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Bureau of Land Management**

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Project Title: Oil and Gas Lease Parcel Sale,
October 23, 2012

Location: Hilina District, specifically in the Malta and Glasgow Field Offices
(see attached Appendix A for list of lease parcels by number and legal description
and Maps)

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**Hiline District Office Oil and Gas Lease Sale EA
DOI-BLM-MTM010-2012-0026-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) | 2 |
| 1.4 Public Scoping and 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 Alternatives Considered, But Eliminated | 5 |
| 3.0 AFFECTED ENVIRONMENT | 8 |
| 3.1 Introduction..... | 8 |
| 3.2 Air Resources..... | 12 |
| 3.3 Soil Resources..... | 18 |
| 3.4 Water Resources | 19 |
| 3.5 Vegetation Resources..... | 19 |
| 3.6 Special Status Species..... | 20 |
| 3.7 Wildlife | 26 |
| 3.8 Cultural Resources | 30 |
| 3.9 Native American Religious Concerns..... | 31 |
| 3.10 Paleontology | 32 |
| 3.11 Visual Resources..... | 32 |
| 3.12 Forest and Woodland Resources..... | 33 |
| 3.13 Livestock Grazing..... | 35 |
| 3.14 Recreation and Travel Management | 35 |
| 3.15 Lands and Realty..... | 35 |
| 3.16 Minerals | 36 |
| 3.17 Special Designations..... | 36 |
| 3.18 Social and Economic Conditions..... | 38 |
| 4.0 ENVIRONMENTAL IMPACTS..... | 38 |
| 4.1 Assumptions and Reasonably Foreseeable Development Scenario Summary | 42 |
| 4.2 Alternative A – (No Action) | 44 |
| 4.3 Alternative B – (Proposed Action) | 44 |
| 5.0 CONSULTATION AND COORDINATION | 76 |
| 5.1 Persons, Agencies, and Organizations Consulted..... | 76 |
| 5.2 Summary of Public Participation | 77 |
| 5.3 List of Preparers..... | 77 |
| 6.0 REFERENCES | 78 |
| 7.0 DEFINITIONS..... | 83 |

APPENDICES

Appendix A – Lease Parcel Summary Table

Appendix B – Figures

Appendix C – Maps

FIGURES

Figure A--Trends in haze index (deciview) on haziest and clearest days, 2005-2009

Figure B--Regional climate summary of spring temperatures (March-May) for the West North Central Region (MT, ND, SD, WY), from 1895-2007

Figure C—Regional Climate Summary of Spring Temperatures (March-May) for the West North Central Region (MT, ND, SD, WY), from 1991-2005

TABLES

Table 1--Summary of Critical Elements of the Human Environment & Other Resources/Concern

Table 2--US EPA – Air Data Air Quality Index Report – (2009-2011)

Table 3—Soil Map Units and Associated Acres, Slope Range and Ratings for Lease Parcels based on Dominant Condition of each Soil Map Unit

Table 4—Fish and Herptile Sensitive or Special Status Wildlife Species that could occur in or near the Lease Parcels

Table 5—Special Status or Sensitive Fish and Herptile Species that occur in, or their Ranges Overlap with the Lease Parcels

Table 6—Analysis Area Occurrence of BLM Sensitive Bird and Mammal Species and USFWS Threatened, Endangered, Candidate or Proposed for Listing Wildlife Species

Table 7—Montana Plant Species of Concern and BLM Sensitive Plants on or near Lease Parcels

Table 8—Summary of Cultural Resource Locations, Inventory Reports and Percent of Lease Parcels surveyed to Class III Standards

Table 9—Historic Properties within or near Proposed Lease Parcels, NRHP Eligibility Determinations

Table 10—Individual Lease Parcel PFYC Classifications

Table 11—BLM Grazing Allotments which are Associated with the Lease Parcels

Table 12--Oil and Gas Leasing and Existing Development within Townships Containing Lease Parcels

Table 13--Current Contributions of Federal Oil and Gas Leasing, Exploration, Development, and Production to the Local Economy

Table 14-BLM Projected Annual Emissions of Greenhouse Gases Associated with Oil and Gas Exploration and Development Activity in the HiLine Area

Table 15--Selected Methane Emission Reductions Reported Under the USEPA Natural Gas STAR Program

Table 16—Approximate Acres of Slopes over 30% and Erodible Soils on Slopes >20% for each Lease Parcel

Table 17—Change in Estimated Average Annual Economic Impacts

Table 18—Summary Comparison of Cumulative Annual Economic Impacts by Alternative

Table 19—Employment and Income Related to BLM Oil and Gas Management

Table 20—Projected non-BLM GHG Emissions Associated with the HiLine RFD Scenario for Fluid Mineral Exploration and Development

Table 21--List of all Persons, Agencies and Organizations Consulted for Purposes of this EA

Table 22--List of Preparers

Hilina District Office Oil and Gas Lease Sale EA DOI-BLM-MTM 010-2012-0026-EA

1.0 PURPOSE AND 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 on 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 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, 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. Federal mineral leases can be sold on such lands as well. The Montana State Office has historically conducted five lease sales per year.

Members of the public file Expressions of Interest (EOI) to nominate parcels for leasing by the BLM. From these EOIs, the Montana State Office provides draft parcel lists to the appropriate field offices for review. BLM field offices then review legal descriptions of nominated parcels to determine: 1) if they are in areas open to leasing; 2) if new information has come to light which might change previous analyses conducted during the land use planning process; 3) if there are special resource conditions of which potential bidders should be made aware; and 4) which stipulations should be identified and included as part of a lease. Ultimately, all of the lands in proposed lease sales are nominated by private individuals, companies, or the BLM, and therefore represent areas of high interest.

This environmental assessment (EA) has been prepared to disclose and analyze the potential environmental consequences from leasing parcels located in the Malta and Glasgow Field Offices (MaFO and GFO, respectively), to be included as part of a competitive oil and gas lease sale tentatively scheduled to occur in October 2012. The MaFO/GFOs received 153 parcel nominations from the public. Of the 153 nominations, 149 were located within, or immediately adjacent to, priority Greater Sage-Grouse (Candidate Species) habitat, Sprague's pipit (Candidate Species) habitat, or pallid sturgeon (Endangered Fish Species) habitat. The analysis area will include 153 nominated parcels located within Phillips and Valley counties. (See Appendix B for a Map). Refer to Section 2.3 – Alternatives Considered but Dismissed from Detailed Study for additional information and rationale as to why 149 parcels are not considered in detail.

The analysis area includes the 153 nominated parcels in Phillips and Valley counties.

1.2 Purpose and Need for the Proposed Action

The purpose of offering parcels for competitive oil and gas leasing is to provide opportunities for private individuals or companies to explore for and develop federal oil and gas resources after receipt of necessary approvals and to sell the oil and gas in 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 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 is whether to sell and issue oil and gas leases on the lease parcels identified, and, if so, identify stipulations that would be included with specific lease parcels at the time of lease sale.

1.3 Conformance with Land Use Plan(s)

This EA is tiered to the decisions and conforms with information and analysis contained in the Judith-Valley-Phillips Resource Management Plan (JVP RMP). Although the JVP RMP was approved in 1994 to guide management of all resources within the Malta and Glasgow Field Offices, it did not make any specific decisions relative to leasing of fluid minerals due to a protest on the 1992 Final RMP. Since that time, the Malta and Glasgow Field Offices have, and will continue to, defer leasing of nominated parcels that would require special stipulations to protect important wildlife values until a new RMP is completed. The leasing of nominated parcels not requiring special wildlife stipulations has continued in the Malta and Glasgow Field Offices through reliance on the leasing decisions made in previous land use plans and programmatic analyses. This EA is tiered to and conforms to the information and analysis contained in the Phillips and Valley Management Framework Plans (MFP) (1977) and the Oil & Gas Environmental Assessment of the BLM Leasing Program – Lewistown District (September 1981).

The parcels to be offered are within areas open to oil and gas leasing. Analysis of the four parcels is documented in this EA, and was conducted by Malta and Glasgow Field Offices, HiLine District, and Montana State Office resource specialists who relied on professional knowledge of the areas involved, review of current databases and file information, and occasional site visits to ensure that appropriate stipulations were recommended for a specific parcel. Analysis also identified the need to defer entire parcels from leasing pending further environmental review in the HiLine District RMP that is currently being written.

At the time of this review it is unknown whether a particular parcel will be sold and a lease issued. It is unknown when, where, or if future well sites, roads, and facilities might be proposed. Assessment of potential activities and impacts was based on potential well densities discerned from the Reasonably Foreseeable Development (RFD) Scenario developed for the HiLine District. Detailed site-specific analysis and mitigation of activities associated with any particular lease would occur when a lease holder submits an application for permit to drill (APD). A more complete description of mitigation, BMPs, and conditions of approval related to oil and gas lease activities can be found in the Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development-The Gold Book, and online at http://www.blm.gov/wo/st/en/prog/energy/oil_and_gas/best_management_practices.html.

Offering the parcels for sale and issuing leases would not be in conflict with any local, county, or state laws or plans.

BLM Instruction Memorandum (IM) No. 2012-043 of 27 December 2011 titled “Greater Sage-Grouse Interim Management Policies and Procedures” was also consulted. Many of the parcels are in Preliminary Priority Habitat (PPH) with less parcels being in adjacent Preliminary General Habitat (PGH) areas. That IM said for Fluid Mineral Leasing that “Field Offices retain the discretion to not move forward with a nomination or defer making a final decision on a leasing decision until the completion of the LUP process described in the *National Greater Sage-Grouse Planning Strategy* for the affected area.” Nominations in PGH could also be deferred if authorizations could result in Greater Sage-grouse population loss in adjoining PPH. That guidance was followed for large areas of PPH and PGH occupied by Greater Sage-grouse in the Malta and Glasgow Field Offices.

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 Montana State Office website. The scoping was initiated March 22, 2012. No comments were received.

The BLM coordinates with Montana Fish, Wildlife and Parks (MFWP), and the United States Fish and Wildlife Service (USFWS) to manage wildlife habitat because BLM management decisions can affect wildlife populations which depend on the habitat. The BLM manages habitat on BLM lands, while MFWP is responsible for managing wildlife species populations. The USFWS also manages some wildlife populations but only those federal trust species managed under mandates such as the Endangered Species Act, Migratory Bird Treaty Act, and the Bald and Golden Eagle Protection Act. Managing wildlife is factored into project planning at multiple scales and is to be implemented early in the planning process.

Coordination with BOR, COE, MFWP and USFWS was conducted for 4 lease parcels being reviewed. BLM has coordinated with MFWP and USFWS in the completion of this EA in order to prepare analysis, identify protective measures, and apply stipulations associated with these parcels being analyzed.

The BLM consults with Native Americans under Section 106 of the National Historic Preservation Act. BLM sent letters to Tribal Presidents and THPO’s of the Blackfeet, Gros Ventre, Assinboine, Sioux, Flathead (Salish) Kootenai, and Cree Tribes on January 12, 2012 informing them of the potential for the 4 parcels to be leased and inviting them to submit issues and concerns BLM should consider in the environmental analysis. Following the initial letter, face to face meetings were held with the Blackfeet, Chippewa Cree, Gros Ventre/Assinboine, and the Salish Kootenai tribes. No specific issues were identified.

BLM will send a second letter to the tribes informing them about the 30 day public comment period for the EA and solicit any information BLM should consider before making a decision.

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 153 parcels within the Malta and Glasgow Field Offices 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 four parcels of federal minerals for oil and gas leasing, covering 1,107.13 acres administered by the BLM Malta and Glasgow Field Offices, in conformance with the existing land use planning decisions. The four 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. The parcels are located in two counties in north-central Montana (Phillips and Valley counties). Parcel number, size, and detailed locations and associated stipulations are listed in Appendix A.

The four parcels being offered for lease are:

| | | | |
|---------------|--------|-----------------|------------------------------|
| MTM 97300-K7 | 160 ac | Phillips County | |
| MTM 102757-QG | 147 ac | Valley County | 50% federal mineral interest |
| MTM 102757-KD | 680 ac | Valley County | 50% federal mineral interest |
| MTM 102757-KF | 120 ac | Valley County | 50% federal mineral interest |

Since all offered parcels are split estate (private surface), the BLM provided courtesy notification to private landowners that their lands are considered in this NEPA analysis and would be considered for inclusion in an upcoming 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, stipulations, conditions, and operating procedures would apply to these parcels.

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. There is no relief from meeting RMP objectives if local conditions were to become drier and hotter during the life of the RMP. In this situation, management practices might need to be modified to continue meeting overall RMP management objectives. An example of a climate related modification is the imposition of additional conditions of approval to reduce surface disturbance and implement more aggressive dust treatment measures. Both actions reduce fugitive dust, which would otherwise be exacerbated by the increasingly arid conditions that could be associated with climate change.

Oil and gas leases would be issued for a 10-year period and would continue for as long thereafter as oil or 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, ownership of the minerals leased would revert back to the federal government, and the lease could be resold.

Drilling of 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 Alternatives Considered, but Eliminated from further Analysis

An alternative that included leasing all 149 deferred nominations that are located within or immediately adjacent to the State of Montana sage-grouse core areas was considered. There are several issues surrounding this potential alternative that complicate leasing (or offering to lease) these parcels at this time. Four key factors, as described below, were considered to reach this conclusion: 1) Quality of the affected habitat, 2) Recent research, funded in part by this Agency, 3) Ongoing conservation efforts by other Federal Agencies, and 4) Impending release of an updated Resource Management Plan with specific measures to address all of the above. These 149 nominations will be reconsidered once the Hilina RMP is complete. The total acreage of deferred parcels is 67,204.35 acres (64,630.71 Valley, 2573.64 Phillips).

Six of the lease parcels in the Glasgow Field Office were lots immediately adjacent to the Milk River. These parcels were deferred due to the presence of the endangered Pallid Sturgeon (*Scaphirhynchus albus*). The Milk River downstream from Vandalia Dam provides habitat for the endangered pallid sturgeon and the BLM Sensitive Species blue sucker (*Cycleptus elongatus*), as determined by spring fish surveys by Montana Fish, Wildlife and Parks (MFWP) in 2010 and 2011. In 2011 five wild adult pallid sturgeons migrated up the Milk River and remained for an extended time. Through the use of radio telemetry biologists knew that one of these adults was a female that had a high probability of being in spawning condition. The remaining four adults were males. Fry, or newly hatched eggs from these or different pallid sturgeon were eventually observed and photographed, documenting reproduction for the first time in decades. The pallid sturgeon is not known to occur on any of the lease parcels, but could be found immediately adjacent to six of the deferred parcels where potential development could have added sediment to pallid sturgeon breeding habitat. Consultation with the U.S. Fish and Wildlife Service would have been required, but Fisheries Biologists with the Montana Department of Fish, Wildlife and Parks in Glasgow requested the deferrals due to the risk of sedimentation based on similar effects which have occurred in the Bakken Oil Field in North Dakota.

The Malta and Glasgow Field Offices contain important breeding and nesting range of the Candidate Sprague's pipit. Important habitat for the Sprague's pipit was a primary consideration in most of the deferrals. Eleven complete parcels in the two Field Offices were deferred for the same reason. Approximately 110 parcels were deferred because of the presence of high value habitat for both the Sprague's pipit and the Greater Sage-Grouse. This included some parcels with less than optimum Sprague's pipit habitat. The parcels recommended for leasing contained almost no Sprague's pipit habitat at present because of cultivation and the introduction of non-native grass cover. The Sprague's Pipit Lease Notice (14-15) was attached to the leases,

however, in case the vegetation reverted to native grass cover prior to any development during the terms of the leases.

1) Quality of the Affected Habitat

The 149 parcels are within, or immediately adjacent to, two Greater Sage-Grouse Core Areas as designated by the State of Montana's Fish, Wildlife and Parks. As defined by the State of Montana Sage-Grouse Core Areas are:

Definition: Sage-grouse core areas are habitats associated with 1) Montana's highest densities of sage-grouse (25% quartile), based on male counts and/or 2) sage-grouse lek complexes and associated habitat important to sage-grouse distribution.

These Core Areas are also considered Preliminary Priority Habitat (PPH) as defined in BLM Instruction Memorandum (IM) No. 2012-043 "Greater Sage-Grouse Interim Management Policies and Procedures." Most of the areas adjacent to PPH are considered Preliminary General Habitat (PGH), also defined in IM No. 2012-043. Most of the land area in the Malta and Glasgow Field Offices is either PPH or PGH except for the Little Rocky Mountains, timbered portions of the Missouri River Breaks, and agricultural areas along the Milk River.

As such, these areas represent some of the most important habitat areas for future conservation of Greater Sage-Grouse within the State of Montana.

2) Recent Research

Oil and gas development may, or may not be compatible with Sage-Grouse habitat depending upon the type and level of development proposed and the specific characteristics of the habitat to be affected. It has been shown that oil and gas development has negatively impacted sage-grouse in the past. 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 influences 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 oil and gas field 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 (2010) found impacts of energy development on lek abundances (numbers of males per lek) out to 7.6 miles.

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

Noise has been shown to affect sage-grouse and associated sagebrush obligates. Sage-grouse are known to select highly visible leks with good acoustic properties. Effects to sage-grouse would be a decrease in numbers of males on leks and activity levels and lower nest initiation near oil and gas development. Sage-grouse numbers on leks within 1.6 km (1 mile) of coal bed natural gas compressor stations in Campbell County, Wyoming were shown to be consistently lower than on leks not affected by this disturbance (Braun et al. 2002). Holloran (2005), Holloran et. al (2005a, 2005b), Holloran and Anderson (2005) reported that lek activity by sage-grouse decreased downwind of drilling activities, suggesting that noise had measurable “negative” impacts on sage-grouse. The actual level of noise (measured in decibels) that would not affect Greater Sage-Grouse breeding and nesting activities is presently unknown.

3) Ongoing Conservation Efforts by other Agencies

The Natural Resources Conservation Service (NRCS) has recently undertaken a large cooperative project within the State of Montana to provide assistance to agricultural producers to initiate conservation practices beneficial to Greater Sage-Grouse. Core Area 4 (Golden Valley County), was selected as the pilot Core Area for this effort. To date (fiscal years 2010 and 2011) the NRCS has invested \$3,623,000 to support Sage- Grouse conservation, to protect 128,000 acres. Also in fiscal year 2011, the NRCS has invested, or is planning to invest another \$1,606,000 to protect 52,000 acres in Core Area 3 (Petroleum County) and Core Area 4 (Musselshell County). Additional work has now been completed through the Glasgow Working Group in Phillips and Valley Counties. Effectiveness monitoring of the conservation practices is an integral part of the NRCS program. Leasing and subsequent oil and gas development at this time could jeopardize the substantial investment that the federal government has made, and at the least, would cloud any results of the effectiveness monitoring.

4) Hiline Resource Management Plan

The Hiline District, composed of Havre, Malta and Glasgow Field Offices, in addition to the Great Falls Oil and Gas Field Office is in the process of completing a Resource Management Plan. The process began in 2008, and the draft RMP is expected to be released for public review during the 4th quarter of 2012.

Since that time there have been substantial improvements in oil and gas development technology, as well as our understanding of Sage-Grouse life history requirements and development related disturbance impacts (see item 2 above). The updated RMP (in progress) will provide stipulations

relative to oil and gas development and Sage Grouse habitat based upon our current understanding, including those areas where no development may be the appropriate management response.

Based on these considerations and careful review, the 149 parcels would be eliminated from detailed study in this analysis and deferred to a later date.

3.0 AFFECTED ENVIRONMENT

3.1 Introduction

This chapter describes the affected existing environment (i.e., the physical, biological, social, and economic values and resources) within the analysis area, which includes the 4 nominated parcels in Phillips and Valley counties that could be affected by implementation of the alternatives described in Chapter 2.

The existing environment is described by the different resources found throughout the analysis area. Within each resource description, lease parcels containing the resource will be listed, described in this chapter and analyzed further in Chapter 4. If the lease parcel does not contain the resource, then the lease parcel will be omitted from the description of that specific resource.

Unless otherwise stated, resource analysis in this chapter, and Chapter 4, will be described in approximate acres due to the scaling and precision parameters associated with the Geographic Information System (GIS), in addition to being referenced to a different land survey.

The public land is both contiguous in large blocks of land such as South Phillips and Valley counties and is also scattered tracts, intermingled with private and state-owned tracts.

The general climate in north-central Montana is Middle Latitude Steppe. This is a semi-arid region characterized by low rainfall, low humidity, clear skies, and wide ranges in annual and diurnal temperatures. Average annual precipitation is about 14 inches with about one third of that falling in May and June. The driest period is from November to February. Heavy snows are not unusual during the winter. Strong downslope winds known as Chinooks have a thawing and drying effect, and snow seldom accumulates to great depths.

The Malta and Glasgow FOs management areas are situated within the area called the Northern Plains. Portions of the management area also include the island mountain range of the Little Rocky Mountains. The Milk bisects both Field Offices.

The topography in north-central Montana is general rolling plains, punctuated with steep coulees as one travels nearer to the Missouri River breaks.

Only those aspects of the affected environment that are potentially impacted by this project are described in detail (Table 1). Resources and resource uses that were determined to be not present or not potentially impacted will not be discussed further in this EA. The Critical Elements table (Table 1) is a summary of Resources and resource uses with a rationale for determination.

Table 1. Summary of Critical Elements of the Human Environment and Other Resources/Concerns

| CRITICAL ELEMENTS | | |
|--------------------------|--|--|
| Determination* | Resource | Rationale for Determination |
| PI | Air Quality <i>(The Clean Air Act of 1955, as amended)</i> | See discussion in section 3.2.1 |
| NP | Areas of Critical Environmental Concern <i>(Federal Land Policy and Management Act of 1976)</i> | There are seven ACECs within the HiLine District planning area. None of the proposed lease sale parcels occur within an ACEC, See Section 3.17.2 |
| PI | Cultural Resources <i>(National Historic Preservation Act of 1966, as amended)</i> | See discussion in section 3.8 |
| PI | Environmental Justice <i>(Executive Order 12898)</i> | See discussion in section 3.18.1 |
| NI | Farmlands (Prime & Unique) <i>(Surface Mining Control and Reclamation Act of 1977)</i> | There could be up to 162 acres of prime farmlands, if irrigated, in parcel MTM12757-KD. Special mitigation would be required to ensure there is no unnecessary and irreversible conversion of prime farmland to nonagricultural uses |
| NP | Floodplains <i>(Executive Order 11988)</i> | See discussion in section 3.5.2 under wetland/riparian |
| PI | Invasive, Non-native weed species <i>(Federal Noxious Weed Act of 1974, as amended)</i> | See discussion in sections 3.5.3 |
| NP | Native American Religious Concerns <i>(Executive Order 13007)</i> | See discussion in section 3.9 |
| NP | Threatened, Endangered, or Candidate Plant Species <i>(Endangered Species Act of 1973, as amended)</i> | See discussion in section 3.6.1.2 |
| NP | Threatened, Endangered, or Candidate Animal Species <i>(Endangered Species Act of 1973, as amended)</i> | See discussion in sections 3.6.1.1 & 3.6.1.2 |
| NP | Wastes (hazardous or solid) <i>(Resource Conservation and Recovery Act of 1976, and Comprehensive Environmental</i> | There are no known wastes (hazardous or solid) located in the proposed lease sale parcels. |

| | | |
|-----------------------------------|---|---|
| | <i>Response, Compensation, and Liability Act of 1980)</i> | |
| NI | Water Quality (drinking/ground) <i>(Safe Drinking Water Act of 1974, as amended and Clean Water Act of 1977)</i> | See discussion in section 3.5.2 and 3.7.1 |
| NI | Wetlands / Riparian Zones <i>(Executive Order 11990)</i> | See discussion in section 3.5.2 |
| NP | Wild and Scenic Rivers <i>(Wild and Scenic Rivers Act of 1968, as amended)</i> | There are no designated Wild and Scenic Rivers within the HiLine District planning area. |
| NP | Wilderness <i>(Federal Land Policy and Management Act of 1976 and Wilderness Act of 1964)</i> | There are no designated Wilderness Areas within the HiLine District planning area. There are two Wilderness Study Areas (WSA) within the District but are not present within these lease parcels. Each of these WSAs is closed to oil and gas leasing. |
| OTHER RESOURCES / CONCERNS | | |
| Determination* | Resource | Rationale for Determination |
| NP | Fish and Wildlife including Special Status Species other than FWS candidate or listed species e.g. Migratory birds (<i>E.O. 13186</i>) | Because there are no aquatic habitats within the lease parcels, no aquatic wildlife species occur in the lease parcels. Species that are in aquatic habitats near parcels are northern leopard frog, Northern redbelly X Finescale Dace and sauger. – Data from Montana Natural Heritage Tracker. See discussion on wildlife in section 3.6 |
| NI | Geology / Mineral Resources/Energy Production | See discussion in section 3.16 |
| NP | Lands / Access | See discussion in section 3.15 |
| PI | Livestock Grazing <i>(Taylor Grazing Act of 1934, National Environmental Policy Act of 1969 Endangered Species Act of 1973, Federal Land Policy and Management Act of 1976, and the Public Rangelands Improvement Act of 1978)</i> | See discussion in section 3.13 |
| PI | Paleontology <i>(Paleontological Resources Protection Act P.L. 111-011, HR 146)</i> | See discussion in section 3.10 |
| PI | Rangeland Health Standards and Guidelines <i>(43 CFR 4180)</i> | See discussion in section 3.13 |
| NP | Recreation | See discussion in section 3.14 |

| | | |
|--|--|--|
| PI | Socioeconomics | See discussion in section 3.18.1 |
| PI | Soils | See discussion in section 3.3 |
| NP | Vegetation including Special Status Plant Species other than FWS candidate or listed species | See discussion in section 3.6.2 |
| PI | Visual Resource Management <i>(FLPMA 1976, NEPA 1969)</i> | The public lands are managed as VRM Class II. If the lands are leased and an APD is received, visual impacts would be addressed with Class II guidelines. BLM has no authority to address visual impacts on federal non-surface lands but may suggest visual management prescriptions. |
| NP | Wild Horses and Burros <i>(Wild and Free Roaming Horses and Burros Act of 1971, as amended)</i> | Not present within the proposed lease sale parcels. |
| NP | Wilderness Characteristics | Following FLPMA section 201, the BLM conducted an interdisciplinary team inventory of wilderness characteristics on BLM-administered lands. A total of 26 areas within the HiLine District were found to meet the criteria of wilderness characteristics. None of these lands are present in the parcels covered in this proposal. |
| NP | Woodland / Forestry | See discussion in section 3.12 |
| <p>* NP = not present in the area impacted by the proposed or alternative actions NI = present, but not affected to a degree that detailed analysis is required PI = present and may be impacted to some degree. Will be analyzed in affected environment and environmental impacts. (NOTE: PI does not mean impacts are likely to be significant in any way).</p> | | |

3.2 Air Resources

Air resources include air quality, air quality related values (AQRVs), and climate change. As part of the planning and decision making process, BLM considers and analyzes the potential effects of BLM and BLM-authorized activities on air resources.

The Environmental Protection Agency (EPA) has the primary responsibility for regulating air quality, including seven nationally regulated ambient air pollutants subject to National Ambient Air Quality Standards (NAAQS). Pollutants regulated under NAAQS include carbon monoxide (CO), lead, nitrogen dioxide (NO₂), ozone, particulate matter with a diameter less than or equal to 10 microns (PM₁₀), particulate matter with a diameter less than or equal to 2.5 microns (PM_{2.5}), and sulfur dioxide (SO₂). Two additional pollutants, nitrogen oxides (NO_x) and volatile organic compounds (VOCs) are regulated because they form ozone in the atmosphere. Regulation of air quality is also delegated to some states. Air quality is determined by pollutant emissions and emission characteristics, atmospheric chemistry, dispersion meteorology, and terrain. AQRVs include effects on soil and water, such as sulfur and nitrogen deposition and lake acidification, and aesthetic effects, such as visibility.

Climate is the composite of generally prevailing weather conditions of a particular region throughout the year, averaged over a series of years. Climate change includes both historic and predicted climate shifts that are beyond normal weather variations.

3.2.1 Air Quality

Air quality within the analysis area is not currently monitored. However, based on data from a nearby monitor in Richland County, air quality within the analysis area is believed to be much better than required by the NAAQS. The EPA air quality index (AQI) is an index used for reporting daily air quality (<http://www.epa.gov/oar/data/geosel.html>) to the public. The index tells how clean or polluted an area's air is and whether associated health effects might be a concern. The EPA calculates the AQI for five 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 NAAQS to protect public health. An AQI value of 100 generally corresponds to the primary NAAQS for the pollutant. 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.

- **Unhealthy** – The AQI is between 151 and 200. Everyone may begin to experience some adverse health effects, and members of the sensitive groups may experience more serious effects.
- **Very Unhealthy** – The AQI is between 201 and 300. This index level would trigger a health alert signifying that everyone may experience more serious health effects.

