 2 LOT 12;                      SEC. 3 LOT 7;                      SEC. 5 LOTS 9,10;                      SEC. 10 LOT 1;                      SEC. 11 SESE;                      MCKENZIE COUNTY                      154.20 AC                      PD</p>	<p>CR 16-1 (ALL LANDS)                      CSU 12-5                          SEC. 11 SESE;                      LN 14-12 (ALL LANDS)                      NSO 11-38                          SEC. 11 SESE;                      NSO 11-39                          SEC. 2 LOT 12;                          SEC. 3 LOT 7;                          SEC. 5 LOTS 9, 10;                          SEC. 10 LOT 1;                          SEC. 11 SESE;                      STANDARD 16-3 (ALL LANDS)                      TES 16-2 (ALL LANDS)                      TL 13-21                          SEC. 11 SESE;                      COE 18-1 (ALL COE LANDS)                      COE 18-2 (ALL COE LANDS)                      COE 18-7 (ALL COE LANDS)</p>	<p>CR 16-1 (ALL LANDS)                      CSU 12-5                          SEC. 11 SESE;                      LN 14-12 (ALL LANDS)                      NSO 11-38                          SEC. 11 SESE;                      NSO 11-39                          SEC. 2 LOT 12;                          SEC. 3 LOT 7;                          SEC. 5 LOTS 9, 10;                          SEC. 10 LOT 1;                          SEC. 11 SESE;                      STANDARD 16-3 (ALL LANDS)                      TES 16-2 (ALL LANDS)                      TL 13-21                          SEC. 11 SESE;                      COE 18-1 (ALL COE LANDS)                      COE 18-2 (ALL COE LANDS)                      COE 18-7 (ALL COE LANDS)</p>	

**APPENDIX A - NORTH DAKOTA FIELD OFFICE**

<b>PARCEL NUMBER</b>	<b>PARCEL DESCRIPTION</b>	<b>PROPOSED FOR LEASING ALTERNATIVE B</b>	<b>PROPOSED FOR LEASING ALTERNATIVE C</b>	<b>PROPOSED FOR DEFERRAL/NO LEASING ALTERNATIVE C</b>
<b>NDM 97300-FS</b>	T. 152 N, R. 100 W, 5TH PM, ND SEC. 4 LOTS 15,16; MCKENZIE COUNTY 32.10 AC PD	CR 16-1 (ALL LANDS) LN 14-12 (ALL LANDS) NSO 11-39 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS) COE 18-1 (ALL COE LANDS) COE 18-2 (ALL COE LANDS) COE 18-7 (ALL COE LANDS)	CR 16-1 (ALL LANDS) LN 14-12 (ALL LANDS) NSO 11-39 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS) COE 18-1 (ALL COE LANDS) COE 18-2 (ALL COE LANDS) COE 18-7 (ALL COE LANDS)	
<b>NDM 97300-HA</b>	T. 153 N, R. 100 W, 5TH PM, ND SEC. 6 LOT 4; SEC. 9 LOT 8; SEC. 35 LOT 2; WILLIAMS COUNTY 67.65 AC PD	CR 16-1 (ALL LANDS) LN 14-12 (ALL LANDS) NSO 11-39 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS) COE 18-1 (ALL COE LANDS) COE 18-2 (ALL COE LANDS) COE 18-7 (ALL COE LANDS)	CR 16-1 (ALL LANDS) LN 14-12 (ALL LANDS) NSO 11-39 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS) COE 18-1 (ALL COE LANDS) COE 18-2 (ALL COE LANDS) COE 18-7 (ALL COE LANDS)	

**APPENDIX A - NORTH DAKOTA FIELD OFFICE**

<b>PARCEL NUMBER</b>	<b>PARCEL DESCRIPTION</b>	<b>PROPOSED FOR LEASING ALTERNATIVE B</b>	<b>PROPOSED FOR LEASING ALTERNATIVE C</b>	<b>PROPOSED FOR DEFERRAL/NO LEASING ALTERNATIVE C</b>
<b>NDM 97300-E4</b>	T. 153 N, R. 100 W, 5TH PM, ND SEC. 11 E2SW, W2SE; SEC. 14 N2NW; SEC. 15 N2NE; WILLIAMS COUNTY 320.00 AC <b>50% U.S. MINERAL INTEREST</b> ACQ	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) LN 14-15 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS)	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) LN 14-15 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS)	
<b>NDM 97300-FV</b>	T. 153 N, R. 100 W, 5TH PM, ND SEC. 26 SWSW; SEC. 27 NW; WILLIAMS COUNTY 200.00 AC PD	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS) COE 18-1 (ALL COE LANDS) COE 18-2 (ALL COE LANDS) COE 18-7 (ALL COE LANDS)	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS) COE 18-1 (ALL COE LANDS) COE 18-2 (ALL COE LANDS) COE 18-7 (ALL COE LANDS)	

**APPENDIX A - NORTH DAKOTA FIELD OFFICE**

<b>PARCEL NUMBER</b>	<b>PARCEL DESCRIPTION</b>	<b>PROPOSED FOR LEASING ALTERNATIVE B</b>	<b>PROPOSED FOR LEASING ALTERNATIVE C</b>	<b>PROPOSED FOR DEFERRAL/NO LEASING ALTERNATIVE C</b>
<b>NDM 97300-HB</b>	T. 153 N, R. 100 W, 5TH PM, ND SEC. 32 LOTS 2,4; SEC. 34 LOT 3; SEC. 34 SWNW; MCKENZIE COUNTY 117.90 AC PD	CR 16-1 (ALL LANDS) LN 14-12 (ALL LANDS) NSO 11-39 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS) COE 18-1 (ALL COE LANDS) COE 18-2 (ALL COE LANDS) COE 18-7 (ALL COE LANDS)	CR 16-1 (ALL LANDS) LN 14-12 (ALL LANDS) NSO 11-39 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS) COE 18-1 (ALL COE LANDS) COE 18-2 (ALL COE LANDS) COE 18-7 (ALL COE LANDS)	
<b>NDM 79010-AD</b>	T. 154 N, R. 100 W, 5TH PM, ND SEC. 4 NWSW,S2SW,SWSE; SEC. 5 E2SE; WILLIAMS COUNTY 240.00 AC PD	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS)	DEFER (ALL LANDS)	DEFER (ALL LANDS)
<b>NDM 97300-A9</b>	T. 154 N, R. 100 W, 5TH PM, ND SEC. 17 NWNW; SEC. 33 SESE; WILLIAMS COUNTY 80.00 AC PD	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS)	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS)	

**APPENDIX A - NORTH DAKOTA FIELD OFFICE**

<b>PARCEL NUMBER</b>	<b>PARCEL DESCRIPTION</b>	<b>PROPOSED FOR LEASING ALTERNATIVE B</b>	<b>PROPOSED FOR LEASING ALTERNATIVE C</b>	<b>PROPOSED FOR DEFERRAL/NO LEASING ALTERNATIVE C</b>
<b>NDM 97300-A0</b>	T. 154 N, R. 100 W, 5TH PM, ND SEC. 31 LOTS 2,3,4; WILLIAMS COUNTY 89.50 AC PD	CR 16-1 (ALL LANDS) LN 14-12 (ALL LANDS) NSO 11-39 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16- 2(ALL LANDS) COE 18-1 (ALL COE LANDS) COE 18-2 (ALL COE LANDS) COE 18-7 (ALL COE LANDS)	DEFER (ALL LANDS)	DEFER (ALL LANDS)
<b>NDM 79010 AW</b>	T. 155 N, R. 100 W, 5TH PM, ND SEC. 22 NENW; WILLIAMS COUNTY 40.00 AC PD	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS)	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS)	
<b>NDM 97300-GR</b>	T. 141 N, R. 101 W, 5TH PM, ND SEC. 20 N2N2; BILLINGS COUNTY 160.00 AC PD	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) LN 14-15 (ALL LANDS) NSO 11-38 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS) TL 13-21 (ALL LANDS) TL 13-22 (ALL LANDS) TL 13-23 (ALL LANDS)	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) LN 14-15 (ALL LANDS) NSO 11-38 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS) TL 13-21 (ALL LANDS) TL 13-22 (ALL LANDS) TL 13-23 (ALL LANDS)	

**APPENDIX A - NORTH DAKOTA FIELD OFFICE**

<b>PARCEL NUMBER</b>	<b>PARCEL DESCRIPTION</b>	<b>PROPOSED FOR LEASING ALTERNATIVE B</b>	<b>PROPOSED FOR LEASING ALTERNATIVE C</b>	<b>PROPOSED FOR DEFERRAL/NO LEASING ALTERNATIVE C</b>
<b>NDM 97300-FZ</b>	T. 153 N, R. 101 W, 5TH PM, ND SEC. 1 SESE; SEC. 10 SESE; SEC. 12 N2NW, SENW; MCKENZIE COUNTY 200.00 AC PD	CR 16-1 (ALL LANDS) CSU 12-5 SEC. 1 SESE; SEC. 10 SESE; SEC. 12 N2NW; LN 14-12 (ALL LANDS) NSO 11-39 SEC. 12 SENW; STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS)	DEFER (ALL LANDS)	DEFER (ALL LANDS)
<b>NDM 97300-E5</b>	T. 154 N, R. 101 W, 5TH PM, ND SEC. 25 LOTS 4,5; SEC. 29 LOTS 2,3; WILLIAMS COUNTY 43.44 AC PD	CR 16-1 (ALL LANDS) LN 14-12 (ALL LANDS) NSO 11-39 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS) COE 18-1 (ALL COE LANDS) COE 18-2 (ALL COE LANDS) COE 18-7 (ALL COE LANDS)	CR 16-1 (ALL LANDS) LN 14-12 (ALL LANDS) NSO 11-39 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS) COE 18-1 (ALL COE LANDS) COE 18-2 (ALL COE LANDS) COE 18-7 (ALL COE LANDS)	

