



**September 2025**

# **Montana-Dakotas Oil and Gas Lease Sale Quarter 3 2025**

**Environmental Assessment**

**DOI-BLM-MT-0000-2025-0001-EA**

**Blaine, Richland, Roosevelt, and Rosebud Counties, Montana  
Billings, Dunn, and McKenzie Counties, North Dakota**

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The BLM's multiple-use mission is to sustain the health and productivity of the public lands for the use and enjoyment of present and future generations. The Bureau accomplishes this by managing such activities as outdoor recreation, livestock grazing, mineral development, and energy production, and by conserving natural, historical, cultural, and other resources on public lands.

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## LIST OF ACRONYMS AND ABBREVIATIONS

°C	degrees Celsius
ACEC	Area of Critical Environmental Concern
AERMOD	American Meteorological Society / EPA Regulatory Model
AirToxScreen	Air Toxics Screening Assessment
AO	Authorized Officer
APA	Administrative Procedures Act
APD	Application for Permit to Drill
APE	area of potential effects
AQRV	Air Quality Related Value
ARMP	Approved Resource Management Plan
ARPA	Archeological Resources Protection Act
ARTSD	Air Resources Technical Support Document
b/d	barrels per day
bbl	barrel(s)
Bcf/d	billion cubic feet per day
BLM	Bureau of Land Management
BLM Specialist Report	<i>2023 BLM Specialist Report on Annual Greenhouse Gas Emissions and Climate Trends</i>
BMP	best management practice
BOR	Bureau of Reclamation
CAA	Clean Air Act
CALPUFF	California Puff Model
CAP	criteria air pollutant
CFR	Code of Federal Regulations
CH <sub>4</sub>	methane
CO	carbon monoxide
CO <sub>2</sub>	carbon dioxide
CO <sub>2</sub> e	carbon dioxide equivalent
COA	condition of approval
CSU	controlled surface use
DEQ	Department of Environmental Quality
DoAQ	Division of Air Quality
DPG	Dakota Prairie Grasslands
DR	Decision Record
EA	environmental assessment

EIS	environmental impact statement
EO	Executive Order
EIA	U.S. Energy Information Administration
EOI	Expression of Interest
EOR	enhanced oil recovery
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
EUR	estimated ultimate recovery
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FLIR	Forward Looking Infrared
FLPMA	Federal Land Policy and Management Act of 1976
FONSI	Finding of No Significant Impact
FOOGLRA	Federal Onshore Oil and Gas Leasing Reform Act of 1987
GHG	greenhouse gas
GIS	geographic information system
GtCO <sub>2</sub>	gigatonnes of CO <sub>2</sub>
GWP	global warming potentials
H <sub>2</sub> S	hydrogen sulfide
HAP	hazardous air pollutant
HI	hazard index
HQ	hazard quotient(s)
HUC	hydrologic unit code
IBLA	Interior Board of Land Appeals
IDT	interdisciplinary team
IM	Instruction Memorandum
IMPROVE	Interagency Monitoring of Protected Visual Environments
IPaC	Information for Planning and Consultation
IPCC	Intergovernmental Panel on Climate Change
IRA	Inflation Reduction Act of 2022
IWG	Interagency Working Group on Social Cost of Greenhouse Gases, United States Government
kg/ha/yr	kilogram per hectare per year
km	kilometer(s)
L&C NHT	Lewis and Clark National Historic Trail
LN	Lease Notice
LWC	lands with wilderness characteristics



m	meter(s)
M	magnitude
MAGICC	Model for the Assessment of Greenhouse Gas Induced Climate Change
MBOGC	Montana Board of Oil and Gas Conservation
MBTA	Migratory Bird Treaty Act of 1918
MCFO	Miles City Field Office
MDEQ	Montana Department of Environmental Quality
MDNRC	Montana Department of Natural Resources and Conservation
Mcf	thousand cubic feet
MID	most impaired days
MLA	Mineral Leasing Act of 1920
MMt	Million Metric Tons
MMst	million short tons
MTFWP	Montana Fish, Wildlife, and Parks
Mt	megatonne(s)
N <sub>2</sub> O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NDDH	North Dakota Department of Health
NDFO	North Dakota Field Office
NDGF	North Dakota Game and Fish
NDSWC	North Dakota State Water Commission
NEI	National Emissions Inventory
NEPA	National Environmental Policy Act of 1969, as amended
NETL	National Energy Technology Laboratory
NHD	National Hydrography Dataset
NHPA	National Historic Preservation Act of 1966
NHT	National Historic Trails
NO <sub>2</sub>	nitrogen dioxide
NO <sub>x</sub>	nitrogen oxide(s)
NORM	naturally occurring radioactive material
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSO	No Surface Occupancy
NSPS	New Source Performance Standards
O <sub>3</sub>	ozone

O&G	oil and gas
Pb	lead
PGM	Photochemical Grid Modeling
PFYC	Potential Fossil Yield Classification
PM	particulate matter
PM <sub>2.5</sub>	particulate matter equal to or less than 2.5 microns in diameter
PM <sub>10</sub>	particulate matter equal to or less than 10 microns in diameter
ppb	parts per billion
ppm	parts per million
PRPA	Paleontological Resources Preservation Act
PSD	prevention of significant degradation (deterioration)
RFD	reasonably foreseeable development
RMP	resource management plan
ROD	Record of Decision
ROW	Right-of-way
SC-GHG	social cost of greenhouse gases
SCC	social cost of carbon
SCR	selective catalytic reduction
SEIS	Supplemental Environmental Impact Statement
SHPO	State Historic Preservation Office
SMA	Surface Management Agency
SO <sub>2</sub>	sulfur dioxide
STCs	standard terms and conditions
STEO	short-term energy outlook
SWD	saltwater disposal
T&E	threatened and endangered
TCP	traditional cultural property
TL	Timing Limitation
TRNP	Theodore Roosevelt National Park
U.S.C.	United States Code
USDA	U.S. Department of Agriculture
USDOI	U.S. Department of Interior
USFS	US. Department of Agriculture Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VOC	volatile organic compound
VRM	Visual Resource Management

WO	Washington D.C. Office
WRAP	Western Regional Air Partnership

# CHAPTER 1. INTRODUCTION

## 1.1 BACKGROUND

This environmental assessment (EA) documents the Bureau of Land Management (BLM) Montana-Dakotas State Office (MTDKs) review of 29 parcels (9,101.65 acres) nominated for auction in the BLM MTDKs Quarter 3 2025 Competitive Oil and Gas Lease Sale (the Proposed Action). The nominated parcels are in Blaine, Richland, Roosevelt, and Rosebud Counties in Montana and Billings, Dunn, and McKenzie Counties in North Dakota (see parcel maps in **Appendix C**). The nominated lease parcels contain federal minerals managed by the BLM and consist of BLM-administered surface land - administered surface land specifically within the North Dakota Field Office (NDFO), Havre Field Office (HFO) and Miles City Field Office (MCFO), within the administrative boundaries of the United States Forest Service (USFS) Dakota Prairie Grasslands (DPG) McKenzie and Medora Ranger Districts, and within the administrative boundaries of the US Army Corps of Engineers (USACE) Garrison Dam/Lake Sakakawea Project. For detailed information on the leasing process, see the following website: <https://www.blm.gov/programs/energy-and-minerals/oil-and-gas/leasing/parcel-nominations>.

The BLM MTDKs State Office conducts Oil and Gas Federal 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 (BOR)), USFS, or other departments and agencies. These auctions also include split estate lands, where the BLM holds subsurface mineral rights, but a party other than the Federal Government owns the surface estate. The MTDKs State Office has historically conducted four lease sales per year. The BLM's authority to conduct these lease sales is based on various laws including the Mineral Leasing Act of 1920, as amended, 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.

Members of the public file Expressions of Interest (EOI) to nominate parcels for leasing by the BLM. The BLM may also nominate a parcel if an existing well is draining Federal minerals or for other reasons. From these EOIs and BLM nominations, the MTDKs State Office prepares a preliminary parcel list and provides them to the field offices for review. The BLM also reviews parcels located in designated greater sage-grouse habitat to guide development to lower conflict areas and protect important habitat consistent with conservation objectives in the 2015 Rocky Mountain Region Record of Decisions (ROD) and the applicable Approved Resource Management Plans (ARMPs), a court order in the U.S. District Court for the District of Montana (case 4:18-cv-00069-BMM filed 5/22/20), and Montana/Dakotas Instruction Memorandum MT-2020-018. Montana/Dakotas BLM reviews the parcels, and evaluates:

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. Whether there are site specific resource concerns that warrant not leasing a particular parcel,
4. If there are special resource conditions of which potential bidders should be made aware; and,
5. Which stipulations should be identified and included as part of a lease.

If the decision is made to offer lease parcels, the MTDKs State Office would publish a Notice of Competitive Oil and Gas Lease Sale (Sale Notice) at least 60 days before the auction is held. The Sale Notice will identify applicable lease stipulations for each parcel.

The offering and subsequent issuance of oil and gas leases would not result in immediate ground disturbance. However, once a lease is sold the lessee maintains the right to occupy, explore for, and develop oil and gas resources from the lease consistent with the lease terms and conditions and upon approval of a site-specific permit by the BLM Authorized Officer (AO). These lease operations can result in surface disturbance and other impacts.

In accordance with BLM Handbook H-1624-1 (“Planning for Fluid Mineral Resources” January 28, 2013), the Federal Government retains certain rights when issuing an oil and gas lease. While the BLM may not unilaterally add a new stipulation to an existing lease that it has already issued, the BLM can subject development of existing leases to reasonable conditions, as necessary, through the application of Conditions of Approval (COAs) at the time of permitting. The new constraints must be in conformance with the applicable land use plan and not conflict with rights granted to the holder under the lease. See 30 U.S.C. § 226(g); 43 CFR § 3101.1-2. See also *Yates Petroleum Corp.*, 176 IBLA 144 (2008); *National Wildlife Federation*, 169 IBLA 146, 164 (2006).

BLM MTDKs has prepared this Environmental Assessment for the Quarter 3, September 2025 oil and gas lease sale, which considers two alternatives:

- Alternative A: No Action
  - The nominated parcels would not be offered for lease as part of a competitive oil and gas lease sale.
- Alternative B: Proposed Action
  - The BLM would offer 29 nominated lease parcels encompassing approximately (9,101.65) Federal mineral acres as part of a competitive oil and gas lease sale in the BLM NDFO, MCFO, and HFO, the USFS DPG Medora and McKenzie Ranger Districts, and the USACE Garrison Dam/Lake Sakakawea Project.

The BLM assigned lease stipulations to the parcels to address resources concerns. A Federal oil and gas lease would be issued for a 10-year period and would remain valid for as long thereafter as oil or gas is produced in paying quantities, required payments are made and lease operations are conducted in compliance with regulations and approved permits. If a lessee fails to produce oil and gas by the end of the initial 10-year period, does not make annual rental payments, or does not comply with the terms and conditions of the lease, the BLM will terminate the lease. The lessee can relinquish the lease. The oil and gas resources could be offered for sale at a future lease sale. Drilling of wells on a lease would not be permitted until the lessee or operator secures approval of a drilling permit and a surface use plan as specified in 43 CFR § 3162. This requires additional environmental reviews, by the BLM, at the time of application.

## 1.2 PURPOSE AND NEED

The BLM’s purpose in preparing the EA is to respond to Expressions of Interest (EOIs) to lease federal oil and gas resources through a competitive leasing process. The need for the action is established by the BLM’s responsibility under the Mineral Leasing Act of 1920 (MLA), as amended, to make mineral

resources, such as oil and gas, available for development and as part of the BLM's multiple-use and sustained-yield mandate under the Federal Land Policy and Management Act of 1976 (FLPMA) and Federal Onshore Oil and Gas Leasing Reform Act of 1987.

### **1.3 DECISION TO BE MADE**

The BLM AO will decide whether to make available for lease the nominated lease parcels with or without constraints, in the form of lease stipulations, as provided for in the approved land use plans. If the decision is to make the lands available for lease and subsequently issue a lease, standard terms and conditions (STCs) under Section 6 of the BLM lease form (Form 3100-11, Offer to Lease and Lease for Oil and Gas), herein referred to as STCs, would apply. The BLM AO also has the authority to defer the parcels, based on the analysis of potential effects presented in this EA. The Decision Record will identify whether the BLM decided to lease the nominated lease parcels and the rationale for the decision.

### **1.4 CONFORMANCE WITH BLM LAND USE PLANS, OTHER STATUTES, REGULATIONS, AND PLANS**

#### **1.4.1 Land Use Plan Conformance**

The BLM, under the MLA and FLPMA, as amended, must make mineral resources, such as oil and gas, available for development. Additionally, the Federal Onshore Oil and Gas Leasing Reform Act of 1987 states that lease sales shall be held for each state where eligible lands are available at least quarterly and more frequently if the Secretary of the Interior determines such sales are necessary.