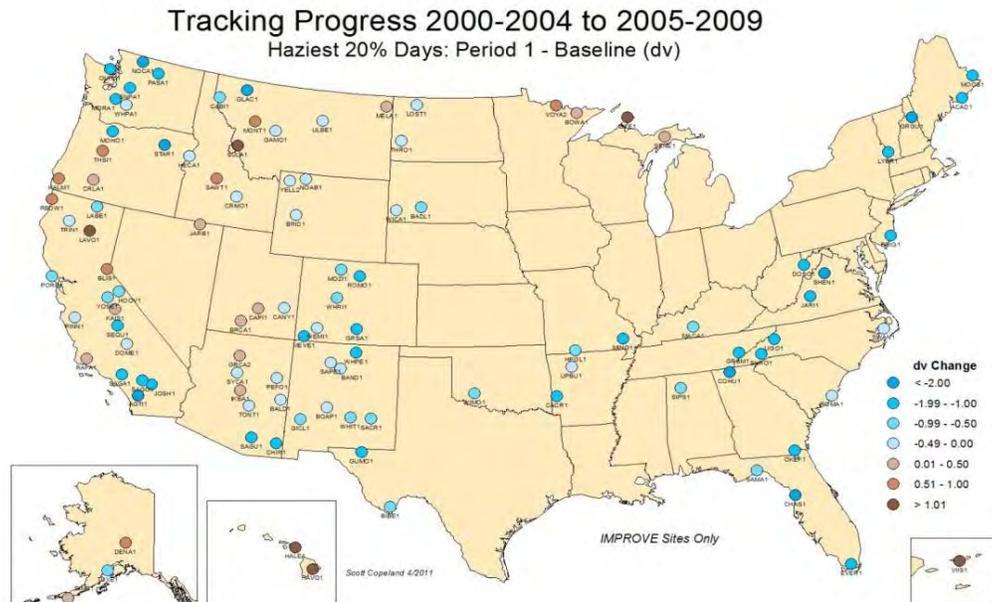
The AQI data (Table 2) for the nearest monitor, which is located near Sidney (Richland County), shows that there is likely to be little risk to the public from air quality in Phillips and Valley counties. Between 2009 and 2011, 94 percent of the days were rated “good” with 6 percent rated “moderate.” Phillips and Valley counties are considered to be attaining the NAAQS. In mid-2012, the Montana Department of Environmental Quality plans to install a new monitor near Malta that will measure ambient concentrations of ozone, PM₁₀, PM_{2.5}, and NO₂.

Table 2. US EPA - AirData Air Quality Index Report (2009-2011).

| County | # Days with Data | # Days Rated Good | Percent of Days Rated Good | # Days Rated Moderate | # Days Rated Unhealthy for Sensitive Groups | # Days Rated Unhealthy | # Days Rated Very Unhealthy |
|----------|------------------|-------------------|----------------------------|-----------------------|---|------------------------|-----------------------------|
| Richland | 1,095 | 1,024 | 94 | 71 | 0 | 0 | 0 |

Source: EPA AirData website (<http://www.epa.gov/airdata/>) accessed May 7, 2012.

Air resources also include visibility protection at Class I areas. Visibility can be degraded by regional haze due in part to sulfur, nitrogen, and particulate emissions. Based on trends identified during 2005-2009, visibility has improved slightly at the UL Bend Wilderness IMPROVE monitor in Phillips County on the 20 percent haziest days and on the 20 percent clearest days, as shown in Figure A.



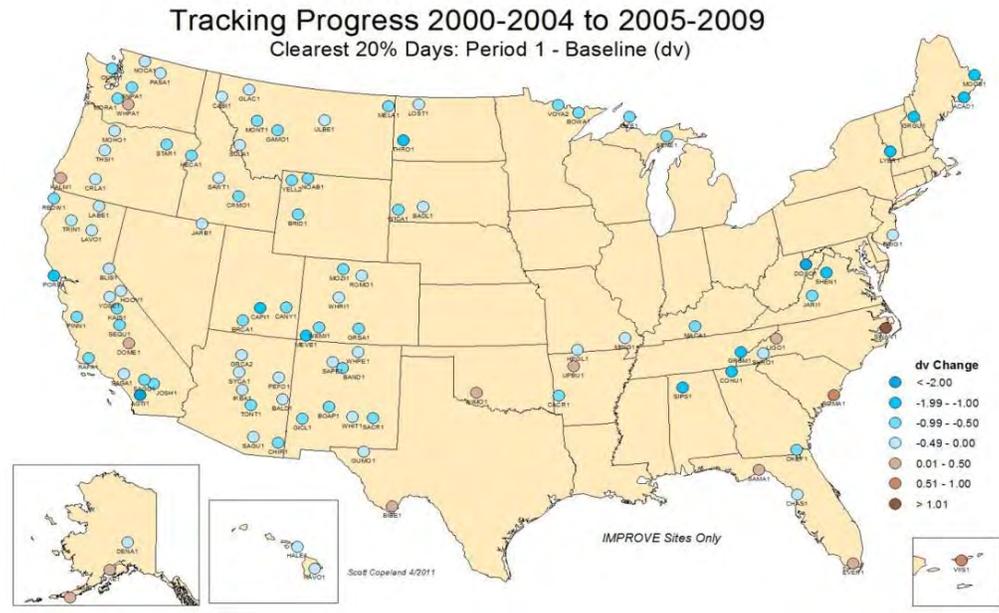


Figure A. Trends in haze index (deciview) on haziest and clearest days, 2005-2009. Source: IMPROVE 2011.

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 (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 20th century (NOAA (National Oceanic and Atmospheric Administration) 2010a as cited by the 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 the Climate Change SIR (2010), earth has a natural greenhouse effect wherein naturally occurring gases such as water vapor, CO₂, methane, and N₂O 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 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 (Climate Change SIR 2010). The buildup of GHGs such as CO₂, methane, N₂O, 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 CO₂ and methane) from fossil fuel development, large wildfires, 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, CO₂ may last 50 to 200 years in the atmosphere while methane has an average atmospheric life time of 12 years (Climate Change SIR 2010).

With regard to statewide GHG emissions, Montana ranks in the lowest decile when compared to all the states (http://assets.openers.com/rpts/RL34272_20071205.pdf. Ramseur 2007). The estimate of Montana's 2005 GHG emissions of 37 million metric tons (MMt) of gross consumption-based carbon dioxide equivalent (CO₂e) account for approximately 0.6 percent of the U.S. GHG emissions (CCS 2007).

Some information and projections of impacts beyond the project scale are becoming increasingly available. Chapter 3 of the Climate Change SIR describes impacts of climate change in detail at various scales, including the state scale when appropriate. The EPA identifies eastern Montana as part of the Great Plains region. The following summary characterizes 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 occur.

- 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, recreationalist, 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. 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 (USGCRP 2009, as cited by Climate Change SIR 2010). Climate changes include warming temperatures throughout the year and the arrival of spring an average of 10 days to 2 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 would 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 increases insect populations such as pine beetles, which have killed trees on millions of acres in 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 Montana, additional projected changes associated with climate change described in Section 3.0 of the Climate Change SIR (2010) include:

- Temperature increases in Montana are predicted to be between 3 to 5°F at the mid-21st century, as the mean temperature rises, more heat waves are predicted to occur.
- Precipitation increases in winter and spring in Montana may be up to 25 percent in some areas. Precipitation decreases of up to 20 percent may occur during summer, with potential increases or decreases in the fall. In the fall western Montana may see little change in precipitation while the northwestern portion of the state may experience 5 to 10 percent increases.
- For most of Montana, annual median runoff is expected to decrease between 2 and 5 percent, but northwestern Montana may see little change in annual runoff. Mountain snowpack is expected to decline, reducing water availability in localities supplied by meltwater.

- Wind power production potential is predicted to decline in Montana based on modeling focused on the Great Falls area.
- Water temperatures are expected to increase in lakes, reservoirs, rivers, and streams. Fish populations are expected to decline due to warmer temperatures, which could also lead to more fishing closures.
- 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 Montana based on a 1°C global average temperature increase to be 241 to 515 percent.

While long-range regional changes might occur within this analysis 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, and 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 spring-time temperatures. Over a 112-year record, overall warming is clearly evident with temperatures increasing 0.21 degrees per decade (Figure B). However, data from 1991-2005 indicates a 0.45 degree per decade cooling trend (Figure C). This example is not an anomaly, as several other 15-year windows can be selected to show either warming or cooling trends. Some of these year-to-year fluctuations in temperature are due to natural processes, such as the effects of El Ni os, La Ni a s, and the eruption of large volcanoes (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.

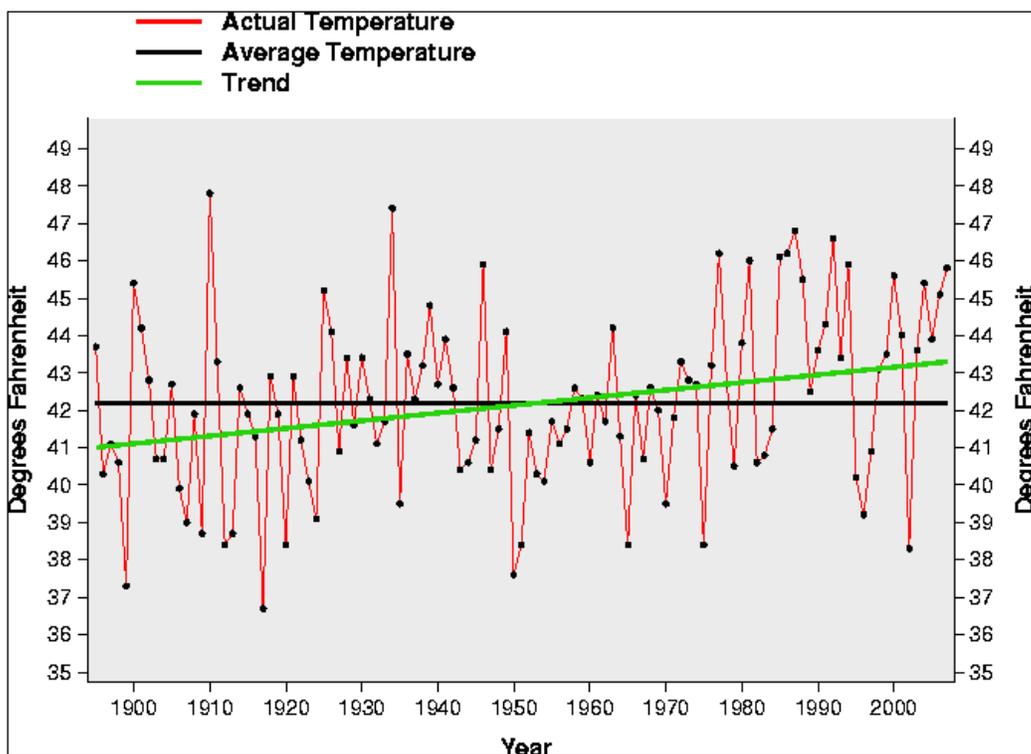


Figure B. Regional climate summary of spring temperatures (March-May) for the West North Central Region (MT, ND, SD, WY), from 1895-2007. (Source: NOAA website – <http://www.ncdc.noaa.gov/oa/climate/research/cag3/wn.html>)

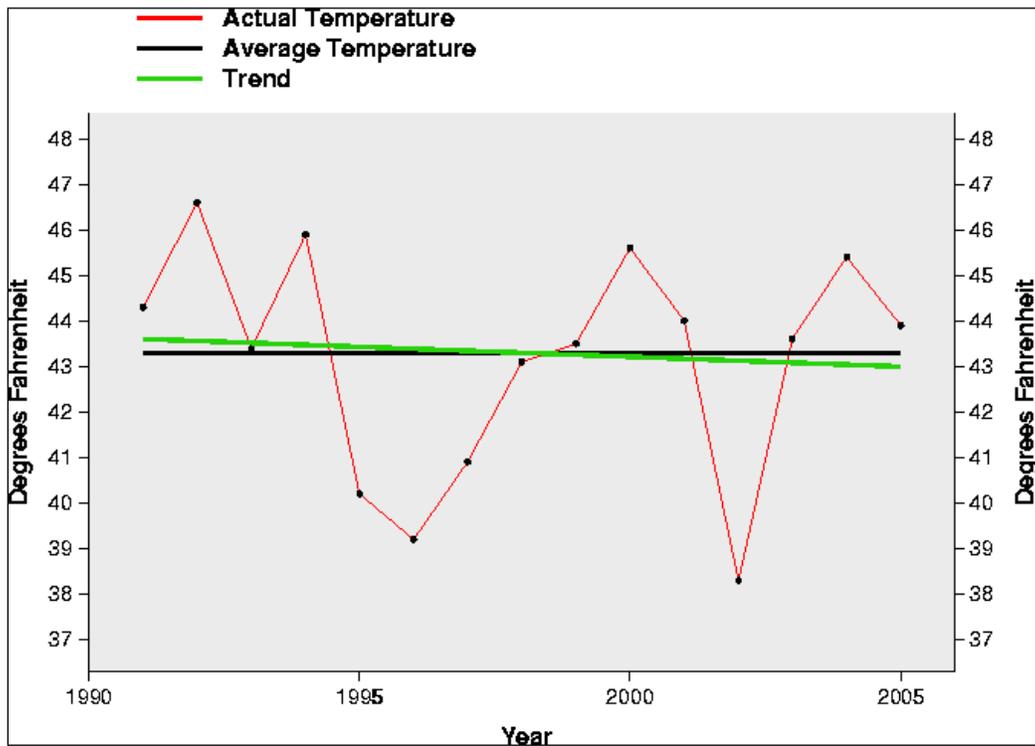


Figure C. Regional climate summary of spring temperatures (March-May) for the West North Central Region (MT, ND, SD, WY), from 1991-2005. (Source: NOAA website – <http://www.ncdc.noaa.gov/oa/climate/research/cag3/wn.html>)

3.3 Soil Resources

Soils were identified from the United States Department of Agriculture’s Natural Resources Conservation Service’s (USDA-NRCS) Soil Survey Geographic (SSURGO) dataset and the Soil Data Mart (SDM) website (<http://soildatamart.nrcs.usda.gov/>). Soil surveys were performed by the USDA-NRCS according to National Cooperative Soil Survey (NCSS) standards. Soils within the lease parcels developed from glacial till, clayey glaciolacustrine deposits; and, alluvium from mixed sources. Landforms consist of nearly level to steep glacial till plains and hillslopes; nearly level to gently sloping alluvial fans, terraces, and floodplains; and, depressions and lake plains.

Table 3 breaks out the Soil Map Units within each lease parcel and provides acres and soil ratings. Soil Map Unit descriptions are available from the SDM for the lease parcels.

Table 3. Soil Map Units and associated acres, slope range, and ratings for Lease Parcels based on dominant condition of each Soil Map Unit. (Source: USDA-NRCS SSURGO dataset (USDA-NRCS, 2012)).

| Parcel | Map Unit | Acres ¹ | Slope Range (Percent) | Water Erosion Hazard ² | Wind Erosion Hazard ³ |
|-------------|----------|--------------------|-----------------------|-----------------------------------|----------------------------------|
| MTM97300-K7 | 561B | 88 | 0 - 4 | Slight | Slight |
| | 562C | 50 | 2 - 8 | Slight | Slight |

| | | | | | |
|-------------|------|-----|---------|----------|----------|
| | 563C | 6 | 2 - 8 | Slight | Slight |
| | 923F | 9 | 15 - 45 | Moderate | Slight |
| MTM12757-KD | 23 | 126 | 0 - 2 | Slight | Moderate |
| | 38 | 267 | 1 - 9 | Slight | Moderate |
| | 46 | 62 | 0 - 5 | Slight | Slight |
| | 52 | 162 | 0 - 3 | Slight | Slight |
| | 69 | 59 | 1 - 5 | Slight | Slight |
| MTM12757-KF | 46 | 7 | 0 - 5 | Slight | Slight |
| | 47 | 17 | 1 - 9 | Slight | Slight |
| | 59 | 44 | 5 - 25 | Moderate | Slight |
| | 60 | 43 | 9 - 35 | Moderate | Moderate |
| MTM12757-QC | 25 | 58 | 0 - 2 | Slight | Slight |
| | 27 | 36 | 0 - 2 | Slight | Moderate |
| | 44 | 16 | 0 - 3 | Slight | Moderate |
| | 46 | 5 | 0 - 5 | Slight | Slight |
| | 75 | 32 | 0 - 5 | Slight | Moderate |

1. Approximate acres of each MU \geq 5 acres in size within the lease parcel. Approximate acres based on GIS calculations.
2. The water erosion hazard for bare, non-compacted, soil is estimated by using the formula: Water Erosion Hazard = Kw factor x Representative Value (RV) Slope. The soil erodibility factor (Kw) quantifies soil detachment by runoff and raindrop impact. This erodibility factor is an index used to predict the long-term average soil loss, from sheet and rill erosion. The Kw factor applies to the whole soil, which includes rock fragments. Kw is based primarily on percentage of silt, sand, and organic matter, soil structure, saturated hydraulic conductivity, and rock fragments (USDA-NRCS, 2012). Representative Value (RV) Slope indicates the expected slope value for a given MU.
3. The wind erosion hazard is estimated from the Wind erosion Index (WEI). The WEI is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. This index is divided into three rating classes: slight (0, 38, 48, 56), moderate (86), and severe (134, 160, 180, 220, 250, 310) (USDA-NRCS, 2012).

3.4 Water Resources

3.4.1 Surface Hydrology

Refer to the discussion in 3.5.2 and 3.7.1

3.5 Vegetation Resources

3.5.1 Vegetation Communities: Upland

All the parcels proposed for lease sale are split estate with private surface and federal minerals. The vegetation on the majority of the parcels are currently in stubble, fallow, or converted to permanent cover. One parcel has a more recent mix of native and introduced species on a CRP land. Parcel MTM 102757KF has some native vegetation intermixed with the cropland along the riparian zone of Bear Creek along with an overstory of cottonwood trees.

3.5.2 Vegetative Communities: Wetland/Riparian

Riparian and wetland areas are the green zones bordering lakes, rivers, reservoirs, estuaries, potholes, springs and seeps, and perennial, intermittent, or ephemeral streams where the water table is usually at or near the surface. The riparian zone is the interface or linkage between the upland (terrestrial) zone and the aquatic zone and is generally more productive in terms of total biomass than the remainder of the area. Characteristically, riparian and wetland areas display a greater diversity of plants, fish, and wildlife than adjoining ecosystems. 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.

The only parcel with riparian values is MTM 757KF which is on private surface and is dominated by Cotton wood and green ash overstory. The stream maintains small pools with surface flow but does not flow during the majority of the year.

Some of the more common vegetative species that occur in wetlands and riparian zones include prairie cordgrass (*Spartina pectinata*), switchgrass (*Panicum virgatum*), Canada wildrye (*Elymus canadensis*), western wheatgrass (*Pascopyrum smithii*), willow (*Salix spp.*), chokecherry (*Prunus virginiana*), buffaloberry (*Shepherdia*), water sedge (*Carex aquatilis*), plains cottonwood (*Populus deltoids occidentalis*), sedges (*Carex spp.*), rushes (*Juncus spp.*), bulrush (*Schoenoplectus spp.*), cattail (*Typha spp.*), American licorice (*Glycyrrhiza lepidota*), smooth brome (*Bromus inermis*), wild rose (*Rosa spp.*), sago pondweed (*Struckenia pectinata*), sloughgrass (*Beckmannia*), curlycup gumweed (*Grindelia squarrosa*), Kentucky bluegrass (*Poa pratensis*), and snowberry (*Symphoricarpos spp.*).

3.5.3 Vegetative Communities: Invasive, Non-Native Species, Noxious Weeds

All of the parcels are split estate with private surface over federal minerals. Noxious weeds currently found in Phillips and Valley counties include leafy spurge, Russian knapweed, field bindweed, Canada thistle, cheatgrass and field brome. Noxious weed control on private land is the responsibility of the landowner or in the case of CRP (Conservation Reserve Program), the Natural Resources Conservation Service. Noxious weeds that are introduced as a result of oil and gas development on split estate require coordination between the landowner and the oil and gas lease operator to control the infestation.

3.6 Special Status Species; Threatened, Endangered, Candidate, and Proposed Species

Special Status Species can be Federally listed threatened, endangered, candidate or proposed fish, wildlife or plant species; BLM listed Sensitive Species; or those Special Status Species maintained on lists by the USFWS; Montana Department of Fish, Wildlife and Parks; Montana Natural Heritage Program; or other non-governmental organizations.

Although listed threatened or endangered species are unlikely to occur on the lease parcels at present, the TES 16-2 stipulation for threatened or endangered species would be attached to the leases in the event that listed species are observed, or in case any future listed species are likely to occur on the lease parcels. The listed Pallid sturgeon (*Scaphirhynchus albus*) was involved in the deferment of six Glasgow Field Office lease parcels. Some of the Standard Stipulations and Notice (16-3) also could apply to Special Status Species. Lease Notice (LN) 14-15 for the candidate species Sprague's pipit would also be attached to protect its habitat if the habitat should improve prior to any future development, or if the Sprague's pipit should be listed by that time.

3.6.1 Special Status Animal Species

3.6.1.1 Aquatic Wildlife

The one fish species that occurs or may occur in the Malta and Glasgow Field Offices that is protected under section 7c of the Endangered Species Act (ESA) as amended in 1973 is the pallid sturgeon (*Scaphirhynchus albus*) (Table 4). The pallid sturgeon occurs in the Missouri River and in the Milk River between Vandalia Dam and the mouth of the Milk in the Glasgow Field Office. The Milk River downstream from Vandalia Dam provides habitat for the endangered pallid sturgeon and the BLM Sensitive Species blue sucker (*Cycleptus elongatus*), as determined by spring fish surveys by Montana Fish, Wildlife and Parks (MFWP) in 2010 and 2011. In 2011 five wild adult pallid sturgeons migrated up the Milk River and remained for an extended time. Through the use of radio telemetry biologists knew that one of these adults was a female that had a high probability of being in spawning condition. The remaining four adults were males. The pallid sturgeon is not known to occur on any of the lease parcels, but could be found immediately adjacent to six of the deferred parcels where potential development could have added sediment to pallid sturgeon breeding habitat.

BLM Sensitive Fish Species include the sauger (*Stizostedion canadense*), blue sucker, paddlefish (*Polyodon spathula*), pearl dace (*Margariscus margarita*) and northern redbelly X finescale dace hybrid (*Phoxinus eos* X *Phoxinus neogaeus*). The dace occur in intermittent streams such as Whitewater Creek, Garland Creek, Frenchman Creek and Cottonwood Creek, while the sauger is found in the Milk River. Lime and Bear Creeks in the Glasgow Field Office are significant drainages and dace could be present during periods of high flow or in pools during summer. The paddlefish and blue sucker occur in the Missouri River and could occur in the lower Milk River, but neither is expected to be found on or near the lease parcels.

Native minnow species can be found in many of the streams and drainages in the Malta and Glasgow Field Offices, especially during spring runoff periods, and in isolated pools later in summer. Riparian vegetation can be important for fish habitat as it shades the water surface and lowers water temperatures. Lime Creek and/or Bear Creek in the Glasgow Field Office are present on three of the four lease parcels there. Although there are no data to support the presence of Sensitive Fish Species in these two creeks, they are significant tributaries of the Milk River and native fish species always have the opportunity to migrate upstream during periods of high flow.

BLM Listed Sensitive Amphibian and Reptile Species that could be in the Malta and Glasgow Field Offices include the Great Plains toad (*Bufo cognatus*), plains spadefoot (*Spea bombifrons*), greater short-horned lizard (*Phrynosoma hernandesi*), milksnake (*Lampropeltis triangulum*), northern leopard frog (*Rana pipiens*), snapping turtle (*Chelydra serpentina*), and western hog-nosed snake (*Heterodon nasicus*) (Table 5). The snapping turtle is rare and probably found only in the Milk River near six deferred parcels and not near any of the lease parcels. The milksnake is known from two records in southern Phillips County, but it probably does not occur on or anywhere close to the lease parcels and won't be discussed further. The plains spadefoot is known from three locations in Phillips County, much closer, but not on the lease parcels. For some of the species the lease parcels are within their current range and suitable habitat is present, but no occurrence records have been documented. Presence is likely, however.

Table 4. Fish and herptile Sensitive or Special Status Wildlife Species that could occur in or near the lease parcels.

| Species | USFWS Status | BLM Sensitive | In Range | Suitable Habitat present |
|---|--------------|---------------|----------|--------------------------|
| Fish | | | | |
| Pallid Sturgeon | Endangered | SSS | Yes | No |
| Paddlefish | none | Sensitive | Yes | No |
| Blue Sucker | none | Sensitive | Yes | No |
| Pearl Dace | none | Sensitive | Yes | Yes |
| Northern Redbelly x Finescale Dace Hybrid | none | Sensitive | Yes | Yes |
| Sauger | none | Sensitive | Yes | No |
| Amphibians & Reptiles | | | | |
| Greater Short-horned Lizard | none | Sensitive | Yes | Yes |
| Great Plains Toad | none | Sensitive | Yes | Yes |
| Snapping Turtle | none | Sensitive | Yes | No |
| Northern Leopard Frog | none | Sensitive | Yes | Yes |
| Plains Spadefoot | none | Sensitive | Yes | Yes |
| Western Hog-nosed Snake | none | Sensitive | Yes | Yes |

SSS – Special Status Species

Table 5. Special Status or Sensitive fish and herptile species that occur in, or their ranges overlap with, the lease parcels.

| Lease Parcel | Endangered or Sensitive Species |
|---------------|---|
| MTM 97300 K7 | Greater Short-horned Lizard, Western Hog-nosed Snake, Great Plains Toad, Northern Leopard Frog, Plains Spadefoot |
| MTM 102757 KF | Greater Short-horned Lizard, Western Hog-nosed Snake, Great Plains Toad, Northern Leopard Frog, Plains Spadefoot, Northern Redbelly X Finescale Dace Hybrid, Pearl Dace |
| MTM 102757 QG | Greater Short-horned Lizard, Western Hog-nosed Snake, Great Plains Toad, Northern Leopard Frog, Plains Spadefoot, Northern Redbelly X Finescale Dace Hybrid, Pearl Dace |
| MTM 102757 KD | Greater Short-horned Lizard, Western Hog-nosed Snake, Great Plains Toad, Northern Leopard Frog, Plains Spadefoot, Northern Redbelly X Finescale Dace Hybrid, Pearl Dace |

3.6.1.2 Terrestrial Wildlife

There are four wildlife species that occur or may occur in the Malta and Glasgow Field Offices that are protected under section 7c of the Endangered Species Act (ESA) as amended in 1973, including the interior least tern (*Sterna antillarum*), piping plover (*Charadrius melodus*), whooping crane (*Grus americana*), and black-footed ferret (*Mustela nigripes*) (Table 6). The black-footed ferret has been reintroduced in south Phillips County as an experimental, nonessential population. Those introduced on BLM land are located near the Dry Fork Road in the Beauchamp Creek reintroduction area, but none have been observed there since September 2006. The only known remaining ferrets in the HiLine District are on the Charles M. Russell National Wildlife Refuge (NWR) in the UL Bend Area. A recent ferret release in Grasslands National Park in Saskatchewan just a few miles from the United States Border is only about 35 miles northeast of the Malta Field Office lease parcel and about 50 miles northwest of the Glasgow Field Office lease parcels. Ferrets were produced there in 2010. The piping plover and least tern have been observed on Whitewater Lake in northern Phillips County, but no nesting has occurred there. Piping plover nesting does occur on Nelson Reservoir and Bowdoin NWR in central Phillips County. The least tern has also been observed on Nelson Reservoir. The whooping crane has been observed several times in spring since 1990 in the Whitewater area and to the southwest. None of these listed species is likely to occur on the various lease parcels in either Field Office.

The BLM Sensitive Species Greater Sage-Grouse was petitioned for listing under the Endangered Species Act with a March 2010 finding that listing for the species was warranted, but precluded. This moved the Greater Sage-Grouse into “candidate” status with an annual status review. The lease parcels in both Field Offices have been cultivated and now are in some type of introduced plant cover. Other farm and ranch developments are also present at times. Although surrounded by PPH and PGH Greater Sage-Grouse habitat, none is currently present on the parcels. It is only remotely possible that silver sage would become established in sufficient densities to attract Greater Sage-Grouse prior to any oil or gas development after leasing.

Listing of the Sprague’s pipit as a T&E Species was determined on 14 September 2010 to be warranted, but precluded due to the need to work on higher priority species. The Sprague’s pipit thus became a candidate species with an annual status review to determine eligibility for listing. The Sprague’s pipit generally avoids cultivated land, although introduced grass cover can be used for nesting if native grass cover is not present in the near vicinity. The Sprague’s pipit lease notice (LN 14-15) would be attached to the leases to protect Sprague’s pipit nesting habitat should native grasses return to the parcels prior to any oil or gas development after leasing.