**APPENDIX A - NORTH DAKOTA FIELD OFFICE**

<b>PARCEL NUMBER</b>	<b>PARCEL DESCRIPTION</b>	<b>PROPOSED FOR LEASING ALTERNATIVE B</b>	<b>PROPOSED FOR LEASING ALTERNATIVE C</b>	<b>PROPOSED FOR DEFERRAL/NO LEASING ALTERNATIVE C</b>
<b>NDM 97300-E6</b>	T. 154 N, R. 101 W, 5TH PM, ND SEC. 25 LOT 8; MCKENZIE COUNTY 30.32 AC PD	CR 16-1 (ALL LANDS) LN 14-12 (ALL LANDS) NSO 11-39 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS) COE 18-1 (ALL COE LANDS) COE 18-2 (ALL COE LANDS) COE 18-7 (ALL COE LANDS)	CR 16-1 (ALL LANDS) LN 14-12 (ALL LANDS) NSO 11-39 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS) COE 18-1 (ALL COE LANDS) COE 18-2 (ALL COE LANDS) COE 18-7 (ALL COE LANDS)	
<b>NDM 97300-CB</b>	T. 157 N, R. 101 W, 5TH PM, ND SEC. 31 SESW,S2SE; WILLIAMS COUNTY 120.00 AC <b>50% U.S. MINERAL INTEREST</b> ACQ	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS)	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS)	
<b>NDM 97300-GJ</b>	T. 149 N, R. 102 W, 5TH PM, ND SEC. 17 NESE; SEC. 23 SWNW; MCKENZIE COUNTY 80.00 AC PD	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS)	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS)	

**APPENDIX A - NORTH DAKOTA FIELD OFFICE**

PARCEL NUMBER	PARCEL DESCRIPTION	PROPOSED FOR LEASING ALTERNATIVE B	PROPOSED FOR LEASING ALTERNATIVE C	PROPOSED FOR DEFERRAL/NO LEASING ALTERNATIVE C
<b>NDM 97300-P</b>	T. 155 N, R. 102 W, 5TH PM, ND SEC. 12 SESW,SWSE; SEC. 13 NWNE,E2NW,N2SW,SWSW; WILLIAMS COUNTY 320.00 AC <b>50% U.S. MINERAL INTEREST ACQ</b>	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS)	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS)	
<b>NDM 97300-GA</b>	T. 156 N, R. 102 W, 5TH PM, ND SEC. 1 LOTS 3,4; SEC. 1 S2NW; SEC. 2 LOTS 1,2,3; WILLIAMS COUNTY 353.14 AC <b>50% U.S. MINERAL INTEREST ACQ</b>	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS)	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS)	
<b>NDM 97300-AX</b>	T. 156 N, R. 102 W, 5TH PM, ND SEC. 6 LOTS 1,2; SEC. 6 S2NE; SEC. 7 SESE; SEC. 18 E2NE,NESE; SEC. 26 E2NE; WILLIAMS COUNTY 428.84 AC <b>50% U.S. MINERAL INTEREST ACQ</b>	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS)	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS)	

**APPENDIX A - NORTH DAKOTA FIELD OFFICE**

PARCEL NUMBER	PARCEL DESCRIPTION	PROPOSED FOR LEASING ALTERNATIVE B	PROPOSED FOR LEASING ALTERNATIVE C	PROPOSED FOR DEFERRAL/NO LEASING ALTERNATIVE C
<p><b>NDM 97300-AU</b></p>	<p>T. 156 N, R. 102 W, 5TH PM, ND                      SEC. 23 S2NE,S2SW,SE;                      WILLIAMS COUNTY                      320.00 AC  <b>50% U.S. MINERAL INTEREST ACQ</b></p>	<p>CR 16-1 (ALL LANDS)                      CSU 12-5 (ALL LANDS)                      LN 14-12 (ALL LANDS)                      LN 14-15 (ALL LANDS)                      STANDARD 16-3 (ALL LANDS)                      TES 16-2 (ALL LANDS)</p>	<p>CR 16-1 (ALL LANDS)                      CSU 12-5 (ALL LANDS)                      LN 14-12 (ALL LANDS)                      LN 14-15 (ALL LANDS)                      STANDARD 16-3 (ALL LANDS)                      TES 16-2 (ALL LANDS)</p>	
<p><b>NDM 97300-CA</b></p>	<p>T. 157 N, R. 102 W, 5TH PM, ND                      SEC. 11 SESW,SWSE;                      SEC. 14 W2NE,W2;                      SEC. 27 W2SW;                      SEC. 28 S2SE;                      SEC. 32 S2N2;                      SEC. 34 SE;                      WILLIAMS COUNTY                      960.00 AC  <b>50% U.S. MINERAL INTEREST ACQ</b></p>	<p>CR 16-1 (ALL LANDS)                      CSU 12-5 (ALL LANDS)                      LN 14-12 (ALL LANDS)                      STANDARD 16-3 (ALL LANDS)                      TES 16-2 (ALL LANDS)</p>	<p>CR 16-1 (ALL LANDS)                      CSU 12-5 (ALL LANDS)                      LN 14-12 (ALL LANDS)                      STANDARD 16-3 (ALL LANDS)                      TES 16-2 (ALL LANDS)</p>	
<p><b>NDM 97300-M</b></p>	<p>T. 144 N, R. 103 W, 5TH PM, ND                      SEC. 6 LOTS 1,2, 7-11;                      SEC. 6 SE;                      SEC. 8 NWNE,NW,N2SW,SWSW;                      SEC. 18 LOTS 1,2;                      SEC. 18 NE,NESE,S2SE;                      GOLDEN VALLEY COUNTY                      1081.48 AC                      PD</p>	<p>CR 16-1 (ALL LANDS)                      CSU 12-5 (ALL LANDS)                      LN 14-12 (ALL LANDS)                      LN 14-15 (ALL LANDS)                      STANDARD 16-3 (ALL LANDS)                      TES 16-2 (ALL LANDS)</p>	<p>CR 16-1 (ALL LANDS)                      CSU 12-5 (ALL LANDS)                      LN 14-12 (ALL LANDS)                      LN 14-15 (ALL LANDS)                      STANDARD 16-3 (ALL LANDS)                      TES 16-2 (ALL LANDS)</p>	

**APPENDIX A - NORTH DAKOTA FIELD OFFICE**

<b>PARCEL NUMBER</b>	<b>PARCEL DESCRIPTION</b>	<b>PROPOSED FOR LEASING ALTERNATIVE B</b>	<b>PROPOSED FOR LEASING ALTERNATIVE C</b>	<b>PROPOSED FOR DEFERRAL/NO LEASING ALTERNATIVE C</b>
<b>NDM 97300-GB</b>	T. 152 N, R. 103 W, 5TH PM, ND SEC. 6 LOT 11; SEC. 30 POR LOT 5 NOT ERODED BY MO RVR (19.19 AC); WILLIAMS COUNTY 59.19 AC PD	CR 16-1 (ALL LANDS) CSU 12-5 SEC. 6 LOT 11; LN 14-12 (ALL LANDS) NSO 11-39 SEC. 30 POR LOT 5 NOT ERODED BY MO RVR (19.19) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS)	CR 16-1 (ALL LANDS) CSU 12-5 SEC. 6 LOT 11; LN 14-12 (ALL LANDS) NSO 11-39 SEC. 30 POR LOT 5 NOT ERODED BY MO RVR (19.19) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS)	
<b>NDM 97300-GC</b>	T. 152 N, R. 103 W, 5TH PM, ND SEC. 24 SESW; MCKENZIE COUNTY 40.00 AC PD	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS)	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS)	
<b>NDM 97300-A7</b>	T. 157 N, R. 103 W, 5TH PM, ND SEC. 26 E2SE; WILLIAMS COUNTY 80.00 AC <b>50% U.S. MINERAL INTEREST ACQ</b>	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS)	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS)	

**APPENDIX A - NORTH DAKOTA FIELD OFFICE**

PARCEL NUMBER	PARCEL DESCRIPTION	PROPOSED FOR LEASING ALTERNATIVE B	PROPOSED FOR LEASING ALTERNATIVE C	PROPOSED FOR DEFERRAL/NO LEASING ALTERNATIVE C
<p><b>NDM 97300-ET</b></p>	<p>T. 129 N, R. 105 W, 5TH PM, ND                      SEC. 2 LOTS 1,2,3,4;                      SEC. 2 S2NE,E2SE;                      SEC. 8 NWNE,N2NW,SEW;                      SEC. 15 N2NW;                      SEC. 20 E2NE;                      SEC. 28 W2NE,N2NW;                      SEC. 32 SESW,SWSE;                      SEC. 35 S2SE;                      BOWMAN COUNTY                      960.32 AC                      PD</p>	<p>CR 16-1 (ALL LANDS)                      CSU 12-5 (ALL LANDS)                      LN 14-11 (ALL LANDS)                      LN 14-12 (ALL LANDS)                      LN 15-15 (ALL LANDS)                      NSO 11-39                          SEC. 2 S2NE, E2SE;                          SEC. 8 NWNE, N2NW,                      SEW;                          SEC. 20 E2NE;                      STANDARD 16-3 (ALL LANDS)                      TES 16-2 (ALL LANDS)                      TL 13-17                          SEC. 8 NWNE,N2NW,                          SEW;                          SEC. 15 N2NW;                          SEC. 20 E2NE;                          SEC. 28 W2NE, N2NW;                          SEC. 35 S2SE;                      TL 13-21                          SEC. 2 S2NE, E2SE;                          SEC. 8 NWNE, N2NW,                      SEW;                          SEC. 20 E2NE;</p>	<p>DEFER (ALL LANDS)</p>	<p>DEFER (ALL LANDS)</p>

**APPENDIX A - NORTH DAKOTA FIELD OFFICE**

<b>PARCEL NUMBER</b>	<b>PARCEL DESCRIPTION</b>	<b>PROPOSED FOR LEASING ALTERNATIVE B</b>	<b>PROPOSED FOR LEASING ALTERNATIVE C</b>	<b>PROPOSED FOR DEFERRAL/NO LEASING ALTERNATIVE C</b>
<p><b>NDM 97300-EU</b></p>	<p>T. 129 N, R. 105 W, 5TH PM, ND            SEC. 5 S2NE, SENW, SWSW, N2SE, SESE;            SEC. 9 NESE;            SEC. 14 E2NW, SWNW, NESW;            SEC. 17 NESE;            SEC. 19 E2SW, W2SE, SESE;            SEC. 23 SESE;            SEC. 31 NENE;            BOWMAN COUNTY            800.00 AC            PD</p>	<p>CR 16-1 (ALL LANDS)            CSU 12-5 (ALL LANDS)            LN 14-11 (ALL LANDS)            LN 14-12 (ALL LANDS)            LN 14-15 (ALL LANDS)            STANDARD 16-3 (ALL LANDS)            TES 16- 2(ALL LANDS)            TL 13-17            SEC. 5 S2NE, SENW, SWSW, N2SE, SESE;            SEC. 9 NESE;            SEC. 14 SWNW,            SEC. 17 NESE,            SEC. 19 E2SW, W2SE, SESE;            SEC. 23 SESE;</p>	<p>DEFER (ALL LANDS)</p>	<p>DEFER (ALL LANDS)</p>