Under FLPMA, the BLM must manage public lands, resources, and resource values according to its multiple-use, sustained-yield mandate in a manner that will best meet the present and future needs of the public, and in accordance with an approved land use plan or resource management plan (RMP). For split-estate lands where the mineral estate is an interest owned by the United States, the BLM has no authority over use of the surface estate; however, the BLM is required to declare how the federal mineral estate will be managed, including identification of all appropriate lease stipulations (BLM Handbook H-1601-1 and H-1624-1 [BLM 2005, 2018a]). 43 Code of Federal Regulations [C.F.R.] § 3101.13 and 43 C.F.R. § 1601.0-7(b). This Proposed Action aligns with and is tiered to the information and analysis and conforms to the decisions contained the 2025 NDFO ROD and the Approved Resource Management Plan and FEIS (ND ARMP/FEIS 2025), the 2015 Rocky Mountain Region RODs and the applicable Approved Resource Management Plans, the Miles City ARMP and FEIS of September 2015, the MCFO SEIS (BLM 2024), the HiLine ARMP and FEIS of September 2015. These plans are the governing land use plans for their respective geographic areas. The lease parcels to potentially be offered for sale are within an area determined to be open to oil and gas leasing in the RMP. An electronic copy of these planning documents is available via the internet on the BLM e-Planning page: <https://www.blm.gov/programs/planning-and-nepa/eplanning>.

This EA is also tiered to the DPG Northern Great Plains Management Plans Revision FEIS for Oil and Gas Leasing (December 2020) and ROD Oil and Gas Leasing USDA Forest Service Little Missouri National Grassland (LMNG), DPG (December 2020) and the BLM ROD Adopting USDA Forest Service Final Supplemental EIS for Oil and Gas Leasing, LMNG, DPG (DOI-BLM-MT-2021-0001-OTHER\_NEPA). This conformance applies only to the parcels on USDA Forest Service managed surface located within the administrative boundaries of the USDA USFS DPG.

This EA is also tiered to the information and analysis and conforms to the decisions contained in the USACE Garrison Dam/Lake Sakakawea Project Oil and Gas Management Plan (June 2020). This

conformance applies only to the parcels located within the administrative boundaries of the USACE Garrison Dam/Lake Sakakawea Project.

The nominated lease parcels fall within areas that are open to leasing under the RMPs indicated above, as amended, and are subject to certain stipulations. The nominated lease parcels, lease parcel surface ownership, lease parcel legal description and total acreage, and lease stipulations and notices that apply are detailed in Chapter 2. **Appendix C** contains parcel maps. Stipulation and lease notice descriptions are detailed in **Appendix A** and **B**.

In an opinion and amended order on March 26, 2018, the U.S. District Court for the District of Montana found that the BLM violated NEPA in the Final EISs for the Buffalo and Miles City RMPs (*Western Organization of Resource Councils (WORC) et al. v. BLM, Case 4:16-cv-00021-BMM, filed 3/23/18*) with respect to consideration of the amount of coal made available for lease and consideration of climate change impacts. On July 31, 2018, the District Court issued an order directing the BLM to prepare a Supplemental EIS for the RMP, and to complete comprehensive environmental analysis in compliance with the Court's March 26, 2018, Order, and all existing procedural requirements under NEPA and the Administrative Procedures Act (APA) for any new or pending leases of coal, oil, or gas resources in the planning areas subject to the Buffalo RMP and the Miles City RMP. The BLM has prepared the September 2025 Oil and Gas Lease Sale EA in compliance with the terms of the WORC Order, NEPA, and the APA.

#### **1.4.2 Relationship to Statutes, Regulations, Policies, and Other Plans<sup>1</sup>**

Purchasers of oil and gas lease parcels are required to comply with all applicable federal, state, and local laws and regulations, including obtaining all necessary permits prior to any lease-development activities. The BLM is also required to comply with all applicable federal, state, and local laws and regulations, as well as U.S. Department of the Interior policies, when leasing mineral estate and responding to EOIs. **Table 1.1** provides a listing of statutes, regulations, policies, and other plans applicable to the leasing decision.

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<sup>1</sup> Executive Order 14154, Unleashing American Energy (Jan. 20, 2025), and a Presidential Memorandum, Ending Illegal Discrimination and Restoring Merit-Based Opportunity (Jan. 21, 2025), require the Department to strictly adhere to the National Environmental Policy Act (NEPA), 42 U.S.C. §§ 4321 et seq. Further, such Order and Memorandum repeal Executive Orders 12898 (Feb. 11, 1994) and 14096 (Apr. 21, 2023). Because Executive Orders 12898 and 14096 have been repealed, complying with such Orders is a legal impossibility. The BLM and OSMRE have verified that they have complied with the requirements of NEPA, including the Department's regulations and procedures implementing NEPA at 43 C.F.R. Part 46 and Part 516 of the Departmental Manual, consistent with the President's January 2025 Order and Memorandum.

**Table 1.1 Relationship to Statutes, Regulations, Policies, and Other Plans Relationship to Statutes, Regulations, Policies, and Other Plans**

Relevant Statute, Regulation, or Plan	Relationship to the Proposed Action
Federal Land Policy and Management Act	FLPMA, 43 United States Code [U.S.C.] § 1701 <i>et seq.</i> , established guidelines to provide for the management, protection, development, and enhancement of public lands. Section 103 of FLPMA defines public lands as any lands and interest in lands owned by the United States. For split-estate lands where the mineral estate is an interest owned by the United States, the BLM has limited authority over use of the surface by the surface owner; however, the BLM is required to identify and analyze potential effects connected to the authorization to lease and develop federal mineral estate and to declare how federal mineral estate is managed in the RMP, including identification of all appropriate lease stipulations (BLM Handbook H-1601-1 and H-1624-1 [BLM 2005, 2018a]). 43 C.F.R. § 3101.13 and 43 C.F.R. § 1601.0-7(b). Within the context of the National Environmental Policy Act of 1969, as amended (NEPA), the BLM considers FLPMA compliance when conducting NEPA analyses for mineral leasing actions, and the BLM issues a Finding of No Significant Impact (FONSI) when it determines that the Proposed Action would not violate any federal, state, tribal, or local law protecting the environment, including but not limited to FLPMA's mandate to ensure that undue and/or unnecessary degradation would not occur.
Mineral Leasing Act of 1920	The MLA establishes that deposits of oil and gas owned by the United States are subject to disposition in the form and manner provided by the MLA under the rules and regulations prescribed by the Secretary of the Interior, where consistent with FLPMA; NEPA, 42 U.S.C. § 4321 <i>et seq.</i> ; and other applicable laws, regulations, and policies.
43 C.F.R. § 3100 <i>et seq.</i>	These regulations govern onshore oil and gas leasing, development, and production of federal minerals.
Federal Onshore Oil and Gas Leasing Reform Act	FOOGLRA, at 30 U.S.C. § 181 <i>et seq.</i> , directs the BLM to conduct quarterly oil and gas lease sales whenever eligible lands are available for leasing.
Endangered Species Act (ESA)	The ESA, 16 U.S.C. § 1531 <i>et seq.</i> , requires all federal departments and agencies to conserve threatened, endangered, and critical and sensitive species and the habitats on which they depend, as well as consult with the U.S. Fish and Wildlife Service (USFWS) on all actions authorized, funded, or carried out by the agency to ensure that the action will not likely jeopardize the continued existence of any threatened and endangered species or modify critical habitat. See the text of stipulation HQ-TES-1 in Appendix B for details.
National Historic Preservation Act of 1966 (NHPA)	Leasing is considered an undertaking pursuant to 54 U.S.C. § 300101 <i>et seq.</i> , commonly known as the NHPA, and 54 U.S.C. § 306108, commonly known as Section 106 of the NHPA (Section 106). Agencies may follow a phased approach to Section 106 compliance. At the leasing level, existing records reviews, and consultation drive identification of historic properties. Class III field inventories are an important part of identification at the lease-development level. See the text of stipulation HQ-CR-1 in Appendix B for details.
DOI NEPA regulations at 43 CFR Part 46	Outline the procedures for implementing the National Environmental Policy Act (NEPA) within the Department of the Interior (DOI). Established guidelines for Environmental Assessments, Categorical Exclusions, Public Involvement, Interagency Coordination, and Decision-making.
Inflation Reduction Act of 2022 (IRA)	<p>The IRA made the following major changes to BLM's oil and gas leasing program:</p> <ul style="list-style-type: none"> <li>• Rescinded the BLM's authority to issue noncompetitive leases under the MLA by striking 30 U.S.C. § 226I.</li> <li>• Removed BLM's authority to issue reversionary noncompetitive leases.</li> <li>• Updated the royalty rate and rental rate lease terms for competitive leases.</li> <li>• Changed the grounds and conditions for certain reinstatements.</li> </ul> <p>In addition, Section 50265 of the IRA states that the BLM may not issue a right-of-way for wind or solar energy development on federal land unless it has: 1) held an onshore oil and gas lease sale during the past 120 days and 2) offered the lesser of a "sum total" of either 2,000,000 acres or 50 percent of the acreage for which EOs have been submitted for lease sales during the previous 1-year period.</p> <p>The BLM has issued regulations to implement the oil and gas leasing provisions in the IRA.</p>
WO IM 2018-014	Directional Drilling into Federal Mineral Estate from Well Pads on Non-Federal Locations (WO IM 2018-014)



Relevant Statute, Regulation, or Plan	Relationship to the Proposed Action
BLM Manual 3120 – Competitive Leasing	Outlines the procedures and regulations for the competitive leasing of public lands for various uses, primarily focusing on oil, gas, and mineral resources. The manual provides guidance on the leasing process, including the preparation of lease sales, the evaluation of bids, and the administration of leases.
BLM Competitive Leasing Handbook (H-3120-1)	Outlines the policies, procedures, and best practices for conducting competitive lease sales for oil, gas, and other mineral resources. The handbook covers aspects such as lease sale announcements, bidding procedures, evaluation of bids, and post-sale activities. It aims to ensure transparency, fairness, and compliance with applicable laws while promoting responsible resource development and environmental stewardship.

\* See Appendix J for BLM's evaluation of the nominated lease sale parcels in accordance with 43 C.F.R. § 3120.32, *Expression of interest leasing preference*.

The BLM has evaluated the nominated lease parcels in accordance with 43 CFR 3120.32 against five criteria to determine each parcel's leasing preference (**see Appendix J**). As a result, of the 29 nominated parcels, the leasing preference is classified as follows: ten (10) low preference for leasing and nineteen (19) high preference for leasing based on one or more criteria (proximity to development, proximity to habitat, cultural resources, and development potential). Leasing development potential is based on information that is contained in the (MCFO ARMP/FEIS, 2015, HiLine ARMP/FEIS 2015, and ND ARMP/FEIS 2025 and classified as follows: zero (0) very high, three (15) high, eight (11) moderate, zero (3) low, and zero (0) very low.

## 1.5 PUBLIC INVOLVEMENT AND ISSUES

### 1.5.1 Internal Scoping

The BLM MTDKs interdisciplinary team (IDT) and USFS IDT conducted internal scoping to identify issues, potential alternatives, and data needs by reviewing the leasing actions within the context of the applicable RMP under the National Environmental Policy Act of 1969 (NEPA) framework. Intermittent meetings were held with additional BLM MTDKs IDT members during the parcel review process. Additionally, other resource-specific meetings with resource specialists were held to aid in refining issues related to the proposed lease sale.

### 1.5.2 External Scoping

A project summary page for the MTDKs Quarter 3 2025 Competitive Oil and Gas Lease Sale was posted November 25, 2024, on the BLM's National NEPA Register website (<https://eplanning.blm.gov>) (ePlanning). The nominated lease parcel information (parcel list, **Appendix A**) was posted on that website for a public scoping period from January 29 to March 3, 2025. The BLM issued a press release to facilitate public involvement within the analysis area.

The BLM MTDKs received 32 comment letters via ePlanning during the scoping period for the Quarter 3 2025 Competitive Oil and Gas Lease Sale. Members of the public, agencies, and non-governmental organizations commented on the following topics:

- Effects of lease sales on greenhouse gas (GHG) emissions and climate change
- Air quality and associated health impacts
- Tribal consultation and public participation
- Recreation resources – proximity to National Park

- Human Health
- Big Game, Greater Sage Grouse, Piping Plover habitats
- Water Resources – Water Quality, Stormwater Management

In addition, commenters made the following requests:

- Defer parcels with no or low potential for oil and gas development and/or with resource concerns.
- Leasing Preference Criteria applied to nominated parcels should contain a presumption of “High” Preference
- Consider and recommend a reasonable range of alternatives.
- Request No Surface Occupancy within 1 mile of the shoreline of Lake Sakakawea.

### **1.5.3 Draft EA Public Comment and Response**

The draft Quarter 3 2025 Competitive Oil and Gas Lease Sale EA is being made available for a public comment period from March 25 to April 24, 2025. The BLM issued a press release to facilitate public involvement within the analysis area.

### **1.5.4 Public Protest Period**

The Oil and Gas Lease Sale Notice will be made available for a protest period from June 24 to July 24, 2025. The BLM shall resolve protests, if received, before issuing leases. The protests and the resolution letters are available on <https://eplanning.blm.gov/eplanning-ui/home>

### **1.5.5 Issues Identified but Eliminated from Further Analysis**

This analysis adheres to requirements of the National Environmental Policy Act, 42 U.S.C. §§ 4321–4370m-11 (NEPA) and the Department of the Interior’s NEPA regulations at 43 C.F.R. §§ 46.10-46.450.