BLM Listed Sensitive Species that could be in the Malta and Glasgow Field Offices include the black-tailed prairie dog (*Cynomys ludovicianus*), North American wolverine (*Gulo gulo luscus*), swift fox (*Vulpes velox*), bald eagle (*Haliaeetus leucocephalus*), black-crowned night-heron (*Nycticorax nycticorax*) black tern (*Chlidonias niger*), burrowing owl (*Athene/Speotyto cunicularia*), common loon (*Gavia immer*), dickcissel (*Spiza americana*), ferruginous hawk (*Buteo regalis*), Franklin’s gull (*Larus pipixcan*), golden eagle (*Aquila chrysaetos*), Greater Sage-Grouse (*Centrocercus urophasianus*), Harlequin duck (*Histrionicus histrionicus*), loggerhead shrike (*Lanius ludovicianus*), long-billed curlew (*Numenius americanus*), chestnut-

collared longspur (*Calcarius ornatus*), McCown’s longspur (*Calcarius mccownii*), marbled godwit (*Limosa fedoa*), mountain plover (*Charadrius montanus*), northern goshawk (*Accipiter gentiles*), peregrine falcon (*Falco peregrinus*), sage thrasher (*Oreoscoptes montanus*), Baird’s sparrow (*Ammodramus bairdii*), Brewer’s sparrow (*Spizella breweri*), Sprague’s pipit (*Anthus spragueii*), Swainson’s hawk (*Buteo swainsoni*), white-faced ibis (*Plegadis chihi*), red-headed woodpecker (*Melanerpes erythrocephalus*), bobolink (*Dolichonyx oryzivorus*), Le Conte’s sparrow (*Ammodramus leconteii*), Nelson’s sharp-tailed sparrow (*Ammodramus nelsoni*), and yellow rail (*Coturnicops noveboracensis*) (Table 7). Some of these species could occur on or near the lease parcels. Habitats could change on the parcels over the life of the leases resulting in more or less Sensitive Species habitats being present.

Many of these species are migratory birds that could be nesting during 15 April to 15 July. Bald eagles can be present from November to early April each year, but no confirmed nesting occurs in the Malta Field Office. Nesting near the mouth of the Milk River in the Glasgow Field Office is a long ways from the lease parcels. The bald eagle was delisted on 29 June 2007, and now is treated as a Special Status (Sensitive) Species rather than as a threatened species. The long-legged myotis (*Myotis volans*) and the Townsend’s big-eared bat (*Corynorhinus townsendii*) have been found in Azure Cave in the Little Rocky Mountains, and the long-eared myotis (*Myotis evotis*) has been found near ponds in the Little Rocky Mountains in the Malta Field Office. These bats could utilize cottonwood trees along the Milk River during summer for roosting, but no known surveys have been completed there. Bats could be found in woodland habitat along Bear Creek in the Glasgow Field Office during summer, but surveys have not been completed. Additional species are listed by other organizations, but are not BLM Sensitive Species (Table 6).

Table 6. Analysis Area occurrence of BLM Sensitive Bird and Mammal Species and USFWS Threatened, Endangered, Candidate or Proposed for Listing Wildlife Species.

| Species | USFWS Status | BLM Status | In Current Range | Suitable Habitat Present |
|--------------------------|--------------|------------|------------------|--------------------------|
| Mammals | | | | |
| Black-footed ferret | Endangered | SSS | Yes | No |
| Black-tailed prairie dog | None | Sensitive | Yes | No |
| Swift fox | None | Sensitive | Yes | Yes |
| North American Wolverine | None | Sensitive | Yes | Yes |
| Long-legged Myotis | None | Sensitive | Yes | Yes |
| Long-eared Myotis | None | Sensitive | Yes | Yes |
| Townsend’s big-eared bat | None | Sensitive | Yes | Yes |
| Birds | | | | |
| Common loon | None | Sensitive | Yes | No |
| Franklin’s gull | None | Sensitive | Yes | No |
| Interior least tern | Endangered | SSS | Yes | No |
| Black tern | None | Sensitive | Yes | No |
| White-faced ibis | None | Sensitive | Yes | No |
| Whooping crane | Endangered | SSS | Yes | Yes |

| Species | USFWS Status | BLM Status | In Current Range | Suitable Habitat Present |
|-------------------------------|------------------------------------|------------|------------------|--------------------------|
| Yellow rail | None | Sensitive | Yes | No |
| Piping plover | Threatened, with critical habitat | SSS | Yes | No |
| Mountain plover | Proposed | Sensitive | Yes | No |
| Marbled godwit | Bird of Conservation Concern (BCC) | Sensitive | Yes | Yes |
| Long-billed curlew | BCC | Sensitive | Yes | Yes |
| Black-crowned night heron | None | Sensitive | Yes | No |
| Bobolink | None | Sensitive | Yes | Yes |
| Greater sage-grouse | Candidate | Sensitive | Yes | No |
| Burrowing owl | BCC | Sensitive | Yes | Yes |
| Bald eagle* | BCC | Sensitive | Yes | Yes |
| Golden eagle | None | Sensitive | Yes | Yes |
| Ferruginous hawk | None | Sensitive | Yes | Yes |
| Swainson's hawk | None | Sensitive | Yes | Yes |
| Peregrine falcon | None | Sensitive | Yes | Yes |
| Northern goshawk | None | Sensitive | Yes | Yes |
| Sage thrasher | BCC | Sensitive | Yes | No |
| Sprague's pipit | Candidate | Sensitive | Yes | Yes |
| Loggerhead shrike | BCC | Sensitive | Yes | Yes |
| Chestnut-collared longspur | BCC | Sensitive | Yes | Yes |
| McCown's longspur | BCC | Sensitive | Yes | Yes |
| Baird's sparrow | BCC | Sensitive | Yes | Yes |
| Brewer's sparrow | BCC | Sensitive | Yes | No |
| LeConte's sparrow | None | Sensitive | No | No |
| Nelson's Sharp-tailed sparrow | None | Sensitive | No | No |
| Horned grebe | BCC | None | Yes | No |
| American bittern | BCC | None | Yes | No |
| Prairie falcon | BCC | None | Yes | Yes |
| Upland sandpiper | BCC | None | Yes | Yes |
| Short-eared owl | BCC | None | Yes | Yes |
| Red-headed woodpecker | BCC | Sensitive | Yes | Yes |
| Grasshopper sparrow | BCC | None | Yes | Yes |
| Dickcissel | BCC | Sensitive | Yes | Yes |
| Harlequin duck | None | Sensitive | Yes | No |

Table 4-7 sources: Lenard et al. 2003; Werner, Maxell, Hendricks, and Flath. 2004; Foresman 2001; MTNHP, 2010; BLM, 2009; USDA – NRCS Plants Database, 2010

*Bald eagle has been delisted so has been moved to the Sensitive Species List.

3.6.2 Special Status Plant Species

There are four Montana's Plant Species of Concern and BLM Sensitive Plants that may have existing populations and/or suitable habitat on or near the lease parcels in the Malta and Glasgow Field Offices (Table 7).

All four BLM Sensitive Plant Species are found in and around water and riparian areas. Not much is known of the status of these species in the analysis area, although the general condition and trend of these habitats could be used to estimate the specific conditions until the sites can be revisited and site-specific data collected.

Long-sheath waterweed (*Elodea bifoliata*) is known from two sites in the Malta Field Office, one of which is fairly close to the Malta lease parcel. The lease parcel lacks a riparian area. Six occurrences are known statewide. The aquatic habitat of this species is affected by drought and wetland modification to the lakes and ponds it occupies. Dwarf woolly-heads (*Psilocarphus brevissimus*) is found on two sites in the Malta Field Office and six sites statewide. One of the Malta sites is fairly close to the Malta lease parcel, but again a riparian areas is lacking. Slender bulrush (*Schoenoplectus heterochaetus*) is known from one site in the Malta Field Office a considerable distance from the lease parcel. Statewide, it is only known from two sites, the one in Phillips County and a second site in Sheridan County. Surveys in Sheridan County in 2000 failed to find the species. Slender-branched popcorn-flower (*Plagiobothrys leptocladus*) is known from one site in the Malta Field Office a considerable distance from the lease parcel. Five occurrences are known statewide.

Table 7. Montana Plant Species of Concern and BLM Sensitive Plants on or near Lease Parcels

| Plant Name | Counties it occurs in | Habitat description |
|---------------------------------|------------------------------|---|
| Long-sheath Waterweed | Phillips | Riparian areas; two records for Phillips County; six records statewide; no recent records |
| Dwarf Woolly-heads | Phillips | Riparian areas; two records for Phillips County; six records statewide; no recent records |
| Slender Bulrush | Phillips | Riparian areas; one of two state records was in Phillips County; no recent records |
| Slender-branched Popcorn-flower | Phillips | Riparian areas; one of five state records was in Phillips County; no recent records |

3.7 Fish and Wildlife

3.7.1 Aquatic Wildlife

There are over thirty stock ponds in the Malta and Glasgow Field Offices that are managed as either cold water or warm/cool water fisheries depending on water depths and drought cycles. None of these reservoirs are in the lease parcels, but it is always possible that fish exist in additional locations due to natural introductions of fish eggs in water bird feathers or by illegal stocking by unknown individuals. Fish do occur in the Milk River and in its various tributaries. Native minnow species can be found in many of the streams and drainages, especially during

spring runoff periods and in isolated pools later in summer. Riparian vegetation can be important for fish habitat as it shades the water surface and lowers water temperatures.

Amphibians and reptiles of the Malta and Glasgow Field Offices include the Great Plains toad (*Bufo cognatus*), Woodhouse's toad (*Bufo woodhousii*), Plains spadefoot (*Spea bombifrons*), Boreal chorus frog (*Pseudacris triseriata*), northern leopard frog (*Rana pipiens*), tiger salamander (*Ambystoma tigrinum*), greater short-horned lizard (*Phrynosoma douglasi*), common sagebrush lizard (*Sceloporus graciosus*), painted turtle (*Chrysemys picta*), eastern racer (*Coluber constrictor*), western hog-nosed snake (*Heterodon nasicus*), plains garter snake (*Thamnophis radix*), gophersnake (bullsnake) (*Pituophis catenifer*), milksnake (*Lampropeltis triangulum*), and western rattlesnake (*Crotalus viridis*). The frogs, the painted turtle, and the salamander are restricted to wetlands and stockponds during most of the year. Many species are widespread throughout both Field Offices, with the exception of the milksnake and common sagebrush lizard.

3.7.2 General Wildlife

The wildlife resource is diverse and widely distributed in the Malta and Glasgow Field Offices with grassland species predominating. Big game animals include pronghorn antelope (*Antilocapra americana*), mule deer (*Odocoileus hemionus*), white-tailed deer (*Odocoileus virginianus*), elk (*Cervus elaphus*), and occasionally moose (*Alces alces*) and bighorn sheep (*Ovis canadensis*). Large blocks of native grasslands, sagebrush grasslands, and breaks topography are important habitats for big game species and designated big game winter range areas are spread across much of the two Field Offices. Moose are becoming more abundant as transient animals may stay in certain drainages throughout the summer. Bighorn sheep are more restricted to islands of habitat in the Little Rocky Mountains and the Larb Hills. Black bears (*Ursus americanus*) can occur in the Little Rocky Mountains, but they are extremely uncommon.

Smaller mammals include cougar (*Puma concolor*), coyote (*Canis latrans*), bobcat (*Lynx rufus*), badger (*Taxidea taxus*), beaver (*Castor canadensis*), porcupine (*Erethizon dorsatum*), striped skunk (*Mephitis mephitis*), swift (*Vulpes velox*) and red (*Vulpes vulpes*) foxes, white-tailed jackrabbit (*Lepus townsendii*), snowshoe hare (*Lepus americanus*), mountain cottontail (*Sylvilagus nuttallii*), muskrat (*Ondatra zibethicus*), mink (*Mustela vison*) and up to three species of weasels (*Mustela* spp.). There are a few records for wolverine (*Gulo gulo*). A variety of shrews, rodents and other small mammals can also be found, including periodic high populations of Richardson's ground squirrels (*Spermophilus richardsonii*). Small mammals include species such as the deer mouse (*Peromyscus maniculatus*), meadow vole (*Microtus pennsylvanicus*), sagebrush vole (*Lemmiscus [Lagurus] curtatus*), montane vole (*Microtus montanus*), northern grasshopper mouse (*Onychomys leucogaster*), olive-backed pocket mouse (*Perognathus fasciatus*), western harvest mouse (*Reithrodontomys megalotis*), and masked shrew (*Sorex cinereus*). There are black-tailed prairie dog (*Cynomys ludovicianus*) colonies in portions of the Field Offices, but they are reduced in area periodically by outbreaks of sylvatic plague.

Upland game birds include the native sharp-tailed grouse (*Tympanuchus phasianellus*), Greater Sage-Grouse (*Centrocercus urophasianus*), and mourning dove (*Zenaida macroura*), and the introduced ring-necked pheasant (*Phasianus colchicus*), wild turkey (*Meleagris gallopavo*), and gray partridge (*Perdix perdix*). There are active greater sage-grouse strutting grounds or leks in

sagebrush habitat, with leks more abundant in Wyoming big sagebrush areas in the southern half of the Field Offices than in silver sagebrush areas in the northern portions of the Field Offices. Sage-grouse nesting is probable in sagebrush grasslands within two or possibly more miles of active leks. Sharp-tailed grouse dancing grounds are more abundant, especially near Breaks habitats north of the Milk River. Woody draws are especially important for sharp-tailed grouse, and some shrub species appear to be declining in portions of the Field Offices. Many areas provide nesting habitat for female sharptails coming from multiple leks due to the high lek abundance. Pheasant, gray partridge, and mourning doves are most abundant near crop fields and Conservation Reserve Program (CRP) lands in the area. Gray partridge are also often observed near the boundary with the Charles M. Russell NWR.

Migratory Birds: Stock ponds and wetlands throughout the Malta and Glasgow Field Offices, when wet, provide habitat for over 20 species of waterfowl. Common nesting species include gadwall (*Anas strepera*), northern shoveler (*Anas clypeata*), blue-winged teal (*Anas discors*), cinnamon teal (*Anas cyanoptera*), northern pintail (*Anas acuta*), mallard (*Anas platyrhynchos*), American wigeon (*Anas americana*), green-winged teal (*Anas crecca*), lesser scaup (*Aythya affinis*) and Canada goose (*Branta canadensis*). The nesting season for waterfowl usually extends from April 15 to July 15. Constructed as well as natural islands on stock ponds and reservoirs provide important nesting sites for Canada geese and most duck species. Wood ducks (*Aix sponsa*) and some diving duck species utilize natural cavities and nest boxes in trees along the Milk River and various irrigation canals.

Raptors found in the Malta and Glasgow Field Offices include the bald (*Haliaeetus leucocephalus*) and golden (*Aquila chrysaetos*) eagles, peregrine (*Falco peregrinus*) and prairie (*Falco mexicanus*) falcons, northern harrier (*Circus cyaneus*), Swainson's hawk (*Buteo swainsoni*), ferruginous hawk (*Buteo regalis*), red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), merlin (*Falco columbarius*), turkey vulture (*Cathartes aura*), northern goshawk (*Accipiter gentilis*), sharp-shinned hawk (*Accipiter striatus*), Cooper's hawk (*Accipiter cooperii*), rough-legged hawk (*Buteo lagopus*), and numerous species of owls. Many raptor nests are found in lone cottonwood (*Populus deltoides*) trees along County roads. Ferruginous hawks are especially abundant in northwestern Phillips County and north-central Valley County, a long ways from black-tailed prairie dog towns.

Important grassland birds occurring in native prairie habitat in the Malta and Glasgow Field Offices include the Baird's (*Ammodramus bairdii*) and grasshopper (*Ammodramus savannarum*) sparrows, Sprague's pipit (*Anthus spragueii*), long-billed curlew (*Numenius americanus*), marbled godwit (*Limosa fedoa*), willet (*Cataporphorus semipalmatus*), and McCown's (*Calcarius mccownii*) and chestnut-collared (*Calcarius ornatus*) longspurs. The Brewer's sparrow (*Spizella breweri*) is locally abundant in sagebrush habitat. Many of these species have experienced declines across much of their range in recent years, and large blocks of intact native grasslands remain important in maintaining healthy breeding populations of these birds. Areas with reduced or no livestock grazing are especially important. Wetlands also provide nesting areas for Wilson's phalaropes (*Phalaropus tricolor*), spotted sandpipers (*Actitis macularia*) and many other shorebirds. The nesting season for migratory birds other than ducks generally is May 01 to August 01.

Lease Parcels

Important wildlife species and habitats are described for each lease parcel, based on BLM records and GIS layers, Montana Natural Heritage Program records, literature sources, and personal experience and knowledge of Fish and Wildlife Biologists from several Federal and State agencies.

Malta Field Office

MTM 97300-K7

This small parcel contains marginal sharp-tailed grouse nesting habitat (one historic lek a mile southeast). The parcel is split estate with private surface, almost all of which has been cultivated and appears to be introduced grass cover such as might occur in the Conservation Reserve Program. There are two shallow depressions that might hold water in the wettest years. Introduced vegetation is poor migratory bird nesting habitat and a lack of permanent water also contributes to reduced waterfowl nesting. Additional cultivated land adjoins the parcel on the east and south sides. A small drainage on the west edge flows north-northeast a couple of miles toward Horseshoe Lake which rarely holds water. A couple of patches of shrubs in the drainage bottom could attract a few more migratory bird species. A lack of sage and the amount of cultivation drops this parcel out of PGH. Cropland and tall introduced grasses are not utilized by Sprague's pipits.

Glasgow Field Office

MTM 102757-KD

This parcel contains pronghorn winter range, migratory bird nesting habitat, Sprague's pipit low-value breeding and nesting habitat, and is near two historic sharp-tailed grouse dancing grounds. There are no known greater sage-grouse strutting grounds within two miles of the tract, but greater sage-grouse habitat is PGH because it is in the proximity of a number of breeding grounds in north Valley County. Over half of the tract is cropland and the remainder was probably disturbed at one time before being reseeded to grass cover. This fairly large parcel of split estate with private surface is entirely cultivated. Even those portions on the west side that cross Lime Creek appear to have been cultivated. The Creek channel is evident on the air photo, but the drainage must be shallow enough that the landowner can till through it in dry years. There is little for wildlife on this parcel and it can probably be leased.

MTM 102757-KF

This parcel contains pronghorn winter range, migratory bird nesting habitat, low-value Sprague's pipit breeding and nesting habitat, and is near two historic sharp-tailed grouse dancing grounds. There are no known greater sage-grouse strutting grounds within two miles of the tract, but greater sage-grouse habitat is PGH because it is in the proximity of a number of breeding grounds in north Valley County. This small parcel of split estate with private surface shows considerable disturbance on the air photo. The western portion appears to have the most recent cultivation, but most other portions have signs of some cultivation resulting in a vegetation change from native range. A tributary of Bear Creek flows through the center of the parcel and enters Bear Creek close to where Alkali Creek enters the same drainage. Both the tributary and

Bear Creek on the south boundary area have extensive development of woody vegetation of value to a wide range of migratory bird species. There may be some shallow wetlands in the central portion of the tract and there could be pooling in Bear Creek as well after runoff events.

MTM 102757-QG

This parcel contains pronghorn winter range, migratory bird nesting habitat, Sprague’s pipit breeding and nesting habitat, and is near three historic sharp-tailed grouse dancing grounds. There are no known greater sage-grouse strutting grounds within two miles of the tract, but greater sage-grouse habitat is PGH because it is in the proximity of a number of breeding grounds in north Valley County. This small parcel along Highway 2 is split estate with private surface. Most of the parcel is cultivated with the exception of the bottom of Bear Creek which is in cottonwood gallery forest and contains some ranch buildings. There are no reservoirs and grassland nesting cover is extremely limited. Wetlands are lacking and bird use is mostly restricted to the forested portion. Some migratory bird species probably nest in the trees and others use the area for migration habitat.

3.8 Cultural Resources

The BLM is responsible for identifying, protecting, managing, and enhancing cultural resources which are located on public lands, or that may be affected by BLM undertakings on non-Federal lands, in accordance with the National Historic Preservation Act (NHPA) of 1966, as amended. The procedures for compliance with the NHPA are outlined in regulation under 36 CFR 800. Cultural resources include archaeological, historic, and architectural properties, as well as traditional life-way values and/or traditional cultural properties important to Native American groups.

Table 8 summarizes the existing level of Class III Cultural Resource inventory (by percentage) which has occurred to date within the proposed lease parcel boundaries. Furthermore; potentially affected sites, Class III inventory records numbers, and a brief description of why the inventories were performed is also included.

Table 8. Summary of Cultural Resource Locations, Inventory Reports and Percent of Lease Parcels surveyed to Class III Standards

| PARCEL NUMBER | CULTURAL LOCATIONS WITHIN PARCEL SECTION | INVENTORIES W/N PARCEL | % OF PARCEL SURVEYED | COMMENTS |
|---------------|---|---------------------------------------|----------------------|--|
| MTM 97300-K7 | No Sites | No Inventories | 0% | NO INVENTORY |
| MTM 102757-QG | 24VL0098 24VL1275 | VL 3 10565 VL 2 9974 | LESS THAN 1% | INVENTORY PERFORMED FOR TRANSMISSION LINE |
| MTM 102757-KD | Section 28 (24VL1588) Section 33 (24VL1588) Section 34 (24VL1277) | VL 3 10565 VL 6 17367 VL4 17700 | 6% | MAJORITY OF INVENTORY PERFORMED ALONG EXISTING HIGHWAY OR FOR RANGE IMPROVEMENTS |

| | | | | |
|---------------|----------|--|--------------|---|
| MTM 102757-KF | No Sites | VL 6 24978 VL 6 25620 VL 6 26778 VL 6 20637 | LESS THAN 1% | INVENTORY PERFORMED FOR RANGE IMPROVEMENTS |
|---------------|----------|--|--------------|---|

Four historic properties are located within or near the proposed lease parcels. Of these, two are prehistoric and two are historic. The two prehistoric sites include a stone circle and a lithic . The historic sites consist of a historic alignment of Highway 2 and a water spreader/irrigation system. For a summary of specific sites and eligibility determinations see Table 9.

Table 9. Historic Properties within or near proposed lease parcels, NRHP eligibility determinations.

| Site # | Eligibility | Description | Township | Range | Section(s) |
|----------|-------------|-------------------|----------|-------|------------|
| 24VL1277 | ND | Lithic Scatter | 31N | 37E | 34 |
| 24VL1588 | UR | Irrigation System | 31N | 37E | 28,33 |
| 24VL0098 | Eligible | Highway | 30N | 37E | 2 |
| 24VL1275 | ND | Stone Circle | 30N | 37E | 2 |

*IE= Ineligible, UR= Unresolved, UD= Undetermined, ND= No data available

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.

The area that makes up the proposed lease parcels was at one time the aboriginal lands of multiple tribes. These tribes include Piegan, Blood, Blackfeet, Gros Ventre, Assinboine, Sioux, Flathead (Salish), and Cree Tribes.

Previous consultation with tribes indicates that they use certain areas for religious and cultural purposes. Certain types of archaeological sites have cultural and religious significance. These include vision quest sites, monumental/ anthropomorphic/zoomorphic rock features, rock art sites, burials, habitation sites with special purpose ceremonial structures, and ceremonial and/or dance grounds. No defined Traditional Cultural Properties have been identified within the proposed lease parcels however; a significant cultural location (Big Bend of the Milk River ACEC) has been identified nearby.

The Big Bend of the Milk River ACEC contains an abundance of archaeological sites with unique characteristics and scientific values which warrant special attention. The ACEC consists of two large sites adjacent to the Milk River and includes the Henry Smith and Beaucoup site complexes, both of which contain bison kills and ceremonial and habitation sites. Both

complexes are characterized by unique stone surface features and multiple occupation episodes. Other important, but lesser known sites nearby are unnamed bison kills, drive lines, meat processing sites, petroglyph boulders, and tipi ring concentrations.

3.10 Paleontology

Occurrences of paleontological resources are closely related to the geologic units that contain them, and the potential for finding important paleontological resources can be broadly predicted by the presence of the pertinent geologic units at or near the surface (Table 8). Therefore, geologic mapping can be used as a proxy for assessing the potential occurrence of important paleontological resources. The Potential Fossil Yield Classification (PFYC) system adopted by the BLM in 2008 uses geologic units as base data. The PFYC system provides a uniform tool to assess potential occurrences of paleontological resources and evaluate possible impacts.

Under the PFYC system, geologic units are classified based on the relative abundance of vertebrate fossils or uncommon invertebrate or plant fossils and their sensitivity to adverse impacts, with a higher class number indicating a higher potential. This classification is best applied at the geologic formation or member level. It is not intended to be an assessment of whether important fossils are known to occur occasionally in these units (i.e. a few important fossils or localities widely scattered throughout a formation does not necessarily indicate a higher class), nor is it intended to be applied to specific sites or areas. The classification system is intended to provide baseline guidance to assessing and mitigating impacts to paleontological resources. In many situations, the classification should be an intermediate step in the analysis, and should be used to assess additional mitigation needs. The PFYC classes are defined in detail below:

Class 1: Units unlikely to contain recognizable fossil remains. This includes units that are igneous or metamorphic in origin (but excludes tuffs), as well as units that are Precambrian in age or older. Management concern for paleontological resources in *Class 1* units is negligible or not applicable. No assessment or mitigation is needed except in very rare circumstances. The occurrence of significant fossils in *Class 1* units is non-existent or extremely rare.

Class 2: Sedimentary geologic units that are not likely to contain vertebrate fossils or scientifically significant nonvertebrate fossils. This includes units in which vertebrate or significant nonvertebrate fossils are unknown or very rare, units that are younger than 10,000 years before present, units that are Aeolian in origin, and units which exhibit significant physical changes in rock (i.e. compaction, cementation, mineral replacement). The potential for impacting vertebrate fossils or uncommon invertebrate or plant fossils is low. Management concern for paleontological resources is low, and management actions are not likely to be needed. Localities containing important resources may exist, but would be rare and would not influence the classification.

Class 3: Fossiliferous sedimentary geologic units where fossil content varies in significance, abundance, and predictable occurrence; or sedimentary units of unknown fossil potential. These units are often marine in origin with sporadic known occurrences of vertebrate fossils. Vertebrate fossils and uncommon nonvertebrate fossils are known to occur inconsistently and predictability is known to be low. Two subsets to *Class 3* units are described below:

Class 3a includes a broad range of potential impacts. Geologic units of unknown potential, as well as units of moderate or infrequent fossil occurrence are included. Assessment and mitigation efforts also include a broad range of options. Surface-disturbing activities will require sufficient assessment to determine whether significant fossil resources occur in the area of a proposed action, and whether the action could affect the paleontological resources.

Class 3b includes units that are poorly studied and/or poorly documented, so that the potential yield cannot be assigned without ground reconnaissance. Management concern for paleontological resources in these units is moderate, or cannot be determined from existing data. Surface-disturbing activities may require field assessment to determine a further course of action.

Class 4: These are **Class 5** geologic units (see below) that have lowered risks of human-caused adverse impacts and/or lowered risk of natural degradation. They include bedrock units with extensive soil or vegetative cover, bedrock exposures that are limited or not expected to be impacted, units with areas of exposed outcrop that are smaller than two contiguous acres, units in which outcrops form cliffs of sufficient height and slope so that impacts are minimized by topographic effects, and units where other characteristics are present that lower the vulnerability of both known and unidentified fossil localities.

Class 5: Highly fossiliferous geologic units that regularly and predictably produce vertebrate fossils or uncommon invertebrate or plant fossils, and that are at risk of human-caused adverse impacts or natural degradation. These include units in which vertebrate fossils or uncommon invertebrate or plant fossils are known and documented to occur consistently, predictably, or abundantly. **Class 5** pertains to highly sensitive units that are well exposed with little or no soil or vegetative cover, units in which outcrop areas are extensive, and exposed bedrock areas that are larger than two contiguous acres.

Table 10. Individual Lease Parcel PFYC Classifications

| PARCEL NUMBER | PFYC CLASSIFICATION |
|---------------|--|
| MTM 97300-K7 | BearPaw Shale, PFYC Class 3a, Moderate |
| MTM 102757-QG | Judith River, PFYC Class 5, High |
| MTM 102757-KD | Judith River, PFYC Class 5, High |
| MTM 102757-KF | Judith River, PFYC Class 5, High |

3.11 Visual Resources

Visual Resource Management (VRM) is BLM’s systematic approach to inventorying and managing visual resource values, as mandated by Federal legislation (FLPMA, 1976 and NEPA, 1969). It includes the evaluation of public lands for assignment of inventory classes during Resource Management Plan (RMP) development, as well as the determination of management of Visual Resource Management (VRM) classes and the routine operational management of those

classes. The VRM enables the BLM to have a system for managing the human concern for scenery and public acceptance for visible changes to the natural landscape setting. Through this system the BLM is able to objectively measure proposed landscape altering projects for compliance to visual performance standards and apply the use of good design principles to satisfy management objectives.

BLM manages landscapes according to the Visual Resource Management Manual (H-8431-1) VRM Classes establish specific objectives on the management of visual resource values. The VRM objectives set the standards for the planning, design, and evaluation of proposed projects. The VRM classes consider the compatibility between land use decisions and visual values. Management Objectives range from preserving the natural landscape (VRM Class I) to providing for activities which require major modification of the existing landscapes (VRM Class IV).

A Class I VRM area means that the objective is to preserve the existing landscape. This class provides for natural ecological changes, however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract any attention of a casual observer.