**APPENDIX A - NORTH DAKOTA FIELD OFFICE**

PARCEL NUMBER	PARCEL DESCRIPTION	PROPOSED FOR LEASING ALTERNATIVE B	PROPOSED FOR LEASING ALTERNATIVE C	PROPOSED FOR DEFERRAL/NO LEASING ALTERNATIVE C
<b>NDM 97300-EW</b>	T. 129 N, R. 105 W, 5TH PM, ND SEC. 6 LOTS 4,5,7; SEC. 10 SWNW,W2SW,SESW SWSE; SEC. 18 SESE; SEC. 29 NENW,SE; SEC. 30 N2NE; BOWMAN COUNTY 638.49 AC PD	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-11 (ALL LANDS) LN 14-12 (ALL LANDS) LN 14-15 (ALL LANDS) NSO 11-38 SEC. 29 NENW; STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS) TL 13-17 (ALL LANDS) TL 13-21 SEC. 29 NENW;	DEFER (ALL LANDS)	DEFER (ALL LANDS)
<b>NDM 97300-EV</b>	T. 129 N, R. 105 W, 5TH PM, ND SEC. 10 S2NE,SESW,NESW, N2SE,SESE; SEC. 11 S2NW,SW; SEC. 14 NWNW; BOWMAN COUNTY 560.00 AC <b>50% U.S. MINERAL INTEREST</b> ACQ	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-11 (ALL LANDS) LN 14-12 (ALL LANDS) LN 14-15 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS) TL 13-17 (ALL LANDS) SEC. 10 S2NE, SENW, NESW, N2SE,SESE; SEC. 11 SW; SEC. 14 NWNW;	DEFER (ALL LANDS)	DEFER (ALL LANDS)

**APPENDIX A - NORTH DAKOTA FIELD OFFICE**

PARCEL NUMBER	PARCEL DESCRIPTION	PROPOSED FOR LEASING ALTERNATIVE B	PROPOSED FOR LEASING ALTERNATIVE C	PROPOSED FOR DEFERRAL/NO LEASING ALTERNATIVE C
<p><b>NDM 97300-EO</b></p>	<p>T. 130 N, R. 105 W, 5TH PM, ND                      SEC. 19 LOTS 1,4;                      SEC. 19 NENW,SESW;                      SEC. 22 SWSW;                      SEC. 31 LOTS 1,2,3,4;                      SEC. 31 E2,E2W2;                      BOWMAN COUNTY                      834.84 AC                      PD</p>	<p>CR 16-1 (ALL LANDS)                      CSU 12-5                      SEC. 19 LOTS 1,4;                      SEC. 19 NENW, SESW;                      SEC. 22 SWSW;                      LN 14-11 (ALL LANDS)                      LN 14-12 (ALL LANDS)                      LN 14-15 (ALL LANDS)                      NSO 11-35                      SEC. 22 SWSW;                      SEC. 31 LOTS 1,2,3,4;                      SEC. 31 E2, E2W2;                      STANDARD 16-3 (ALL LANDS)                      TES 16-2 (ALL LANDS)                      TL 13-17                      SEC. 19 LOTS 1,4;                      SEC. 19 NENW, SESW;</p>	<p>DEFER (ALL LANDS)</p>	<p>DEFER (ALL LANDS)</p>

**APPENDIX A - NORTH DAKOTA FIELD OFFICE**

PARCEL NUMBER	PARCEL DESCRIPTION	PROPOSED FOR LEASING ALTERNATIVE B	PROPOSED FOR LEASING ALTERNATIVE C	PROPOSED FOR DEFERRAL/NO LEASING ALTERNATIVE C
<b>NDM 97300-EP</b>	T. 130 N, R. 105 W, 5TH PM, ND SEC. 30 LOTS 1,2,3,4; SEC. 30 W2NE,SENE,E2W2; SEC. 35 ALL; BOWMAN COUNTY 1076.32 AC PD	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-11 (ALL LANDS) LN 14-12 (ALL LANDS) LN 14-15 (ALL LANDS) NSO 11-38 SEC. 35 ALL; STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS) TL 13-17 (ALL LANDS) TI 13-21 SEC. 35 ALL;	DEFER (ALL LANDS)	DEFER (ALL LANDS)
<b>NDM 97300-EQ</b>	T. 130 N, R. 105 W, 5TH PM, ND SEC. 32 W2W2,NESW,SESE; SEC. 33 NE,W2SE; SEC. 34 NESE; BOWMAN COUNTY 520.00 AC PD	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-11 (ALL LANDS) LN 14-12 (ALL LANDS) LN 14-15(ALL LANDS) NSO 11-35 SEC. 32 W2W2, NESW; NSO 11-38 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS) TL 13-17 SEC. 32 SESE; SEC. 33 NE, W2SE; SEC. 34 NESE; TL 13-21 (ALL LANDS)	DEFER (ALL LANDS)	DEFER (ALL LANDS)

**APPENDIX A - NORTH DAKOTA FIELD OFFICE**

<b>PARCEL NUMBER</b>	<b>PARCEL DESCRIPTION</b>	<b>PROPOSED FOR LEASING ALTERNATIVE B</b>	<b>PROPOSED FOR LEASING ALTERNATIVE C</b>	<b>PROPOSED FOR DEFERRAL/NO LEASING ALTERNATIVE C</b>
<b>NDM 97300-EM</b>	T. 132 N, R. 105 W, 5TH PM, ND SEC. 6 LOTS 1,2,3,4; SEC. 18 LOT 1; SEC. 18 E2NE,NENW; SEC. 20 ALL; BOWMAN COUNTY 880.16 AC PD	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-11 (ALL LANDS) LN 14-12 (ALL LANDS) LN 14-15 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TL 13-17 (ALL LANDS) TES 16-2 (ALL LANDS)	DEFER (ALL LANDS)	DEFER (ALL LANDS)
<b>NDM 97300-A1</b>	T. 142 N, R. 105 W, 5TH PM, ND SEC. 12 SWSW; GOLDEN VALLEY COUNTY 40.00 AC PD	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS)	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS)	
<b>NDM 97300-G7</b>	T. 142 N, 105 W, 5TH PM, ND SEC. 20 NE; SEC. 28 SW; GOLDEN VALLEY COUNTY 320.00 AC <b>50% U.S. MINERAL INTEREST ACQ</b>	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS)	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-12 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS)	

**APPENDIX A - NORTH DAKOTA FIELD OFFICE**

<b>PARCEL NUMBER</b>	<b>PARCEL DESCRIPTION</b>	<b>PROPOSED FOR LEASING ALTERNATIVE B</b>	<b>PROPOSED FOR LEASING ALTERNATIVE C</b>	<b>PROPOSED FOR DEFERRAL/NO LEASING ALTERNATIVE C</b>
<b>NDM 97300-ER</b>	T. 129 N, R. 106 W, 5TH PM, ND SEC. 11 N2,N2SE; SEC. 18 NENE; BOWMAN COUNTY 440.00 AC PD	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-11 (ALL LANDS) LN 14-12 (ALL LANDS) LN 14-15 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS) TL 13-17 SEC. 18 NENE;	DEFER (ALL LANDS)	DEFER (ALL LANDS)
<b>NDM 97300-ES</b>	T. 129 N, R. 106 W, 5TH PM, ND SEC. 12 ALL; SEC. 20 S2NW; BOWMAN COUNTY 720.00 AC PD	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-11 (ALL LANDS) LN 14-12 (ALL LANDS) LN 14-15 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS) TL 13-17 SEC. 20 S2NW;	DEFER (ALL LANDS)	DEFER (ALL LANDS)

**APPENDIX A - NORTH DAKOTA FIELD OFFICE**

<b>PARCEL NUMBER</b>	<b>PARCEL DESCRIPTION</b>	<b>PROPOSED FOR LEASING ALTERNATIVE B</b>	<b>PROPOSED FOR LEASING ALTERNATIVE C</b>	<b>PROPOSED FOR DEFERRAL/NO LEASING ALTERNATIVE C</b>
<b>NDM 97300-EN</b>	T. 130 N, R. 106 W, 5TH PM, ND SEC. 25 SWNE,N2NW,SENW, W2SE,SESE; BOWMAN COUNTY 280.00 AC PD	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-11 (ALL LANDS) LN 14-12 (ALL LANDS) LN 14-15 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS) TL 13-17 SEC. 25 SWNE; SENW, W2SE, SESE;	DEFER (ALL LANDS)	DEFER (ALL LANDS)
<b>NDM 97300-EL</b>	T. 132 N, R. 106 W, 5TH PM, ND SEC. 12 N2N2; BOWMAN COUNTY 160.00 AC PD	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-11 (ALL LANDS) LN 14-12 (ALL LANDS) LN 14-15 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS)	DEFER (ALL LANDS)	DEFER (ALL LANDS)
<b>NDM 97300-EK</b>	T. 131 N, R. 107 W, 5TH PM, ND SEC. 2 LOTS 3,4; SEC. 2 S2NW,S2; BOWMAN COUNTY 479.90 AC PD	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-11 (ALL LANDS) LN 14-12 (ALL LANDS) LN 14-15 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS) TL 13-17 (ALL LANDS)	DEFER (ALL LANDS)	DEFER (ALL LANDS)