Through scoping, four issues were identified for detailed analysis in this EA:

- How would future potential development of the nominated lease parcels affect air quality (particularly with respect to National Ambient Air Quality Standards [NAAQS] and volatile organic compounds [VOCs]) in the Williston Basin?
- How would future potential development of the nominated lease parcels contribute to greenhouse gas (GHG) emissions?
- How would future potential development of the nominated lease parcels affect surface and groundwater quality and quantity?
- How would leasing and potential development of these parcels affect cultural resources to include Native American Religious Concerns and National Historic Landmarks and Trails?
- 
- What are the effects to pronghorn winter range and migration routes if the parcels nominated in the September 2025 lease sale are leased and subsequently developed for oil or gas production?
- What are the effects to Greater sage-grouse habitat if the nominated parcels are leased and subsequently developed for oil or gas production?

Following internal and external scoping, the IDT identified, considered, and summarized 11 issues related to the Proposed Action. Each of these issues is outlined below with a discussion regarding the impacts related to each issue. These issues are presented in Sections 1.5.5.1-1.5.5.11. Stipulations HQ-TES-1, HQ-CR-1, HQ-MLA-1, LN 14-2, LN 14-3, LN 14-12, LN 14-18 and Standard 16-3, as well as STCs described in the lease form, would apply to all nominated lease parcels.

**Table 1.2** lists resources or concerns that were considered but determined to not warrant analysis in this EA and provides rationale for the determination.

**Table 1.2 Issues Considered but not Analyzed in this EA**

<b>Resource or Concern</b>	<b>Rationale for Not Analyzing in EA</b>
Access	No issues from the act of leasing.
Floodplains	No issues from act of leasing. Stipulation application will adequately mitigate potential impacts at APD stage.
Forests and Rangelands	No issues from act of leasing. Stipulation application will adequately mitigate potential impacts at APD stage.
Backcountry Conservation Areas	Not present per review of GIS data.
Invasive, Non-native Species	No issues from act of leasing. Stipulation application will adequately mitigate potential impacts at APD stage.
Noise Resources	No issues from act of leasing. Stipulation application will adequately mitigate potential impacts at APD stage.
Migratory Birds	No issues from act of leasing. Stipulation application will adequately mitigate potential impacts at APD stage.
Livestock Grazing Management	No issues from act of leasing.
Wild and Scenic Rivers	Not present per review of GIS data.
Wild Horses and Burros	Not present per review of GIS data.
Wilderness and Wilderness Study Areas	Not present per review of GIS data.
Wastes, Hazardous or Solid	No issues from act of leasing. Stipulation application and regulatory requirements will adequately mitigate potential impacts at APD stage.
Lands with wilderness characteristics (LWCs)	There are no LWCs within or near the nominated lease parcels. Therefore, analysis of potential effects on LWCs is not warranted.
ACECs/Special Management Areas/Special Designations/Recreation	There are no ACECs, proposed ACECs, Special Management Areas, Special Designations or dispersed/designated recreation areas within the nominated lease parcels. Therefore, analysis of potential effects ACECs, proposed ACECs, Special Management Areas, Special Designations or dispersed/designated recreation areas is not warranted.
Farmlands	There are no farmlands or Natural Resources Conservation Service-designated prime farmland soils within the nominated lease sale parcels. Therefore, analysis of potential effects on farmlands is not warranted.
Forestry and woodlands	No woodland areas or woodland vegetation types were found within the nominated lease parcels; therefore, no management is implemented within the nominated lease parcels specifically for this vegetation type and analysis of potential effects on forestry and woodlands is not warranted.
Fuels and fire management	The potential for ignition of wildland fire from activities associated with future potential development of the nominated lease parcels would be minimized to the extent practicable through adherence to all applicable federal, state, and local fire safety requirements. No specific concerns or conflicts were identified through internal scoping relating to the effects of future potential development on fuels and fire management.
Lands and realty	Future potential development of the nominated lease parcels would be subject to existing land rights and interests (e.g., easements and water rights). Any potential land use conflicts would be resolved through other processes, such as administrative or legal proceedings, independent from this NEPA review.

### 1.5.5.1 *Paleontological Resources*

The Potential Fossil Yield Classification (PFYC) is a tool that allows the BLM MTDKs to predict the likelihood that a geologic unit contains paleontological resources. The PFYC uses a numeric system of 1 to 5 to rank that likelihood, as well as “U” for areas with unknown likelihood. An area identified as PFYC 1 has very low likelihood of containing paleontological resources, whereas an area identified as PFYC 5 is a geologic unit that has a very high likelihood to contain scientifically significant paleontological resources. Paleontological resource management concerns and mitigation efforts are related to that likelihood and PFYC classification. For example, in areas identified as PFYC 2 or 3, paleontological resource management concern is generally low to moderate because the likelihood of encountering scientifically significant fossils is relatively low to moderate. Within areas identified as PFYC 4, paleontological resource management concerns are moderate to high, as the probability of affecting scientifically significant paleontological resources is generally moderate to high.

Future potential development of the nominated lease parcels would be analyzed further through separate NEPA processes, as directed by regulations and current policy. Effects on paleontological resources can be mitigated by STCs, which require a lessee to conduct inventories and/or monitoring or special studies at the discretion of the BLM. Further research or consultation with local experts may be needed to assess whether projects may encounter subsurface geological units with high to very high paleontological potential. Site-specific projects that would cause surface disturbance in areas with unknown potential (PFYC U) may require a paleontological survey and/or monitoring conducted at the time of the proposed lease development in accordance with NEPA, Paleontological Resources Preservation Act (PRPA), and FLPMA.

The application of lease terms and the paleontological lease notices (Standard 16-3, LN 14-3, LN 14-12) at leasing provides protection to paleontological resources. The paleontological lease notice LN 14-3 requires lease development to comply with the PRPA, NEPA, and FLPMA, and requires the lessee to immediately notify the BLM AO of any paleontological resources discovered as a result of approved surface-disturbing operations, to suspend all activities in the vicinity of such discovery until notified to proceed by the AO, such discoveries are to be left intact and undisturbed until directed further by the SMA and to protect the discovery from damage or looting (see **Appendix B**). Additionally, LN 14-12 is applied to all lease parcels that are within or could contain geological units with a PFYC Class of 3 or higher. Leased lands that fall into this category could require professional assessment which may include a field survey prior to surface disturbance. The results of the assessment and survey by a BLM-permitted paleontologist will serve as the basis for a mitigation plan during development. If the inventory resulted in the identification of paleontological resources, mitigation measures such as avoidance, professional monitoring, development of an Unanticipated Resource Discovery Plan or salvage would be initiated by BLM and the operator. Within the administrative boundaries of the USFS Dakota Prairie Grasslands LMG2020-LN-04 is applied to protect these resources.

Additional mitigation measures may be applied as COAs based on the results of the survey. If during operations within the nominated lease parcels paleontological resources are discovered and a permitted paleontological monitor is not on-site, the lessee must cease any operations that would result in the destruction of such specimens and contact the BLM AO. Scientifically significant paleontological resources discovered through surveys or monitoring would be collected by a permitted paleontologist and curated at an appropriate repository. These same measures for minimizing effects at the site-specific level would be followed for resources associated with reasonably foreseeable actions. Additionally, stipulation CSU 12-24 has been applied to nominated lease parcels, MT-2025-09-0403, 0270 and ND-2025-09-6880, 6879; stipulation CSU 12-25 has been applied to nominated lease parcels MT-2025-09-0367, 0425, 0422, 0419, 6959, 0420, 0423, 0421, 6955, 0429, 0403, and 0270 ; LMG2020-CSU-01 has been applied to parcel ND-2025-09-0779, 0780, 0321, 6826, 0323, 6805 and 0324; LMG2020-NSO-01 has been applied

to parcels ND-2025-09-0778, 0779, 0780, 0321, 6826, 0323, 6806, and 6805; and stipulation NSO 11-70 has been applied to nominated lease parcels MT-2025-09-0367, 0425, 0422, 0419, 6956, 0420, 0423, 0421, 6955, 0429, 0270, and ND-2025-09-6880 all of which provide protections for surface water features (see **Appendix B**). Application of these stipulations may provide secondary protections for geologic exposures along these features that may have paleontological potential. With consideration of these protections, potential effects on paleontological resources of scientific interest would be avoided or mitigated.

### **1.5.5.2 Sensitive Soils and Vegetation**

The Standard Lease Stipulation (Standard 16-3) has been applied to all parcels to mitigate any impacts associated with leasing or development of these parcels. Controlled Surface Use Stipulations (CSU 12-24) have also been applied to parcels MT-2025-09-0403, 0270 and ND-2025-09-6880, 6879. Additionally CSU 12-12 has been applied to ND-2025-09-6880 and 6879 to protect plants and habitats that are determined to be threatened, endangered, or special status. At the time of exploration or development the APD surface use plan of operations will include design features and mitigation measures to reduce, avoid, or minimize potential impacts to soil and vegetative resources consistent with the RMP for the respective planning area. Within the administrative boundaries of the USFS Dakota Prairie Grasslands LMG2020-NSO-01 is applied to ND-2025-09-0778, 0779, 0780, 0321, 6826, 0323, 6806, and 680 protect these resources. Ensuring that the species do not become locally extirpated and to prevent a trend toward Federal listing under the Endangered Species Act.

STCs provide the BLM with the authority to determine site-specific vegetation management strategies, including relocating wells up to 800 m (2,625 feet), at the lease development stage for any future actions within the lease parcels to determine whether effects on rare and unique or otherwise sensitive vegetation would occur. Under STCs, which would apply to the nominated lease parcels, pre-disturbance surveys would be required at the time of the proposed lease development. The surveys would identify occurrence of rare or unique vegetation types, special status plant species, and/or vegetation providing habitat for special status wildlife species for avoidance during project siting and construction. Avoidance, minimization, and/or mitigation measures would also be determined at that time. Thus, the estimated level of disturbance to vegetative communities would not pose a threat to the viability of species composing these communities or ecoregions, nor to any species using common vegetation for habitat.

### **1.5.5.3 Riparian – Wetland Habitats**

The Standard Lease Stipulation (Standard 16-3) have been applied to all parcels to mitigate any impacts associated with leasing or development of these parcels. Stipulations CSU 12-25 and NSO 11-70 have been added to parcels MT-2025-09-0367, 0425, 0422, 0419, 6959, 0420, 0423, 0421, 6955, 0429, 0403, 0270, and ND-2025-09-6880 to protect against potential impacts to riparian and wetland resources, a plan may need to be approved by the AO with design features that demonstrate how all actions would maintain and/or improve functionality of those resources. CSU 12-84 has been applied to ND-2025-09-6880 to achieve the same objective. At the time of exploration of development, the APD surface use plan of operations will include design features and mitigation measures to reduce, avoid, or minimize impacts to riparian-wetland areas, consistent with the RMP for the respective planning area. Additionally, all stipulations related to setback distances from the edge of the wetlands, streams, and rivers will be adhered to and consistent with the RMP for the respective planning area. Within the administrative boundaries of the USFS Dakota Prairie Grasslands LMG2020-CSU-01 has been applied to ND-2025-09-0779, 0780, 0321, 6826, 0323, 0324, and 6805 to protect the biological and hydraulic features of water bodies, riparian areas, woody draws, wetlands, and floodplains. LMG2020-LN-01 is applied to all USFS parcels to inform the lessee that floodplains and riparian ecosystems maybe be present and protections may be applied these resources.

#### **1.5.5.4 Visual Resources**

BLM is required to manage for visual resources on BLM owned surface lands. Each RMP contains Visual Resource Management (VRM) requirements and considerations specific for the geographical location to which they apply. VRM practices and standards will be implemented consistent with the respective RMP they are subject to. New oil and gas development would implement, as appropriate for the site, Best Management Practices (BMP's) to maintain visual qualities where possible. 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.

The application of Standard Lease Stipulation (Standard 16-3) is applied to all parcels. The application of Controlled Surface Use Stipulations (CSU 12-33), CSU 12-64, CSU 12-83, No Surface Occupancy (NSO 11-84), and Lease Notice (LN 14-14) would be sufficient at the leasing stage to notify operators that additional measures may be necessary to reduce visual impacts from potential future development (at the APD stage). Parcels that may have one or all of these stipulations include: MT-2025-09-0422, 0419, 0420, 6959, 0427, 0426, 0421, 0367, 0429, 0403, 0270, 6955, and ND-2025-09-6880 and 6879. These Lease Notices and Stipulations provide for the protection and conservation of the visual resources on public lands. BLM visual resource classifications are only applied to BLM surface. For non-federal surface lands where there are federal minerals (commonly referred to as split estate), BLM does not have the authority to manage for VRM. Within the administrative boundaries of the USFS Dakota Prairie Grasslands LMG2020-CSU-08 and LMG2020-CSU-09 are applied to ND-2025-09-0778, 0779, and 0780 protect these resources.

Under STCs, the BLM has the authority to require mitigation measures to reasonably reduce resource effects at the lease development level. The BLM may require mitigation measures that specify flare shields, the type of lighting (limited to downcast lighting with covers for safety purposes only), and project alignment.