The management objective for a Class II VRM is that the existing character of the landscape should be retained. Activities or modifications of the environment should not be evident or attract the attention of the casual observer. Changes caused by management activities must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.

The management objective for a Class III VRM area means the level of change to the character of the landscape should be moderate. Changes caused by management activities should not dominate the view of the casual observer and should not detract from the existing landscape features. Any changes made should repeat the basic elements found in the natural landscape such as form, line, color and texture.

The management objective for a Class IV VRM area means that the characteristic landscape can provide for major modification of the landscape. The level of change in the basic landscape elements can be high. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements.

Assessing scenic values and determining visual impacts can be a somewhat subjective process. Objectivity and consistency can be greatly increased by using the basic design elements of form, line, color, and texture, which have often been used to describe and evaluate landscapes, to also describe proposed projects. Projects that repeat these design elements are usually in harmony with their surroundings; those that don't create contrast. By adjusting project designs so the elements are repeated, visual impacts can be minimized.

All of the land parcels in the proposal are on private surface. The BLM does not have the authority to manage or designate classes for visual resources on private lands, but may still suggest visual management prescriptions based on VRM classifications of adjacent BLM-administered lands and on split estate when the federal minerals are being developed. BLM-

administered lands near the land parcels in the proposal are currently managed as VRM Class IV. Management objectives for this class are consistent with this type of proposal.

Should any of these proposed parcels be leased and an application permit to drill be received, visual management prescriptions would be developed by BLM at that time.

3.12 Forest and Woodland Resources

This resource is not present on any of the parcels and will not be discussed further.

3.13 Livestock Grazing

Lease parcels contain portions of BLM grazing allotments (Table 10). BLM grazing allotments may or may not have BLM land intermingled with unfenced private and/or State lands. In this case all the parcels are fenced in separate pastures from the BLM permitted area of the allotment.

Table 11. BLM Grazing allotments which are associated with the Lease Parcels

| PARCEL | ALLOTMENT | NAME | ACRES | |
|--------------|-----------------|----------------|--------|-------------------------|
| MTM 97300-K7 | 5043 | Horseshoe lake | 14,013 | |
| MTM 757 KD | Private Surface | | | Non allotment |
| MTM 757 KF | 04090 | | 320 | Fenced separate federal |
| MTM 757QG | 04090 | | 320 | Fenced separate federal |

3.14 Recreation and Travel Management

3.14.1 Recreation

The BLM has an important niche in recreation in Montana, providing opportunities for Off-highway vehicle use, camping, hiking, driving for pleasure, picnicking, hunting, whitewater rafting, wildlife viewing, and a wide variety of other pursuits. This role in outdoor recreation is under stress from changing populations, new technologies, and access issues. Population increases are placing additional demands on recreational use of BLM lands. Traditional as well as new forms of recreational activities such as photography, hunting and OHV use, are increasing in popularity. There is also a growing concern for preserving the character and resources upon which this recreation depends.

The BLM Recreational Strategy is to improve access to appropriate recreational opportunities and experiences; ensure a quality experience and enjoyment of natural and cultural resources, and; provide for and receive fair value in recreation.

For the BLM, there has been a shift from activity based to a recreation outcome focused management (OFM) approach, The shift to OFM has required the setting of setting conditions to produce the desired outcome essential to produce the targeted outcome desired by both managers and the public. For the HiLine District these settings are generally more primitive and rugged, require more individual responsibility, and have an overall lower density and demand than lands managed by other agencies. This is the case for all the lands covered in this lease proposal.

Recreational use on these lands is low and dispersed and is mostly related to hunting activities. None of the lands serve as main destinations for recreational use. There are no commercial, competitive, or organized operators currently conducting recreational activities on any of these

parcels. The action of leasing these parcels would not by itself change any recreational opportunity or experience.

3.14.2 Travel Management

Comprehensive travel management is integral to the character of recreational settings. Travel management decisions support planning decisions such as protecting and/or enhancing landscape character. In general BLM policy, travel is permitted on designated or seasonally limited routes, except in established OHV areas open for motorized use. In the HiLine District, travel management takes the existing transportation system created by past resource uses and public access patterns and has created a system to meet the current and future needs for motorized and non-motorized travel based on management objectives. Recreational management objectives and recreation setting prescriptions, including the recreational opportunity spectrum (ROS) and visual resource management (VRM) as well as other resource programs, constrain and guide the kinds and locations of travel routes.

The action of leasing these parcels would not by itself change any recreational opportunity or experience.

3.15 Lands and Realty

All parcels are split estate; the surface estate is fee title and the mineral estate is federal. However, for three parcels, the federal government only has title to 50% of the mineral estate. The other half is non-federal. Because the surface is private, there are no BLM authorized rights-of-way or development and thus, Lease Notice 14-1 is not applicable. Therefore any discussion related to Lands and Realty will not be discussed further.

3.16 Minerals

3.16.1 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.

Currently there are 1,088 federal oil and gas leases covering approximately 1,093,549.4 acres in the Malta and Glasgow FO's. In addition, there are 10 leases covering approximately 17,401.27 acres that straddle the county line. The number of acres leased and the number of leases can vary on a daily basis as leases are relinquished, expired, or are terminated. Numbers of townships, leases acres within those townships, and development activity are summarized in Table 12.

Exploration and development activities would only occur after a lease is issued and the appropriate permit is approved. Exploration and development proposals would require completion of a separate environmental document to analyze specific proposals and site-specific resource concerns before BLM approved the appropriate permit.

Table 12. Oil and Gas Leasing and Existing Development within Townships Containing Lease Parcels

| | Phillips County | Valley County |
|---|--|---|
| Number of Townships Containing Lease Parcels | 1 | 2 |
| Total Acres Within Applicable Township(s) | 23,843 | 45,995 |
| Federal Oil and Gas Minerals | 7060 | 8853 |
| Percent of Township(s) | 30 | |
| Leased Federal Oil and Gas Minerals | 6121 | 6230 |
| Percent of Township(s) | | |
| Leased Federal Oil and Gas Minerals Suspended | 0 | 0 |
| Percent of Township(s) | | |
| Federal Wells | Producing Gas Well(s) 1477 Producing Oil Well(s) 0 Water Injection Well(s) 0 Shut-in Well(s) 0 Temporarily Abandoned Well(s) 0 | Producing Gas Well(s) 107 Producing Oil Well(s) 0 Water Injection Well(s) 0 Shut-in Well(s) 0 Temporarily Abandoned Well(s) 0 |

3.16.2. Solid Minerals

3.16.2.1. 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.

3.16.2.2. Locatable Minerals

Locatable minerals are subject to provisions of the 1872 Mining Law. 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.

3.16.2.3. Salable Minerals

Salable minerals (mineral materials) are those common varieties of sand, stone, gravel, cinders, pumice, pumicite, and clay that may be acquired under the Materials Act of 1947. Mineral

materials are disposed of by free-use and community/common-use permits granted to municipalities or non-profit entities, respectively. Contracts for sale of mineral materials are offered to private entities on both a competitive and non-competitive basis. Disposal of salable minerals is a discretionary decision of the BLM authorized officer. Future potential resource development conflicts would be avoidable either by not issuing sales contracts in oil and gas development locations or conditioning the APD or salable mineral contracts in a manner to avoid conflicts between operations.

None of the lease parcels proposed to be leased for oil and gas in the Project Area conflict with current permits and contracts for salable minerals awarded on federal lands. This is because all of the parcels are on split estate, fee surface overlying federal minerals. Therefore, this subject will not be discussed further in this document.

3.17 Special Designations

3.17.1 National Historic/Scenic Trails

There are portions of two National Historic and Scenic Trails which pass through the lands managed by the HiLine District. They are the Lewis and Clark National Historic Trail and the Nez Perce National Historic Trail. Neither of these trails pass through any of the parcels covered in this proposal.

3.17.2 Areas of Critical Environmental Concern (ACECs)

The Federal Land Policy and Management Act (FLPMA) requires that priority shall be given to the designation and protection of ACECs. Areas of Critical Environmental Concern are defined in the FLPMA Sec. 103[43 U.S.C 1702] (a) and in 43 C.F.R. 1601.0-5(a) as “areas within the public lands where special management attention is required to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources or other natural systems or processes, or to protect life and safety from natural hazards.”

There are seven ACECs in the HiLine District but none of these designated lands are located within or adjacent to the proposed lease parcels.

3.18 Social and Economic Conditions

3.18.1 Social and Environmental Justice

The social section focuses on Valley and Phillips Counties in northern Montana, where the parcels being examined are located. The 2010 population of Valley County was 7,369; for Phillips County the 2010 figure was 4,253. Both counties lost population in the decade 2000 to 2010, with the figures indicating a decline of 7.6% for Phillips County and 4.0% for Valley County. Population density (persons per square mile) is generally very low with figures of 0.8 in Phillips County and 1.5 in Valley County. These figures compare to a statewide figure of 6.8 and a national figure of 87.4. All of the land being considered is split estate (private surface with federal mineral estate).

Valley County, where the majority of the acreage to be considered is located, is home to large farms and ranches, the western part of the Fort Peck Indian Reservation, and part of the Charles M. Russell National Wildlife Refuge. The county seat is Glasgow with a 2010 population of

3,250. Oil and gas leasing and development is currently occurring in Valley County but not in the direct vicinity of these leases.

Phillips County, where the remainder of the acreage to be considered is located, is also home to large farms and ranches, 3 wildlife refuges, the eastern part of the Fort Belknap Indian Reservation, and part of the Upper Missouri Breaks National Monument. The county seat is Malta with a 2010 population of 1,997. Oil and gas leasing and development is currently occurring in Phillips County but not in the direct vicinity of this lease.

In 2010, the American Indian population was less 9.8 percent in Valley County and 8.3 percent in Phillips County. Seven Indian Reservations are located in the state of Montana and many others are located in the surrounding states, particularly in North and South Dakota. The proportion of the population living below the poverty level in 2006-2010 was 13.5 percent in Phillips County and 10.1 percent in Valley County. These figures compare to a state figure of 14.5 percent during the same time period.

3.18.2 Economics

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 local economic impact area extends beyond the Field Office boundaries because of economic linkages to areas outside the Field Office boundaries. The affected local economy is made up of Phillips and Valley counties within the BLM Malta and Glasgow Field Office boundaries as well as Blaine and Hill Counties which are outside the Malta Field Office boundaries. Blaine and Hill Counties are included because of the oil and gas related businesses that work in oil and gas fields in Phillips and Valley counties. While public revenues from oil and gas leasing, rent, and production addressed in this EA are only distributed to Phillips and Valley counties, employment and income effects are spread across the four counties. The distribution of these economic effects is based on acres leased and levels of production as well as business patterns.

Affected Environment

The four-county local economy had an estimated 2009 population of 33,832 people. Total employment was estimated to be 21,010 jobs; there were an estimated 13,183 households; and there were 138 NAICS industrial sectors represented in the local economy (IMPLAN, 2009). The local economy includes Glasgow, Havre and Malta (local population, business, and oil field service centers). There were 1.61 people per job within the local economy and 0.63 households per job.

Nature of the Oil and Gas Industry in the Malta and Glasgow Field Offices

In March 2011, BLM had leases in effect covering 536,995 acres within the Malta and Glasgow Field Office boundaries. Annual lease rent is paid on 231,714 acres that are not held by production on leases with oil/gas being produced from one or more wells. Lease rent was not

paid on 305,281 acres that were held by production. Instead, royalties are paid on oil and gas production from these leases.

Local oil and gas exploration, development, and production as well as gas pipeline transmission industry all support jobs and income in the local economy.

A portion of the oil and gas-related revenues collected by the Federal government is distributed to the state and counties. The amount that is distributed is determined by the Federal authority under which the Federal minerals are being managed. The leased acres change daily as some leases expire and other parcels are leased. Within the field office boundary, public domain Federal minerals account for about 79 percent of the acres leased; acquired lands/minerals, mostly Bankhead-Jones lands, account for about 21 percent of acres leased.

Forty-nine percent of these Federal leasing revenues from public domain minerals are distributed to the state and the state distributes 25% back to the counties (Title 17-3-240, Montana Code Annotated). Twenty-five percent of the Federal leasing revenues from acquired minerals are distributed from the Federal government to the counties of production.

Leasing

Federal oil and gas leases generate a one-time lease bonus bid as well as annual rents. The minimum lease bid is \$2.00 per acre. If parcels do not receive the minimum bids they may be leased later as noncompetitive leases that don't generate bonus bids. Within the Malta and Glasgow Field Office area, bonus bids averaged \$19.72 per acre on Federal leases issued in 2011.

Lease rent 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 rent continues until one or more wells are drilled that result in production and associated royalties. Currently, the Federal government collects an estimated annual average of about \$1.5 million in lease bids and rent within the two county area; of which about \$644,000 is distributed to the state/local governments.

Production

Federal oil and gas production in Montana is subject to production taxes or royalties. These Federal oil and gas royalties generally equal 12.5 percent of the value of production (43 CFR 3103.3.1). Forty-nine percent of the royalties from public domain Federal minerals are distributed to the state, of which 25 percent is distributed back to the county of production (Title 17-3-240, MCA). Twenty-five percent of the Federal royalty revenues from acquired minerals are also distributed from the Federal government to the counties of production.

An annual average of 11,906,171 MCF of natural gas is produced from BLM-administered Federal minerals in the Malta and Glasgow Field Office area.

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. Extraction of 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 427 total jobs and \$26.7 million in total employee compensation and proprietor income in the local economy (IMPLAN, 2009).

Total average annual Federal revenues from Federal oil and gas leasing, rents, and royalty payments within the field office boundaries are an estimated \$6.2 million. Federal revenues distributed to the state of Montana amount to an estimated \$2.6 million per year. The state redistributes an estimated \$1.0 million per year to Phillips and Valley Counties. 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/or 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 combines to support about 140 total local jobs and \$9.0 million in local labor income, respectively. These contributions equal about one 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 and government. Table 13 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.

Table 13. Current Contributions of Federal Oil and Gas Leasing, Exploration, Development, and Production to the Local Economy

| Industry | Employment (jobs) | | Labor Income (Thousands of 2009 dollars) | |
|------------------------------|-------------------|----------------------|--|---------------------|
| | Area Totals | Federal O&G -Related | Area Totals | Federal O&G-Related |
| Agriculture | 3,630 | 0 | \$66,734 | \$0 |
| Mining | 427 | 118 | \$26,736 | \$8,443 |
| Utilities | 123 | 0 | \$9,782 | \$3 |
| Construction | 1,016 | 0 | \$34,706 | \$8 |
| Manufacturing | 197 | 0 | \$5,986 | \$0 |
| Wholesale Trade | 531 | 0 | \$21,795 | \$14 |
| Transportation & Warehousing | 803 | 1 | \$62,342 | \$12 |

| | | | | |
|-----------------------------------|---------------|------------|----------------|--------------|
| Retail Trade | 2,112 | 5 | \$54,282 | \$104 |
| Information | 311 | 1 | \$16,563 | \$16 |
| Finance & Insurance | 733 | 3 | \$22,985 | \$98 |
| Real Estate & Rental & Leasing | 623 | 2 | \$6,312 | \$15 |
| Prof, Scientific, & Tech Services | 592 | 0 | \$22,160 | \$18 |
| Mngt of Companies | 6 | 0 | \$363 | \$0 |
| Admin, Waste Mngt & Rem Serv | 384 | 0 | \$5,991 | \$6 |
| Educational Services | 299 | 0 | \$4,646 | \$2 |
| Health Care & Social Assistance | 1,781 | 0 | \$71,837 | \$10 |
| Arts, Entertainment, and Rec | 478 | 0 | \$8,770 | \$0 |
| Accommodation & Food Services | 1,267 | 1 | \$19,282 | \$9 |
| Other Services | 1,429 | 0 | \$31,441 | \$9 |
| Government | 4,269 | 7 | \$212,194 | \$205 |
| Total | 21,010 | 139 | 704,906 | 8,972 |
| Federal O&G as Percent of Total | --- | 0.66% | --- | 1.27% |

IMPLAN, 2009 database

4.0 ENVIRONMENTAL IMPACTS

4.1 Assumptions and Reasonably Foreseeable Development Scenario 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 lease parcels are leased, it remains unknown whether development would actually occur, and if so, where specific wells would be drilled and where facilities would be placed. This would not be determined until the BLM receives an application for permit to drill (APD) in which detailed information about proposed wells and facilities would be provided for particular leases. 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 National Environmental Policy Act (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” (USDI and USDA 2007), also known as the “Gold Book.” The BLM could also identify APD Conditions of

Approval (COAs), based on site-specific analysis which 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.

For split-estate leases, the BLM would notify the private landowners that oil and gas exploration or development activities are proposed on their lands and they are encouraged to attend the onsite inspection to discuss the proposed activities. In the event of activity on such split estate leases, 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.

This chapter presents the potential environmental, social, and economic effects from the actions described in each alternative in Chapter 2, as well as potential effects from lease exploration and development activities. 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 are identified by resource below. The duration of the possible effects is analyzed and described as either short-term or long-term. Short-term effects generally last less than five years and long-term effects generally last more than five years.

4.1.1 Reasonably Foreseeable Development Scenario Summary

The following assumptions are from the RFD developed for the HiLine Planning Area (for the HiLine RMP revision; the HiLine planning area includes the Malta, Glasgow and Havre Field Offices). The BLM administers approximately 3,483,000 acres of federal fluid minerals available for leasing within the HiLine planning area. The RFD forecasts the following level of development in the HiLine planning area.

The RFD scenario for the HiLine RMP forecasts up to 6,866 wells in the planning area between 2007 and 2026. Up to 150 of these wells could be coalbed natural gas (CBNG) wells. Of the 6,716 conventional wells, 1,351 wells are located within the boundaries of the Bowdoin Dome area. In the HiLine planning area, high development potential indicates an average drilling density would exceed 100 wells per township from 2007 to 2026. Moderate potential indicates 20 to 100 wells per township. Low development potential indicates two to 20 wells per township. Very low development potential indicates two wells or less per township. All of the offered parcels are located in 'very low development potential' areas.

These well numbers are only an estimate based on historical drilling and mineral resources present, and may change in the future if new technology is developed or new fields and formations are discovered.

4.1.2 Assumptions for Alternative A (No Action)

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.

4.1.3 Analysis Assumptions for Alternative B (Proposed Action)

By itself, the act of leasing the parcels would have no impact on any natural resources in the area administered by the Malta and Glasgow FOs. No surface disturbance would occur as a result of issuing leases. Typically exploration and development activities and associated acres of disturbance were used as assumptions for analysis purposes in this EA. 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.

4.2 Alternative A (No Action)

4.2.1 Direct Effects Common to All Resources (not including Economics)

Under Alternative A, the 4 parcels would not be offered for competitive oil and gas lease sale. Under this alternative, the state and private minerals could still be leased in surrounding areas.

There would be no new impacts from oil and gas exploration or production activities on the federal lease 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 from the parcel lands. The No Action Alternative would result in the continuation of the current land and resource uses on the lease parcels.

Except for Economic resources, described below, no further analysis of the No Action Alternative is presented.

4.2.2 Economics

4.2.2.1 Direct and Indirect Effects:

Economic effects are summarized and displayed in comparative form in Tables 13, 17, 18 and 19. Under Alternative A, none of the nominated parcels would be leased. Consequently, no federal, state, or local revenues would be generated from leasing, rents, or royalties associated with production. No additional employment or income would be generated from the nominated parcels if none of the parcels are leased.

4.3 Alternative B (Proposed Action)

Under Alternative B, 4 parcels totaling 1107 federal mineral acres would be offered for competitive oil and gas lease sale.

4.3.1 Direct Effects Common to All Resources

The action of leasing the parcels in Alternative B would, in and of itself, have no direct impact on resources. Any potential effects on resources from the sale of leases would occur during lease exploration and development activities. At the time of this review it is unknown whether a particular lease parcel would be sold and a lease issued.

4.3.2 Indirect Effects Common to All Resources

Oil and gas exploration and development activities such as construction, drilling, production, infrastructure installation, vehicle traffic and reclamation are indirect effects from leasing the parcels in Alternative B. It is unknown when, where, how, or if future surface disturbing activities associated with oil and gas exploration and development such as well sites, roads, facilities, and associated infrastructure would be proposed. It is also not known how many wells, if any, would be drilled and/or completed, the types of technologies and equipment would be used and the types of infrastructure needed for production of oil and gas. Thus, the types, magnitude and duration of potential impacts cannot be precisely quantified at this time, and would vary according to many factors. The potential impacts from exploration and development activities would be analyzed after receipt of an APD or sundry notice.

Typical impacts to resources from oil and gas exploration and development activities such as well sites, roads, facilities, and associated infrastructure are described in the Phillips Management Framework Plan (MFP-1977) and the Oil and Gas Environmental Assessment of the BLM Leasing Program – Lewistown District (September 1981).

4.3.3 Air Resources

4.3.3.1 Direct and Indirect Effects

4.3.3.1.1 Air Quality

Leasing the parcels would have no direct impacts on air quality. Any potential effects on air quality from sale of lease parcels would occur at the time the leases are 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, as well as 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, as well as the scope of specific activities proposed in an APD.

Current monitoring data show that the criteria pollutant concentrations are below applicable air quality standards indicating very good air quality. The potential level of development and mitigation described below is expected to maintain this level of air quality by limiting emissions. In addition, 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.

4.3.3.1.2 Greenhouse Gas Emissions at the Analysis Area 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 on any of the parcels considered here.

Anticipated GHG emissions presented in this section are taken from the Climate Change SIR, 2010. Data are derived from emissions calculators developed by air quality specialists at the BLM National Operations Center in Denver, Colorado, based on methods described in the Climate Change SIR (2010). Based on the assumptions summarized above for the Hiline RFD, Table 14 discloses projected annual GHG source emissions from BLM-permitted activities associated with the RFD.

Table 14. BLM Projected Annual Emissions of Greenhouse Gases Associated with Oil and Gas Exploration and Development Activity in the HiLine Area.

| Source | BLM Long-Term Greenhouse Gas Emissions in tons/year | | | Emissions (metric tons/yr) |
|--------------------------|---|-----------------|------------------|----------------------------|
| | CO ₂ | CH ₄ | N ₂ O | CO ₂ e |
| Conventional Natural Gas | 120,756 | 1,041 | 0.87 | 129,664 |
| Coal Bed Natural Gas | 884 | 48 | 0.00 | 1,725 |
| Oil | 2,380 | 16 | 0.01 | 2,467 |
| Total | 124,020 | 1,105 | 0.88 | 133,856 |

To estimate GHG emissions associated with the action alternatives, 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 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 the highest year emission output used) to estimate GHG emissions for that particular alternative.

Under Alternative B, approximately 1,267 acres of lease parcels with federal minerals would be leased. These acres constitute approximately 0.029 percent of the total federal mineral estate of approximately 4,307,538 acres identified in the Hiline RFD. Therefore, based on the approach described above to estimate GHG emissions, 0.029 percent of the RFD for this EA total estimated BLM emissions of approximately 133,859 metric tons/year would be approximately 39 metric tons/year of CO₂e if the parcels within Alternative B were to be developed.

4.3.3.1.3 Climate Change

The assessment of GHG emissions and climate change is in its formative phase. As summarized in the Climate Change SIR, 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 feedbacks 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 lease parcel development 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 emission or sequestration with the creation or mitigation of any specific climate-related environmental effects. Although the effects of GHG emissions in the global aggregate are well-documented, it is currently impossible to determine what specific effect GHG 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 of 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.

4.3.3.2 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 COAs 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:

- flaring or incinerating hydrocarbon gases at high temperatures to reduce emissions of incomplete combustion;
- emission control equipment of a minimum 95 percent efficiency on all condensate storage batteries;
- 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;
- NOx emission controls for all new and replaced internal combustion oil and gas field engines;
- Apply water to 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-located 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 GHG emissions, Section 6 of the Climate Change SIR identifies and describes in detail commonly used technologies to reduce methane emissions from natural gas, coal bed natural gas, and oil production operations. Technologies discussed in the Climate Change SIR and as summarized below in Table 15 (reproduced from Table 6-2 in Climate Change SIR 2010), display common methane emission technologies reported under the USEPA Natural Gas STAR Program and associated emission reduction, cost, maintenance and payback data.

Table 15. Selected Methane Emission Reductions Reported Under the USEPA Natural Gas STAR Program ¹

| Source Type / Technology | Annual Methane Emission Reduction ¹ (Mcf/yr) | Capital Cost Including Installation (\$) | Annual Operating and Maintenance Cost (\$) | Payback (Years or Months) | Payback Gas Price Basis (\$/Mcf) |
|-------------------------------------|---|--|--|---------------------------|----------------------------------|
| Wells | | | | | |
| Reduced emission (green) completion | 7,000 ² | \$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 |

Table 15. Selected Methane Emission Reductions Reported Under the USEPA Natural Gas STAR Program ¹

| Source Type / Technology | Annual Methane Emission Reduction ¹ (Mcf/yr) | Capital Cost Including Installation (\$) | Annual Operating and Maintenance Cost (\$) | Payback (Years or Months) | Payback Gas Price Basis (\$/Mcf) |
|--|---|--|--|---------------------------|----------------------------------|
| Tanks | | | | | |
| 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 |
| Glycol Dehydrators | | | | | |
| 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 |
| Pneumatic Devices and Controls | | | | | |
| 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 |
| Valves | | | | | |
| 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 |
| Compressors | | | | | |
| 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 |
| Flare Installation | 2,000 | >\$10K | >\$1K | None | NR |

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

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

² 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 CO₂ 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 Field Office (MCFO). For analysis purposes, the MCFO RFD was selected based on the high potential development scenario. Similar emissions reductions may be possible in the Hilina analysis area. 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 MCFO 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.

4.3.4 Soil Resources

4.3.4.1 Direct and Indirect Effects

Leasing the parcels would have no direct impacts on soil resources. Any potential effects from the sale of leases could occur at the time the leases are developed. Potential site-specific effects would be addressed in more detail at the APD stage.

Construction and operation of well pads, access roads, pipelines, powerlines, reserve pits, and other facilities would result in the exposure of mineral soil, soil compaction and rutting, mixing of soil horizons, 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. Effects would be both short-term (well pads and pipelines) and long-term (production areas and access roads). Areas needed for production, access roads, and facilities would require a long-term commitment of the soil resource. These sites remain non-productive and continue to be at risk of erosion and compacted until abandonment and final reclamation.

Generally sites would be revegetated and erosion would return to natural rates within 5 years. Exceptions would be sites poorly suited for reclamation. These areas, once disturbed, are the most difficult and costly to stabilize and reclaim.

Lease parcels/development would be subject to stipulations that protect soils on slopes over 30 percent, erodible soil on slopes over 20 percent, slumping soils, and/or wet soils. Table 16 shows the approximate acres of soils on slopes over 30 percent and erodible soils on slopes over 20 percent for each lease parcel.

Table 16. Approximate acres of slopes over 30 percent and erodible soils on slopes >20 percent for each Lease Parcel. (Source: USDA-NRCS SSURGO dataset (USDA-NRCS, 2012)).

| Parcel # | >30% slope Acres ¹ | Erodible soils on slopes >20% Acres ² |
|-------------|-------------------------------|--|
| MTM97300-K7 | 0 | 0 |
| MTM12757-KD | 0 | 0 |
| MTM12757-KF | 0 | 0 |
| MTM12757-QC | 0 | 0 |

1. Approximate acres calculated from a Digital Elevation Model (DEM) where slope is >30%. Approximate acres based on GIS calculations. Approximate acres calculated from MU RV slope and Water Erosion Hazard where RV slope > 20% and Water Erosion Hazard is severe. Approximate acres based on GIS calculations.

2. Approximate acres calculated from MU RV slope and Water Erosion Hazard where RV slope > 20% and Water Erosion Hazard is severe. Approximate acres based on GIS calculations.

4.3.4.2 Mitigation

In the event of exploration/development, a number of measures would be taken to prevent, minimize, or mitigate effects to soil resources. Prior to authorization, proposed actions would be evaluated on a case-by-case basis and would be subject to mitigation measures in order to maintain the soil system. Typical measures include, but are not limited to:

- Avoiding areas poorly suited to reclamation;
- Requiring special reclamation of the prime farmlands, if irrigated, to ensure there is no unnecessary and irreversible conversion of prime farmland to nonagricultural uses;
- Limiting the total area of disturbance;
- Stripping and stockpiling topsoil separate from sub-soils/spoil;
- Applying erosion/sediment control/containment products and structures, such as mulch, straw wattles, water bars, rolling dips, silt fence, bale filters, erosion control blankets and mats, cover crops, etc;
- Alleviating compaction;
- Applying soil amendments, when necessary;
- Re-contouring to approximate original contours or blend with surrounding topography;
- Re-seeding with native vegetation;
- Completing interim reclamation on all disturbed areas associated with producing well locations and associated facilities.
- Monitoring for reclamation success and applying additional measures as needed.

Measures included in the Gold Book (USDI-BLM 2007) would be applied. Additional mitigation measures and/or BMPs, if necessary, would be applied once a site-specific plan of development is proposed.

Upon abandonment of wells and/or when access roads are no longer needed, the authorized officer would issue instructions and/or orders for surface reclamation/restoration of the disturbed areas as described in attached conditions of approval (COA).