**APPENDIX A - NORTH DAKOTA FIELD OFFICE**

<b>PARCEL NUMBER</b>	<b>PARCEL DESCRIPTION</b>	<b>PROPOSED FOR LEASING ALTERNATIVE B</b>	<b>PROPOSED FOR LEASING ALTERNATIVE C</b>	<b>PROPOSED FOR DEFERRAL/NO LEASING ALTERNATIVE C</b>
<b>NDM 97300-EH</b>	T. 132 N, R. 107 W, 5TH PM, ND SEC. 26 NENE,SW,S2SE; SEC. 34 LOTS 1,2,3,4; SEC. 34 E2E2; BOWMAN COUNTY 646.24 AC PD	CR 16-1 (ALL LANDS) CSU 12-5 (ALL LANDS) LN 14-11 (ALL LANDS) LN 14-12 (ALL LANDS) LN 14-15 (ALL LANDS) STANDARD 16-3 (ALL LANDS) TES 16-2 (ALL LANDS) TL 13-17 (ALL LANDS)	DEFER (ALL LANDS)	DEFER (ALL LANDS)

## APPENDIX B- Stipulations Key

Stipulation Number	Stipulation Name/Brief Description
<b>CSU 12-5</b>	<b>CONTROLLED SURFACE USE STIPULATION</b>
	Surface occupancy or use would be subject to the following special operating constraint: No disturbance of Riparian areas of wetlands, intermittent, ephemeral, or perennial streams and rivers would be allowed except for essential road and utility crossings.
<b>Cultural Resources 16-1</b>	<b>CULTRURAL RESOURCES LEASE STIPULATION</b>
	This lease may be found to contain historic properties and/or resources protected under the National Historic Preservation Act (NHPA), American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, E.O. 13007, or other statutes and executive orders. The BLM will not approve any ground disturbing activities that may affect any such properties or resources until it completes its obligations under applicable requirements of the NHPA and other authorities.
<b>Lease Notice 14-11</b>	<b>LEASE NOTICE</b>
	The lease may in part, or in total contain important Greater Sage-Grouse habitats as identified by the BLM, either currently or prospectively. The operator may be required to implement specific measures to reduce impacts of oil and gas operations on the Greater Sage-Grouse populations and habitat quality. Such measures shall be developed during the application for permit to drill on-site and environmental review process and will be consistent with the lease rights granted.
<b>Lease Notice 14-12</b>	<b>LEASE NOTICE</b>

	<p>Paleontological resource inventory requirement: surface occupancy or use is subject to the following special operating constraints: the lessee/operator is given notice that this lease has been identified as being located within geologic units rated as being moderate to very high potential for containing significant paleontological resources. The locations identified meet the conditions 1 and/or 2 as set forth in the potential fossil yield classification system, IM 2008-009, Attachment 2-2. The BLM is responsible for assuring that the leased lands are examined to determine if paleontological resources are present and to specify mitigation measures. Guidance for application of this requirement can be found in IM 2008-009, 10/15/2007 and IM 2009-011, 10/10/2008. The project proponent may be required to conduct a paleontological inventory prior to any surface disturbance. If inventory is required, the project proponent must engage the services of a qualified paleontologist, acceptable to the BLM, to conduct the inventory. An acceptable inventory report is to be submitted to the BLM for review and approval at the time a surface-disturbing plan of operations is submitted. Prior to undertaking any surface-disturbing activities on the lands covered by this lease, the lessee or project proponent shall contact the BLM to determine if a paleontological resource inventory is required. if an inventory is required then;</p>
	<p>1.) The lessee or project proponent will complete the required inventory. The lessee or project proponent may engage the services of a paleontological resource consultant acceptable to the BLM to conduct a paleontological resource inventory of the area of proposed surface disturbance. The project proponent will, at a minimum, inventory a 10-acre area or larger to incorporate possible project relocation which may result from environmental or other resource considerations.</p>
	<p>2.) Paleontological inventory may identify resources that may require mitigation to the satisfaction of the BLM as directed by IM 2009-011, 10/10/2008.</p>
<b>Lease Notice 14-13</b>	<b>LEASE NOTICE</b>
	<p>The lease parcel is encumbered with a US Fish and Wildlife Wetland and/or Grassland Easement to restrict draining, burning, filling, or leveling of wetlands and/or protection of grassland depending on the specific easement. The operator may be required to implement specific measures to reduce the impacts of oil and gas operations on wetlands or grasslands on easements. Additional measures may be developed during the application for permit to drill during the on-site inspection as well as the environmental review process, consistent with the lease rights granted and in accordance with 43 CFR 3101.1-2.</p>
<b>Lease Notice 14-15</b>	<b>LEASE NOTICE</b>

	<p>The lease area may contain habitat for the federal candidate Sprague’s pipit. The operator may be required to implement specific measures to reduce impacts of oil and gas operations on Sprague’s pipits, their habitat, and overall population. Such measures would be developed during the application for permit to drill and environmental review processes, consistent with lease rights. If the USFWS lists the Sprague’s pipit as threatened or endangered under ESA, BLM would enter into formal consultation on proposed permits that may affect the Sprague’s pipit and its habitat. Restrictions, modifications, or denial of permits could result from the consultation process.</p>
<b>NSO 11-33</b>	<b>NO SURFACE OCCUPANCY STIPULATION</b>
	No surface occupancy (NSO) or use would be allowed within 200 feet of wetlands, lakes, and ponds.
<b>NSO 11-35</b>	<b>NO SURFACE OCCUPANCY STIPULATION</b>
	No surface occupancy (NSO) would be allowed within one-fourth mile of active Sage Grouse strutting grounds.
<b>NSO 11-38</b>	<b>NO SURFACE OCCUPANCY STIPULATION</b>
	No surface occupancy (NSO) or use would be allowed within one-half mile of Golden Eagle nests known to have been occupied at least once within the seven previous years.
<b>NSO 11-39</b>	<b>NO SURFACE OCCUPANCY STIPULATION</b>
	No surface occupancy (NSO) of those lands within the floodplain of the Missouri River.
<b>NSO 11-59</b>	<b>NO SURFACE OCCUPANCY STIPULATION</b>
	Surface occupancy and use is prohibited within Solberg Waterfowl Protection Area (FWS lands).
<b>Standard 16-3</b>	<b>STANDARD LEASE STIPULATION</b>
<b>TES 16-2</b>	<b>ENDANGERED SPECIES ACT SECTION 7 CONSULTATION STIPULATION</b>
	The lease area may now or hereafter contain plants, animals, or their habitats determined to be threatened, endangered, or other special status species. BLM may recommend modifications to exploration and development, and require modifications to or disapprove proposed activity that is likely to result in jeopardy to proposed or listed threatened or endangered species or designated or proposed critical habitat.
<b>TL 13-17</b>	<b>TIMING LIMITATION STIPULATION</b>
	No surface use would be allowed within two miles of active strutting grounds during the following time period: March 1 to June 15.

<b>TL13-21</b>	<b>TIMING LIMITATION STIPULATION</b>
	No surface use would be allowed within one-half mile of occupied Golden Eagle nests during the following time period: February 15 to July 15
<b>TL 11-22</b>	<b>TIMING LIMITATION STIPULATION</b>
	No surface use would be allowed for Elk calving during the following time period: June 1 to July 1
<b>TL 11-23</b>	<b>TIMING LIMITATION STIPULATION</b>
	No surface use would be allowed on Elk winter range during the following time period: November 30 to May 1.
<b>COE 18-1</b>	<b>CORPS OF ENGINEERS - Agency Lease Stipulation</b>
<b>COE 18-2</b>	<b>CORPS OF ENGINEERS - Agency Lease Stipulation</b>
<b>COE 18-7</b>	<b>CORPS OF ENGINEERS - Agency Lease Stipulation</b>

UNITED STATES DEPARTMENT OF THE INTERIOR  
Bureau of Land Management  
5001 Southgate Drive  
Billings, Montana 59101-4669

**OIL AND GAS LEASE STIPULATIONS**

**ESTHETICS**--To maintain esthetic values, all surface-disturbing activities, semipermanent and permanent facilities may require special design including location, painting and camouflage to blend with the natural surroundings and meet the intent of the visual quality objectives of the Federal Surface Managing Agency (SMA).

**EROSION CONTROL**--Surface-disturbing activities may be prohibited during muddy and/or wet soil periods.

**CONTROLLED OR LIMITED SURFACE USE STIPULATION** --This stipulation may be modified, consistent with land use documents, when specifically approved in writing by the Bureau of Land Management (BLM) with concurrence of the SMA. Distances and/or time periods may be made less restrictive depending on the actual on-ground conditions. The prospective lessee should contact the SMA for more specific locations and information regarding the restrictive nature of this stipulation.

The lessee/operator is given notice that the lands within this lease may include special areas and that such areas may contain special values, may be needed for special purposes, or may require special attention to prevent damage to surface and/or other resources. Possible special areas are identified below. Any surface use or occupancy within such special areas will be strictly controlled, or **if absolutely necessary**, excluded. Use or occupancy will be restricted only when the BLM and/or the SMA demonstrates the restriction necessary for the protection of such special areas and existing or planned uses. Appropriate modifications to imposed restrictions will be made for the maintenance and operations of producing oil and gas wells.

After the SMA has been advised of specific proposed surface use or occupancy on the leased lands, and on request of the lessee/operator, the Agency will furnish further data on any special areas which may include:

100 feet from the edge of the rights-of-way from highways, designated county roads and appropriate federally-owned or controlled roads and recreation trails.

500 feet, or when necessary, within the 25-year flood plain from reservoirs, lakes, and ponds and intermittent, ephemeral or small perennial streams: 1,000 feet, or when necessary, within the 100-year flood plain from larger perennial streams, rivers, and domestic water supplies.

500 feet from grouse strutting grounds. Special care to avoid nesting areas associated with strutting grounds will be necessary during the period from March 1, to June 30. One-fourth mile from identified essential habitat of state and federal sensitive species. Crucial wildlife winter ranges during the period from December 1 to May 15, and in elk calving areas during the period from May 1 to June 30.

300 feet from occupied buildings, developed recreational areas, undeveloped recreational areas receiving concentrated public use and sites eligible for or designated as National Register sites.

Seasonal road closures, roads for special uses, specified roads during heavy traffic periods and on areas having restrictive off-road vehicle designations.

On slopes over 30 percent or 20 percent on extremely erodable or slumping soils.