#### **1.5.5.5 Recreation**

The project area offers a variety of recreational resources for residents and visitors alike. The Missouri River provides opportunities for fishing, boating, and other water activities. Moreover, The North Unit of Theodore Roosevelt National Park, located in western North Dakota along Highway 85 about 14 miles south of Watford City, offers a range of recreational opportunities amidst its badlands landscape. Visitors can explore the 14-mile Scenic Drive, an out-and-back route featuring overlooks like River Bend and Oxbow, for sightseeing and photography. Hiking options vary from short, accessible trails to the 11-mile Buckhorn Trail, which loops through backcountry and prairie dog towns, offering chances to spot bison and other wildlife. The Juniper Campground, nestled along the Little Missouri River, provides 50 sites for camping, with shady cottonwood groves and ranger-led campfire programs in summer. Wildlife viewing is a highlight, with frequent sightings of bison, mule deer, pronghorns, and occasionally bighorn sheep or moose, alongside geological features like the Cannonball Concretions. Peak season is summer (June to August), though shoulder seasons (May and September) are growing in popularity, while winter visits drop significantly due to harsh conditions.

The Standard Lease Stipulation (Standard 16-3) has been applied to all parcels to mitigate any impacts associated with leasing or development of these parcels. CSU 12-83 has been applied to protect features critical to the visitor experience such as viewsheds, soundscapes, night skies, and air quality of National Park Service Units (ND-2025-09-6880 and 6879). and NSO 11-196 has been applied to parcel ND-2025-0-9-6880 to protect air quality and related values within federally designated Class I areas. Several parcels

along the Missouri River in Montana to include MT-2025-09-0422, 0419, 6959, 0427, 0426, 0421, and 6955 have NSO 11-81 applied to protect developed and undeveloped recreation areas that receive concentrated public use.

The leasing action would be considered in compliance with all relevant recreation regulations, protocols, and policies. Impacts on recreation from potential future exploration and development would be analyzed at the APD stage and included design features, and mitigation would be integrated to avoid or minimize potential impacts to recreation consistent with the RMP for the respective planning area. Within the administrative boundaries of the USFS Dakota Prairie Grasslands LMG2020-NSO-13 is applied to retain recreation opportunities in a natural-appearing landscape.

### **1.5.5.6 Aquatic, Raptors, and Terrestrial Wildlife**

The BLM screened parcels for sensitive species and species of concern and applied timing limitations, controlled surface use, and no surface occupancy lease stipulations to avoid/minimize impacts to species. BLM Standard Stipulations 16-3 and HQ-TES-1 contains sections for the safeguarding of endangered or threatened species and have been applied to all parcels. Lease notices such as LN 14-20 has been applied to 18 parcels or migratory birds, LN 14-39 has been applied to MT-2025-09-0403 and 0367, Controlled surface use stipulations CSU 12-27 and CSU 12-36 for sharp-tailed grouse and greater prairie-chicken leks has been applied to MT-2025-09-6956, 6957, 0423, and ND-2025-09-6880 and No Surface Occupancy stipulations NSO 11-38 for Golden Eagle Nests has been applied to ND-2025-09-6880, likewise NSO 11-73 has been applied to parcels MT-2025-09-0422 and 0426 for raptor nest sites that have been active within the previous 7 years, NSO 11-74 provides Bald Eagles and their documented nest protections for parcels MT-2025-09-0427 and 0270, and NSO 11-78 which protects the habitat of the federally endangered pallid sturgeon has been applied to parcels MT-2025-09-0422, 0419, 6959, 0427, 0426, 0421, and 6955.

Within the administrative boundaries of the USFS Dakota Prairie Grasslands, Lease Notice LMG2020-LN-02 is applied to all USFS parcels in order to assess if a biological evaluation for threatened, endangered, and sensitive plant or animal species of the leased lands may be required. Stipulations such as LMG2020-CSU-01, LMG2020-NSO-04, LMG2020-NSO-07, LMG2020-NSO-08 and LMG2020-TL-01 are applied to protect these species and their habitat (Prairie Falcon and Burrowing Owl Nests, Sharp-tailed Grouse display grounds, and Black-footed Ferret reintroduction habitat). The North Dakota Game and Fish have requested development be limited to existing infrastructure specifically for USFS parcels ND-2025-09-0778, 0779, 0780 to prevent new habitat disturbance. The above stipulations provide protections for those resources.

Conditions at the time an APD is submitted will be assessed for significance; the need for additional mitigation will also be determined at the time development is proposed. All future projects will undergo site-specific review, and preparation of an environmental record of review will occur in accordance with Federal law, regulation, and policy. Pre-disturbance surveys would be required at the time of proposed lease development in accordance with standard terms and conditions of the lease. The surveys would analyze potential effects on game and nongame species habitat. Avoidance, minimization, and/or mitigation measures would also be determined at that time. The BLM has the authority under standard terms and conditions to attach COAs at the site-specific level to minimize potentially negative effects on resource values at the time operations are proposed.

### **1.5.5.7 Threatened and Endangered Species**

The BLM screened parcels for sensitive species and species of concern and applied timing limit, controlled surface use, and no surface occupancy lease stipulations to avoid/minimize impacts to species.



A scoping comment from the USFWS on previous lease sales called for the protection of northern long-eared bat habitat. The BLM placed stipulation HQ-TES-1 (Endangered Species Act (ESA) Section 7 Consultation) on all parcels, which states that the BLM may require modifications to, or disapprove proposed activity that is likely to result in jeopardy to the continued existence of a proposed or listed threatened or endangered species or result in the destruction or potential modification of a designated or proposed critical habitat. Further, the BLM placed LN-14-20 on parcels MT-2025-09-0367, 0422, 0419, 6956, 6959, 0427, 0420, 6957, 0426, 0423, 0421, 6955, 0429, 6954, 0403, 0270, ND-2025-09-6880, and 6879, TL 13-34 was placed on parcels MT-2025-09-0422, 0419, 6959, 0427, 0426, 0421, and 6955 specifically for the protection of nesting activities associated with colonial-nesting birds and NSO 11-78 to protect the habitat of the endangered pallid sturgeon on parcels MT-2025-09-0422, 0419, 6959, 0427, 0426, 0421, and 6955. In addition to the stipulation HQ-TES-1, the USFWS would coordinate with the BLM NDFO, HFO, and MCFO to implement appropriate conservation measures for future site-specific development to ensure development is in compliance with the ESA.

Within the administrative boundaries of the USFS Dakota Prairie Grasslands LMG2020-LN-02 for Threatened and Endangered Species LMG2020-NSO-08 for the protection of black-footed ferret reintroduction habitat is also applied to protect these resources. These notices state that a biological evaluation of the leased lands may be required prior to surface disturbance to determine if endangered, threatened, proposed, candidate or sensitive plant or animal species or their habitat are present within the administrative boundaries of the DPG. The surveys would analyze potential effects on game and nongame species habitat. Avoidance, minimization, and/or mitigation measures would also be determined at that time. The BLM will not approve any ground-disturbing activity that may affect any such species or critical habitat until it completes its obligations under applicable requirements of the Endangered Species Act as amended, 16 U.S.C. § 1531 et seq., including completion of any required procedure for conference or consultation. The BLM completed a screen for threatened and endangered species and habitat presence in proposed parcels and identified applicable stipulations if the species or habitat may be present. Refer to **Table 1.3** below.

**Table 1.3 USFWS Listed Species and Habitat occurrence in proposed MTDKs September 2025 Oil and Gas Lease Sale**

Scientific Name	Common Name	Status	Species Present in Lease Parcels	Suitable Habitat Present	If species and/or habitat are present, identify stipulations that would avoid/minimize impacts to the species.
<b>Dunn County, ND</b>					
<i>Calidris canutus rufa</i>	Rufa Red Knot	LT	Unknown	Unlikely	HQ-TES-1
<i>Charadrius melodus</i>	Piping Plover	LT, CH	Unknown	Unlikely	HQ-TES-1
<i>Danaus plexippus</i>	Monarch Butterfly	P	No	No	HQ-TES-1
<i>Grus americana</i>	Whooping Crane	LE	Unknown	Unlikely	HQ-TES-1, COA attached to the APD at project level
<i>Herperia dacotae</i>	Dakota Skipper	LT	No	No	HQ-TES-1
<i>Myotis septentrionalis</i>	Northern Long-eared Bat	LE	No	No	HQ-TES-1, COA attached to the APD at project level
<i>Scaphirhynchus albus</i>	Pallid Sturgeon	LE	Unknown	Unlikely	HQ-TES-1
<i>Argynnis idalia occidentalis</i>	Western Regal Fritillary	P	No	No	HQ-TES-1
<i>Bombus suckleyi</i>	Suckley's Cuckoo Bumble Bee	P	No	No	HQ-TES-1
<b>Billings County, ND</b>					
<i>Myotis septentrionalis</i>	Northern Long-eared Bat	LE	Unknown	Unlikely	HQ-TES-1, COA attached to the APD at project level
<i>Grus americana</i>	Whooping Crane	LE	Unknown	Unlikely	HQ-TES-1, COA attached to the APD at project level
<i>Herperia dacotae</i>	Dakota Skipper	LT	Unknown	Unlikely	HQ-TES-1
<i>Danaus plexippus</i>	Monarch Butterfly	P	No	No	HQ-TES-1
<i>Argynnis idalia occidentalis</i>	Western Regal Fritillary	P	Unknown	Unlikely	HQ-TES-1
<i>Bombus suckleyi</i>	Suckley's Cuckoo Bumble Bee	P	Unknown	Unlikely	HQ-TES-1
<b>McKenzie County, ND</b>					
<i>Calidris canutus rufa</i>	Rufa Red Knot	LT	Unknown	Unlikely	HQ-TES-1
<i>Charadrius melodus</i>	Piping Plover	LT	Unknown	Unlikely	HQ-TES-1, LN 14-20
<i>Danaus plexippus</i>	Monarch Butterfly	P	Unknown	Unlikely	HQ-TES-1
<i>Grus americana</i>	Whooping Crane	LE	Unknown	Unlikely	HQ-TES-1, LN 14-20, COA attached to the APD at project level
<i>Herperia dacotae</i>	Dakota Skipper	LT	Unknown	Unlikely	HQ-TES-1
<i>Myotis septentrionalis</i>	Northern Long-eared Bat	LE	Unknown	Unlikely	HQ-TES-1, COA attached to the APD at project level
<i>Scaphirhynchus albus</i>	Pallid Sturgeon	LE	No	No	HQ-TES-1
<i>Argynnis idalia occidentalis</i>	Western Regal Fritillary	P	Unknown	Unlikely	HQ-TES-1
<i>Bombus suckleyi</i>	Suckley's Cuckoo Bumble Bee	P	Unknown	Unlikely	HQ-TES-1
<b>Blaine County, MT</b>					
<i>Danaus plexippus</i>	Monarch Butterfly	P	Unknown	Unlikely	HQ-TES-1
<i>Bombus suckleyi</i>	Suckley's Cuckoo Bumble Bee	P	Unknown	Unlikely	HQ-TES-1
<b>Richland County, MT</b>					

<i>Myotis septentrionalis</i>	Northern Long-eared Bat	LE	Unknown	Yes	HQ-TES-1
<i>Charadrius melodus</i>	Piping Plover	LT, CH	Unknown	Yes	HQ-TES-1, LN 14-20, TL 13-34
<i>Grus americana</i>	Whooping Crane	LE	Unknown	Yes	HQ-TES-1, LN 14-20
<i>Scaphirhynchus albus</i>	Pallid Sturgeon	LE	Unknown	Yes	HQ-TES-1, NSO 11-78
<i>Danaus plexippus</i>	Monarch Butterfly	P	Unknown	Unlikely	HQ-TES-1
<i>Argynnis idalia occidentalis</i>	Western Regal Fritillary	P	Unknown	Unlikely	HQ-TES-1
<i>Bombus suckleyi</i>	Suckley's Cuckoo Bumble Bee	P	Unknown	Unlikely	HQ-TES-1
<b>Rosebud County, MT</b>					
<i>Danaus plexippus</i>	Monarch Butterfly	P	Unknown	Unlikely	HQ-TES-1
<i>Scaphirhynchus albus</i>	Pallid Sturgeon	LE	No	No	HQ-TES-1
<i>Bombus suckleyi</i>	Suckley's Cuckoo Bumble Bee	P	Unknown	Unlikely	HQ-TES-1
<b>Roosevelt County, MT</b>					
<i>Myotis septentrionalis</i>	Northern Long-eared Bat	LE	Unknown	Unlikely	HQ-TES-1
<i>Charadrius melodus</i>	Piping Plover	LT, CH	Unknown	Yes	HQ-TES-1, LN 14-20, TL 13-34
<i>Scaphirhynchus albus</i>	Pallid Sturgeon	LE	Unknown	Yes	HQ-TES-1, NSO 11-78
<i>Grus americana</i>	Whooping Crane	LE	Unknown	Unlikely	HQ-TES-1, LN 14-20
<i>Danaus plexippus</i>	Monarch Butterfly	P	Unknown	Unlikely	HQ-TES-1
<i>Argynnis idalia occidentalis</i>	Western Regal Fritillary	P	Unknown	Unlikely	HQ-TES-1
<i>Bombus suckleyi</i>	Suckley's Cuckoo Bumble Bee	P	Unknown	Unlikely	HQ-TES-1
C = Candidate PCH = Proposed Critical Habitat LT = Listed Threatened CH = Designated Critical Habitat LE = Listed Endangered P = Proposed XN = Experimental non-essential population Source: <a href="https://ipac.ecosphere.fws.gov/location/index">https://ipac.ecosphere.fws.gov/location/index</a>					