4.3.5 Water Resources

4.3.5.1 Direct and Indirect Effects

See the discussion for Soils, 4.3.4 and Riparian Vegetation, 4.3.7

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4.3.5.2 Mitigation

Refer to Soils Mitigation, 4.3.4.2.

4.3.6 Vegetation Resources

4.3.6.1 Direct and Indirect Effects

Leasing the parcels would have no direct impacts on vegetation resources. Any potential effects on vegetation resources from sale of lease parcels would occur at the time the leases are developed. Impacts to vegetation would depend on the vegetation type/community, soil community and the topography of the lease parcels. Disturbance to vegetation is of concern because protection of soil resources, maintenance of water quality, conservation of wildlife habitat, and livestock production capabilities may be diminished or lost over the long-term through direct loss of vegetation (including direct loss of both plant communities and specific plant species).

Other direct impacts, such as invasive species and noxious weed invasion could result in loss of desirable vegetation. Invasive species and noxious weeds may also reduce livestock grazing forage, wildlife habitat quality, and native species diversity. Cheatgrass is an invasive species well known for completely replacing native vegetation and changing fire regimes.

Fugitive dust generated by construction activities and travel along dirt roads can affect nearby plants by depressing photosynthesis, disrupting pollination, and reducing reproductive success.

Oil, fuel, wastewater or other chemical spills could contaminate soils as to render them temporarily unsuitable for plant growth until cleanup measures were fully implemented. If cleanup measures were less successful, longer term vegetation damage could be expected.

There would be no effect on the livestock grazing as the surface is private and mostly farmed or grazed as crop or introduced forage species.

4.3.6.1.1 Invasive, Non-Native Species

At the lease sale stage there are no impacts. 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 prior to oil and gas development and during the APD stage of development.

Direct impacts would occur during oil and gas development. Impacts associated with oil and gas development to non-native and invasive weeds would include ground disturbance and creating vectors for dispersal. Ground disturbance from drill site development could create invasive, non-native species habitat. Vectors create invasive weed seed movement from vehicles and equipment to sites which were not previously infested.

Indirect impacts associated with oil and gas development would include ecological changes as a result from the spread of invasive non-native weeds. If proper management does not occur and these invasive species becomes established, they could alter a plant community, which would then affect wildlife habitat. Dense infestations of weed species can lead to increased fire frequency and intensity of Wildland fire.

4.3.6.1.2 Noxious Weeds

At the lease sale stage there are no impacts. 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 prior to oil and gas development and during the APD stage of development.

Direct impacts would occur during oil and gas development. Noxious weed species are highly competitive and could invade plant communities very rapidly. The spread of noxious weeds would have a negative impact on vegetative composition. This negative impact could be both short and long term depending upon the effectiveness and timing of control measures.

The construction of access roads and well pad could unintentionally contribute to the establishment and spread of noxious weeds. Noxious weed seed could be carried to and from the project areas by construction equipment, drilling rigs, and transport vehicles.

The main mechanism for invasive weed seed dispersion on roads and well pads is by equipment and vehicles that were previously used and/or driven across or through noxious weed infested areas. The potential for the dissemination of invasive and noxious weed seed may be elevated by the use of construction equipment typically contracted out to companies that may be from other geographic areas in the region. Washing and decontaminating equipments prior to transporting from site to site would minimize this impact.

4.3.6.2 Mitigation

Mitigation would be addressed at the site specific APD stage of exploration and development. If needed, COAs would potentially include revegetation with desirable plant species, soil enhancement practices, direct live haul of soil material for seed bank revegetation, reduction of livestock grazing, fencing of reclaimed areas, and the use of seeding strategies consisting of native grasses, forbs, and shrubs, would be identified and addressed at the APD stage.

4.3.7 Riparian-Wetland Habitats

4.3.7.1 Direct and Indirect Effects

Leasing the parcels would have no direct impacts on riparian-wetland habitats. Any potential effects on riparian-wetland habitats from sale of lease parcels would occur at the time the leases are developed on private surface with federal minerals. The exploration and development of oil and gas within uplands or adjacent to riparian-wetland areas could reduce riparian/wetland functionality by changing native plant productivity, composition, richness, and diversity; accelerating erosion; increasing sedimentation; and changing hydrologic characteristics. Impacts that reduce the functioning condition of riparian and wetland areas would impair the ability of riparian/wetland areas to reduce nonpoint source pollution (MDEQ 2007) and provide other ecosystem benefits. The magnitude of these effects would be dependent on the specific activity, season, proximity to riparian-wetland areas, location in the watershed, upland and riparian-wetland vegetation condition, mitigation applied, and the time until reclamation success. Erosion increases typically are localized, short term, and occur from implementation through vegetation reestablishment. As acres of surface-disturbance increase within a watershed, so would the effects on riparian-wetland resources.

4.3.7.2 Mitigation

Stipulations addressing steep slopes, waterbodies, streams, 100-year floodplains of major rivers, riparian areas, and wetlands would minimize potential impacts to maintain riparian functional ratings and would be included with the lease when necessary (refer to Appendix A). In the event of exploration or development, site-specific mitigation measures would be identified which would avoid or minimize potential impacts to riparian-wetland areas at the APD stage. Mitigation measures that minimize the total area of disturbance, control wind and water erosion, reduce soil compaction, maintain vegetative cover, control nonnative species, maintain biodiversity, maintain vegetated buffer zones, and expedite rapid reclamation (including interim reclamation) would maintain riparian/wetland resources.

4.3.8 Wildlife

4.3.8.1 Direct and Indirect Effects

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

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.

4.3.8.1.1 Threatened, Endangered, Proposed, and Candidate Species

Minimal habitat within the lease parcels exists to support USFWS Threatened, Endangered, Proposed, or Candidate species including the whooping crane, Greater Sage-Grouse and Sprague's pipit.

BLM has determined that the act of issuing leases within the whooping crane migration corridor will not affect the whooping crane. There is only a remote chance that whooping cranes might stop during migration to feed in grain fields on the lease parcels. 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 do not currently exist 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 is proposed, BLM could consult with the USFWS pursuant to section 7(a)(2) of ESA. An outcome of the consultation 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.

The interior least tern and piping plover have no habitat on the lease parcels as they require rather large water areas with gravel and/or sand islands and shorelines. There are no large water areas meeting that description on the parcels.

There are no known black-tailed prairie dog towns on the lease parcels that could support mountain plover breeding and nesting, or introduced black-footed ferret populations. None of the parcels are within or even near the Mountain Plover ACEC in the Glasgow Field Office.

Effects on the candidate species Greater Sage-Grouse and Sprague's pipit could occur on the parcels if habitat for those species improves prior to any possible development. BLM does not consult with the USFWS on Candidate Species. The lack of adequate protections and/or mitigation for the two Candidate Species in the Standard Leasing Stipulations were grounds for deferring leasing on the vast majority of the nominated lease parcels until more adequate stipulations are approved in the HiLine District RMP. Lease Notice (LN) 14-15 will be attached warning that special stipulations may be needed for Sprague's pipit on the parcels if the species is listed or if habitat conditions improve prior to lease development.

4.3.8.1.2 Other Special Status Species

As noted, up to 58 wildlife species that BLM has designated as “Sensitive” or Special Status Species have the potential to occur in the vicinity of the lease parcels, but most are unlikely to occur on these parcels that have been cultivated at some time. Stipulations are not provided for all BLM Sensitive Species in the current Resource Management Plans. The JVP RMP does not have an adequate Sensitive Species list. Standard leasing stipulations cover only grouse breeding grounds (minimally), big game timing limits, and a quarter-mile restriction around Sensitive Species designated essential habitat. For those species afforded some protections through existing stipulations, impacts would be minimized, but not eliminated. Impacts to BLM Sensitive Species would be similar to those described above, unless they are afforded protective measures from other regulations such as the Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703.) or the Bald and Golden Eagle Protection Act (BGEPA) (16 U.S.C. 668-668c). BLM does not consult with the USFWS on “Sensitive Species” and likewise would not receive terms and conditions from USFWS requiring additional protections for those species.

Numerous species of birds were identified as inhabitants across the analysis area. With the impacts associated with development, it is reasonable to assume there would be impacts to nesting and migrating bird species. The primary impacts to these species would include disturbance of preferred nesting habitats, improved habitat for undesirable competitors and/or a species shift to disturbance associated species, and increased vehicle collisions.

Research in Sublette County, Wyoming on the effects of natural gas development on sagebrush steppe passerines documented negative impacts to sagebrush obligates such as Brewer’s sparrows, sage sparrows, and sage thrashers. (Ingelfinger, 2001) The impacts were reported greatest along roads where traffic volumes are high and within 100 meters of these roads. Sagebrush obligates were reduced within these areas by as much as 60%. Sagebrush obligate density was reduced by 50% within 100 meters of a road even when traffic volumes were less than 12 vehicles /day. It would be expected that similar population declines would occur to this guild of species from similar development proposals within sagebrush and grassland habitats.

Stipulations do not exist specifically for the protection of BLM Sensitive songbirds. The MBTA prohibits the take, capture or kill of any migratory bird, any part, nest or eggs of any such bird (16 U.S.C 703 (a)). NEPA analysis pursuant to Executive Order 13186 (January 2001) requires BLM to ensure that MBTA compliance and the effects of Bureau actions and agency plans on migratory birds are evaluated, and should reduce take of migratory birds and contribute to their conservation.

Effects to migratory birds from oil and gas development at the APD stage could include direct loss of habitat from roads, well pads and other infrastructure, disturbance, powerline strikes and accidental direct mortality, fragmentation of habitat, change in use of habitats, and potential threats and competition from edge species. Field surveys for nesting birds at proposed development sites would be conducted for activities planned between April 15 and July 15. Mitigation measures would be assigned at the APD stage to ensure there would be no measurable negative effect on migratory bird populations, in compliance with Executive Order 13186 and MBTA. These mitigation measures would be required as Conditions of Approval. An NSO stipulation for oil and gas surface disturbing activities in riparian and wetland areas would prohibit any potential oil and gas development in those habitats unless approval was granted

through the “Waivers, Exceptions, and Modifications” (WEM) process. BLM could coordinate WEMs with USFWS to assure MBTA compliance.

All raptor species known to exist within the analysis area are considered migratory under MBTA. The Standard lease conditions do not cover raptor nests above and beyond what can be called essential habitat for Sensitive migratory bird species. Some raptors could abandon nests during development and relocate to new sites. The potential impact to raptors from relocation of suitable nest sites on nest success is unknown.

Take of bald and golden eagles and any other migratory raptors is not anticipated through this action; however, take may occur indirectly as a result of vehicle collisions and other related actions associated with development. Field surveys for raptors at proposed development sites would be conducted for activities planned between April 15 and August 30. Mitigation measures would be assigned at the APD stage to ensure there would be no measurable negative effect on raptor populations, including bald and golden eagles. These mitigation measures would be required as Conditions of Approval. The application of stipulations and COA’s at the project level is expected to comply with MBTA and BGEPA.

The HiLine District RMP, when completed, will have stipulations for the Candidate Species Greater Sage-Grouse and Sprague’s pipit. 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 influences 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 (2010) found impacts of energy development on lek abundances (numbers of males per lek) out to 7.6 miles.

Noise has been shown to affect sage-grouse and associated sagebrush obligates. Sage-grouse are known to select highly visible leks with good acoustic properties. Effects to sage-grouse would be a decrease in numbers of males on leks and activity levels and lower nest initiation near oil and gas development. Sage-grouse numbers on leks within 1.6 km (1 mile) of coal bed natural gas compressor stations in Campbell County, Wyoming, were shown to be consistently lower than on leks not affected by this disturbance (Braun et al. 2002). Holloran (2005), Holloran et. al (2005a, 2005b), and Holloran and Anderson (2005a) reported that lek activity by sage-grouse decreased downwind of drilling activities, suggesting that noise had measurable “negative” impacts on sage-grouse. The actual level of noise (measured in decibels) that would not affect greater sage-grouse breeding and nesting activities is presently unknown.

4.3.8.1.3 Other Fish and Wildlife

The types and extent of impacts to wildlife species and habitats from development are similar to those described above for other species. Impacts 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 scenarios, 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 [*Eremophila alpestris*]), 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.

Potential impacts to aquatic wildlife from development could include: spills from drilling mud or other extraction and processing chemicals, and surface disturbance activities that create a localized erosion zone.

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

Gas development is allowed within big game crucial winter range with a timing restriction from December 1 to May 15. This stipulation does not apply to operation and maintenance of production facilities. The goal of this stipulation is to protect crucial big game habitats from

disturbance during the winter use season. This stipulation provides protection to big game winter habitats and species only during that timeframe, and does not provide protection during the long-term operation and maintenance periods. Development can occur outside of those dates and will exist thereafter until reclamation, thus only delaying impacts until after that year of construction.

Mule deer would be minimally impacted by this project from habitat fragmentation and disturbance. Mule deer winter range habitat has not been identified for lease parcels in either the Glasgow Field Office or the Malta Field Office. Development would affect mule deer use of summer range habitat in that one area. Studies conducted in the Pinedale anticline of Wyoming found that mule deer avoided areas in close proximity to well pads with no evidence of well-pad acclimation during 3 out of 4 years. During year 4 of development habitat selection patterns were influenced more by road density, and not proximity of well pads. The authors attributed this to an unusually severe winter, where movement options and available habitat were limited. Densities of mule deer decreased by an estimated 46% within the developed area over the four years, and indirect impacts were observed out to 2.7-3.7 km of well sites. Mule deer distribution shifted toward less preferred and presumably less suitable habitat. (Sawyer et al, 2005) Similar impacts would be expected from development on a small portion of this proposal.

White-tailed deer would also be expected to be impacted by this project from habitat fragmentation and disturbance. Winter range for white-tailed deer exists across the planning area, but covers much less area than other big game ranges. The Milk River bottom and the lower reaches of its tributaries such as Bear Creek could support white-tailed deer winter range.

Pronghorn would be impacted by this project from habitat fragmentation and disturbance. Pronghorn winter range habitat has been identified in all lease parcels in the Glasgow Field Office, but not in the Malta Field Office. Preliminary studies in the upper Green River Basin in Wyoming report that some pronghorn exhibit movement patterns that suggest almost complete avoidance of gas field areas of intensive development in the Jonah Field during the winter, whereas pronghorn in the PAPA (Pinedale Anticline Project Area) apparently have not been avoiding human activities. It is speculated that the difference may exist due to different levels in well densities, as the Jonah field was reported as 1 well/57 acres, and the PAPA at 1 well/124 acres (Berger et al., 2007). Effects to winter range within existing and future gas development and exploration would be similar to those referenced above and would depend on rate and location of development.

Although limited research exists that documents impacts to sharp-tailed grouse from development activities, it is expected that sharp-tailed grouse would be impacted similarly to Greater Sage-Grouse. Sharp-tailed grouse would be impacted by this project from habitat fragmentation and disturbance. Vehicles and human activity during breeding and nesting seasons may reduce breeding activity, displace nesting hens and reduce the suitability of habitat for brood-rearing. Mortality may increase as a result of collisions with vehicles.

Inventory data for sharp-tailed grouse is available for the lease parcels from 1979-1981, although it is likely that dancing grounds have been moved or abandoned over time, while new dancing grounds have formed. A 500-foot buffer around dancing grounds and avoidance of nesting habitat would provide minimal mitigation for nesting sharp-tailed grouse. Wild turkeys,

pheasants, and gray partridge may also be affected by disturbance and direct mortality through nest destruction and vehicle collisions during the development stages. See the Special Status Species section above for impacts to Greater Sage-Grouse.

Wetland habitat also could be affected by project development, but not by leasing. Set-backs from natural wetlands for well pads as a COA at the time of development would mitigate many of the concerns, but pipeline and road placement during drought years could result in disturbances to wetlands that hold water during wet years. Additional disturbance occurs as vehicles are forced to drive around wet areas and more roads are created. Road dust also enters the wetlands and over time leads to wetland filling and loss of habitat.

Wildlife species, habitats, and issues and concerns likely to be impacted in each lease parcel, if leased, follows. Besides the issues and concerns listed, all lease parcels are expected to have a variety of small mammal, reptile, amphibian, and resident bird species as described in Chapter 3 – Affected Environment. These species, although not Special Status Species or species of high priority, are still important to the environment contributing much to the diversity and stability of the various wildlife habitats and plant communities present in the proposed lease parcels.

MTM 97300-K7

Wildlife issues on this parcel include marginal sharp-tailed grouse and migratory bird nesting habitat, and two shallow depressions that probably hold water and attract migrating waterfowl and shorebirds during wet years. There is no designated big game winter range in the area, and a lack of sage and the amount of cultivation rule this parcel out as PGH for Greater Sage-Grouse. A few patches of shrubs could attract a few species of migratory birds during the spring and fall migration seasons.

MTM 102757 KF

Wildlife concerns on this parcel include pronghorn winter range, migratory bird nesting habitat, riparian habitat along Bear Creek, and low-value Sprague's pipit nesting habitat. The large amount of cultivated private surface along with some type of previous cultivation on the remainder of the parcel severely limits the potential of the area for wildlife. There are no Greater Sage-Grouse strutting grounds near the area, and the sharp-tailed grouse from two nearby dancing grounds would be unlikely to find adequate nesting cover on the disturbed and cultivated ground. Some migratory birds could be attracted to the riparian area for migration as well as nesting habitat. The area is within PGH for Greater Sage-Grouse, but only because of the surrounding area which has better habitat.

MTM 102757 QG

Wildlife issues on this parcel include pronghorn winter range, migratory bird nesting habitat, and marginal Sprague's pipit nesting habitat. Most of the migratory bird use would be in the trees along Bear Creek. The riparian area, however, is disturbed with ranch buildings, proximity to Highway 2, and cultivation. Although near three sharp-tailed grouse dancing grounds, nesting habitat is severely limited. Sage-grouse habitat is PGH, but only because of surrounding lands that contain better habitat.

MTM 102757 KD

Issues and concerns include pronghorn winter range, migratory bird and sharp-tailed grouse nesting habitat, and low-value Sprague's pipit nesting habitat. Cultivation appears to have gone right through Lime Creek in dry years reducing the value of the riparian habitat for migratory birds. The Greater Sage-Grouse habitat is PGH only because of the surrounding habitat that is not cultivated. Sharp-tailed grouse from two historic dancing grounds near the parcel probably nest somewhere else where there is better nesting cover.

4.3.8.2 Mitigation

Measures would be taken to prevent, minimize, or mitigate impacts to fish and wildlife species from exploration and development activities. 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 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. Standard Lease Stipulations (16-3), Threatened and Endangered Species Lease Stipulations (16-2), and Sprague's pipit Lease Notice (14-15) would be applied to the leases to notify the lease holder that additional Conditions of Approval may be required at the development stage to mitigate for various wildlife species and their habitats.

4.3.9 Special Status Plant Species

4.3.9.1 Direct and Indirect Effects

Leasing the parcels would have no direct impacts on Special Status Plant Species. Any potential effects from the sale of leases would occur at the time the leases are developed. All Sensitive Plants are from riparian areas where mandatory set-backs would preclude development. Very little is known of the four plant species and recent records for the area near the lease parcels do not exist.

4.3.9.2 Mitigation

Stipulations applied to wildlife resources, steep slopes, waterbodies, streams, 100-year floodplains of major rivers, riparian areas, and wetlands would likely also provide mitigation for Special Status Plant Species. Proposed development would be analyzed on a site-specific basis prior to approval of gas exploration or development activities at the APD stage. Mitigation would also be addressed at the site-specific APD stage. Surveys to determine the existence of federally listed species could occur on BLM-administered surface or minerals prior to approval of exploration and development activities at the APD stage.

4.3.10 Cultural Resources

4.3.10.1 Direct and Indirect Effects

Leasing a nominated parcel gives a basic right to the operator to develop the lease. Leasing would not, however, result in effects to cultural resources at this stage. It is only when the lease is developed that there is a potential for cultural resources to be affected by the proposed action. That is when the drilling location is known and cultural resource investigations can be centered on that location and other related developments such as roads, transmission lines, and pipelines.

At the APD stage when specific oil and gas development actions are proposed, the area of potential effect (APE) will be defined and assessments of the impacts on cultural resources will

be undertaken in order to comply with Section 106 of the National Historic Preservation Act (NHPA) and BLM's 8100 Manual Series. A Class III cultural resource inventory will be necessary for those parcels not previously surveyed and for those parcels which have been judged inadequately surveyed in the past. Lease Notice 14-5 will apply to all parcels (Appendix A). In the event that cultural resources are identified within the APE, an evaluation of National Register eligibility will occur for each identified cultural resource. Mitigation measures for cultural resources determined to be eligible to the National Register of Historic Places (NRHP) will have to be followed for those cultural resources directly and/or indirectly impacted by the proposed development.

Direct and indirect impacts are not anticipated from leasing nominated parcels. It is at the APD stage of development that specific impacts can be correctly assessed. Potential direct impacts to cultural resources at the APD stage include damage to archaeological sites through construction activities (e.g. pad construction, road building, well drilling), increased erosion from surface activities, and increased travel and vandalism resulting from improved access to the area. Potential indirect impacts include abrasive dust and vibrations from drilling equipment and damage to rock art sites from gas emissions. Conversely, cultural resource investigations associated with development adds to our understanding of the prehistory and history of the area under investigation.

Indirect effects from surface disturbances associated with exploration and development activities after leasing have the potential to alter the characteristics of a significant cultural or historic property by diminishing the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Other effects to cultural resources from proposed surface disturbance activities include the destruction, damage, or alteration to all or part of the cultural resource and diminishing the property's significant historic features as a result of the introduction of visual, atmospheric, or audible elements. This could include altering or diminishing the elements of a National Register eligible property and diminish an eligible property's eligibility status. Cultural resource investigations associated with development potentially adds to our understanding of the prehistory/history of the area under investigation and discovery of sites that would otherwise remain undiscovered due to burial or omission during review inventories.

Climate change may have an effect on cultural resources by changing the frequency and severity of natural events, such as heavy rain and wildfires (Agee 1993; Maslin 2004). Heavy rain increases the likelihood of flooding and soil erosion which could impact an archaeological site by exposing, removing, and displacing archaeological materials. Wildfires can affect the morphology of artifacts through fracturing and discoloration which can reduce an artifact's ability to render information about the past (Winthrop 2004). Wildfires can also destroy organic materials such as bone, wood, and pollen that provide information about past environments and subsistence. Furthermore, fire suppression activities (e.g. fire retardant and fire line construction) and increased artifact exposure from vegetation burn-off, can also have an adverse impact on archaeological sites.

4.3.10.2 Mitigation

Specific mitigation measures, such as site avoidance or data recovery through excavation, would have to be determined when project specific development proposals are received. In almost all

situations, direct impacts to cultural resources could be avoided by relocating well sites and pipelines. Given the relatively small number of acres to be disturbed by anticipated development it is unlikely that it would be necessary to mitigate adverse impacts to archaeological sites through data recovery efforts. It should be noted that BLM has discretionary control over mitigation stipulations measures imposed on a project. Although a lessee has a right to develop a lease, BLM may require development activities to be moved up to 200 meters in any direction. This should allow nearly all sites to be avoided. Should development uncover subsurface sites, the lessee is required to halt all work until the site can be evaluated and proper mitigation measures can be implemented

The use of standard lease terms and Standard Stipulation 16-3 protect vulnerable significant cultural resource values on these lease parcels (refer to Appendix A). The application of these requirements at the leasing phase provide protection to cultural values or at least notification to the lessee that potentially valuable cultural resource values are or are likely to be present on the lease parcels.

Specific mitigation measures, including but not limited to, possible 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. If significant properties cannot be avoided, appropriate strategies would be implemented to mitigate potential impacts in accordance with existing federal regulations.

In addition, 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.

4.3.11 Native American Religious Concerns

4.3.11.1 Direct and Indirect Effects

Leasing the parcels would have no direct impacts on Native American religious concerns. Any potential effects from the sale of leases would occur at the time the leases are developed.

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. Leasing would not have an impact on TCPs and/or areas of religious or cultural importance to tribes. 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. Indirect effects from site specific development proposals could have an impact to Native American religious practices and TCPs.

4.3.11.2 Mitigation

The application of Stipulation 16-1 to all lease parcels ensures that BLM's obligations under NHPA, American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, E.O. 13007, and other statutes as applicable will be met. At the APD stage

when specific oil and gas development actions are proposed, the area of potential effect (APE) will be defined and federally recognized tribes will be consulted if necessary. Additional NSO or CSU Stipulations may be necessary if TCPs or properties of religious and cultural importance are identified at the APD stage.

4.3.12 Paleontology

4.3.12.1 Direct and Indirect Effects

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

The surface disturbances associated with oil and gas exploration and development activities could have indirect effects to paleontological resources primarily in areas classified as Potential Fossil Yield Classification (PFYC) 4 or 5 areas. Surface-disturbing activities could potentially alter the characteristics of paleontological resources through damage, fossil destruction, or disturbance of the stratigraphic context in which paleontological resources are located, resulting in the loss of important scientific data. However, in most surface-disturbing situations, paleontological resources would be avoided by project redesign or relocation before project approval which would negate the need for the implementation of mitigation measures.

Conversely, surface-disturbing activities can also potentially lead to the discovery of paleontological localities that would otherwise remain undiscovered due to burial or omission during review inventories. The scientific study to retrieve and interpret important paleontological resource information provides a better understanding of the nature and distribution of those resources. The retrieval and interpretation of information is most successful and meaningful when a site is left intact.

Once a parcel is leased, the application of standard lease terms (movement of activities by 200 meters or delay of up to 60 days) would protect vulnerable significant paleontological resource values on these lease parcels. In most instances this may be sufficient to provide the necessary protection to paleontological values. However, the application of standard lease terms may not always adequately protect paleontological values. In order to protect paleontological values, paleontological resources management relies on the application of Lease Notice LN 14-12, applied at the leasing phase to provide protection to paleontological resources or at least notification to the lessee that potentially significant paleontological resources are or are likely to be present on the lease parcels should the lease parcel fall within one of the designated PFYC Class 4 or 5 significant geologic formations which have a record of producing significant fossils.

The paleontological lease notice would be applied to those lease parcels that fall within the PFYC 4 or 5 areas, requiring a field survey prior to surface disturbance. Paleontological resource surveys conducted prior to surface-disturbing activities could locate additional paleontological resources and would result in a better understanding of the nature and distribution of those resources.

4.3.12.2 Mitigation

The use of standard lease terms, Standard Stipulation 16-3 -and the Lease Notice 14-12 protect paleontological resource values on these lease parcels (refer to Appendix A). The application of

these requirements at the leasing phase provides protection to paleontological values. The paleontological lease notice would be applied to those lease parcels that fall within the PFYC 4 or 5 areas, requiring a field survey prior to surface disturbance. These inventory requirements should result in the identification of paleontological resources and avoidance or mitigation of significant localities before permit approval and prior to surface disturbance. However, the application of standard lease terms only allows the relocation of activities up to 200 meters, unless documented in the NEPA document, and cannot result in moving the activity off lease.

Specific mitigation measures could include, but are not limited to, site avoidance or excavation. Avoidance of paleontological properties would be a best management practice. However, should a paleontological locality be unavoidable, significant properties would be mitigated prior to implementation of a project. These measures would be determined when site specific development proposals are received.

Based on the above analysis, in order to protect potential paleontological values the following Leases are recommended to have the Paleontological Lease Notice, (LN 14-12) applied per guidance identified in Instructional Memorandums 2009-011 and 2008-009. Leases recommended for paleontological lease notice are listed by county: Valley County; MTM 102757-QG, MTM 102757-KD, MTM 102757-KF. See Appendix A for specific legal description.

4.3.13 Visual Resources

4.3.13.1 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 (indirect effects).

The 4 proposed lease parcels are split estate (private surface with federal minerals) . BLM has no authority to impose, but may suggest, visual resource prescriptions on federal non-surface lands and there is no visual inventory for those parcels. 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.

4.3.13.2 Mitigation

All new oil and gas development would implement, as appropriate for the site, BLM Best Management Practices for 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 hill tops. Overall, the goal would be to not reduce the visual qualities or scenic value that currently exists.

4.3.14 Forest and Woodland Resources

None present on any offered parcels.

4.3.15 Livestock Grazing

4.3.15.1 Direct and Indirect Effects

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

Oil and gas development could result in a loss of vegetation for livestock grazing (e.g., direct removal, introduction of unpalatable plant species, etc.), decrease the palatability of vegetation due to fugitive dust, disrupt livestock management practices, involve vehicle collisions, and decrease grazing capacity. Direct losses of forage could also result from construction of roads, well pads and associated infrastructure and would vary depending on the extent of development. These impacts could vary from short-term impacts to long-term impacts depending on the type of exploration or development, the success of reclamation, and the type of vegetation removed for the oil and gas activities.

4.3.15.2 Mitigation

Measures would be taken to prevent, minimize, or mitigate impacts to livestock grazing from exploration and development activities. Prior to authorization, activities would be evaluated on a case-by-case basis, and the project would be subject to mitigation measures. Mitigation could potentially include controlling livestock movement by maintaining fence line integrity, fencing of facilities, revegetation of disturbed sites, and fugitive dust control.