**See Notice on Back**

## NOTICE

**APPLICATIONS FOR PERMIT TO DRILL (APDs)**--The appropriate BLM field offices are responsible for the receipt, processing, and approval of APDs. The APDs are to be submitted by oil and gas operators pursuant to the requirements found in Onshore Oil and Gas Order No. 1 -- Approval of Operations on Onshore Federal and Indian Oil and Gas Leases (Circular No. 2538). Additional requirements for the conduct of oil and gas operations can be found in the Code of Federal Regulations Title 43, Part 3160. Copies of Onshore Oil and Gas Order No. 1, and pertinent regulations, can be obtained from the BLM field offices in which the operations are proposed. Early coordination with these offices on proposals is encouraged.

**CULTURAL AND PALEONTOLOGICAL RESOURCES**--The SMA is responsible for assuring that the leased lands are examined to determine if cultural resources are present and to specify mitigation measures. Prior to undertaking any surface-disturbing activities on the lands covered by this lease, the lessee or operator, unless notified to the contrary by the SMA, shall:

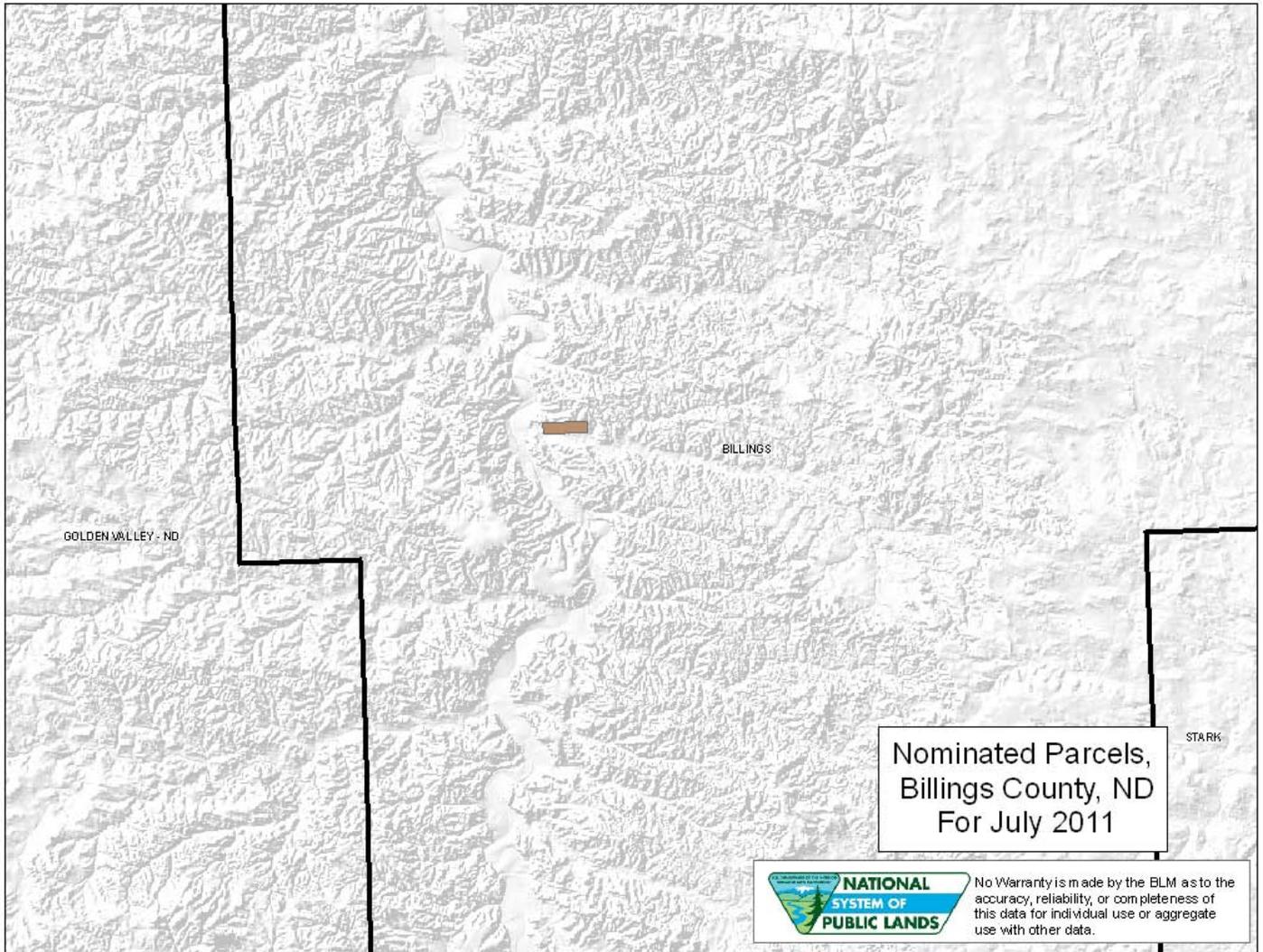
1. Contact the appropriate SMA to determine if a site-specific cultural resource inventory is required. If an inventory is required, then:
2. Engage the services of a cultural resource specialist acceptable to the SMA to conduct a cultural resource inventory of the area of proposed surface disturbance. The operator may elect to inventory an area larger than the area of proposed disturbance to cover possible site relocation which may result from environmental or other considerations. An acceptable inventory report is to be submitted to the SMA for review and approval no later than that time when an otherwise complete application for approval of drilling or subsequent surface-disturbing operation is submitted.
3. Implement mitigation measures required by the SMA. Mitigation may include the relocation of proposed lease-related activities or other protective measures such as testing salvage and recordation. Where impacts to cultural resources cannot be mitigated to the satisfaction of the SMA, surface occupancy on that area must be prohibited.

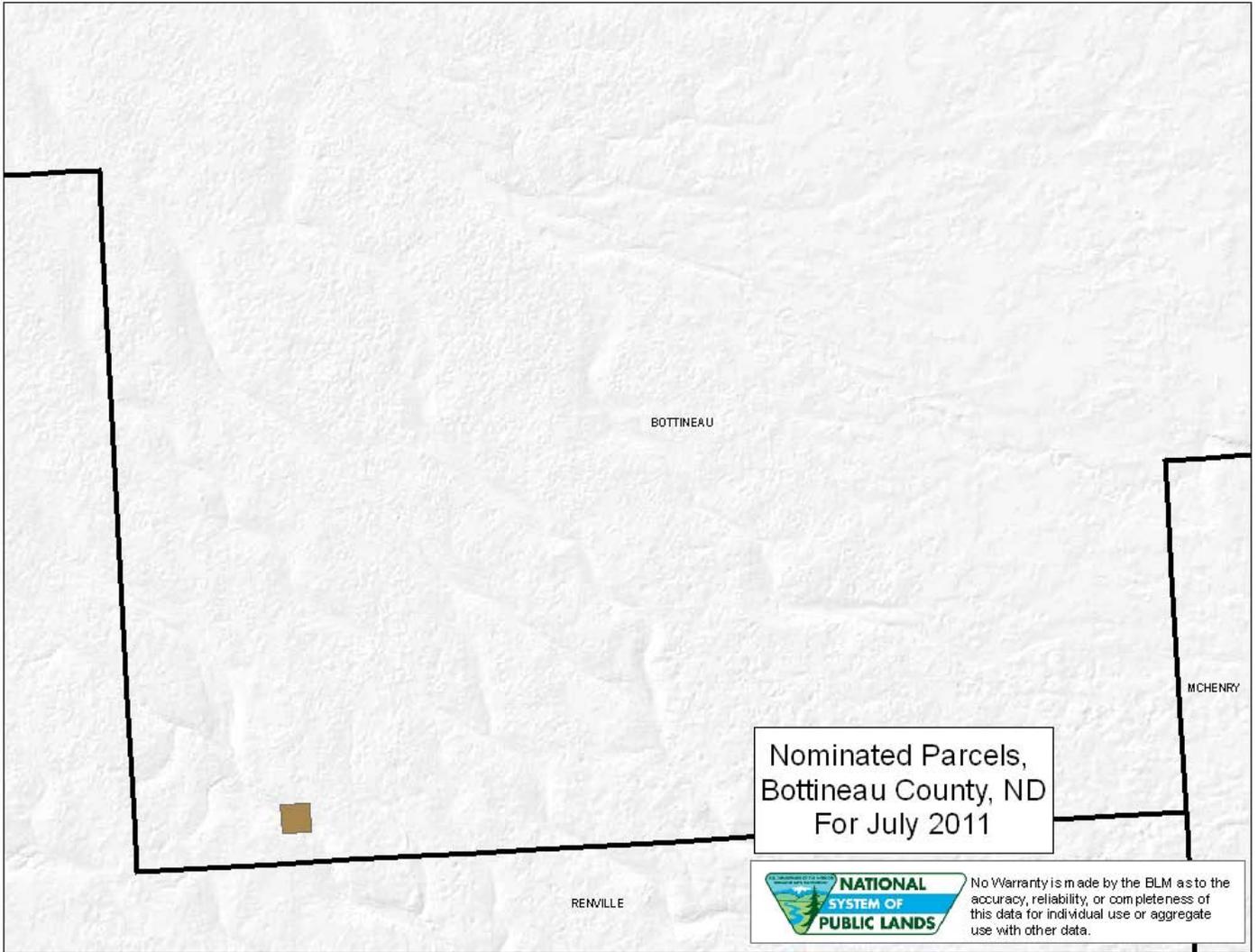
The operator shall immediately bring to the attention of the SMA any cultural or paleontological resources discovered as a result of approved operations under this lease, and not disturb such discoveries until directed to proceed by the SMA.