### **1.5.5.8      *Piping Plover & Sprague's Pipet***

During the scoping process, commenters to include the North Dakota Game and Fish indicated that a parcel in Dunn County contain suitable critical habitat for Piping Plover (*Charadrius melodus*). The NDGF have requested no surface occupancy specifically for parcels ND-2025-09-0752 because it is within a mile of the shoreline of Lake Sakakawea in piping plover critical habitat. Parcel -0752 is managed by the USACE and have applied stipulations COE 18-1, 18-2, 18-3, 18-4 which are fundamentally No Surface Occupancy Stipulations. Moreover, this parcel is within the confines of the Little Missouri River and consequently submerged, water levels can be dictated by the downstream Garrison Dam which creates the Lake Sakakawea Reservoir. The development of this parcel would likely occur on existing infrastructure off-lease. In addition to the stipulation HQ-TES-1, the USFWS would coordinate with the BLM North Dakota Field Office and USFS to implement appropriate conservation measures for future site-specific development to ensure development is in compliance with the ESA. Beyond the Standard 16-3 stipulation there are other stipulations including the LN 14-15 and TL 13-47 applied to parcel MT-2025-09-0367 that may contain suitable habitat for Sprague's Pipit, a candidate species. For parcel MT-2025-04-0413 the BLM placed LN 14-20 across eighteen parcels and TL 13-34 on parcels MT-2025-09-0422, 0419, 6959, 0427, 0426, 0421, and 6955 specifically for the protection of nesting activities associated with colonial-nesting birds identified as BLM priority species for management. Applied stipulations can be found in **Appendix A** and would be enforced during the APD process to address the identified species with surveys, monitoring, and timing limitations for ground disturbance. These activities often involve collaboration and coordination with agencies and can provide appropriate mitigation for the listed species.

### **1.5.5.9      *General Wildlife and Big Game Species***

In Montana and North Dakota, big game species exhibit varied baseline conditions across the region's prairies, badlands, and river valleys. White-tailed deer are abundant in mixed habitats, mule deer maintain moderate densities in rugged areas, and pronghorn thrive in open prairies, all resilient yet sensitive to weather extremes. Elk are expanding eastward with moderate, patchy populations, while bighorn sheep remain stable but limited to specific badlands habitats, bolstered by reintroduction efforts. Moose are rare, with minimal presence in the east. Habitat quality, climate (milder winters, occasional droughts), predation, and human activities such as hunting and energy development shape these dynamics, with management by state and federal agencies maintaining ecological balance.

This environmental assessment will use current available data to identify habitats that may be affected by oil and gas lease sales. Should new data emerge during the Application for Permit to Drill (APD) phase, it will be incorporated to further refine our understanding of habitats and species that require protection.

The BLM, USACE, and USFS placed various stipulations on parcels that provides a notification to a lessee that the BLM may require wildlife surveys at the APD stage, and that protective measures may be necessary. During the scoping period North Dakota Game and Fish has requested restricted development on portions of all parcels. Additionally, the federal SMA's have issued lease notices, indicating that wildlife surveys may be necessary at the APD stage, along with the potential for protective measures. Lease Notice 14-40 has been specifically applied to parcels MT-2025-09-0422, 0419, 6959, 0427, 0420, 6957, 0426, 0421, 6955, 0403, and 0270 to protect potential big game winter range and migration corridors. This notice serves to inform lessees that site-specific requirements may be identified during the environmental review process, and that approvals could necessitate modifications to safeguard local and regional big-game populations. Timing Limitation (TL) 13-18 and TL 13-19 are applied to parcels to protect Bighorn Sheep lambing activities April 1<sup>st</sup> through June 15<sup>th</sup> and their winter range from December 1<sup>st</sup> through April 1<sup>st</sup>. To protect mule deer, elk, and antelope birthing areas and bolster long-term maintenance of their populations TL 13-53 is applied to parcels ND-2025-09-6880 and 6879.

Similarly on the HiLine Parcel MT-2025-09-0367 TL 13-48 is applied to protect winter ranges for big game populations.

It is notable that several parcels involved in this lease sale are under the management of the USFS, which has required No Surface Occupancy (NSO), Timing Limitations (TL), and Controlled Surface Use (CSU) stipulations for each parcel. Specifically, LMG2020-CSU-04 and LMG2020-TL-03 which safeguards Bighorn Sheep lambing areas and thereby preventing displacement of bighorn sheep populations in parcels ND-2025-09-0779, 0780, 0321, 6826, 0323, 0324, and 6805. Stipulations LMG2020-CSU-01, LMG2020-CSU-07, LMG2020-NSO-01, LMG2020-NSO-13, LMG2020-NSO-14 have also been applied all of which provide protections for surface features and habitats (see **Appendix B**). Application of these stipulations may provide secondary protections for wildlife along these landscapes that contain important habitat. With consideration of these protections, potential effects on these resources and species would be avoided or mitigated.

Conditions at the time an APD is submitted will be assessed for significance; the need for additional mitigation will also be determined at the time development is proposed. All future projects will under-go site-specific review, and preparation of an environmental record of review will occur in accordance with Federal law, regulation, and policy. At that stage, avoidance, minimization, or mitigation strategies will be determined. The BLM retains the authority to impose Conditions of Approval (COAs) aimed at mitigating potentially negative effects on resource values during project proposals. Based on the current data, existing big game stipulations are considered sufficient to prevent and minimize impacts to these vital habitats.

### **1.5.5.10 Human Health and Safety**

Literature has indicated that there are many effects to human health associated with oil and gas development, particularly (but not exclusively) in areas that are proximal to high development. Some of these effects are:

- Reproductive harms including birth defects, low birth weight, preterm births, and miscarriages
  - McKenzie et. al (2014) analyzed the associates between density and proximity of natural gas wells within a 10-mile radius of a maternal residence. The study suggested that there was an association between density of and proximity to natural gas wells and increased birth defects.
  - Tran, et al (2021) monitored births to mothers in eight California counties between 2006 and 2015 where the individuals were exposed to hydraulic fracturing by at least one well within one kilometer of their residence during pregnancy. The study suggests that although hydraulic fracturing exposure may influence birth outcomes there are other factors involved including urban ambient air pollution that may affect the birth weight and size.
- Respiratory health effects including asthma, lung disease, and breathing difficulty
  - Outdoor air pollutants, including ozone, particulate matter, nitrogen dioxide, and sulfur dioxide, are recognized cause of asthma (Rasmussen et al. 2016).
- Possible disruption of the endocrine system
  - Kassotis, et al (2016) determined that the contamination of surface and groundwater was one source of Endocrine-disrupting chemicals to the human body via contamination of sources of drinking water, the other being air as the route of exposure for humans by means of inhalation exposure from surface spills and associated oil and gas infrastructure.
- Cancer (lung cancer and other types of cancer);

- Carcinogens associated with oil and gas development include aromatic petroleum hydrocarbons (benzene, toluene, ethyl benzene, and xylenes (BTEX)) and diesel exhausts (Adgate et al 2014).
- Injuries
  - Motor vehicle injuries and fatalities, and other health and safety risks associated with increased vehicle traffic (and the air pollutants it emits) from oil and gas development;
    - The most common type of accident were traffic and single-vehicle rollovers (Adgate et. al 2014);
  - Fatalities from explosions, fires, spills, and leaks;
    - ...the fatality rate is 2.5 times the rate of the construction industry and 7x higher than the general industry rate from 2005 to 2009. Adgate et.al (2014)
- Trauma and psychological stress.
  - Malin (2020) indicates that stressors and mental health from the institutional mechanisms associated with fossil fuel development are associated with 1) uncertainty, due to inaccessible, untransparent information about environmental and public health risks and 2) powerlessness to meaningfully impact regulatory or zoning processes.

The following links provide additional information on air pollution health effects and criteria pollutants:

- Ozone (<https://www.epa.gov/ground-level-ozone-pollution>) (EPA 2023a)
- Particulates (<https://www.epa.gov/pm-pollution/particulate-matter-pm-basics>) (EPA 2023b)
- Nitrogen dioxide (<https://www.epa.gov/no2-pollution/basic-information-about-no2>) (EPA 2023c)
- Carbon monoxide (<https://www.epa.gov/co-pollution/basic-information-about-carbon-monoxide-co-outdoor-air-pollution#Effects>) (EPA 2023d)
- Lead (<https://www.epa.gov/lead-air-pollution/basic-information-about-lead-air-pollution#health>) (EPA 2023e)
- Sulfur dioxide (<https://www.epa.gov/so2-pollution/sulfur-dioxide-basics#effects>) (EPA 2023f)
- Hazardous air pollutants (<https://www.epa.gov/haps/health-effects-notebook-hazardous-air-pollutants>) (EPA 2023g)

While the 2019 AirToxScreen estimates the risk of cancer and/or other health impacts solely based on exposure to HAPs, other economic or social indicators can also influence the general health risks of a population, such as poverty status, educational attainment, or language proficiency.

Human health risk assessments cannot be performed until project-specific details are known so that frequency, timing, and levels of contact with potential stressors may be identified (EPA 2023h). However, each of the reasonably foreseeable actions have been, or will be, subject to relevant rules and regulations regarding public health and safety. Ongoing and future potential development would continue to present aggregate risks to human health. When wells reach the end of their useful life and are properly plugged and reclaimed, they would no longer contribute to air quality effects; however, depending on the level and duration of individual's exposure during well operation, some of the public health effects from air pollution may endure beyond the life of the wells (e.g., chronic respiratory problems such as asthma).

When authorizing development, federal and state laws, regulations, and policies are applied to reduce effects or respond to incidents. These include the following:

- Federal, state, county, and municipal fire managers shall coordinate on fire response and mitigation.
- Developers who install and operate oil and gas wells, facilities, and pipelines are responsible for complying with the applicable laws and regulations governing hazardous materials and for following all hazardous spill response plans and stipulations.
- Vehicular traffic and pipelines are regulated according to safety laws as stipulated by the Department of Transportation.
- All well pads, vehicles, and other workplaces must comply with worker safety laws as stipulated by the Occupational Safety and Health Administration.
- Measures to lower risks related to H<sub>2</sub>S exposure include flaring or venting gas and the use of stock tank vapor recovery systems.

Fugitive dust is concentrated in the short term during construction but may occur to a lesser degree in the long term because of increased vehicle use and ground disturbance. See the air quality analysis in Section 3.4.1 for additional information on fugitive dust as well as the potential health effects of other air pollutants, including criteria pollutants, VOCs, and HAPs. See Section 3.4.3 for further information regarding potential groundwater and surface water effects and relevant regulations, stipulations, and lease notices offering protections to groundwater and surface water quality.

### 1.5.5.11 *Economic Activity*

The oil and gas industry has been a substantial contributor to the social setting and economic basis of the BLM MTDKs for decades. The oil and gas sector of the economy relies on both ongoing operational activities (maintenance of existing leases) and new development opportunities (acquisition and development of new leases) to continue to provide local and regional jobs and revenue on a sustained basis.

Mineral rights can be owned by private individuals, corporations, Indian tribes, or by local, State, or Federal Governments. Typically, companies specializing in the development and extraction of oil and gas lease the mineral rights for a particular parcel from the owner of the mineral rights. Federal oil and gas leases are generally issued for 10 years unless drilling activities result in one or more producing wells.

Once production has begun on a federal lease, the lease is held by production and the lessee is required to make royalty payments to the Federal Government.

**Table 1.4 Total and Average Annual Bonus Bid and Rental Payments for Existing Oil and Gas Leases on Non-Indian Federal Mineral Estates (2021-2025)**

County	Bonus Bids <sup>1</sup>	Rents	Total	Average Annual
Billings, ND	\$200,720.00	\$48,043.33	\$248,763.33	\$62,190.83
Dunn, ND	\$3,605,110.00	\$5,874.33	\$3,610,984.33	\$902,746.08
McKenzie, ND	\$29,805,818.90	\$164,923.82	\$29,970,742.72	\$7,492,685.68
Blaine, MT	\$5,320.00	\$33,777.45	\$39,097.45	\$9,774.36
Richland, MT	\$6,183,591.00	\$37,085.61	\$6,220,676.61	\$1,555,169.15
Roosevelt, MT	\$379,568.00	\$3,621.00	\$383,189.00	\$95,797.25
Rosebud, MT	\$0.00	\$26,341.00	\$26,341.00	\$6,585.25
Grand Total	\$40,180,127.9	\$319,666.54	\$40,499,794.44	\$10,124,948.60

Source: ONRR data, <https://revenue.data.doi.gov/downloads/federal-revenue-by-location/> accessed 11/13/2024.

<sup>1</sup> Negative Bonus Bid values may be due to companies correcting errors in royalty, rental and bonus bid payments. If the correction takes place in a different year than the original payment, it appears as a negative entry in the total.