4.3.16 Recreation and Travel Management

4.3.16.1 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.). Recreationists would lose some benefit outcomes such as loss of importance sense of place, solitude and possible increase of stress.

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 are 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.

For those areas with isolated tracks of BLM public lands that generally do not have existing public access, recreation opportunities that occur in these areas are limited to use with adjacent land owner permission or hunting by an outfitter; therefore, oil and gas activities would have little or no impact on recreational experiences in this area.

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.

4.3.16.2 Mitigation

Site-specific mitigations would be developed for road placement, construction and maintenance at the time the lease parcels are developed.

4.3.17 Lands and Realty

None present since all parcels are fee surface.

4.3.18 Minerals

4.3.18.1 Fluid Minerals

4.3.18.1.1 Direct and Indirect Effects

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

Issuing a lease provides opportunities to explore for and develop oil and gas. Additional natural gas or crude oil produced from any or all of the 4 plus one partial parcel would enter the public markets. The production of oil and gas results in the irreversible and irretrievable loss of these resources. Royalties and taxes would accrue to the federal and state treasuries from the lease parcel lands. There would be a reduction in the known amount of oil and gas resources.

Stipulations applied to various areas with respect to occupancy, timing limitation, and control of surface use could affect oil and gas exploration and development, both on and off the federal parcel. Leases issued with major constraints (NSO stipulations) may decrease some lease values, increase operating costs, and require relocation of well sites, and modification of field development. Leases issued with moderate constraints (timing limitation and controlled surface Use (CSU) stipulations) may result in similar but reduced impacts, and delays in operations and uncertainty on the part of operators regarding restrictions.

Under Alternative B, all of the lease parcels would be offered for lease subject to major (NSO) or moderate (CSU) constraints and/or standard lease terms and conditions.

4.3.18.2 Solid Minerals

4.3.18.2.1 Direct and Indirect Effects

Leasing the parcels would have no direct impacts solid minerals. As described in Chapter 3, none of the parcels proposed to be leased for oil and gas in the analysis area conflict with currently active or existing claims, patents, permits or leases for all solid materials issued on federal lands within the analysis area.

4.3.20 Social and Economic Conditions

4.3.20.1 Social

Alternative A

The No Action alternative would result in the continuation of the current land and resource uses and would cause no social impacts. There would be no disproportionate effects to low income or minority populations under this alternative.

Alternative B

While the act of leasing Federal minerals itself would result in no social impact, subsequent exploration and development may generate impacts to people living near or using the area in the vicinity of the lease. Exploration, drilling or production could create an inconvenience to people living adjacent to leases due to increased traffic and traffic delays, and light, noise and visual impacts. This could be especially noticeable in rural areas where oil and gas development has not occurred previously. The amount of inconvenience would depend of the activity affected, traffic patterns within the area, noise and light levels, length of time and season these activities occur, etc. Residents of counties where the development actually occurs could also benefit from the additional revenues to counties due to oil and gas leasing and development.

There would be no disproportionate effects to low income or minority populations. Consultation with potentially affected Tribes would occur at the APD stage.

4.3.20.1.1 Direct and Indirect Effects

While the act of leasing Federal minerals itself would result in no social impact, subsequent exploration and development may generate impacts to people living near or using the area in the vicinity of the lease. Exploration, drilling or production could create an inconvenience to people living adjacent to leases due to increased traffic and traffic delays, and light, noise and visual impacts. This could be especially noticeable in rural areas where oil and gas development has not occurred previously. The amount of inconvenience would depend on the activity affected, traffic patterns within the area, noise and light levels, length of time and season these activities occur, etc. For leases where the surface is privately owned, surface owner agreements, standard stipulations and best management practices could address the concerns of private surface owners.

Residents living in areas that have been experiencing ongoing population losses may support any increase in revenues and employment to counties associated with oil and gas leasing and development.

There would be no disproportionate effects to low income or minority populations from oil and gas leasing. Coordination with potentially affected Tribes is ongoing and would also occur at the APD stage.

4.3.20.2 Economics

The basis for economic impacts is the number of acres leased, rents paid, and level of production by alternative. 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 and rent of Federal minerals, 2) 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. Table 17 is a summary of local revenues, employment, income, population, and household impacts of each alternative.

Table 17. Change in Estimated Average Annual Economic Impacts

| Alternative | Acres Recommended for Lease | Change in Local Revenue to Counties (\$) | Change in Total Employment (full and part-time jobs) | Change in Total Labor Income (\$1,000) | Change in Population Change | Change in Change in Number of Households |
|-------------|-----------------------------|--|--|--|-----------------------------|--|
| A | 0 | 0 | 0 | 0 | 0 | 0 |
| B | 1,107 | 2,238 | 0 | 19 | 0 | 0 |

4.20.1.1 Alternative A (No Action)

Economic effects are summarized and displayed in comparative form in Table Econ.2 (Change in Estimated Average Annual Economic Impacts), Table Econ. 3 (Summary Comparison of Cumulative Economic Impacts) and Table 4 Employment and Income Related to BLM Oil and Gas Management). With Alternative A none of the parcels considered would be leased. Consequently, no additional Federal, state, or local revenues would be generated from leasing, rents, or royalties associated with production. No additional employment or income would be generated if none of the parcels are leased.

Cumulative Effects:

Cumulative economic impacts associated with Alternative A would be similar to those described in the economic section of the Affected Environment. The cumulative effects of Federal mineral

leasing, exploration, development and production within the local economy are summarized in Table 18 and Table 19. The cumulative demographic and economic characteristics of the local economy would not change if the parcels being considered are not leased.

Table 18. Summary Comparison of Cumulative Annual Economic Impacts by Alternative

| Activity | Alternative | | |
|--|-------------|-------------|--|
| | A | B | |
| Existing Acres leased* | 536,995 | 536,995 | |
| Acres that would be leased based on this EA | 0 | 1,107 | |
| Total acres leased | 536,995 | 538,102 | |
| Acres held by production* | 305,281 | 305,281 | |
| Total acres leased for which lease rents would be paid | 231,714 | 232,821 | |
| | | | |
| Total average annual Federal lease and rental revenue | \$1,464,454 | \$1,468,574 | |
| Average annual distribution to State/local government | \$643,774 | \$645,585 | |
| | | | |
| Average annual oil production (bbl)** | 0 | 0 | |
| Average annual gas production (MCF)** | 11,906,171 | 11,930,715 | |
| Total Average annual Federal O&G royalties | \$4,702,937 | \$4,712,632 | |
| Average annual distribution to State/local government | \$1,954,541 | \$1,958,570 | |
| | | | |
| Total average annual Federal Revenues | \$6,167,391 | \$6,181,206 | |
| Total average annual State/Local Revenues | \$2,598,315 | \$2,604,155 | |
| Total average annual revenue distributed to counties | \$999,272 | \$1,001,510 | |
| *LR2000, BLM, March 27, 2012 | | | |
| **Based on average annual production 2009-2010, Office of Natural Resource Revenue, 2011 | | | |



Table 19. Employment and Income Related to BLM Oil and Gas Management

| Industry | Total Jobs Contributed | | | Total Income Contributed (\$1000) | | |
|-----------------------------|------------------------|--------|--|-----------------------------------|--------|--|
| | Alt. A | Alt. B | | Alt. A | Alt. B | |
| Total Federal Contribution | 139 | 139 | | 8,972 | 8,991 | |
| Percent Change from Current | 0.0% | 0.0% | | 0.0% | 0.2% | |

IMPLAN, 2009 database

Alternative B (Proposed Action)

Public Revenues

Leasing an additional 1,107 acres of Federal minerals (Alternative B) would increase average annual oil and gas leasing and rent revenues to the Federal government by an estimated \$4,000. Average annual leasing and rent revenues that would be distributed to state/local governments would increase by about \$2,000. Estimated average annual Federal oil and gas royalties would increase by about \$10,000 with Alternative B compared to current levels. Estimated average annual royalties distributed to the state/counties would increase by about \$4,000 compared to current levels.

Total average annual Federal revenues related to leasing an additional 1,107 acres of Federal minerals and associated annual rent and royalty revenues related to average annual production of Federal minerals would amount to about \$14,000. Estimated total average annual revenues from leasing, rent, and royalties distributed to the state and counties would increase by about \$6,000. Total estimated annual revenues distributed to Phillips and Valley Counties would be about \$2,000.

Local Economic Contribution

The estimated combined total average annual employment and income supported by Federal oil and gas leasing, distributions of royalties to local governments, drilling wells, and production would continue to amount to about 140 total jobs (full and part-time) and \$9.0 million in labor income within the local economy (IMPLAN 2009). There would also be no change in local population or households.

Conclusion

Total Federal contribution of Alternative B (leasing an additional 1,107 acres of Federal minerals) and anticipated related exploration, development, and production of oil and gas would have little affect local income, total local employment, local population, and number of

households. Leasing the additional 1,107 acres and anticipated exploration, development, and production under alternative B would provide few additional funds for Phillips and Valley County government functions such as enforcing laws, administering justice, collecting and disbursing tax funds, providing for orderly elections, maintaining roads and highways, providing fire protection, keeping records, administering primary and secondary education and operating clinics/hospitals, county libraries, county airports, local landfills, and county health systems. At the same time, demand for these services would likely increase very little since the population and number of households would not change. Leasing the additional 1,107 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) within the local economy.

4.3.20.2.1 Direct and Indirect Effects

4.3.21 Cumulative Impacts- Alternative B

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.

4.3.21.1 Past, Present and Reasonably Foreseeable Future Actions

Past, present, or reasonably foreseeable future actions that affect the same components of the environment as the Proposed Action are: grazing, roads, wildfire and prescribed fire, range improvement projects, and utility right-of-ways. There are no other major foreseeable future actions, and it is anticipated that the current use of the land would remain the same.

4.3.21.2 Cumulative Impacts by Resource

Cumulative effects for all resources in the Malta and Glasgow Field Offices are described in the Judith-Valley-Phillips Resource Management Plan (JVP RMP). Anticipated exploration and development activities associated with the lease parcels considered in this EA are within the range of assumptions used and effects described in this cumulative effects analysis for resources other than oil and gas, air, climate, and socio-economics resources. This previous analysis is hereby incorporated by reference for resources other than for oil and gas, air, climate, and socio-economics resources.

4.3.21.2.1 Greenhouse Gas Emissions and Cumulative Impacts on Climate Change

The cumulative effects analysis area is the Hilina analysis area, with additional discussion at state-wide, national, and global scales for GHG emissions 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 end uses of final products.

Projected GHG emissions for this project and the Hiline 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 for the sake of providing context for the potential contributions of GHGs associated with this project.

As discussed in the Air Quality section of Chapter 4, total projected BLM GHG emissions from the RFD are 133,856 metric tons/year CO₂e. Potential emissions under Alternative B would be approximately 0.029 percent of this total. Table 20 displays projected GHG emissions from non-BLM activities included in the Hiline RFD. Total projected emissions of non-BLM activities in the RFD are 276,754 metric tons/year of CO₂e. When combined with projected annual BLM emissions, this totals 410,610 metric tons/year CO₂e. Potential GHG emissions under Alternative B would be 0.009 percent of the estimated emissions for the entire RFD. Potential incremental emissions of GHGs from exploration and development of fluid minerals on parcels within Alternative B, would be minor in the context of projected GHG contributions from the entire RFD.

Table 20. Projected non-BLM GHG Emissions Associated with the HiLine Reasonably Foreseeable Development Scenario for Fluid Mineral Exploration and Development.

| Source | Non-BLM Projected GHG Emissions in tons/year for HiLine RFD | | | Emissions (metric tons/yr) |
|--------------------------|---|-----------------|------------------|----------------------------|
| | CO ₂ | CH ₄ | N ₂ O | CO ₂ e |
| Conventional Natural Gas | 230,464 | 1,989 | 1.15 | 247,354 |
| Coal Bed Natural Gas | 4,736 | 261 | 0.01 | 9,282 |
| Oil | 19,560 | 124 | 0.05 | 20,118 |
| Total | 254,760 | 2,374 | 1.21 | 276,754 |

Montana’s Contribution to U.S. and Global Greenhouse Gases (GHGs)

Montana’s GHG inventory (<http://www.eia.doe.gov/oiaf/1605/archive/gg04rpt/emission.html>, Center for Climate Strategies 2007) shows that activities within the state contribute 0.6 percent of U.S and 0.076 percent of global GHG emissions (based on 2004 global GHG emission data from the IPCC, summarized in the Climate Change SIR 2010). Based on 2005 data in the state-wide inventory, the most pronounced source of Montana’s emissions is combustion of fossil fuels to generate electricity, which accounts for about 27 percent of Montana’s emissions. The

next largest contributors are the agriculture and transportation sectors (each at approximately 22 percent) and fossil fuel production (13.6 percent).

GHG emissions from all major sectors in Montana in 2005 added up to a total of approximately 36.8 million metric tons of CO₂e (CCS 2007). Potential emissions from development of lease parcels in Alternative B of this project represent approximately 0.00003 percent of the state-wide total of GHG emissions based on the 2005 state-wide inventory (CCS 2007).

The EPA published an inventory of U.S. GHG emissions, indicating gross U.S. emissions of 6,633 million metric tons, and net emissions of 5,618 million metric tons (when CO₂ sinks were considered) of CO₂e in 2009 (EPA 2011). Potential annual emissions under Alternative B of this project would amount to approximately 0.000001 percent of gross U.S. total emissions. Global GHG emissions for 2004 (IPCC 2007, summarized by the Climate Change SIR 2010) indicated approximately 49 gigatonnes (10⁹ metric tons) of CO₂e emitted. Potential annual emissions under Alternative B would amount to approximately 0.00000008 percent of this global total.

As indicated above, although the effects of GHG 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 Chapter 4 Air Quality section above may be in place at the APD stage to reduce GHG emissions from potential oil and gas development on lease parcels under Alternative B. This is likely because many operators working in Montana are currently USEPA 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).

4.3.21.2.2 Cumulative Impacts of Climate Change

As previously discussed in the Air Quality section of Chapter 4, it is difficult to impossible to identify specific impacts of climate change on specific resources within the analysis area. 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 feedbacks also make it difficult to estimate the contribution of GHG increases to observed small-scale temperature changes (IPCC 2007b, as cited by the Climate Change SIR 2010). Effects of climate change on resources are described in Chapter 3 of this EA and in the Climate Change SIR (2010).

4.3.21.3 Cumulative Impacts to Wildlife

Cumulative impacts are those impacts on the environment which result “from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions

regardless of what agency or person undertakes such other actions.” (40 CFR 1508.7). In this case, past and presently on-going actions and activities in the project vicinity include fire, farming, livestock grazing, light vehicle seasonal traffic, and any other form of human and natural disturbances.

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. 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 would have consequential cumulative effects. The affected parcels all have been previously cultivated and that disturbance has probably had a greater effect than any future energy development on a smaller portion of the parcels.

4.3.21.4 Cumulative Impacts to Economic Conditions Cumulative Effects for Alternative A (No Action)

Cumulative economic impacts associated with Alternative A would be similar to those described in the economic section of the Affected Environment.

Cumulative Effects for Alternative B (Proposed Action)

The cumulative effects of Federal mineral leasing within the local economy as well as the specific effects of leasing an additional 1,107 acres under Alternative B are summarized in Tables 18 (Summary Comparison of Cumulative Annual Economic Impacts by Alternative) and 19 (Employment and Income Related to BLM Oil and Gas Management).

5.0 CONSULTATION AND COORDINATION:

5.1 Persons, Agencies, and Organizations Consulted

Coordination with MFWP and USFWS was conducted for the 4 plus 1 partial lease parcels being reviewed. BLM has coordinated with MFWP and USFWS in the completion of this EA in order to prepare analysis, identify protective measures, and apply stipulations associated with these parcels being analyzed.

The BLM consults with Native Americans under Section 106 of the National Historic Preservation Act. BLM sent letters to Tribal Presidents and THPO's of the Blackfeet, Gros Ventre, Assinboine, Sioux, Flathead (Salish) Kootenai, and Cree Tribes on January 12, 2012 informing them of the potential for the 4 parcels to be leased and inviting them to submit issues and concerns BLM should consider in the environmental analysis. Following the initial letter, face to face meetings were held with the Blackfeet, Chippewa Cree, Gros Ventre/Assinboine, and the Salish Kootenai tribes. No specific issues were identified.

The BLM sent a second letter to the aforementioned tribes on June 12, 2012 notifying them about the availability of the Draft EA and unsigned FONSI for a 30 day comment period. To date, no comments have been received.

Table 21 lists persons, agencies, and organizations who were consulted during development of this EA along with the findings and conclusions associated with consultations.

Table 21. List of all Persons, Agencies and Organizations Consulted for Purposes of this EA

| Name | Purpose & Authorities for Consultation or Coordination | Findings & Conclusions |
|--|---|--|
| Montana Fish, Wildlife, and Parks (MFWP), Region 6 | I.M. #MT-2008-008, 2/26/2007; MFWP and BLM Guidance on Coordination During Oil and Gas Lease Parcel Reviews | MFWP recommended that parcels be deferred along the Milk River because of the endangered pallid sturgeon. |
| USFWS | Coordination letter I.M. # MT-2009-039, 2009 Montana/Dakotas special Status Species List. | With pallid sturgeon habitat deferred, there was no reason for Section 7 formal consultation with USFWS. |
| Montana State Historic Preservation Office | Repository for cultural inventory reports and cultural site forms for the State of Montana | Consulted SHPO CRIS and CRABS databases for information on cultural inventories and cultural sites within the proposed lease sale parcels. |

5.2 Summary of Public Participation

Scoping

Public scoping for this project was conducted through a 15-day scoping period advertised on the BLM Montana State Office website and posting on the field office website NEPA notification log. Scoping was initiated March 22, 2012 through April 9, 2012. 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 19 surface owner notification letters were distributed for the oil and gas leasing analysis process. No comments were received.

Table 22. List of Preparers

| Name | Title | Responsible for the Following Section(s) of this Document |
|---------------------------------------|--------------------------------------|--|
| n/a | Realty Specialist | Lands & Realty |
| Phoebe Patterson and Rich Adams | Field Managers (GFO/MaFO) | Overall review |
| Joshua Chase | Archaeologist | Cultural, Paleontological, Native American Religious Concerns |
| Kathy Tribby | Outdoor Recreation Planner | Recreation, VRM, Wilderness, & Special Designations |
| Fritz Prellwitz | Wildlife Biologist | Fish & Wildlife, Migratory Birds, Special Status Species |
| Andrea Parrott | Natural Resource Specialist | EA Lead |
| Steve Klessens | Rangeland Management Specialist | Riparian |
| Amanda Anderson | GIS Specialist | GIS |
| Steve Klessens | Rangeland Management Specialist | Livestock Grazing/ Vegetation |
| | Hydrologist | Water |
| Josh Sorlie | Soil Scientist | Soils |
| | Planning & Environmental Coordinator | NEPA |
| Joan Trent | Social Scientist | Social Analysis |
| John Thompson | Planning & Environmental Specialist | Economic Analysis |
| Susan Bassett | | Air Quality/Climate Change/GHG |
| | | |

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7.0 DEFINITIONS

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. NAICS was developed under the auspices of the Office of Management and Budget (OMB), and adopted in 1997 to replace the Standard Industrial Classification (SIC) system and to allow for a high level of comparability in business statistics among the North American countries.

IMPLAN: The IMPLAN Model is the most flexible, detailed and widely used input-output impact model system in the U.S. It provides users with the ability to define industries, economic relationships and projects to be analyzed. It can be customized for any county, region or state, and used to assess "multiplier effects" caused by increasing or decreasing spending in various parts of the economy. This can be used to assess the economic impacts of resource management decisions, facilities, industries, or changes in their level of activity in a given area. The current IMPLAN input-output database and model is maintained and sold by MIG, Inc. (Minnesota IMPLAN Group). The 2007 data set was used in this analysis.

Traditional Cultural Property (TCP) is a property that derives significance from traditional values associated with it by a social or cultural group, such as an Indian tribe or local community. A traditional cultural property may qualify for the National Register of Historic Places if it meets the criteria and criteria exceptions at 36 CFR 60.4. See National Register Bulletin 38.

APPENDIX A - MALTA FIELD OFFICE

| PARCEL NUMBER | PARCEL DESCRIPTION | PROPOSED FOR LEASING ALTERNATIVE B | PROPOSED FOR LEASING ALTERNATIVE C (ONLY IF EA INCLUDES ALTERNATIVE C) | PROPOSED FOR DEFERRAL-NO LEASING |
|---------------------|--|--|--|---|
| MTM 97300-K4 | T. 34 N, R. 28 E, PMM, MT SEC. 26 NW; SEC. 28 N2; SEC. 29 ALL; SEC. 32 W2; SEC. 33 N2N2,S2NE,SE; SEC. 34 N2; SEC. 35 SW; PHILLIPS COUNTY 2320.00 AC PD | | | All lands deferred due to important wildlife habitat. |
| MTM 97300-K7 | T. 35 N, R. 28 E, PMM, MT SEC. 11 SENE,NESE,S2SE; PHILLIPS COUNTY 160.00 AC PD | Standard 16-3, CR 16-1, TES 16-2, LN 14-15 | | |
| MTM 97300-K6 | T. 34 N, R. 29 E, PMM, MT SEC. 6 LOT 6; SEC. 6 NESW; SEC. 7 NENE,NESE; SEC. 18 W2SE; PHILLIPS COUNTY 235.64 AC PD | | | All lands deferred due to important wildlife habitat. |

APPENDIX A - GLASGOW FIELD OFFICE

| PARCEL NUMBER | PARCEL DESCRIPTION | PROPOSED FOR LEASING ALTERNATIVE B | PROPOSED FOR LEASING ALTERNATIVE C (ONLY IF EA INCLUDES ALTERNATIVE C) | PROPOSED FOR DEFERRAL-NO LEASING |
|----------------------|---|------------------------------------|--|--|
| MTM 102757-EB | T. 37 N, R. 36 E, PMM, MT SEC. 1 LOT 2; SEC. 1 N2SE; VALLEY COUNTY 126.60 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 102757-EC | T. 37 N, R. 36 E, PMM, MT SEC. 1 SESE; VALLEY COUNTY 40.00 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 102757-ED | T. 37 N, R. 36 E, PMM, MT SEC. 2 LOT 4; SEC. 3 LOT 1; SEC. 3 S2NE,SESW,NESW; VALLEY COUNTY 253.95 AC ACO | | | All lands deferred for important wildlife habitat. |
| MTM 102757-EE | T. 37 N, R. 36 E, PMM, MT SEC. 2 SWNW,SW; SEC. 11 N2NW,SESW; VALLEY COUNTY 320.00 AC ACO | | | All lands deferred for important wildlife habitat. |
| MTM 102757-EF | T. 37 N, R. 36 E, PMM, MT SEC. 3 LOTS 2,3; SEC. 3 NWSW; VALLEY COUNTY 134.16 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 102757-EH | T. 37 N, R. 36 E, PMM, MT SEC. 3 LOT 4; SEC. 3 SWNW; SEC. 4 LOTS 1-3; SEC. 4 S2NE,SESW,NESW,W2SE; SEC. 9 NE; VALLEY COUNTY 628.33 AC PD | | | All lands deferred for important wildlife habitat. |

APPENDIX A - GLASGOW FIELD OFFICE

| PARCEL NUMBER | PARCEL DESCRIPTION | PROPOSED FOR LEASING ALTERNATIVE B | PROPOSED FOR LEASING ALTERNATIVE C (ONLY IF EA INCLUDES ALTERNATIVE C) | PROPOSED FOR DEFERRAL-NO LEASING |
|----------------------|---|------------------------------------|--|--|
| MTM 102757-EG | T. 37 N, R. 36 E, PMM, MT SEC. 3 S2SW; SEC. 4 E2SE; SEC. 10 NW; VALLEY COUNTY 320.00 AC ACO | | | All lands deferred for important wildlife habitat. |
| MTM 102757-EJ | T. 37 N, R. 36 E, PMM, MT SEC. 4 LOT 4; SEC. 4 SWNW,NWSW; VALLEY COUNTY 126.90 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 102757-EK | T. 37 N, R. 36 E, PMM, MT SEC. 4 S2SW; SEC. 9 NENW; VALLEY COUNTY 120.00 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 102757-EL | T. 37 N, R. 36 E, PMM, MT SEC. 9 NWNW,S2NW,N2SW,SE; VALLEY COUNTY 360.00 AC ACO | | | All lands deferred for important wildlife habitat. |
| MTM 102757-EM | T. 37 N, R. 36 E, PMM, MT SEC. 9 S2SW; VALLEY COUNTY 80.00 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 102757-EN | T. 37 N, R. 36 E, PMM, MT SEC. 10 NESW,N2SE,SWSE; SEC. 11 SWNW,N2SW,SESW,SWSE; SEC. 14 SENW; VALLEY COUNTY 400.00 AC PD | | | All lands deferred for important wildlife habitat. |

APPENDIX A - GLASGOW FIELD OFFICE

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|----------------------|--|------------------------------------|--|--|
| MTM 102757-EP | T. 37 N, R. 36 E, PMM, MT SEC. 10 W2SW, SESW; VALLEY COUNTY 120.00 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 102757-ER | T. 37 N, R. 36 E, PMM, MT SEC. 11 SESE; SEC. 12 SWSW; SEC. 13 W2W2; SEC. 14 E2, NENW, SESW; SEC. 23 NENE; SEC. 24 NWNW, S2NW; VALLEY COUNTY 800.00 AC ACQ | | | All lands deferred for important wildlife habitat. |
| MTM 102757-EQ | T. 37 N, R. 36 E, PMM, MT SEC. 12 SENE; VALLEY COUNTY 40.00 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 102757-ET | T. 37 N, R. 36 E, PMM, MT SEC. 14 SWSW; SEC. 15 W2NE, W2, SE; SEC. 22 E2; SEC. 23 NWNW, S2; SEC. 24 W2SW; VALLEY COUNTY 1360.00 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 102757-EU | T. 37 N, R. 36 E, PMM, MT SEC. 21 N2NE, SWNE, NW; SEC. 22 NWNW; VALLEY COUNTY 320.00 AC PD | | | All lands deferred for important wildlife habitat. |

APPENDIX A - GLASGOW FIELD OFFICE

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|----------------------|---|------------------------------------|--|--|
| MTM 102757-XH | T. 37 N, R. 36 E, PMM, MT SEC. 21 SENE; SEC. 22 NENW,S2NW,SW; VALLEY COUNTY 320.00 AC ACO | | | All lands deferred for important wildlife habitat. |
| MTM 102757-EV | T. 37 N, R. 36 E, PMM, MT SEC. 21 S2; VALLEY COUNTY 320.00 AC ACO | | | All lands deferred for important wildlife habitat. |
| MTM 102757-WA | T. 37 N, R. 36 E, PMM, MT SEC. 23 NWNE,NENW,S2N2; SEC. 24 SWNE; VALLEY COUNTY 280.00 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 102757-EW | T. 37 N, R. 36 E, PMM, MT SEC. 25 W2SW,SWSE; VALLEY COUNTY 120.00 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 102757-EX | T. 37 N, R. 36 E, PMM, MT SEC. 26 S2; VALLEY COUNTY 320.00 AC ACO | | | All lands deferred for important wildlife habitat. |
| MTM 102757-EY | T. 37 N, R. 36 E, PMM, MT SEC. 27 S2; SEC. 28 S2; VALLEY COUNTY 640.00 AC ACO | | | All lands deferred for important wildlife habitat. |

APPENDIX A - GLASGOW FIELD OFFICE

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|----------------------|--|---|--|---|
| MTM 102757-QG | T. 30 N, R. 37 E, PMM, MT SEC. 2 POR SWNE, SENW LYING N OF HWY 2 DESC BY M&B (29.552 AC); SEC. 2 LOTS 1-3; VALLEY COUNTY 147.132 AC 50% U.S. MINERAL INTEREST ACO | Standard 16-3, CR 16-1, TES 16-2, LN 14-15 | | |
| MTM 102757-QH | T. 30 N, R. 37 E, PMM, MT SEC. 2 W2SE; SEC. 11 N2NE; VALLEY COUNTY 160.00 AC ACO | | | All lands deferred for important wildlife habitat. |
| MTM 102757-QJ | T. 30 N, R. 37 E, PMM, MT SEC. 7 LOT 3; VALLEY COUNTY 6.33 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 102757-QK | T. 30 N, R. 37 E, PMM, MT SEC. 9 LOT 3; VALLEY COUNTY 16.97 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 102757-QL | T. 30 N, R. 37 E, PMM, MT SEC. 14 LOTS 6,9; SEC. 23 LOTS 3,9; VALLEY COUNTY 90.51 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 102757-QM | T. 30 N, R. 37 E, PMM, MT SEC. 15 LOTS 4,11; SEC. 15 SWSW; VALLEY COUNTY 74.11 AC PD | | | All lands deferred for important wildlife habitat. |