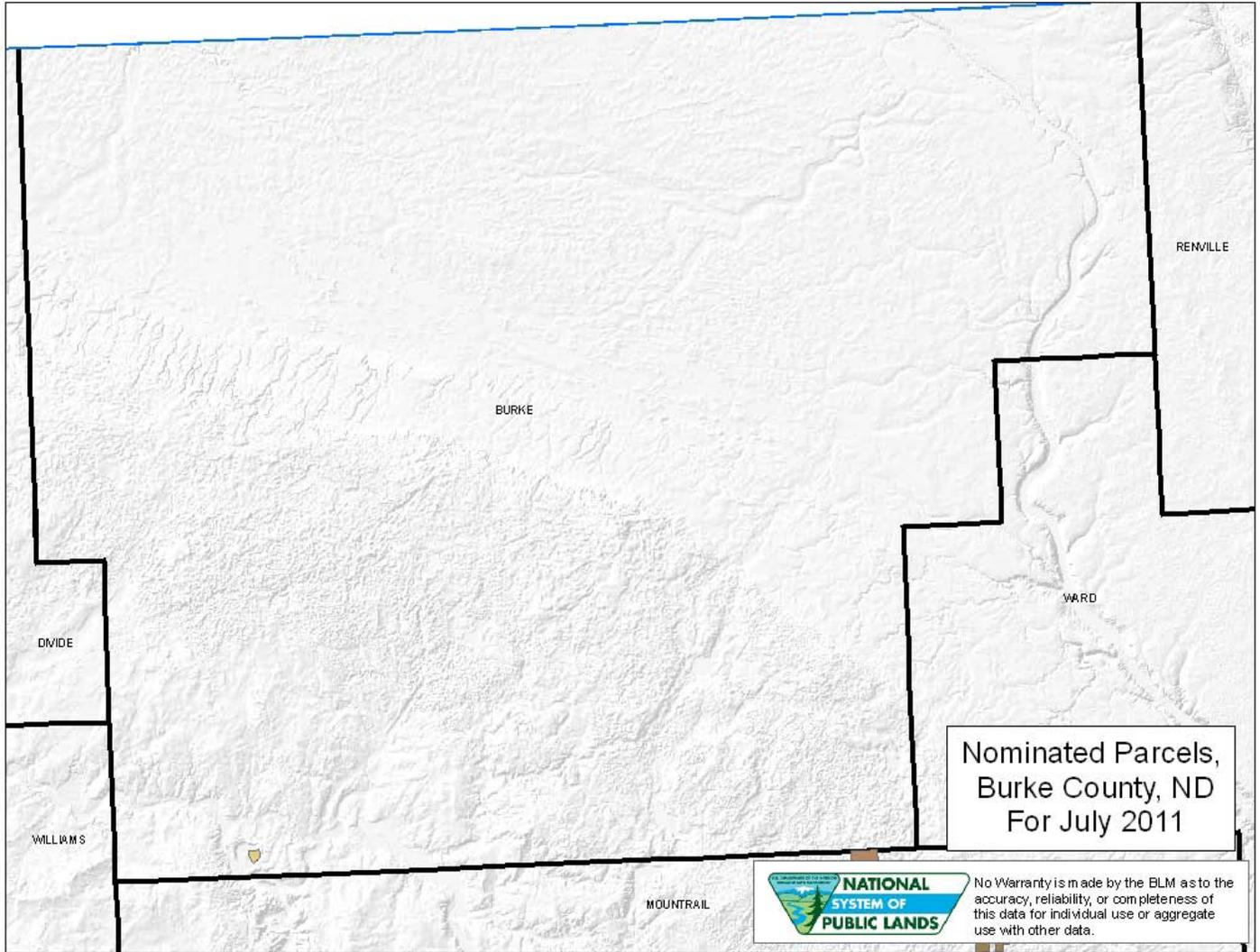
**ENDANGERED OR THREATENED SPECIES**--The SMA is responsible for assuring that the leased land is examined prior to undertaking any surface-disturbing activities to determine effects upon any plant or animal species, listed or proposed for listing as endangered or threatened, or their habitats. The findings of this examination may result in some restrictions to the operator's plans or even disallow use and occupancy that would be in violation of the Endangered Species Act of 1973 by detrimentally affecting endangered or threatened species or their habitats. The lessee/operator may, unless notified by the authorized officer of the SMA that the examination is not necessary, conduct the examination on the leased lands at his discretion and cost. This examination must be done by or under the supervision of a qualified resources specialist approved by the SMA. An acceptable report must be provided to the SMA identifying the anticipated effects of a proposed action on endangered or threatened species or their habitats.