**Table 1.4** provides information on rental and bonus bid revenue from existing oil and gas leases for the county that has parcels nominated for the proposed leasing action. Existing Federal oil and gas leases on Federal non-Indian properties located in these counties produced over \$319 thousand dollars in rental income and \$40 million dollars in bonus bids between 2021 and 2025. The leasing of these minerals supports local employment and income and generates public revenue for surrounding communities. The economic contributions of Federal fluid mineral leasing actions are largely influenced by the number of acres leased, and can be measured in terms of the jobs, income, and public revenue generated. Additional details on the economic contribution of Federal fluid minerals are discussed in the RMP and FEIS covering the location of the parcel.

Leasing mineral rights for the development of Federal minerals generates public revenue through the bonus bids paid at competitive lease auctions and annual rents collected on leased parcels not held by production. Nominated parcels approved for oil and gas leasing are offered by the BLM at a minimum bid rate of \$10 per acre at the competitive lease sale. In addition to bonus bids, lessees are required to pay rent annually until production begins on the leased parcel, or until the lease expires. These rent payments are equal to \$3.00 an acre for the first two years, \$5.00 an acre for years 3 through 8, and \$15.00 an acre for the years 9 and beyond (for a lease not held in production). The Federal oil and gas royalties on production from public domain minerals equal 16.7 percent of the value of production (43 CFR § 3103.3.1).

A portion of these Federal revenues are distributed to the State and counties where the parcels are located. The amount that is distributed is determined by the Federal authority under which the Federal minerals are being managed. Forty-nine percent of Federal revenue associated with oil and gas from public domain lands are distributed to the State. For example, in Montana, 25% of the rental and bonus bid revenues that the State receives are redistributed to the counties of production (Title 17-3-240, MCA). Twenty-five percent of bonus bid, and rental revenues associated with oil and gas development from Bankhead-Jones lands are distributed to counties where the parcels are located. Distribution of Federal royalties and leasing revenues to the State for oil and gas development on other Federal acquired lands differs based upon the authority associated with those lands. Generally, the revenue associated with oil and gas leasing and development that is received by the State and counties 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.

While the act of leasing federal minerals itself would not result in social effects, subsequent development of a lease may generate impacts on communities and individuals in the vicinity of the lease. At the lease sale stage, it is unknown where, or if, development would occur in any given nominated lease parcels; however, in general, acquisition and development of new leases provide short-term local and regional jobs and long-term revenue on a sustained basis. These may include employment opportunities related to the oil and gas and service support industries in the region, as well as federal, state, and county government revenue related to taxes, royalty payments, and other revenue streams. For example, the revenue collected from the lease sale auction is split between the U.S. Treasury and the state in which the auction is held and can be used for improvements to transportation networks and education systems. As specific types and locations of development are proposed, their effects would be analyzed and addressed at the time of the proposed lease development.

Oil and gas lease sales may contribute to employment for area residents, continued demand for oil and gas industry-related goods and services, and continued demand for support goods and services. This



continued demand may contribute to stability in employment in sectors outside of the oil and gas industry. To the extent that additional oil and gas development affect recreational and tourism opportunities in the area of the nominated lease parcels, there may be related effects in these economic sectors. Continued expansion of the oil and gas industry may be perceived as having a negative effect on quality-of-life considerations for people who value undeveloped landscapes, opportunities for isolation, and activities such as wildlife viewing and cattle ranching. The BLM uses a number of stipulations and lease notices applied to the nominated lease parcels in the current sale that may mitigate potential effects on wildlife and other resources that in turn may mitigate effects on related recreation and quality of life concerns (see **Appendix A** and **B** for specific stipulations and lease notices applied to the nominated lease parcels, and individual stipulation and lease notice summaries).

## CHAPTER 2. PROPOSED ACTION AND ALTERNATIVES

This EA considers the effects of two alternatives: Alternative A – No Action and Alternative B – Proposed Action. The Proposed Action is based upon Expressions of Interest (EOIs) that were submitted to the BLM for the Quarter 3, September 2025 lease sale.

### 2.1 PROPOSED ACTION

Under the Proposed Action, the BLM would offer for lease federal minerals associated with the 29 nominated lease parcels. **Appendix A** includes surface management, the legal land description of the nominated lease parcels totaling 9,101.65 acres, and lease stipulations and notices attached to the parcels. **Appendix C** contains parcel maps. **Appendix B** provides a summary of stipulations and lease notices. Under the Proposed Action, the BLM AO has the authority to lease the parcels, or to defer some or all of the parcels, based on the analysis of potential effects presented in this EA. These 29 nominated lease parcels are tentatively scheduled to be part of a competitive oil and gas lease sale tentatively scheduled for September 10, 2025, in conformance with the existing land use planning decisions.

- Dakota Prairie-Grasslands Administrative Boundary: Ten (10) parcels on USFS surface in Billings and McKenzie counties, North Dakota (2,918.27 acres).
- Bureau of Land Management – MCFO: Sixteen (16) parcels on BLM or split-estate surface in Richland, Roosevelt, and Rosebud Counties in Montana (4,977.34 acres). HFO: One (1) parcel on BLM surface in Blaine County, Montana (521.66 acres). NDFO: One (1) parcel on private surface in McKenzie County, ND (680 acres).
- USACE Garrison Dam/Lake Sakakawea Project: One (1) parcel on USACE surface in Dunn County, North Dakota (4.38 acres)

A BLM, USFS, and USACE interdisciplinary team reviewed all parcels and applied stipulations and lease notices designed to avoid or minimize impacts to resources. The broad definitions of No Surface Occupancy, Controlled Surface Use, and Lease Notices are listed here:

#### No Surface Occupancy Stipulations (NSO):

Use or occupancy of the land surface for fluid minerals exploration or development and all activities associated with fluid minerals leasing are prohibited to protect identified resource values. The NSO stipulation is a category of major constraints. Areas identified as NSO are open to fluid minerals leasing, but surface occupancy or surface disturbing activities associated with fluid minerals leasing cannot be conducted on the surface of the land. Access to fluid mineral deposits would require directional drilling or drilling from outside the boundaries of the NSO area. This differs from areas identified as closed to leasing in which neither the surface area nor mineral estate is available for fluid minerals leasing.

#### Controlled Surface Use Stipulations (CSU):

Controlled Surface Use is a category of moderate constraint stipulations that allows some use and occupancy of public land while protecting identified resources or values. Areas identified as CSU are open to fluid minerals leasing, but the stipulation allows the BLM to require special operation constraints.

#### Timing Limitation Stipulations (TL):

Areas identified for TL, a moderate constraint, are closed to fluid minerals exploration and development, surface-disturbing activities for periods that may exceed 60 days. This stipulation does not apply to operation and basic maintenance.

#### Lease Notices (LN)

A lease notice (LN) provides more-detailed information concerning limitations that already exist in law, lease terms, regulations, or operational orders. An LN also addresses special considerations for lessees when they plan their operations, but it does not impose additional restrictions. LNs are not an RMP-level decision, and new LNs may be added to fluid minerals leases at the time of sale.

The application and definitions of all stipulations can be found in **Appendix A** and **B**.

Based upon calculations made in the Reasonably Foreseeable Development Scenarios, the BLM estimates that 7 new oil wells could be drilled in the NDFO, 3 new oil wells could be drilled in the MCFO, and 2 new oil wells could be drilled in the HFO from this lease sale. Refer to **Table 3.1** and **Appendix D**.

Drilling wells on lease parcels is not permitted until the leaseholder submits, and the BLM approves (subsequent to additional site-specific environmental review documentation), a complete Application for Permit to Drill (APD) package (Form 3160-3) following the requirements specified in 43 C.F.R. § 3162.3-1 and 43 C.F.R. § 3171. The BLM has authority, according to the STCs of the leases, to attach conditions of approval (COAs) to the APD that reduce or avoid impacts to public land, resources, and/or resource values. Under 43 C.F.R. § 3101.12, such reasonable measures may include, but are not limited to, modification to siting or design of facilities, timing of operations, and specification of interim and final reclamation measures. Measures shall be deemed consistent with lease rights granted provided they do not require relocation of proposed operations by more than 800 meters (m) (2,625 feet); require that operations be sited off the leasehold; or prohibit new surface-disturbing operations for a period in excess of 90 days in any lease year.

## **2.2 NO ACTION ALTERNATIVE**

Under the No Action Alternative, the BLM would not offer the nominated parcels for competitive leasing in the Quarter 3 2025 Competitive Oil and Gas Lease Sale; therefore, no parcels would be developed at this time. The parcels would have the potential to be nominated again for a future oil and gas lease sale. The No Action Alternative would exclude all parcels from the competitive oil and gas lease sale. 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 proposed parcel lands. The No Action Alternative would result in the continuation of the current land and resource uses on the lease parcels.

## **2.3 ALTERNATIVES CONSIDERED BUT NOT ANALYZED IN DETAIL**

NEPA requires the BLM to consider a reasonable range of alternatives to the proposed action. In this EA, the BLM considers one Action alternative and the No Action alternative. The alternatives would lease, or not lease parcels based upon specific resource concerns identified during analysis. The BLM received scoping comments asking for alternatives that did not fall within the range of alternatives already analyzed in the EA, including:

An alternative that protects groundwater.

The BLM frequently receives comments asking for an alternative that would protect usable groundwater, defined under the Safe Drinking Water Act as an aquifer with water that contains less than 10,000 mg/L (10,000 ppm) of total dissolved solids. However, a separate alternative to protect usable groundwater is not warranted because protection of groundwater would be required for any APD that is approved on a lease parcel. Authorization of proposed projects would require full compliance with local, state, and federal directives and stipulations that relate to surface and groundwater protection, and the BLM would deny any APD that proposes drilling and/or completion processes that are insufficient to protect usable water, as required by 43 CFR §3162.5-2(d). Any proposed drilling/completion activities would have to comply with 43 CFR §3160 regulations and not result in a violation of a Federal and/or State laws that prohibit degradation of surface or groundwater quality.

An alternative that minimizes methane waste through both technology and regulatory authority.

Lease Notice 14-18 is applied to every BLM-administered parcel, which provides: The lessee/operator is given notice that prior to project-specific approval, additional air resource analyses may be required in order to comply with the NEPA, FLPMA, and/or other applicable laws and regulations. Analyses may include equipment and operations information, emission inventory development, dispersion modeling or photochemical grid modeling for air quality and/or air quality related value impact analysis, and/or emission control determinations. These analyses may result in the imposition of additional project-specific control measures to protect air resources. Application of the lease notice allows the BLM to mandate site-specific analysis of impacts to air resources at the APD stage, and to require project-specific control measures to protect air resources, including methane reduction technologies. As the BLM cannot write additional stipulations at the leasing stage, and methane reduction technologies may be required under LN 14-18, this alternative is therefore eliminated from further analysis.

## 2.4 GENERAL INFORMATION AND APPENDICES

**Appendix A** provides a list of all the parcels by parcel number, and identifies the size, legal descriptions, and associated stipulations. **Appendix B** provides a description of Lease Stipulations and **Appendix C** identifies the location of each parcel.

**Table 3.1** identifies the number of parcels that would be offered by field office and county, acres of federal minerals (public domain or acquired lands) and summarizes development potential and estimated acres of surface disturbance based upon a sale specific Reasonably Foreseeable Development (RFD) scenario (see **Appendix D**).

The terms and conditions of the standard federal lease and federal regulations would apply to the parcels offered for sale in the Proposed Action. Stipulations shown in **Appendix A** would be included with the identified parcel offered for sale. Standard operating procedures for oil and gas development include measures to protect the environment and resources such as groundwater, air, wildlife, cultural resource concerns, and others specified in the respective RMP or LUP for each planning area.

Lease stipulations would be attached to the parcels to address site specific concerns or new information not previously identified in the land use planning process. Once sold, the lease purchaser would have the right to use as much of the leased lands as is reasonably necessary to explore and drill for all the oil and gas within the lease boundaries, subject to the stipulations attached to the lease (43 CFR §3101.1-4).

Conditions of Approval (COAs) would be attached to permits issued to explore and develop the parcels to address site specific concerns or new information once an APD is analyzed in future NEPA documents.

Standard operating procedures, best management practices (BMPs), and COAs can change over time to meet RMP objectives, resource needs or land use compatibility.

A Federal oil and gas lease would be issued for a 10-year period and would remain valid for as long thereafter as oil or gas is produced in paying quantities, required payments are made and lease operations are conducted in compliance with regulations and approved permits. If a lessee fails to produce oil and gas by the end of the initial 10-year period, does not make annual rental payments, or does not comply with the terms and conditions of the lease, the BLM will terminate the lease. The lessee can relinquish the lease. The oil and gas resources could be offered for sale at a future lease sale.

Drilling of wells on a lease would not be permitted until the lessee or operator secures approval of a drilling permit and a surface use plan as specified in 43 CFR § 3162. This requires additional environmental reviews, by the BLM, at the time of application.

Upon cessation of lease operations, the BLM's regulations and the terms of the lease agreement require the lessee to plug the well(s) and abandon any facilities on the lease. The surface must be reclaimed to the satisfaction of the BLM authorized officer, in accordance with 43 CFR §3170 Onshore Oil and Gas Production.