APPENDIX A - GLASGOW FIELD OFFICE

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|----------------------|--|--|--|--|
| MTM 102757-QN | T. 30 N, R. 37 E, PMM, MT SEC. 19 LOT 1; SEC. 19 N2NE,NENW; VALLEY COUNTY 158.48 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 102757-QP | T. 30 N, R. 37 E, PMM, MT SEC. 19 S2NE,NESE; SEC. 20 LOT 7; SEC. 20 SWNW,NWSW; VALLEY COUNTY 239.94 AC ACO | | | All lands deferred for important wildlife habitat. |
| MTM 102757-QQ | T. 30 N, R. 37 E, PMM, MT SEC. 24 LOTS 6,7; SEC. 24 SESW; VALLEY COUNTY 86.30 AC PD | BOR 17-1 (ALL BOR LANDS) BOR 17-2 (ALL BOR LANDS) | | All lands deferred for important wildlife habitat. |
| MTM 102757-QR | T. 30 N, R. 37 E, PMM, MT SEC. 32 SWSW; SEC. 33 SWNW; VALLEY COUNTY 80.00 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 102757-QT | T. 30 N, R. 37 E, PMM, MT SEC. 33 LOTS 1,2; SEC. 33 NESE,S2SE; VALLEY COUNTY 201.23 AC ACO | | | All lands deferred for important wildlife habitat. |
| MTM 102757-J6 | T. 31 N, R. 37 E, PMM, MT SEC. 1 SENW,E2SW; VALLEY COUNTY 120.00 AC PD | | | All lands deferred for important wildlife habitat. |

APPENDIX A - GLASGOW FIELD OFFICE

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|---------------|---|--|--|--|
| MTM 102757-J7 | T. 31 N, R. 37 E, PMM, MT SEC. 5 LOT 1; VALLEY COUNTY 39.60 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 102757-J8 | T. 31 N, R. 37 E, PMM, MT SEC. 13 W2SE; VALLEY COUNTY 80.00 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 102757-J9 | T. 31 N, R. 37 E, PMM, MT SEC. 19 W2SE; VALLEY COUNTY 80.00 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 102757-KA | T. 31 N, R. 37 E, PMM, MT SEC. 20 SWNE; VALLEY COUNTY 40.00 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 102757-KB | T. 31 N, R. 37 E, PMM, MT SEC. 23 W2SW; VALLEY COUNTY 80.00 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 102757-KC | T. 31 N, R. 37 E, PMM, MT SEC. 24 W2NW; VALLEY COUNTY 80.00 AC ACO | | | All lands deferred for important wildlife habitat. |
| MTM 102757-KD | T. 31 N, R. 37 E, PMM, MT SEC. 27 S2; SEC. 28 E2SE; SEC. 33 NENE; SEC. 34 N2N2,S2NE; VALLEY COUNTY 680.00 AC 50% U.S. MINERAL INTEREST ACO | Standard 16-3, CR 16-1, TES 16-2, LN 14-15 | | |

APPENDIX A - GLASGOW FIELD OFFICE

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|---------------|---|---|--|--|
| MTM 102757-KE | T. 31 N, R. 37 E, PMM, MT SEC. 29 SENW; VALLEY COUNTY 40.00 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 102757-KF | T. 31 N, R. 37 E, PMM, MT SEC. 35 NESE,S2SE; VALLEY COUNTY 120.00 AC 50% U.S. MINERAL INTEREST ACO | Standard 16-3, CR 16-1, TES 16-2, LN 14-15 | | |
| MTM 12757-GC | T. 32 N, R. 37 E, PMM, MT SEC. 1 S2NE,SE; SEC. 12 NE; VALLEY COUNTY 400.00 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 12757-GD | T. 32 N, R. 37 E, PMM, MT SEC. 1 S2NW,SW; SEC. 2 E2SE; SEC. 12 NW; VALLEY COUNTY 480.00 AC ACO | | | All lands deferred for important wildlife habitat. |
| MTM 12757-GE | T. 32 N, R. 37 E, PMM, MT SEC. 2 LOTS 1-4; SEC. 2 S2NE,SWNW,W2SW; SEC. 11 NE,W2NW,S2; VALLEY COUNTY 944.88 AC ACO | | | All lands deferred for important wildlife habitat. |
| MTM 12757-GF | T. 32 N, R. 37 E, PMM, MT SEC. 2 SENW,E2SW,W2SE; SEC. 11 E2NW; VALLEY COUNTY 280.00 AC PD | | | All lands deferred for important wildlife habitat. |

APPENDIX A - GLASGOW FIELD OFFICE

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|---------------------|--|------------------------------------|--|--|
| MTM 12757-GG | T. 32 N, R. 37 E, PMM, MT SEC. 3 LOTS 1-4; SEC. 3 S2N2,SW,W2SE; VALLEY COUNTY 585.40 AC ACO | | | All lands deferred for important wildlife habitat. |
| MTM 12757-GH | T. 32 N, R. 37 E, PMM, MT SEC. 4 LOT 1; SEC. 4 S2N2,E2SE; SEC. 5 LOTS 1,2; SEC. 5 SENE; VALLEY COUNTY 419.27 AC ACO | | | All lands deferred for important wildlife habitat. |
| MTM 12757-GK | T. 32 N, R. 37 E, PMM, MT SEC. 4 LOTS 2-4; VALLEY COUNTY 140.10 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 12757-GJ | T. 32 N, R. 37 E, PMM, MT SEC. 5 NWSW; SEC. 6 LOT 6; VALLEY COUNTY 75.02 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 12757-GL | T. 32 N, R. 37 E, PMM, MT SEC. 5 SESW; SEC. 7 E2NE,NESW,NESE; SEC. 8 NW,N2SW,SESW; VALLEY COUNTY 480.00 AC ACO | | | All lands deferred for important wildlife habitat. |
| MTM 12757-GM | T. 32 N, R. 37 E, PMM, MT SEC. 7 NWSE; VALLEY COUNTY 40.00 AC PD | | | All lands deferred for important wildlife habitat. |

APPENDIX A - GLASGOW FIELD OFFICE

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|---------------------|--|------------------------------------|--|--|
| MTM 12757-GN | T. 32 N, R. 37 E, PMM, MT SEC. 10 N2NE,NW,SE; VALLEY COUNTY 400.00 AC ACO | | | All lands deferred for important wildlife habitat. |
| MTM 12757-GP | T. 32 N, R. 37 E, PMM, MT SEC. 10 S2NE; SEC. 14 E2SW; SEC. 15 N2NE,SENE; VALLEY COUNTY 280.00 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 12757-GQ | T. 32 N, R. 37 E, PMM, MT SEC. 12 S2; SEC. 13 N2; VALLEY COUNTY 640.00 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 12757-GR | T. 32 N, R. 37 E, PMM, MT SEC. 13 S2; SEC. 24 N2,SE; SEC. 25 E2NE; VALLEY COUNTY 880.00 AC ACO | | | All lands deferred for important wildlife habitat. |
| MTM 12757-GT | T. 32 N, R. 37 E, PMM, MT SEC. 14 N2,W2SW,SE; SEC. 23 N2,W2SW; VALLEY COUNTY 960.00 AC ACO | | | All lands deferred for important wildlife habitat. |
| MTM 12757-GU | T. 32 N, R. 37 E, PMM, MT SEC. 15 SWNE,E2W2,SE; SEC. 21 SE; SEC. 22 NE,E2NW,SW,NESE,S2SE; SEC. 27 N2NE,NENW; VALLEY COUNTY 1160.00 AC ACO | | | All lands deferred for important wildlife habitat. |

APPENDIX A - GLASGOW FIELD OFFICE

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|---------------------|--|------------------------------------|--|--|
| MTM 12757-GV | T. 32 N, R. 37 E, PMM, MT SEC. 17 SW; SEC. 18 LOTS 1-4; SEC. 18 E2,E2W2; SEC. 19 LOTS 1,2; SEC. 19 NE,NENW; SEC. 20 NW; VALLEY COUNTY 1202.72 AC ACO | | | All lands deferred for important wildlife habitat. |
| MTM 12757-GW | T. 32 N, R. 37 E, PMM, MT SEC. 19 SENW; SEC. 20 SWSE; SEC. 21 N2NE,NESW,S2SW; SEC. 27 NWNW,S2N2; SEC. 28 S2N2; SEC. 29 SESW; VALLEY COUNTY 680.00 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 12757-GX | T. 32 N, R. 37 E, PMM, MT SEC. 22 NWSE; SEC. 23 E2SW; VALLEY COUNTY 120.00 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 12757-GY | T. 32 N, R. 37 E, PMM, MT SEC. 25 S2; SEC. 26 W2NE,SE; VALLEY COUNTY 560.00 AC ACO | | | All lands deferred for important wildlife habitat. |

APPENDIX A - GLASGOW FIELD OFFICE

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|----------------------|--|------------------------------------|--|--|
| MTM 12757-G3 | T. 32 N, R. 37 E, PMM, MT SEC. 27 SW; SEC. 28 E2SE; SEC. 33 NENE; SEC. 34 NWNW; VALLEY COUNTY 320.00 AC ACO | | | All lands deferred for important wildlife habitat. |
| MTM 12757-G4 | T. 32 N, R. 37 E, PMM, MT SEC. 29 NW; VALLEY COUNTY 160.00 AC ACO | | | All lands deferred for important wildlife habitat. |
| MTM 12757-G6 | T. 32 N, R. 37 E, PMM, MT SEC. 31 LOTS 1,2; SEC. 31 NE,E2NW; SEC. 32 W2; VALLEY COUNTY 627.03 AC ACO | | | All lands deferred for important wildlife habitat. |
| MTM 12757-G7 | T. 32 N, R. 37 E, PMM, MT SEC. 33 SENE,NESE,S2SE; SEC. 34 E2NE,SWNW,SESW; VALLEY COUNTY 320.00 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 12757-G8 | T. 32 N, R. 37 E, PMM, MT SEC. 34 N2SW,SWSW,SE; SEC. 35 ALL; VALLEY COUNTY 920.00 AC ACO | | | All lands deferred for important wildlife habitat. |
| MTM 102757-HA | T. 37 N, R. 37 E, PMM, MT SEC. 5 LOTS 1,2; SEC. 5 S2NE,SE; SEC. 8 NE,N2SE,SWSE; VALLEY COUNTY 612.67 AC PD | | | All lands deferred for important wildlife habitat. |

APPENDIX A - GLASGOW FIELD OFFICE

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|----------------------|---|------------------------------------|--|--|
| MTM 102757-HB | T. 37 N, R. 37 E, PMM, MT SEC. 5 LOTS 3,4; VALLEY COUNTY 93.05 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 102757-HC | T. 37 N, R. 37 E, PMM, MT SEC. 5 S2NW,SW; SEC. 6 LOT 1; SEC. 6 SENE,SE; SEC. 8 NW; VALLEY COUNTY 646.61 AC ACO | | | All lands deferred for important wildlife habitat. |
| MTM 102757-HD | T. 37 N, R. 37 E, PMM, MT SEC. 6 LOTS 2,3,6; SEC. 6 SWNE,SENE,E2SW; SEC. 7 N2NE,SENE,NENW,E2SE; SEC. 8 SW; VALLEY COUNTY 691.26 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 102757-HE | T. 37 N, R. 37 E, PMM, MT SEC. 6 LOT 7; SEC. 7 LOTS 1-4; SEC. 7 SWNE,SENE,E2SW,W2SE; SEC. 17 NWNW; SEC. 18 LOTS 1,2; SEC. 18 NWNE,E2NW; VALLEY COUNTY 669.03 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 102757-WB | T. 37 N, R. 37 E, PMM, MT SEC. 8 SESE; SEC. 17 N2NE,SWNE,NENW,S2NW; SEC. 18 E2NE,NESE; VALLEY COUNTY 400.00 AC ACO | | | All lands deferred for important wildlife habitat. |

APPENDIX A - GLASGOW FIELD OFFICE

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|----------------------|--|------------------------------------|--|--|
| MTM 102757-HF | T. 37 N, R. 37 E, PMM, MT SEC. 17 SENE,SE; SEC. 20 E2NE; SEC. 29 SWNE; VALLEY COUNTY 320.00 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 102757-HH | T. 37 N, R. 37 E, PMM, MT SEC. 17 SW; SEC. 18 SESE; SEC. 19 E2,SESW; SEC. 30 E2NE,NWNE,NESE; VALLEY COUNTY 720.00 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 102757-HJ | T. 37 N, R. 37 E, PMM, MT SEC. 18 SWNE,E2SW,W2SE; SEC. 19 E2NW,NESW; VALLEY COUNTY 320.00 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 102757-HG | T. 37 N, R. 37 E, PMM, MT SEC. 20 W2E2,W2; SEC. 29 N2NE,W2,W2SE; SEC. 30 S2SE; VALLEY COUNTY 1040.00 AC ACO | | | All lands deferred for important wildlife habitat. |
| MTM 102757-HK | T. 37 N, R. 37 E, PMM, MT SEC. 20 E2SE; VALLEY COUNTY 80.00 AC ACO | | | All lands deferred for important wildlife habitat. |
| MTM 102757-QU | T. 30 N, R. 38 E, PMM, MT SEC. 4 LOTS 3,4; VALLEY COUNTY 79.17 AC PD | | | All lands deferred for important wildlife habitat. |

APPENDIX A - GLASGOW FIELD OFFICE

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|----------------------|--|--|--|--|
| MTM 102757-QV | T. 30 N, R. 38 E, PMM, MT SEC. 31 LOTS 2,5; SEC. 31 SWNE; VALLEY COUNTY 73.94 AC PD | BOR 17-1 (ALL BOR LANDS) BOR 17-2 (ALL BOR LANDS) | | All lands deferred for important wildlife habitat. |
| MTM 102757-MH | T. 31 N, R. 38 E, PMM, MT SEC. 1 SE; SEC. 12 NE,E2W2,S2SE; VALLEY COUNTY 560.00 AC ACO | | | All lands deferred for important wildlife habitat. |
| MTM 102757-MJ | T. 31 N, R. 38 E, PMM, MT SEC. 2 LOTS 1-3; SEC. 2 S2NE,SENE,E2SW,SE; SEC. 11 NWNE,NENW; VALLEY COUNTY 562.17 AC ACO | | | All lands deferred for important wildlife habitat. |
| MTM 102757-MK | T. 31 N, R. 38 E, PMM, MT SEC. 2 LOT 4; SEC. 2 SWNW,W2SW; SEC. 3 LOT 1; SEC. 3 SENE,E2SE; SEC. 10 E2E2; SEC. 14 E2NW; SEC. 15 E2E2; VALLEY COUNTY 722.41 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 102757-MM | T. 31 N, R. 38 E, PMM, MT SEC. 3 LOT 4; SEC. 3 SWNW,W2SW; VALLEY COUNTY 161.90 AC ACO | | | All lands deferred for important wildlife habitat. |

APPENDIX A - GLASGOW FIELD OFFICE

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|----------------------|--|------------------------------------|--|--|
| MTM 102757-ML | T. 31 N, R. 38 E, PMM, MT SEC. 3 SENW,E2SW; SEC. 10 N2NW,SWNW,N2SW,SESW; SEC. 15 SENW,E2SW; SEC. 22 NENW; VALLEY COUNTY 520.00 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 102757-MN | T. 31 N, R. 38 E, PMM, MT SEC. 4 SENW,S2SW,SWSE; SEC. 5 SESW; SEC. 9 NWNE,NENW; VALLEY COUNTY 280.00 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 102757-MP | T. 31 N, R. 38 E, PMM, MT SEC. 6 LOTS 1-4; SEC. 6 S2NE,SE; SEC. 7 NE,N2SE; SEC. 8 S2N2,S2; SEC. 17 N2,N2SW,SESW; VALLEY COUNTY 1562.48 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 102757-MQ | T. 31 N, R. 38 E, PMM, MT SEC. 12 N2SE; VALLEY COUNTY 80.00 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 102757-MR | T. 31 N, R. 38 E, PMM, MT SEC. 13 N2NE,S2N2,NESW,SWSW,SE; SEC. 14 SENE,NESE,S2SE; SEC. 23 NENE,S2NE,E2NW,S2; SEC. 24 N2N2,SWNW,SW; VALLEY COUNTY 1520.00 AC ACO | | | All lands deferred for important wildlife habitat. |

APPENDIX A - GLASGOW FIELD OFFICE

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|----------------------|--|------------------------------------|--|--|
| MTM 102757-MT | T. 31 N, R. 38 E, PMM, MT SEC. 13 NWSW,SESW; SEC. 14 SESW; SEC. 23 NWNE,SWNW; VALLEY COUNTY 200.00 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 102757-MU | T. 31 N, R. 38 E, PMM, MT SEC. 21 E2,E2W2,SWSW; SEC. 28 ALL; SEC. 33 N2NE,W2; VALLEY COUNTY 1560.00 AC ACO | | | All lands deferred for important wildlife habitat. |
| MTM 102757-MV | T. 31 N, R. 38 E, PMM, MT SEC. 24 S2NE,SE,SE; SEC. 25 NE,E2NW,SW,W2SE; VALLEY COUNTY 760.00 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 102757-MW | T. 31 N, R. 38 E, PMM, MT SEC. 26 NWNW,S2NW,N2SW,SWSW; VALLEY COUNTY 240.00 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 102757-MX | T. 31 N, R. 38 E, PMM, MT SEC. 34 W2SW; VALLEY COUNTY 80.00 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 102757-MY | T. 31 N, R. 38 E, PMM, MT SEC. 35 SW,SESE; VALLEY COUNTY 200.00 AC PD | | | All lands deferred for important wildlife habitat. |

APPENDIX A - GLASGOW FIELD OFFICE

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|----------------------|---|------------------------------------|--|--|
| MTM 102757-G9 | T. 32 N, R. 38 E, PMM, MT SEC. 1 LOTS 1-4; SEC. 1 S2N2,N2S2,S2SW,SWSE; SEC. 12 W2NE,W2; VALLEY COUNTY 1044.04 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 102757-HM | T. 32 N, R. 38 E, PMM, MT SEC. 2 LOT 1; SEC. 2 S2NE,SESW,N2SE,SWSE; SEC. 11 NENW,S2NW,SW; VALLEY COUNTY 570.68 AC ACO | | | All lands deferred for important wildlife habitat. |
| MTM 102757-HN | T. 32 N, R. 38 E, PMM, MT SEC. 2 LOTS 2,3; SEC. 2 S2NW,NESW,W2SW; SEC. 3 S2NE,N2SE; SEC. 11 NWNW; VALLEY COUNTY 501.56 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 102757-HQ | T. 32 N, R. 38 E, PMM, MT SEC. 2 LOT 4; SEC. 3 LOTS 1-4; SEC. 3 S2NW,SW,S2SE; VALLEY COUNTY 572.64 AC ACO | | | All lands deferred for important wildlife habitat. |
| MTM 102757-HP | T. 32 N, R. 38 E, PMM, MT SEC. 2 SESE; SEC. 11 E2; SEC. 13 W2NW; SEC. 14 NE,E2NW; VALLEY COUNTY 680.00 AC PD | | | All lands deferred for important wildlife habitat. |

APPENDIX A - GLASGOW FIELD OFFICE

| PARCEL NUMBER | PARCEL DESCRIPTION | PROPOSED FOR LEASING ALTERNATIVE B | PROPOSED FOR LEASING ALTERNATIVE C (ONLY IF EA INCLUDES ALTERNATIVE C) | PROPOSED FOR DEFERRAL-NO LEASING |
|----------------------|--|------------------------------------|--|--|
| MTM 102757-HR | T. 32 N, R. 38 E, PMM, MT SEC. 4 LOT 4; SEC. 5 POR LOT 1 LYING OUTSIDE WPA BDY (40.34 AC); SEC. 5 POR LOT 2 LYING OUTSIDE WPA BDY (19.19 AC); SEC. 5 POR LOT 3 LYING OUTSIDE WPA BDY (0.96 AC); SEC. 5 POR SENW LYING OUTSIDE WPA BDY (34.06 AC); SEC. 5 S2NE; VALLEY COUNTY 223.34 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 102757-HT | T. 32 N, R. 38 E, PMM, MT SEC. 6 POR LOT 2 LYING OUTSIDE WPA BDY (23.28 AC); SEC. 6 POR LOT 3 LYING OUTSIDE WPA BDY (46.98 AC); SEC. 6 SWNE,SENW; VALLEY COUNTY 150.26 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 102757-HV | T. 32 N, R. 38 E, PMM, MT SEC. 7 E2NE; SEC. 8 NW,W2SW; VALLEY COUNTY 320.00 AC ACO | | | All lands deferred for important wildlife habitat. |
| MTM 102757-HU | T. 32 N, R. 38 E, PMM, MT SEC. 7 SWNE,NESE; SEC. 8 E2SW; VALLEY COUNTY 160.00 AC PD | | | All lands deferred for important wildlife habitat. |

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|----------------------|---|------------------------------------|--|--|
| MTM 102757-HW | T. 32 N, R. 38 E, PMM, MT SEC. 10 ALL; SEC. 15 N2; VALLEY COUNTY 960.00 AC ACO | | | All lands deferred for important wildlife habitat. |
| MTM 102757-HX | T. 32 N, R. 38 E, PMM, MT SEC. 12 E2SE; SEC. 13 E2NE,SWSE; SEC. 24 E2SE; VALLEY COUNTY 280.00 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 102757-HY | T. 32 N, R. 38 E, PMM, MT SEC. 13 SWNE,SEW,SW,N2SE,SESE; SEC. 24 N2,SW,W2SE; VALLEY COUNTY 920.00 AC ACO | | | All lands deferred for important wildlife habitat. |
| MTM 102757-H3 | T. 32 N, R. 38 E, PMM, MT SEC. 14 W2NW,S2; SEC. 23 N2; VALLEY COUNTY 720.00 AC ACO | | | All lands deferred for important wildlife habitat. |
| MTM 102757-H4 | T. 32 N, R. 38 E, PMM, MT SEC. 21 W2; VALLEY COUNTY 320.00 AC ACO | | | All lands deferred for important wildlife habitat. |
| MTM 102757-H6 | T. 32 N, R. 38 E, PMM, MT SEC. 22 W2,W2SE; SEC. 27 NWNE,NENW,NESW; VALLEY COUNTY 520.00 AC PD | | | All lands deferred for important wildlife habitat. |

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|----------------------|---|---------------------------------------|--|---|
| MTM 102757-H7 | T. 32 N, R. 38 E, PMM, MT SEC. 26 N2; VALLEY COUNTY 320.00 AC ACO | | | All lands deferred for important wildlife habitat. |
| MTM 102757-H8 | T. 32 N, R. 38 E, PMM, MT SEC. 26 SW,W2SE; SEC. 34 E2NE,E2NW,NESW,NESE; SEC. 35 NW; VALLEY COUNTY 640.00 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 102757-H9 | T. 32 N, R. 38 E, PMM, MT SEC. 34 W2SW,S2SE; SEC. 35 NE,S2; VALLEY COUNTY 640.00 AC ACO | | | All lands deferred for important wildlife habitat. |
| MTM 102757-JN | T. 32 N, R. 38 E, PMM, MT SEC. 36 ALL; VALLEY COUNTY 640.00 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 102757-QW | T. 30 N, R. 39 E, PMM, MT SEC. 1 LOTS 3,4; SEC. 1 S2NW; SEC. 2 LOTS 1,2; SEC. 2 S2NE,SENW,S2; SEC. 3 E2SE; VALLEY COUNTY 763.80 AC PD | | | All lands deferred for important wildlife habitat. |

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|----------------------|--|------------------------------------|--|--|
| MTM 102757-QX | T. 30 N, R. 39 E, PMM, MT SEC. 6 LOTS 2-5; SEC. 6 SWNE, SENW, E2SW; SEC. 7 E2NW EXCL RSVR ROW (1.15 AC); VALLEY COUNTY 400.70 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 102757-QY | T. 30 N, R. 39 E, PMM, MT SEC. 9 E2SW, SE; SEC. 10 SWSW; SEC. 15 NWNW; VALLEY COUNTY 320.00 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 102757-RA | T. 30 N, R. 39 E, PMM, MT SEC. 10 E2; SEC. 11 SW; SEC. 14 NWNE, NW, N2SW, SESW; SEC. 15 E2NE; VALLEY COUNTY 880.00 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 102757-RB | T. 30 N, R. 39 E, PMM, MT SEC. 12 N2SW; SEC. 13 E2, W2NW, NWSW, S2SW; SEC. 14 NENE, S2NE, SE; VALLEY COUNTY 880.00 AC ACO | | | All lands deferred for important wildlife habitat. |
| MTM 102757-RC | T. 30 N, R. 39 E, PMM, MT SEC. 12 S2SW; SEC. 13 E2NW, NESW; VALLEY COUNTY 200.00 AC PD | | | All lands deferred for important wildlife habitat. |

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|----------------------|--|------------------------------------|--|--|
| MTM 102757-RD | T. 30 N, R. 39 E, PMM, MT SEC. 14 SWSW; SEC. 15 W2NE,N2SE,SESE; VALLEY COUNTY 240.00 AC ACO | | | All lands deferred for important wildlife habitat. |
| MTM 102757-RE | T. 30 N, R. 39 E, PMM, MT SEC. 21 SW; VALLEY COUNTY 160.00 AC ACO | | | All lands deferred for important wildlife habitat. |
| MTM 102757-RF | T. 30 N, R. 39 E, PMM, MT SEC. 22 SW; SEC. 27 W2; VALLEY COUNTY 480.00 AC ACO | | | All lands deferred for important wildlife habitat. |
| MTM 102757-RG | T. 30 N, R. 39 E, PMM, MT SEC. 24 ALL; SEC. 25 ALL; SEC. 26 E2NE; VALLEY COUNTY 1360.00 AC ACO | | | All lands deferred for important wildlife habitat. |
| MTM 102757-RH | T. 30 N, R. 39 E, PMM, MT SEC. 26 NWNE; VALLEY COUNTY 40.00 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 102757-RJ | T. 30 N, R. 39 E, PMM, MT SEC. 28 S2; SEC. 29 S2; VALLEY COUNTY 640.00 AC ACO | | | All lands deferred for important wildlife habitat. |

APPENDIX A - GLASGOW FIELD OFFICE

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|----------------------|---|------------------------------------|--|--|
| MTM 102757-RK | T. 30 N, R. 39 E, PMM, MT SEC. 30 LOTS 1-4; SEC. 30 NWNE,S2NE,E2W2,SE; SEC. 31 E2 EXCL 5.0 AC DESC BY M&B; VALLEY COUNTY 913.40 AC ACO | | | All lands deferred for important wildlife habitat. |
| MTM 102757-RL | T. 30 N, R. 39 E, PMM, MT SEC. 32 ALL; SEC. 33 NW,S2; VALLEY COUNTY 1120.00 AC ACO | | | All lands deferred for important wildlife habitat. |
| MTM 102757-RM | T. 30 N, R. 39 E, PMM, MT SEC. 35 SW,SWSE; VALLEY COUNTY 200.00 AC ACO | | | All lands deferred for important wildlife habitat. |
| MTM 102757-M3 | T. 31 N, R. 39 E, PMM, MT SEC. 6 LOTS 1-5; SEC. 6 S2NE,SEW; VALLEY COUNTY 323.88 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 102757-M4 | T. 31 N, R. 39 E, PMM, MT SEC. 19 LOTS 1-4; SEC. 19 NE,E2W2,W2SE; SEC. 30 LOT 1; VALLEY COUNTY 617.44 AC PD | | | All lands deferred for important wildlife habitat. |

APPENDIX A - GLASGOW FIELD OFFICE

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|----------------------|--|------------------------------------|--|--|
| MTM 102757-M6 | T. 31 N, R. 39 E, PMM, MT SEC. 19 E2SE; SEC. 20 SENE,S2NW,W2SW,SE; SEC. 21 NW,E2SW; SEC. 29 W2NE,NWNW,SEW; SEC. 30 NENE; VALLEY COUNTY 880.00 AC ACO | | | All lands deferred for important wildlife habitat. |
| MTM 102757-M7 | T. 31 N, R. 39 E, PMM, MT SEC. 20 N2N2,SWNE,E2SW; SEC. 29 NENW; VALLEY COUNTY 320.00 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 102757-M8 | T. 31 N, R. 39 E, PMM, MT SEC. 21 W2SW; SEC. 28 W2W2; SEC. 29 E2NE,SWNW,W2SW,SE; SEC. 30 SENE,E2SW,W2SE; VALLEY COUNTY 800.00 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 102757-M9 | T. 31 N, R. 39 E, PMM, MT SEC. 21 E2SE; SEC. 22 SW; VALLEY COUNTY 240.00 AC ACO | | | All lands deferred for important wildlife habitat. |
| MTM 102757-PA | T. 31 N, R. 39 E, PMM, MT SEC. 30 LOTS 2-4; SEC. 30 SWNE,E2NW,E2SE; SEC. 31 LOT 1; SEC. 31 N2NE,NENW; SEC. 32 W2NW; VALLEY COUNTY 576.21 AC ACO | | | All lands deferred for important wildlife habitat. |