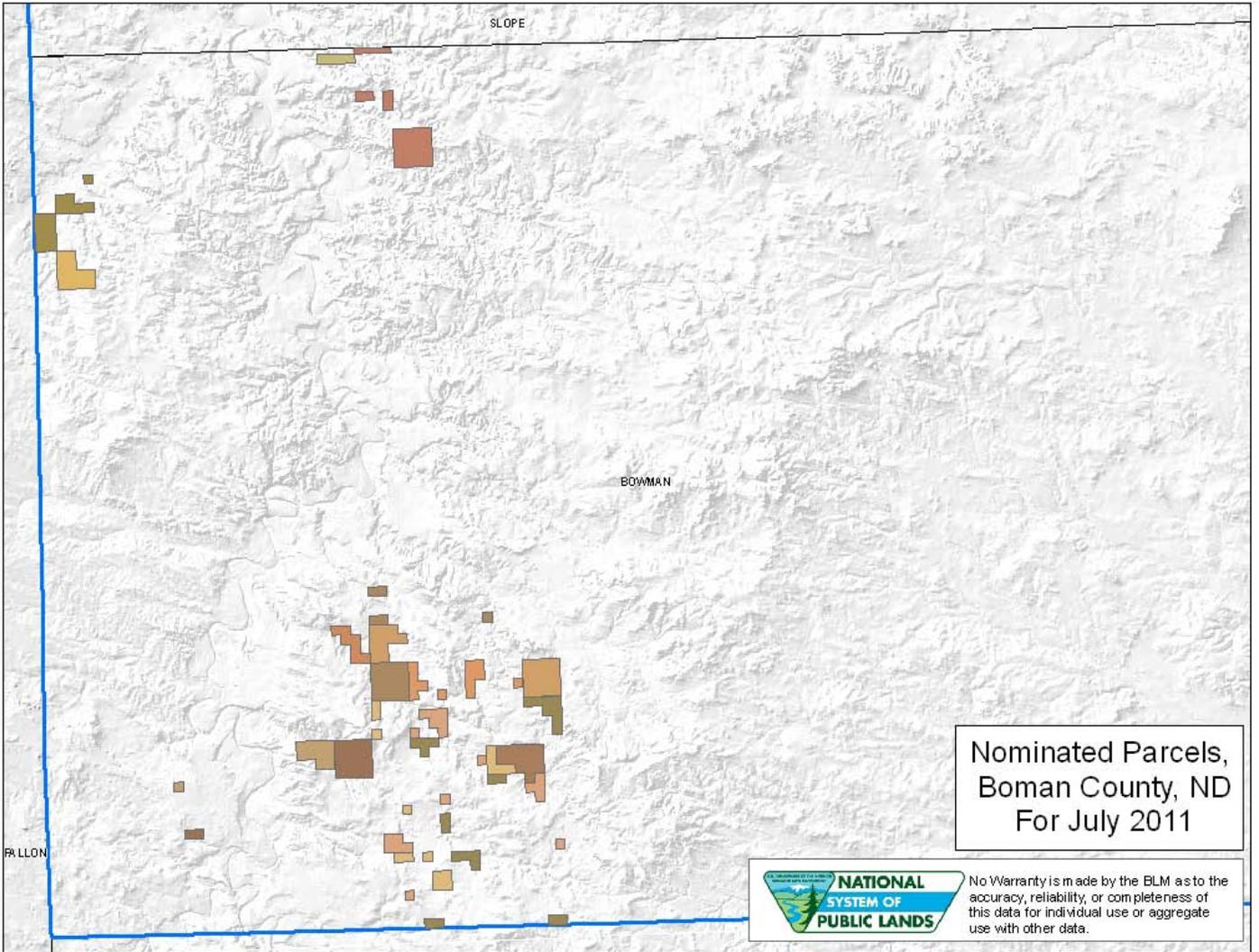
Standard 16-3

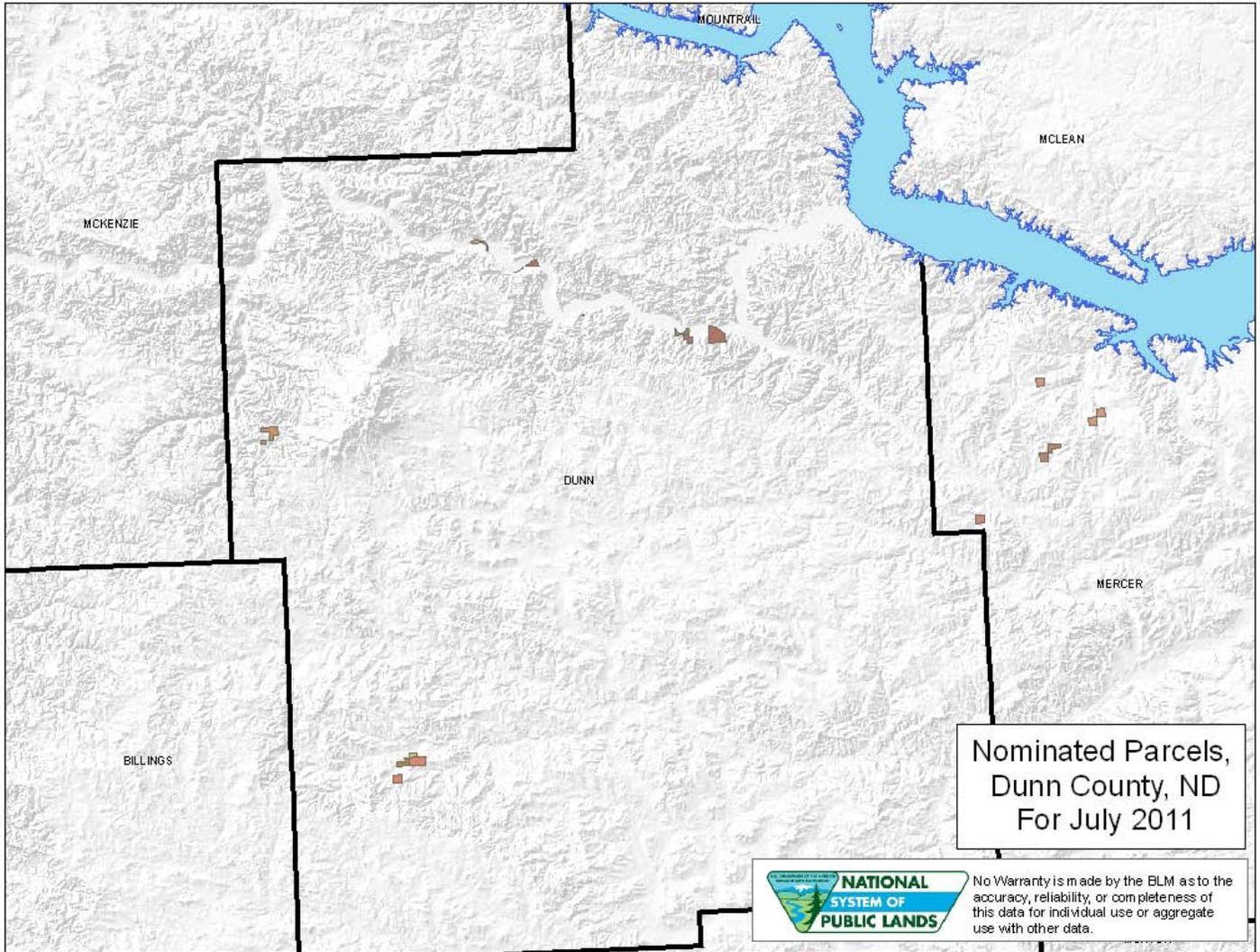
# Appendix C—Parcel Maps by County

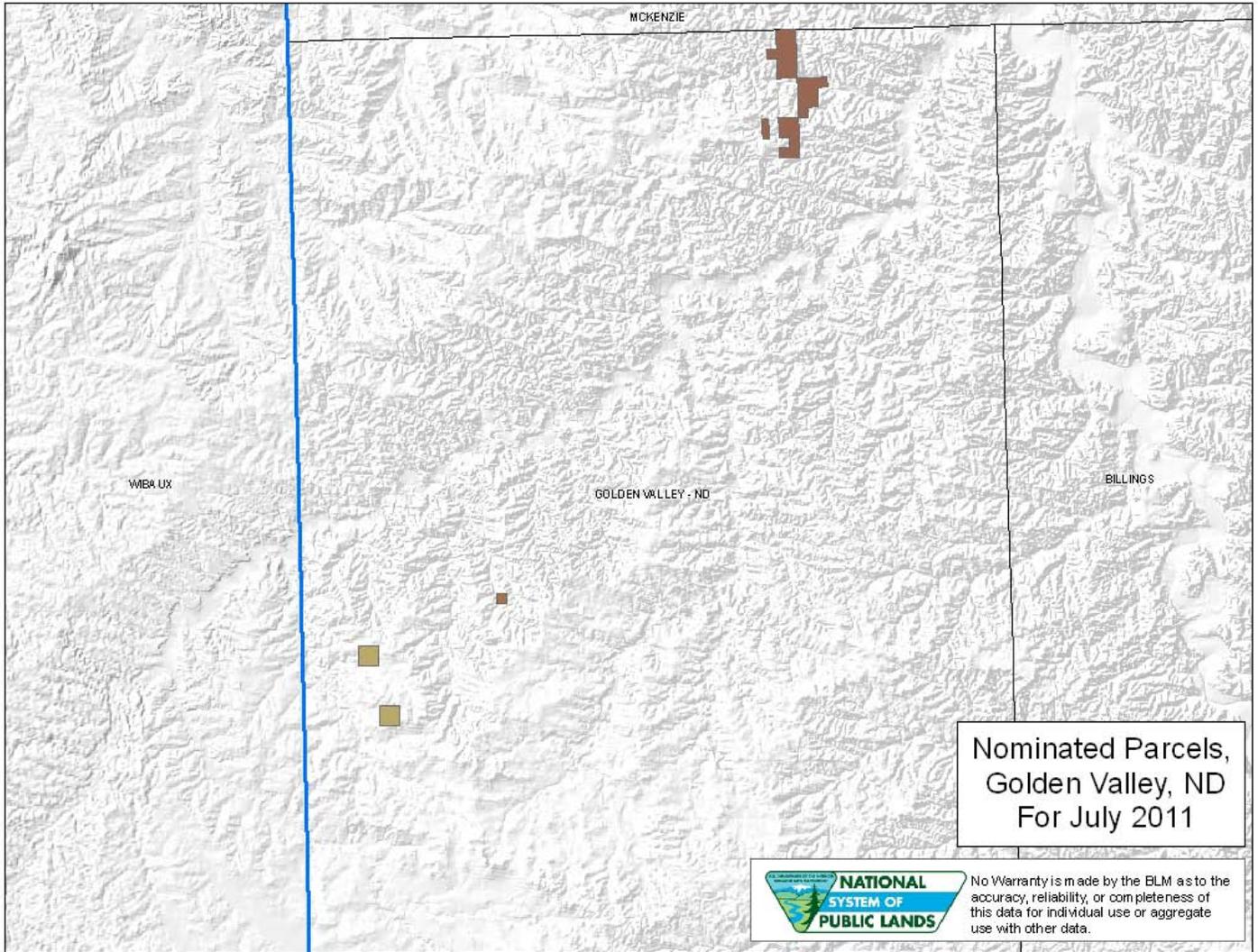


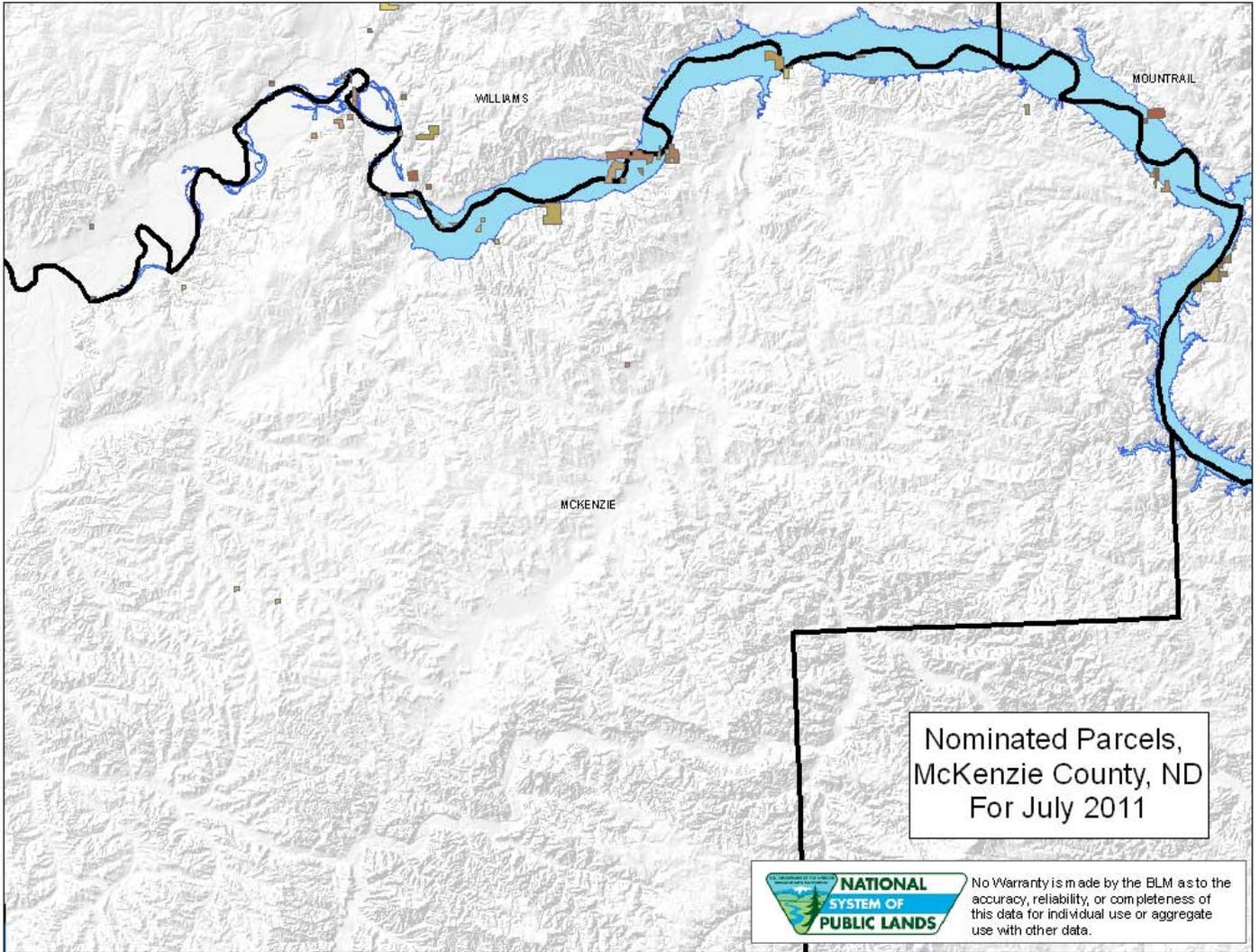


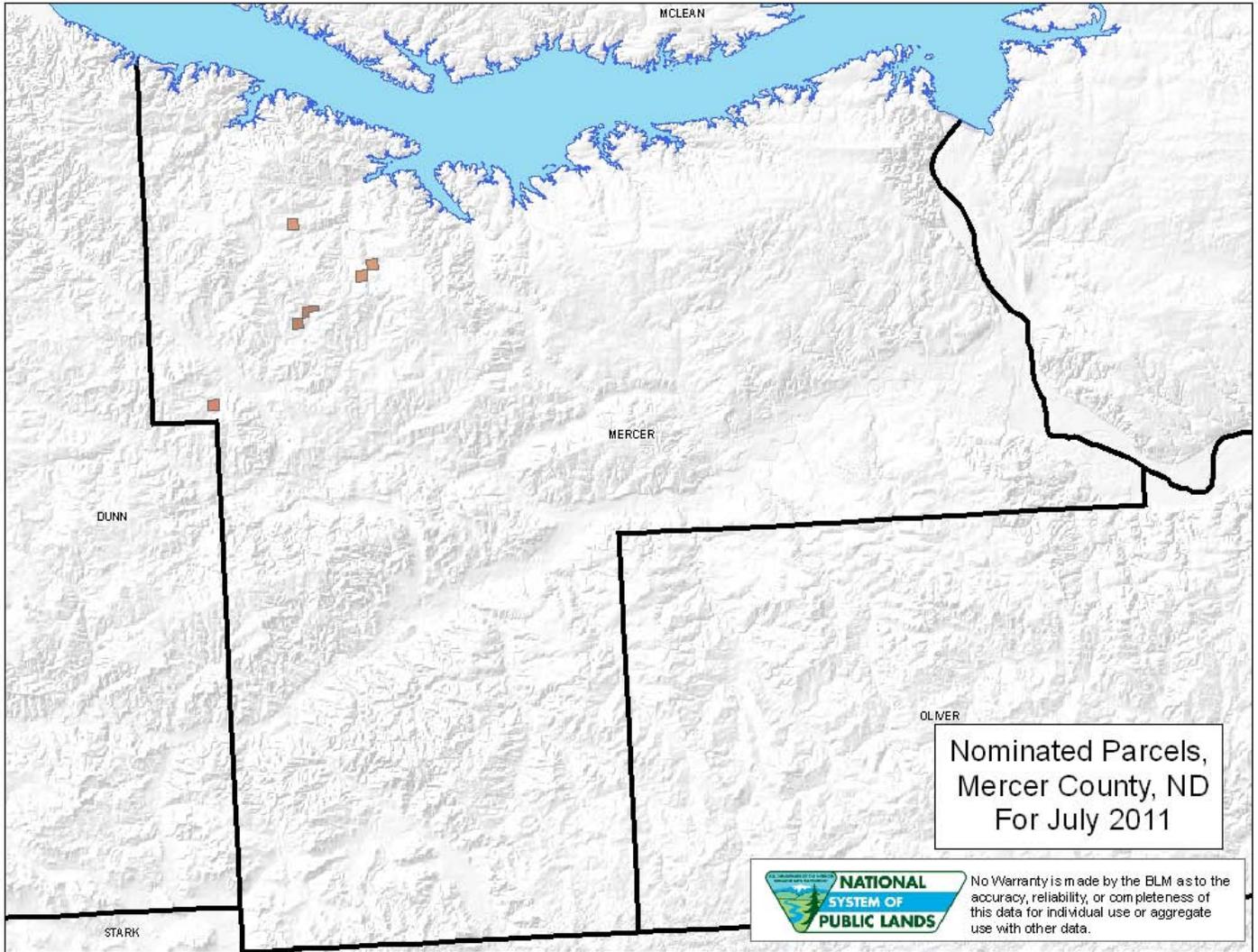


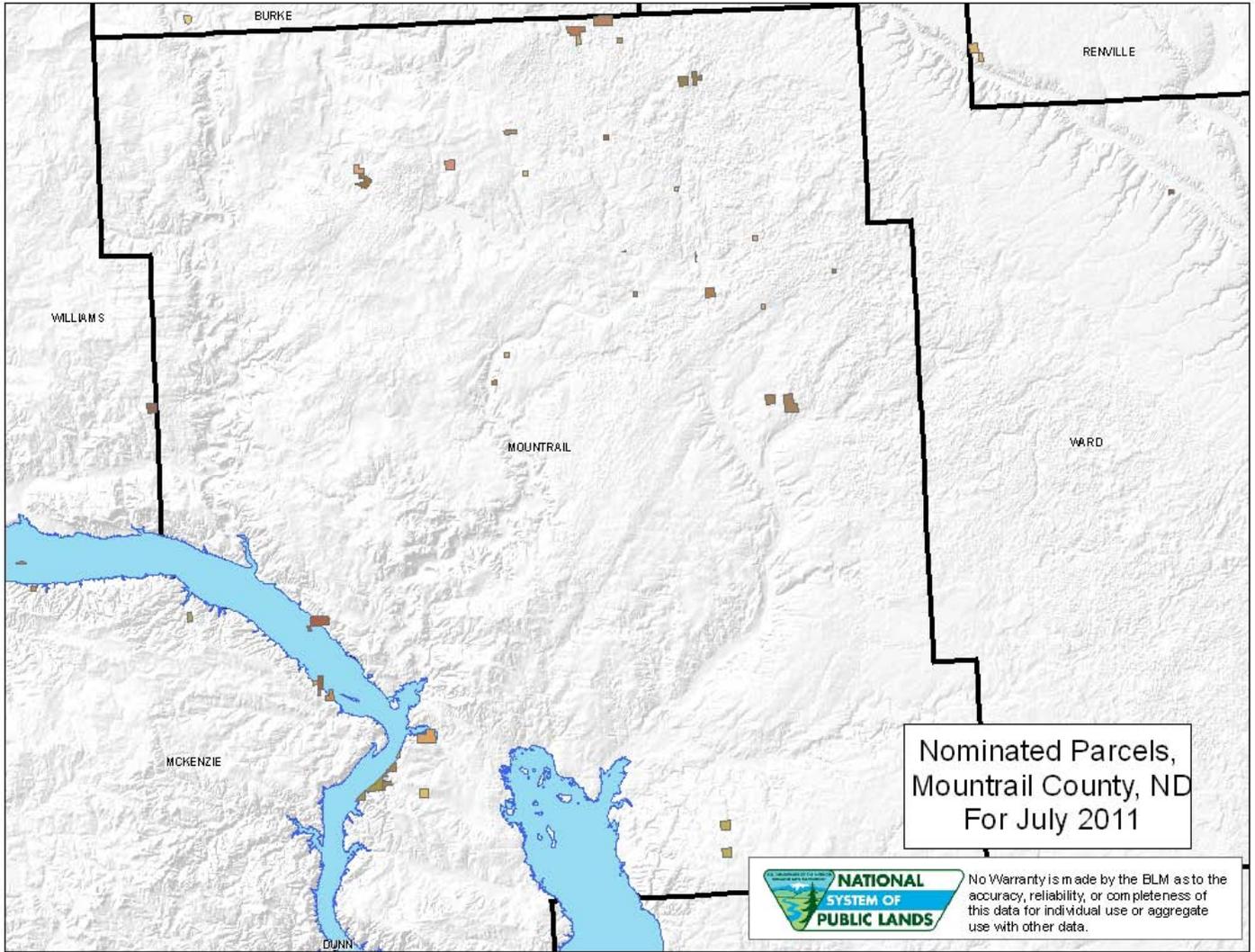