## **CHAPTER 3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL EFFECTS**

### **3.1 INTRODUCTION**

This chapter describes the affected environment (i.e., the physical, biological, and socioeconomic values and resources) and environmental consequences to resources that could be affected by implementation of the proposed action. This analysis is tiered to the respective RMP for each geographic location of the nominated parcels, and the analysis of the reasonably foreseeable effects of oil and gas development contained in those RMPs are incorporated by reference into this analysis.

Each RMP determined which areas are available for oil and gas leasing and under what conditions those leases would be offered and sold. All the lease parcels included in the proposed action are within areas that are open to oil and gas leasing in their respective RMP.

The act of leasing parcels would not cause direct effects to resources because no surface disturbance would occur. The only direct effects of leasing are the creation of valid existing rights and impacts related to revenue generated by the lease sale receipts.

Future lease exploration and development activities proposed through individual APD submission would be subject to future BLM decision-making and NEPA analysis. Upon receipt of an Application for a Permit to Drill (APD), the BLM would initiate a site-specific NEPA analysis that considers the reasonably foreseeable effects of a specific action. At that time, detailed information about proposed wells and facilities would be provided for specific leases. In all potential exploration and development scenarios, the BLM would require the use of BMPs documented in "Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development" (USDOI 2007), also known as the *Gold Book*, available online at <https://www.blm.gov/programs/energy-and-minerals/oil-and-gas/operations-and-production/the-gold-book>. The BLM could also identify Conditions of Approval (COAs), based on site-specific analysis that could include moving the well location, restrict timing of the project, or require other reasonable measures to minimize 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.

BLM resource specialists prepared this EA to document the analysis of the lease parcels and recommended appropriate stipulations based upon professional knowledge of the areas involved, review

of current databases, scientific literature, and file information. The analysis focuses on the resource impact indicator(s) identified for each resource issue in Chapter 1.

At the time of this review, it is unknown whether a particular parcel will be sold, and a lease issued. It is also unknown when, where, or if future well sites, roads, and facilities might be proposed. Therefore, the types, magnitude and duration of potential impacts cannot be precisely quantified at this time and would vary according to many factors.

The BLM analyzed potential impacts from oil and gas development in the Final Environmental Impact Statement (FEIS) for the applicable ARMP based upon potential well densities discerned from the Reasonably Foreseeable Development (RFD) Scenario developed for the Field Office. The BLM utilized information from the RFD in the ARMP to estimate the number of possible oil and gas wells that could be drilled and produced on parcels in the Quarter 3, September 2025 sale. The sale specific RFD was used to analyze effects of the proposed action. Refer to **Appendix D** for a detailed description of the sale specific RFD.

## 3.2 GENERAL SETTING

The analysis area varies by resource and generally includes the 29 lease parcels of Federal minerals for oil and gas leasing, covering approximately 9,101.65 Federal mineral acres in Billings, Dunn, and McKenzie counties in North Dakota and Blaine, Richland, Roosevelt, and Rosebud Counties in Montana, as well as a larger area around the parcels to capture all reasonably foreseeable effects. The temporal scale of effects includes the 10-year period of a lease term, unless the lease is held by production, in which case the temporal scale is extended to the life of the producing well. 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.

### Geologic Formations

#### **Williston Basin ( Richland and Roosevelt County in MT and Billings, Dunn, and McKenzie counties in ND)**

Parcels proposed in Roosevelt, McKenzie and Billings counties are located within the Williston Basin unconventional Bakken/Three Forks development area. The Williston Basin parcels are surrounded by horizontal Bakken/Three Forks development wells which have also been predominantly drilled in the past 10 years. The Bakken/Three Forks is a true unconventional reservoir where the wells target organic rich shale intervals.

#### **Blaine County**

There are numerous oil and gas fields in the surrounding acreage including Laredo, Tiger Ridge, Bowes, Rabbit Hills, Battle Creek, and a few more minor fields. Laredo, Tiger Ridge, Battle Creek are gas fields that produce from structural traps formed by thrust faults in the Cretaceous sand intervals. The producing intervals are shallow, structurally complex, and laterally discontinuous. It is common to find dry holes in the middle of the gas field. Vertical wells have been drilled since the 1960's with very limited recent exploration due to the depressed price of natural gas.

The Bowes, and Rabbit Hills produce oil from the Jurassic Ellis Group including the Piper and Sawtooth formations. Both fields are structural traps and were initially developed with vertical wells. The Bowes field has been directionally drilled in the 2000's in an effort to increase production. The field is also currently undergoing secondary recovery with water injection.

In the last two years there has been 8 wells permitted into the Sawtooth formation in the surrounding acreage with two wells currently producing. The wells produce 500-1500 bbls/month with shallow declines making them economic wells and the likely development scenario for this group of leases given the higher oil prices for the last three years.

### **Rosebud County**

Rosebud County is within the central Montana province, as defined for oil and gas appraisal, and contain portions of major structural features including the Sumatra Syncline, Porcupine Dome, and Ingomar Anticline. The majority of successful oil and gas development has been in the northern portion of the county where the Sumatra and Stensvad conventional oil and gas fields exist. They have produced out of the Tyler sands since the 1960's. More recently in the 2010's, the Heath unconventional play has been tested with horizontal wells also in the northwestern portion of Rosebud County. The central portion of the county where the two lease parcels for this sale exist has been largely unsuccessful for oil and gas development. Wells that do produce are uneconomic and sold to local landowners for residential purposes or plugged.

## **3.3 METHODOLOGY AND ASSUMPTIONS**

Analysis of issues brought forward in this assessment was completed using reasonably foreseeable development (RFD) scenarios created for the proposed lease parcels. RFD scenarios for the proposed lease parcels were developed using the Minerals Appendices from the RMPs for the Miles City, Havre, and North Dakota Field offices. The RMP contains the number of potential oil and gas wells that could be drilled and produced in the field office area, and this was used to analyze the potential number of wells drilled for the nominated lease parcels. These well numbers are only an estimate based on historical drilling, geologic data, resource expertise, and current development in the area.

**Table 3.1 September 2025 Lease Sale: Parcels by County, Public Domain & Acquired Lands, Development Potential, and Estimated Surface Disturbance<sup>1</sup>**

County	Alternative B					Development Potential	Estimated # of Wells	Estimate Acres of Surface Disturbance (short/long term)
	# Parcels	BLM Surface	Non-Federal Surface (Split Estate)	USFS Surface	USACE Surface			
North Dakota Field Office								
Billings	1	0.00	0.00	40	0.00	0 - Low 11 - Moderate 1 - High 0 - Very High	7 oil/gas	9.1 acres ST 9.1 acres LT
Dunn	1	0.00	0.00	0.00	4.38			
McKenzie	10	0.00	680.00	2,878.27	0.00			
Total	12	0.00	680.00	2,918.27	4.38			
Havre Field Office								
Blaine	1	521.66	0.00	0.00	0.00	1 - Low 0 - Moderate 0 - High 0 - Very High	2 oil/gas	10.4 acres ST 1.84 acres LT
Total	1	521.66	0.00	0.00	0.00			
Miles City Field Office								
Richland	7	1,172.42	2,332.35	0.00	0.00	2 - Low 0 - Moderate 14 - High 0 - Very High	3 oil/gas	11.0 acres ST 4.0 acres LT
Roosevelt	7	214.16	1,029.63	0.00	0.00			
Rosebud	2	228.78	0.00	0.00	0.00			
Total	16	1,615.36	3,361.98	0.00	0.00	3- Low 11 - Moderate 15 - High 0 - Very High	12 oil/gas	30.5 acres ST 11.4 acres LT
Grand Total	29	9,101.65 acres						
¹Total number of wells estimated based on the RFD and rounded to the nearest whole number								

### 3.4 ISSUES ANALYZED IN DETAIL

The issues identified for detailed analysis in this EA were developed in accordance with regulations and the guidelines set forth in the BLM NEPA Handbook H-1790-1 (BLM 2008c) using input from internal and external scoping. Issues are retained for detailed analysis if that analysis is necessary to make a reasoned choice between alternatives, to determine significance, if there is disagreement about the best way to use a resource, or if there is conflict between resource impacts or uses.

#### 3.4.1 Issue 1: Air Quality

***How would future potential development of the nominated lease parcels affect air quality (particularly National Ambient Air Quality Standards and volatile organic compounds) in the analysis area?***

Air quality is determined by the quantity and chemistry of pollutants in the atmosphere in relation to various meteorological factors, such as weather patterns and topography, which influence the dispersion and concentration of pollutants in the atmosphere. Air pollutants result from several different causes such as mobile sources, stationary sources, area sources, and natural sources. This proposed action is in Blaine, Richland, Roosevelt, and Rosebud Counties in Montana (HFO and MCFO) and Billings, Dunn, and McKenzie Counties in North Dakota (NDFO), which are situated in Northern Montana, Eastern Montana, and Western North Dakota. This analysis was identified based on the regional nature of air pollution



using the best available air quality data, which are generally provided at the county level. Short-term effects on air quality are considered to occur during well construction and completion (30–60 days) while long-term effects are considered to occur after well construction and completion and conclude after production activities.

### 3.4.1.1 *Affected Environment*

The Environmental Protection Agency (EPA) established primary and secondary National Ambient Air Quality Standards (NAAQS) for six principal air pollutants (or criteria air pollutants) which may be harmful to the public health and environment including carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), ozone (O<sub>3</sub>), particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>), sulfur dioxide (SO<sub>2</sub>), and lead (Pb) ([NAAQS Table US EPA](#)). Primary standards set limits to protect public health, including the health of at-risk populations with pre-existing heart or lung disease, children, and older adults. Secondary standards, on the other hand, set limits to protect public welfare, including visibility impairment and damage to animals, crops, vegetation, and buildings.

Determining compliance with the NAAQS can be evaluated using a variety of methods such as ambient air quality monitoring stations, air quality design values, air diffusion modeling, and/or photochemical grid modeling. Pollutant concentrations that are below the NAAQS are designated as attainment or unclassifiable, and air quality is generally considered to be good. Locations with monitored pollutant concentrations higher than the NAAQS are designated nonattainment, and air quality is generally considered unhealthy. For this proposed action, an approximate 50 kilometers (km) (31.1 miles) radius around the lease parcels were used to help assess regulatory compliance because the maximum distance recommended to predict compliance of the NAAQS using the preferred EPA air diffusion modeling software is 50 km. Any evaluation and discussion outside the 50 km radius around the parcels are provided as additional background information.

The EPA is the delegated authority, under the Clean Air Act (CAA), for individual states to complete various activities such as air quality permitting, compliance monitoring, and air quality monitoring. Similarly, Tribal governments have the authority to develop and implement air quality programs through the Tribal Authority Rule under the provisions of CAA. In Montana, the Department of Environmental Quality (MT DEQ) implements air quality permitting and compliance programs, registration programs, and conducts ambient air quality monitoring throughout the state (MT DEQ, 2024a). In North Dakota, the Department of Environmental Quality (ND DEQ) Division of Air Quality (DoAQ) is responsible air quality permitting and compliance, oil or gas well registrations, and ambient air quality monitoring (ND DoAQ, 2024). Both North Dakota and Montana have developed a network of ambient air quality monitoring sites to assess NAAQS compliance.

**Table 3.2** Criteria Pollutant Design Values 2021-2023 provides air pollutant concentrations measured at the ambient air quality sites located near or within the proposed lease areas using design values. The design value is the annual arithmetic mean concentrations, averaged over 3 years, and describes the air quality status of a given location relative to the NAAQS. Design values are used to designate and classify nonattainment areas, as well as assess progress towards meeting the NAAQS. For Montana and North Dakota, all lease parcels are in areas that are currently designated attainment or unclassifiable for each NAAQS. Counties without monitoring stations have an unclassifiable attainment status and are assumed to have good air quality with pollutant concentrations below the NAAQS. The Federal Land Manager (FLM) is responsible for defining Air Quality Related Values (AQRVs), including visual air quality (haze) and atmospheric deposition for an area, and establishing criteria to determine a potential impact on

the AQRVs. AQRVs are not threshold standards, but a FLM may identify levels of concern and provide recommendations to the permitting authority.