APPENDIX A - GLASGOW FIELD OFFICE

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|----------------------|--|------------------------------------|--|--|
| MTM 102757-PB | T. 31 N, R. 39 E, PMM, MT SEC. 31 LOTS 6,7 EXCL RSVR ROW (1.50 AC); SEC. 31 NESE EXCL RSVR ROW (0.50 AC); SEC. 31 LOTS 2-5; SEC. 31 S2NE,SENW,NESW,NWSE; VALLEY COUNTY 470.93 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 102757-JP | T. 32 N, R. 39 E, PMM, MT SEC. 11 E2SW,SE; SEC. 13 N2N2,SENE; SEC. 14 NENE,W2E2; VALLEY COUNTY 640.00 AC ACO | | | All lands deferred for important wildlife habitat. |
| MTM 102757-JQ | T. 32 N, R. 39 E, PMM, MT SEC. 19 LOTS 1,2; SEC. 19 E2,E2NW; VALLEY COUNTY 482.35 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 102757-JR | T. 32 N, R. 39 E, PMM, MT SEC. 23 SW; SEC. 26 N2,SE; VALLEY COUNTY 640.00 AC ACO | | | All lands deferred for important wildlife habitat. |
| MTM 102757-JU | T. 32 N, R. 39 E, PMM, MT SEC. 24 NENE,W2NW; VALLEY COUNTY 120.00 AC PD | | | All lands deferred for important wildlife habitat. |

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|----------------------|---|------------------------------------|--|--|
| MTM 102757-JT | T. 32 N, R. 39 E, PMM, MT SEC. 24 NWNE,S2NE,E2NW,SE; SEC. 25 W2,N2SE; VALLEY COUNTY 760.00 AC ACO | | | All lands deferred for important wildlife habitat. |
| MTM 102757-JV | T. 32 N, R. 39 E, PMM, MT SEC. 25 S2SE; VALLEY COUNTY 80.00 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 102757-JW | T. 32 N, R. 39 E, PMM, MT SEC. 26 SW; VALLEY COUNTY 160.00 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 102757-JX | T. 32 N, R. 39 E, PMM, MT SEC. 27 N2,SE; SEC. 34 NE; SEC. 35 N2,E2SW,W2SE; VALLEY COUNTY 1120.00 AC ACO | | | All lands deferred for important wildlife habitat. |
| MTM 102757-JY | T. 32 N, R. 39 E, PMM, MT SEC. 30 LOTS 3,4; SEC. 30 E2SW,SE; VALLEY COUNTY 323.31 AC PD | | | All lands deferred for important wildlife habitat. |
| MTM 102757-J3 | T. 32 N, R. 39 E, PMM, MT SEC. 31 LOTS 1,2; SEC. 31 NE,E2NW; VALLEY COUNTY 323.65 AC ACO | | | All lands deferred for important wildlife habitat. |

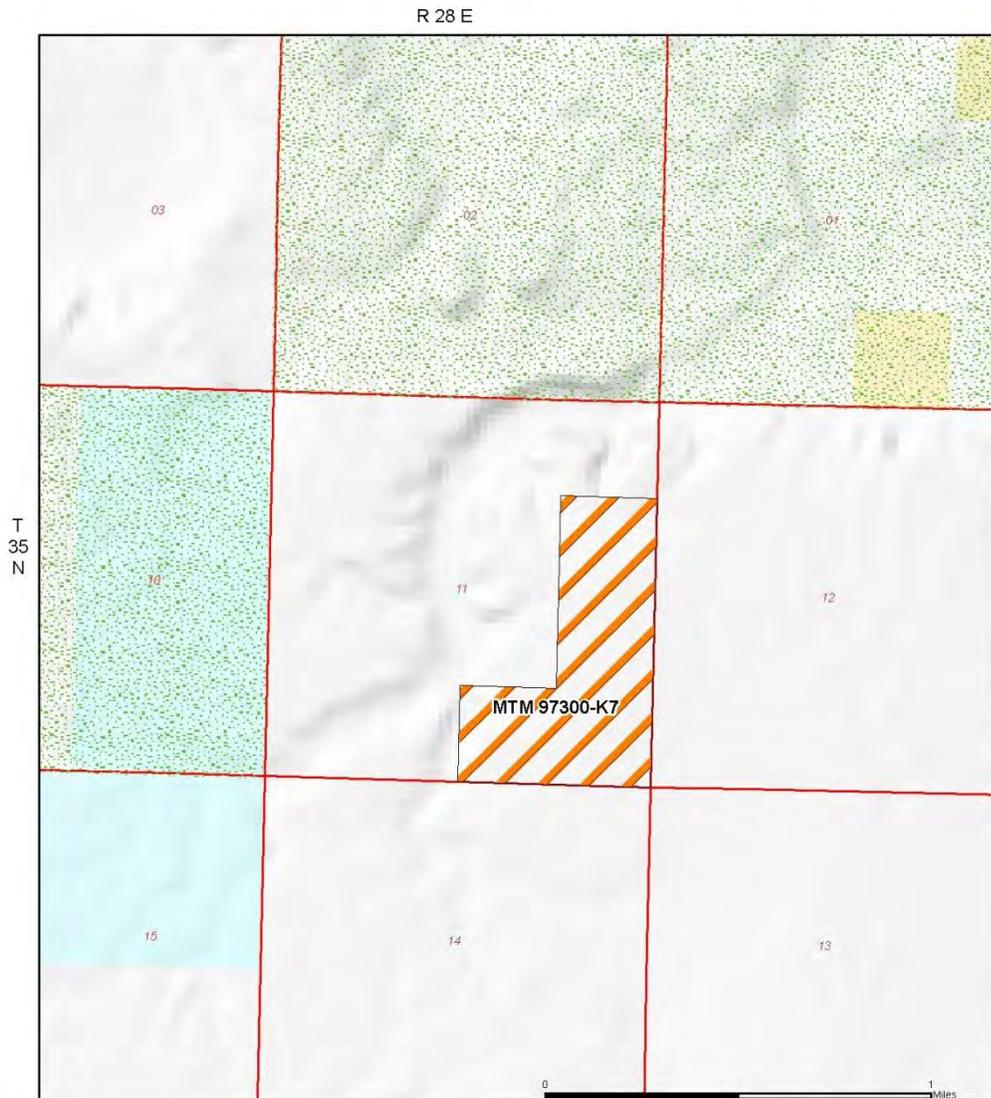
APPENDIX A - GLASGOW FIELD OFFICE

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|---------------|---|---------------------------------------|--|---|
| MTM 102757-J4 | T. 32 N, R. 39 E, PMM, MT SEC. 35 E2SE; VALLEY COUNTY 80.00 AC PD | | | All lands deferred for important wildlife habitat. |

Appendix D: Lease Stipulation Key

| Stipulation Number | Stipulation Name/Brief Description |
|----------------------------------|---|
| Bureau of Land Management | |
| Cultural Resources 16-1 | <p>CULTURAL RESOURCES LEASE STIPULATION</p> <p>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.</p> |
| LN 14-15 | <p>LEASE NOTICE SPRAGUE’S PIPIT</p> <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.</p> <p>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> |
| TES 16-2 | <p>ENDANGERED SPECIES ACT SECTION 7 CONSULTATION STIPULATION</p> <p>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.</p> |

Appendix E:



Created by the Malta Field Office in May 2012

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Albers Equal Area, NAD83, Meters

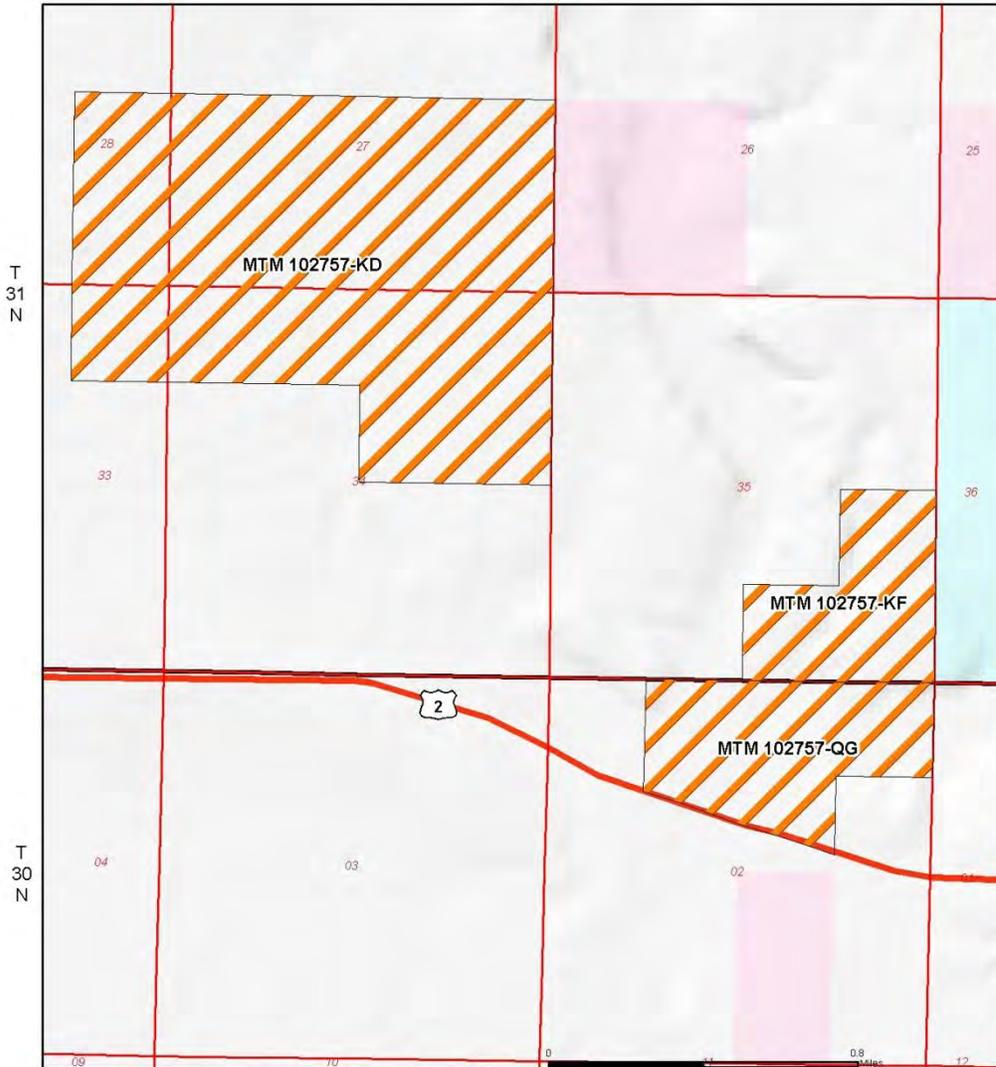
U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
HiLine District

October Lease Sale
Available Parcels - Phillips County

This map is intended for display purposes. No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data, or for purposes not intended by the BLM. This map may not meet National Map Accuracy Standards. This product was developed through digital means and information may be updated without notification.

| | |
|--|---------------------------------|
| | Available Parcel |
| | Pipit Habitat |
| | Priority Protection Habitat |
| | Greater Sage-Grouse Habitat |
| | Bureau of Land Management (BLM) |
| | Bankhead-Jones Land Use Lands |
| | State |
| | Private |
| | Township |
| | Section |
| | District Boundary |

R 37 E



Created by the Malta Field Office in May 2012

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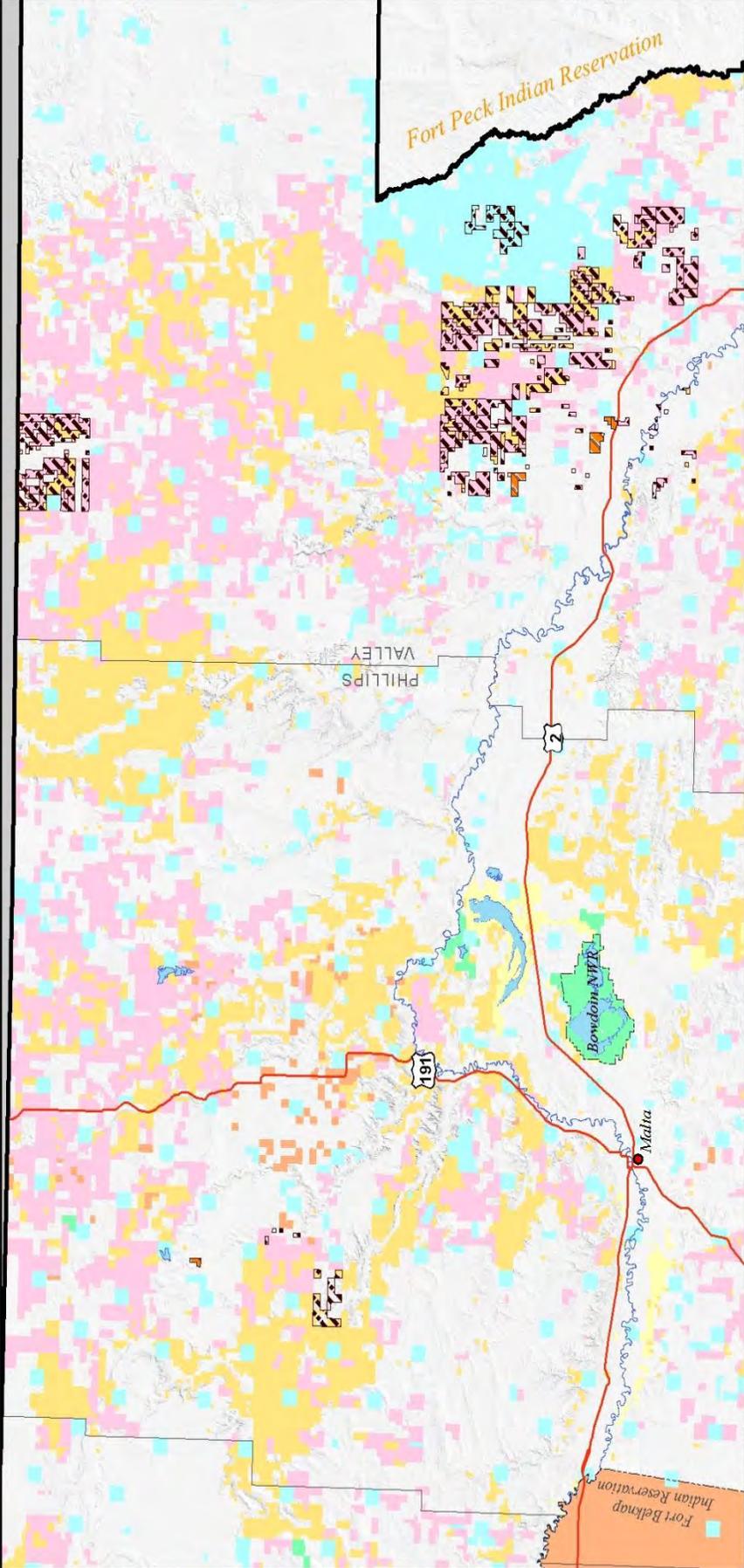
Albers Equal Area, NAD83, Meters

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
HiLine District

October Lease Sale
Available Parcels - Valley County

This map is intended for display purposes. No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data, or for purposes not intended by the BLM. This map may not meet National Map Accuracy Standards. This product was developed through digital means and information may be updated without notification.

- Available Parcel
- Pipit Habitat
- Priority Protection Habitat
- Greater Sage-Grouse Habitat
- Bureau of Land Management (BLM)
- Bankhead-Jones Land Use Lands
- State
- Private
- Township
- Section
- District Boundary
- Highway or State Route



Abers Equal Area, NAD83, Meters
 1:617,409
 Created by the Malta Field Office in May 2012

U.S. DEPARTMENT OF THE INTERIOR
 Bureau of Land Management
 HillLine District

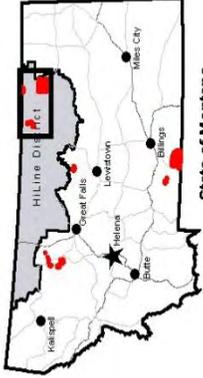
**October Lease Sale
 Nominated Parcels**

- Available Parcels
- Deferred Parcels
- District Boundary
- County
- Town
- Highway or State Route

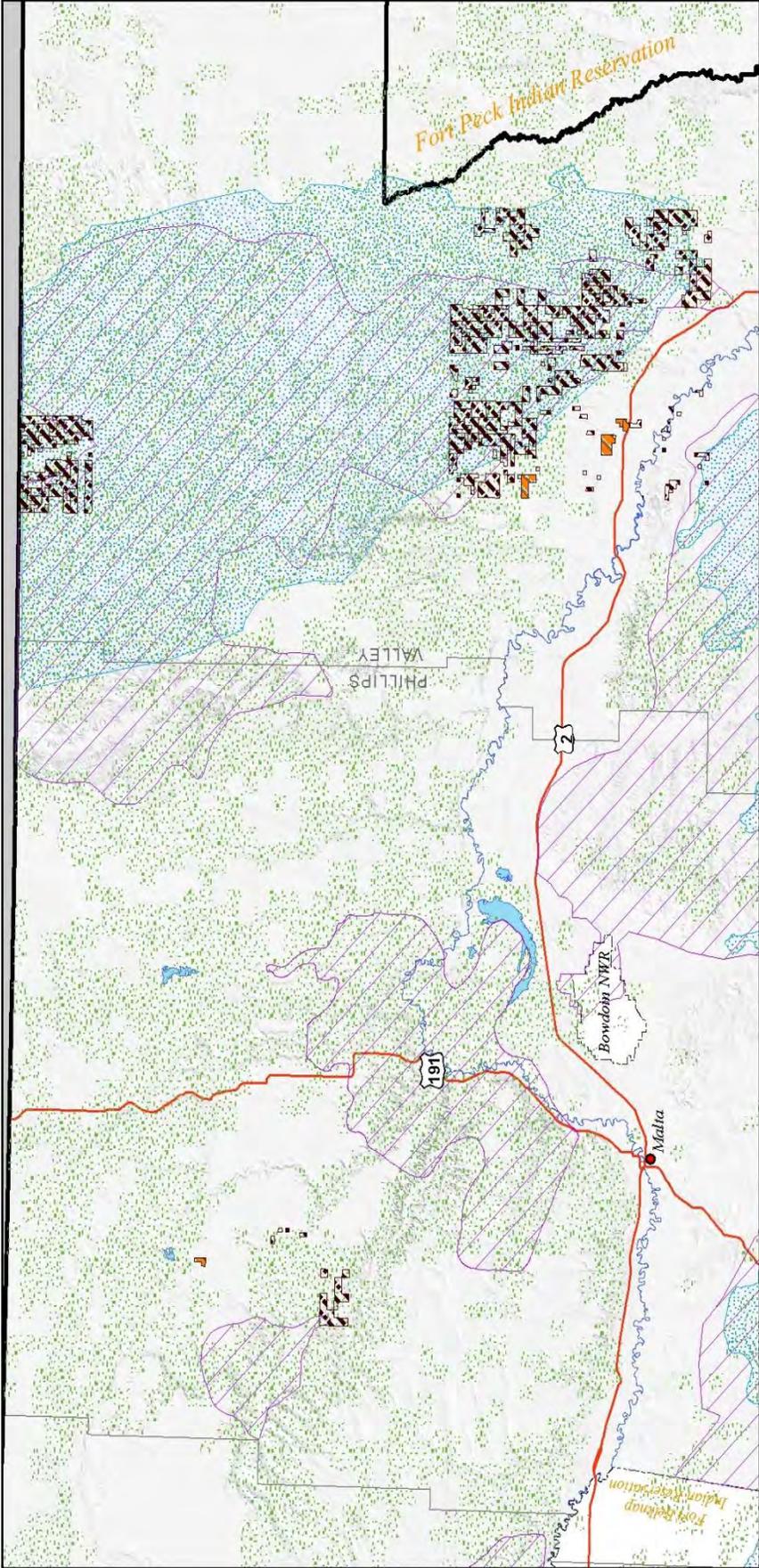


- Bureau of Land Management (BLM)
- Bankhead-Jones Land Use Lands
- USDA Forest Service (USFS)
- National Park Service (NPS)
- Bureau of Reclamation
- US Fish and Wildlife Service (USFWS)
- Indian Reservation
- State
- Private
- Water

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State of Montana



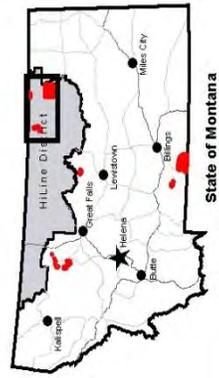
Abers Equal Area, NAD83, Meters
 1:817,409
 Created by the Malta Field Office in May 2012

U.S. DEPARTMENT OF THE INTERIOR
 Bureau of Land Management
 HiLine District

**October Lease Sale
 Habitat**

- Greater Sage-Grouse Habitat
- Priority Protection Habitat
- Pipit Habitat
- Deferred Parcels
- Available Parcels
- Town
- Interstate
- Highway or State Route
- District Boundary
- County

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State of Montana

**U.S. Department of the Interior
Bureau of Land Management
HiLine District Field Office
1101 15th Street N.
Great Falls, MT 59401**

**Finding of No Significant Impact
HiLine District Office Oil and Gas Leasing EA
DOI-BLM-MT-M010-2012-0026-EA**

INTRODUCTION:

This unsigned Finding of No Significant Impact (FONSI) for the environmental analysis (DOI-BLM-M010-2012-0026-EA) for the HiLine District was available for public review and comment for 30 days beginning on June 1, 2012.

The Bureau of Land Management (BLM) has conducted an environmental analysis (DOI-BLM-MT-M010-2012-0026-EA) for the HiLine District Office to analyze the potential effects from offering 4 nominated lease parcels containing approximately 1,107.13 acres of federal surveyed minerals for competitive oil and gas leasing in a sale tentatively scheduled to occur on October 23, 2012. The EA was prepared based on available information including inventory and monitoring data files.

Impact identification and analysis of the No Action Alternative and the BLM Preferred Alternative (with BLM imposed mitigation measures and deferred parcel acres) has been completed. The No Action would be to not offer for lease the 153 parcels. The BLM preferred alternative would be to offer for lease 4 lease parcels containing approximately 1,107.13 acres of federal mineral acres with lease stipulations and/or lease notices as necessary for competitive oil and gas lease sale and lease issuance. The remaining 149 parcels containing approximately 67,204.35 federal mineral acres (64,630.71 Valley; 2,573.64 Phillips) in whole or part would be deferred pending the completion of the HiLine Resource Management Plan.

One parcel is located in Phillips County. Three parcels are located in Valley County. Standard federal lease terms and conditions, as well as the stipulations identified in Appendix A of the EA, would apply. Lease stipulations (as required by Title 43 Code of Federal Regulations 3131.3) were added as necessary to each parcel as identified by the BLM to address site specific resource concerns.

It is the policy of the BLM as derived from various laws, including the Mineral Leasing Act of 1920, as amended [30 U.S.C. 181 *et seq.*] and the Federal Land Policy and Management Act of 1976 [43 U.S.C. 1701 *et seq.*], to make mineral resources available for disposal and to encourage development of mineral resources to meet national, regional, and local needs.

PLAN CONFORMANCE AND CONSISTENCY:

The proposed action conforms with and is within the scope of the land use decisions described in the Phillips Management Framework Plan (MFP) (1977), and the Oil & Gas Environmental Assessment of BLM Leasing Program – Lewistown District September 1981. Although the Judith-Valley-Phillips (JVP) Resource Management Plan (RMP), as amended, was approved in 1994, it did not make decisions relative to leasing of fluid minerals due to a protest on the 1992 Final RMP that called for a supplemental EIS to address an alternative that would avoid oil and gas leasing in areas with valuable wildlife habitat.

FINDING OF NO SIGNIFICANT IMPACT (FONSI):

Based on my review of the updated EA and all other available information, I have determined that the proposal, including the implementation of required stipulations, is not a major federal action and will not significantly affect the quality of the human environment, individually or cumulatively with other actions in the general area. Therefore, an environmental impact statement (EIS) is not required. Any future proposed development on such parcels would be subject to additional site-specific NEPA analysis and documentation.

With regard to the issue of impacts to global climate change (GCC) and/or levels of greenhouse gas (GHG) emissions that may contribute to GCC, as discussed in the EA, the current state of the science does not allow determinations to be made about the specific effects of specific actions. Therefore, while I find that the proposed action would result in no significant impacts, either individually or cumulatively, as described in more detail below in the FONSI, no similar finding is made with respect to GCC or GHG emissions. However, given the state of the science, preparation of an environmental impact statement is not warranted, as it would not further inform my decision, or the public, with respect to the significance or lack thereof, of this proposed action as to the issue of GCC or GHG.

This determination is based on the context and intensity of the project as described:

Context:

The Action would occur within the Malta and Glasgow Field Office's boundaries. The project is a site-specific action directly involving approximately 1,107.13 acres of federal minerals administered by the BLM that by itself does not have international, national, regional, or state-wide importance. The purpose of offering parcels for competitive oil and gas leasing is to provide opportunities for private individuals or companies to explore for and develop federal oil and gas resources after receipt of necessary approvals and to sell the oil and gas in public markets. Oil and gas produced from federal leases would be in addition to oil and gas produced from private and state owned leases.

By conducting lease sales, the BLM provides for the potential increase of energy reserves for the U.S., a steady source of income, and at the same time meets the requirement identified in the Energy Policy Act, Sec. 362(2) of 2005, Federal Oil and Gas Leasing Reform Act of 1987, and the Mineral Leasing Act of 1920, Sec. 17.

Intensity:

The following discussion is organized around the Ten Significance Criteria described in 40 CFR 1508.27 and incorporated into resources and issues considered (includes supplemental authorities Appendix 1 H-1790-1) and supplemental Instruction Memorandum, Acts, regulations and Executive Orders.

The following have been considered in evaluating intensity for this proposal:

1. Impacts may be both beneficial and adverse. Beneficial, adverse, direct, indirect and cumulative environmental impacts have been disclosed in the EA. Mitigating measures and stipulations to reduce impacts to the various resources were incorporated in the design of the proposed action. Analysis indicated no significant impacts on society as a whole, the affected region, the affected interests or the locality. The physical and biological effects are limited to the Malta and Glasgow Field Office's and adjacent land.

2. The degree to which the selected alternative will affect public health or safety. Public health and safety would not be adversely impacted. There are no known or anticipated concerns with project waste or hazardous materials.

3. Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farm lands, wetlands, wilderness, wild and scenic rivers, or ecologically critical areas: Unique characteristics present within the project area are historic and cultural resources. These characteristics are not affected by the Proposed Action with the identified stipulations and mitigating measures.

4. The degree to which the effects on the quality of the human environment are likely to be highly controversial: No anticipated effects have been identified that are controversial. While the Proposed Action may be somewhat controversial to some members of the public, the Proposed Action conforms with current land use plan guidance in which these leases were allocated as open for oil and gas leasing. No anticipated effects have been identified that are controversial. As a factor for determining (within the meaning of 40 CFR section 1508.27(b) (4)) whether or not to prepare a detailed environmental impact statement, "controversy is not equated with "the existence of opposition to a use." *Northwest Environmental Defense Center v. Bonneville Power Administration*, 117 F.3d 1520, 1536 (9th Cir. 1997).

5. The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks: There are no effects that are highly uncertain or involve unique or unknown risk. Sufficient information on risk is available based on information in the EA and other past actions of a similar nature.

6. The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration: This project neither establishes a precedent nor represents a decision in principle about future actions. The actions considered in the selected alternative were considered by the interdisciplinary team within the context of past, present, and reasonably foreseeable future actions.

7. Whether the action is related to other actions with individually insignificant but cumulatively significant impacts – which include connected actions regardless of land ownership: The interdisciplinary team evaluated the possible actions in context of past, present and reasonably foreseeable actions. No significant cumulative effects were identified or predicted.

8. The degree to which the action may adversely affect districts, sites, highways, structures, or other objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources: Based on previous and ongoing cultural surveys, and through mitigation by avoidance, no adverse impacts to cultural resources were identified or anticipated. There are no features within the project area listed or eligible for listing in the National Register of Historic Places that would be adversely affected by the proposed action.

9. The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973, or the degree to which the action may adversely affect: 1) a proposed to be listed endangered or threatened species or its habitat, or 2) a species on BLM's sensitive species list: No adverse impacts to any threatened or endangered species or their habitat that was determined to be critical under the Endangered Species Act were identified. Mitigation measures and stipulations to reduce impacts to wildlife and fisheries have been incorporated into the design of the proposed action. The deferral of 149 parcels was due to a review that found that the 149 parcels were either within or adjacent to Greater sage-grouse habitat, Sprague's pipit habitat or pallid sturgeon habitat. All three of these species are either on the Endangered Species list, proposed to be listed or are on BLM's sensitive species list.

10. Whether the action threatens a violation of a federal, state, local, or tribal law, regulation or policy imposed for the protection of the environment, whereon federal requirements are consistent with federal requirements: The proposed action does not violate any known federal, state, local or tribal law or requirements imposed for the protection of the environment. In addition, the project is consistent with applicable land management plans, policies and programs.

Recommended by:

Richard E Adams, Malta Field Manager

Date _____

Stephen Klessens, Acting Glasgow Field Manager

Date _____

Concurrence by:

Mark K. Albers, HiLine District Manager

Date _____

Approved by:

Theresa M. Hanley, Deputy State Director Division of Resources

Date _____