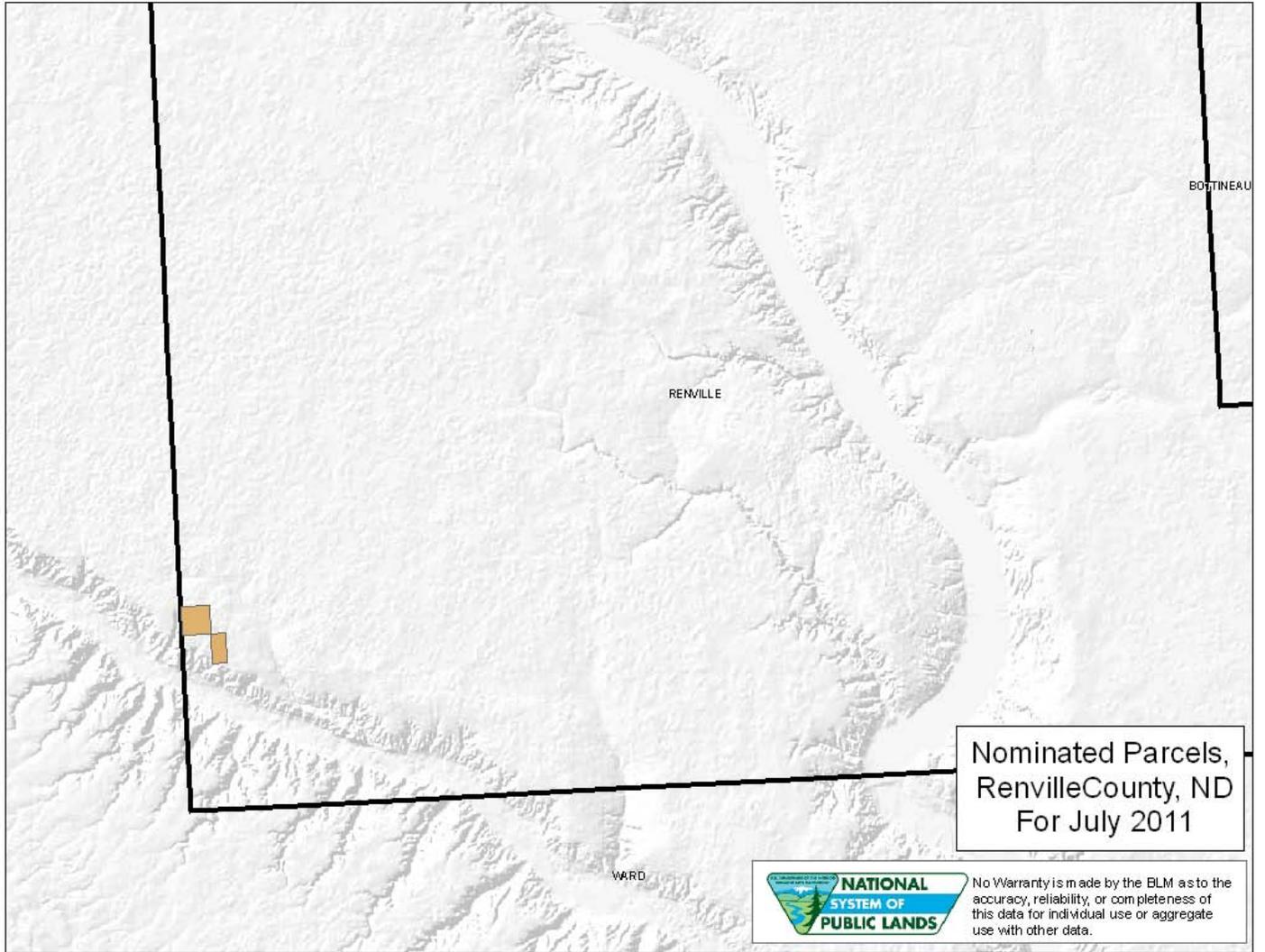




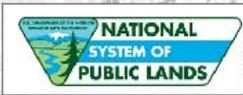








Nominated Parcels,  
Renville County, ND  
For July 2011



No Warranty is made by the BLM as to the accuracy, reliability, or completeness of this data for individual use or aggregate use with other data.