**Table 3.2 Criteria Pollutant Design Values 2021-2023**

Pollutant	Site Name/Monitor Location/County	Averaging Time	Design Value Concentration <sup>(1)</sup>	NAAQS	% NAAQS
PM <sub>2.5</sub> (µg/m <sup>3</sup> )	Sidney, MT (Richland County)	Annual	6.2	9	69%
PM <sub>2.5</sub> (µg/m <sup>3</sup> )	Malta, MT (Phillips County)	Annual	6.0	9	67%
PM <sub>2.5</sub> (µg/m <sup>3</sup> )	Lewistown, MT (Fergus County)	Annual	5.4	9	60%
PM <sub>2.5</sub> (µg/m <sup>3</sup> )	Miles City, MT (Custer County)	Annual	6.7	9	74%
PM <sub>2.5</sub> (µg/m <sup>3</sup> )	Lostwood Nwr, ND (Burke)	Annual	7.6	9	84%
PM <sub>2.5</sub> (µg/m <sup>3</sup> )	Trnp-Nu Waterford City, ND (McKenzie)	Annual	6.3	9	70%
PM <sub>2.5</sub> (µg/m <sup>3</sup> )	Lake Ilo, ND (Dunn)	Annual	7.1	9	79%
PM <sub>2.5</sub> (µg/m <sup>3</sup> )	Painted Canyon, ND (Billings)	Annual	6.1	9	68%
PM <sub>2.5</sub> (µg/m <sup>3</sup> )	Sidney, MT (Richland County)	24-hour	29	35	83%
PM <sub>2.5</sub> (µg/m <sup>3</sup> )	Malta, MT (Phillips County)	24-hour	32	35	91%
PM <sub>2.5</sub> (µg/m <sup>3</sup> )	Lewistown, MT (Fergus County)	24-hour	31	35	86%
PM <sub>2.5</sub> (µg/m <sup>3</sup> )	Miles City, MT (Custer County)	24-hour	31	35	86%
PM <sub>2.5</sub> (µg/m <sup>3</sup> )	Lake Ilo, ND (Dunn)	24-hour	35	35	100%
PM <sub>2.5</sub> (µg/m <sup>3</sup> )	Trnp-Nu Waterford City, ND (McKenzie)	24-hour	33	35	94%
PM <sub>2.5</sub> (µg/m <sup>3</sup> )	Painted Canyon, ND (Billings)	24-hour	25	35	94%
O <sub>3</sub> (ppm)	Sidney, MT (Richland County)	8-hour	0.063	0.070	90%
O <sub>3</sub> (ppm)	Malta, MT (Phillips County)	8-hour	0.058	0.070	83%
O <sub>3</sub> (ppm)	Lewistown, MT (Fergus County)	8-hour	0.063	0.070	90%
O <sub>3</sub> (ppm)	Broadus, MT (Powder River)	8-hour	0.062	0.070	89%
O <sub>3</sub> (ppm)	Lake Ilo, ND (Dunn)	8-hour	0.063	0.070	90%
O <sub>3</sub> (ppm)	Lostwood Nwr, ND (Burke)	8-hour	0.062	0.070	89%
O <sub>3</sub> (ppm)	Trnp-Nu Waterford City, ND (McKenzie)	8-hour	0.062	0.070	89%
O <sub>3</sub> (ppm)	Painted Canyon, ND (Billings)	8-hour	0.064	0.070	91%
NO <sub>2</sub> (ppb)	Sidney, MT (Richland County)	1-hour	12	100	12%

Pollutant	Site Name/Monitor Location/County	Averaging Time	Design Value Concentration <sup>(1)</sup>	NAAQS	% NAAQS
NO <sub>2</sub> (ppb)	Lewistown, MT (Fergus County)	1-hour	10	100	10%
NO <sub>2</sub> (ppb)	Malta, MT (Phillips County)	1-hour	12	100	12%
NO <sub>2</sub> (ppb)	Broadus, MT (Powder River)	1-hour	14	100	14%
NO <sub>2</sub> (ppb)	Lake Ilo, ND (Dunn)	1-hour	14	100	14%
NO <sub>2</sub> (ppb)	Trnp-Nu Waterford City, ND (McKenzie)	1-hour	9	100	9%
SO <sub>2</sub> (ppb)	Sidney, MT (Richland County)	1-hour	6	75	8%
SO <sub>2</sub> (ppb)	Lake Ilo, ND (Dunn)	1-hour	7	75	9%
SO <sub>2</sub> (ppb)	Trnp-Nu Waterford City, ND (McKenzie)	1-hour	5	75	7%
SO <sub>2</sub> (ppb)	Painted Canyon, ND (Billings)	1-hour	6	75	8%
Source: EPA Design Values <a href="#">Air Quality Design Values   US EPA</a>					
Source: MDEQ State of Montana Air Quality Annual Monitoring Network Plan, June 2024. <a href="#">MTDEQ 2024 Network Plan</a>					
(1) Dataset includes all values including flagged exceptional events.					

Oil and gas development activities may impact ambient air concentrations of PM<sub>10</sub>, PM<sub>2.5</sub>, O<sub>3</sub>, CO, NO<sub>x</sub>, volatile organic compounds (VOC), hydrogen sulfide (H<sub>2</sub>S), and SO<sub>2</sub>. Particulate matter comes from a variety of sources such as construction activities, unpaved roads, cars, trucks, or other operations that burn fossil fuels. On the other hand, O<sub>3</sub> is not emitted directly into the air but created from pollutants such as NO<sub>x</sub> and VOC that chemically react in the presence of sunlight. In addition, other particles may form in the atmosphere because of complex reactions from SO<sub>2</sub> and NO<sub>x</sub>. Along with oil and gas well operations, pollutants such as SO<sub>2</sub> and NO<sub>x</sub> are also emitted from power plants and automobiles whereas sources of CO are mostly from cars, trucks, or machinery that burn fossil fuels. Similarly, SO<sub>2</sub> emissions from oil and gas well facilities may also be created from the combustion (e.g., flaring) of gas containing H<sub>2</sub>S. Although there is not a Federal NAAQS for H<sub>2</sub>S, Montana and North Dakota do have an ambient air quality standard for H<sub>2</sub>S. In North Dakota, the standard was developed in response to elevated sulfur during petroleum production in the 1980s. Overall, however, emissions of H<sub>2</sub>S have reduced over time as production from older facilities declined. In addition, the Bakken Formation, which has been the focus of most of the recent oil and gas activity in Montana and North Dakota, generally has low concentrations (if any) of H<sub>2</sub>S compared to non-Bakken Formations. For Montana and North Dakota, the owner or operator of any oil or gas well production facility must install and maintain pollution controls necessary to ensure that emissions comply with both national and state ambient air quality standards.

In addition to criteria pollutants, EPA also regulates emissions of hazardous air pollutants (HAPs) which includes a list of 188 air toxics. EPA is required to develop regulations to control emissions for all industries that emit one or more listed HAPs in substantial quantities (EPA, 2024). Since 1990, EPA has issued regulations limiting emissions of air toxics from more than 174 categories of major industrial sources including crude oil and natural gas production sources. Because HAPs are released from oil and gas operations (including from well drilling, well completion, and operation), the EPA established technology-based emission standards to help control HAP emissions. HAPs associated with the oil and gas industry may include compounds such as formaldehyde, benzene, toluene, ethyl benzene, xylene, and normal-hexane (n-hexane). In 2016, New Source Performance Standards (NSPS) 40 CFR Part 60 Subpart OOOOa (Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction,

Modification or Reconstruction Commenced After September 18, 2015) created emission standards and compliance requirements for the control of VOC and SO<sub>2</sub> emissions from affected facilities.

Similarly, on December 2, 2023, the EPA announced a final rule that will reduce emissions of methane and other harmful air pollution from oil and natural gas operations from new, modified, and reconstructed sources. First, EPA finalized NSPS OOOOb regulating GHG (in the form of a limitation on emissions of methane) and VOCs emissions for the Crude Oil and Natural Gas source category pursuant to CAA section 111(b)(1)(B). Second, EPA finalized the presumptive standards in emission guidelines NSPS OOOOc to limit GHGs emissions (in the form of methane limitations) from designated facilities in the Crude Oil and Natural Gas source category. Third, EPA finalized requirements under the CAA section 111(d) for states to follow in developing, submitting, and implementing state plans to establish performance standards as well as finalized several related actions stemming from the joint resolution of Congress, adopted on June 30, 2021, under the congressional review act (CRA), disapproving the 2020 Policy Rule. Fourth, EPA finalized a protocol under the general provisions of 40 CFR part 60 related to optical gas imaging (OGI). This final rule was effective on May 7, 2024. On March 12, 2025, the EPA Administrator announced the agency is reconsidering regulations for the oil and gas industry under Section 111 of the Clean Air Act and Subpart W of the Greenhouse Gas Reporting Program.

Furthermore, the EPA also developed a National Toxics Assessment Tool (AirToxScreen) ([2020 AirToxScreen | US EPA](#)) to evaluate impacts from existing HAP emissions across the nation. However, EPA AirToxScreen was not designed to assess specific risk values at local levels but best used as a tool to prioritize pollutants, emissions sources, and locations of interest for further investigation. Using the EPA AirToxScreen, the total cancer risk for Montana and North Dakota, was below the upper limit of acceptable lifetime risk of 100 in 1 million people to develop cancer, as described in 40 CFR § 300.430. For Blaine, Roosevelt, and Richland Counties in Montana, the total cancer risks were estimated to range from 10 to 20 in 1 million while in Billings, Dunn, and McKenzie Counties in North Dakota, the total cancer risks were estimated to range between 10 to 60 in 1 million people. In addition, the noncancer hazard index for Montana and North Dakota were below 1.0, indicating that air toxics will not likely cause noncancer health effects.

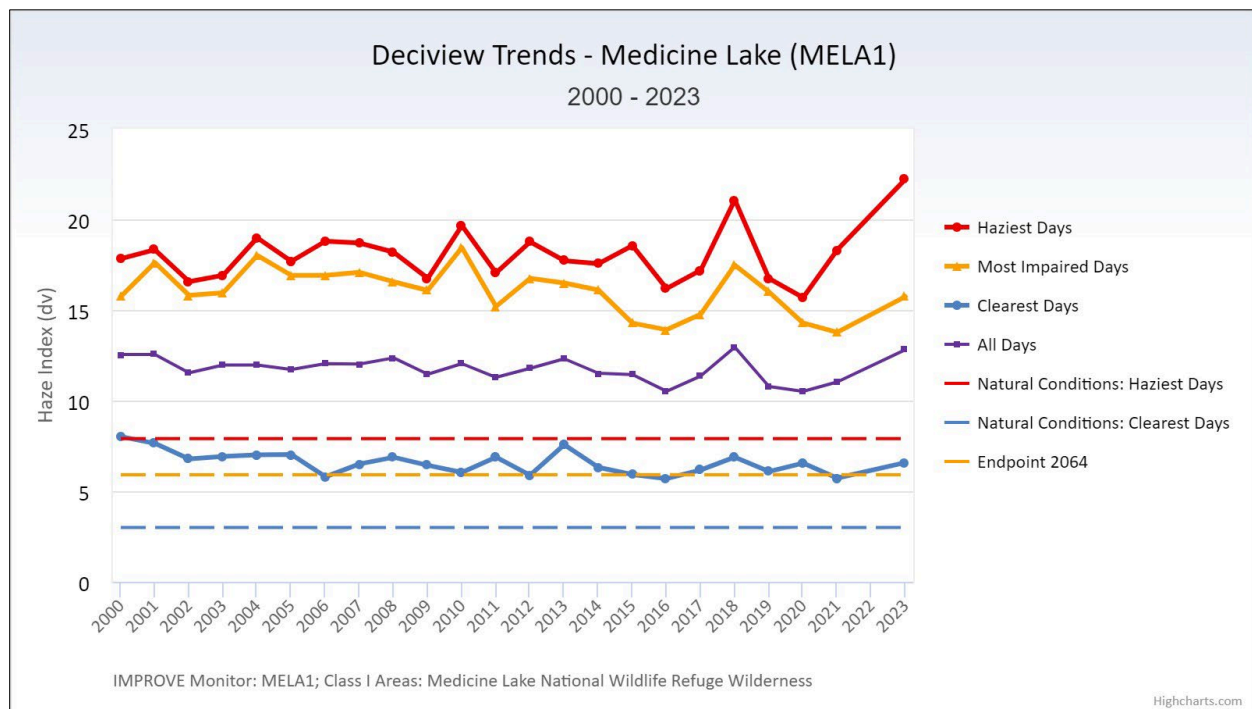
Similarly, the EPA Prevention of Significant Deterioration (PSD) program was designed to protect human health and environment by demonstrating that new emissions will not cause or contribute to a violation of any applicable NAAQS or PSD increments. A PSD increment is the amount of pollution allowed to increase to prevent air quality from deteriorating that would cause a violation of the NAAQS. The parcels in this lease sale could be located near and/or in Class I or Class II areas. Most areas throughout the United States are categorized as Class II which allow for some air quality deterioration under PSD. However, for Class I areas, PSD provides additional stringent air quality and visibility protection to national parks and national wilderness areas. Class I areas or other areas of potential interest nearest to the proposed parcels may include Fort Peck Reservation (Approximately 4 miles), Medicine Lake Wilderness Area (Approximately 10 miles), Northern Cheyenne Reservation (Approximately 46 miles), Fort Belknap Reservation (Approximately 14 miles) and the town of Culbertson (Approximately 1.9 miles) located in Montana while, in North Dakota, Class I areas or other areas of interest may include the Theodore Roosevelt National Park (Approximately 0.8-1.2 miles), Lake Ilo Wildlife Refuge (Approximately 14-24 miles), and Fort Berthold Reservation (Approximately 0-0.5 miles). Maps of the lease parcel locations are provided in **Appendix C**.

The Federal Land Manager (FLM) is responsible for defining Air Quality Related Values (AQRVs), including visual air quality (haze) and atmospheric deposition for an area. Atmospheric visibility is a measure of how far and how well an observer can see a distant and varied scene. The visual range is the greatest distance in miles that a person can see a large dark object viewed against the horizon sky. Light extinction or attenuation is a nonlinear measure of visibility and occurs in the atmosphere as a result of scattering and absorption. Pollutants from natural and anthropogenic sources contribute to haze by

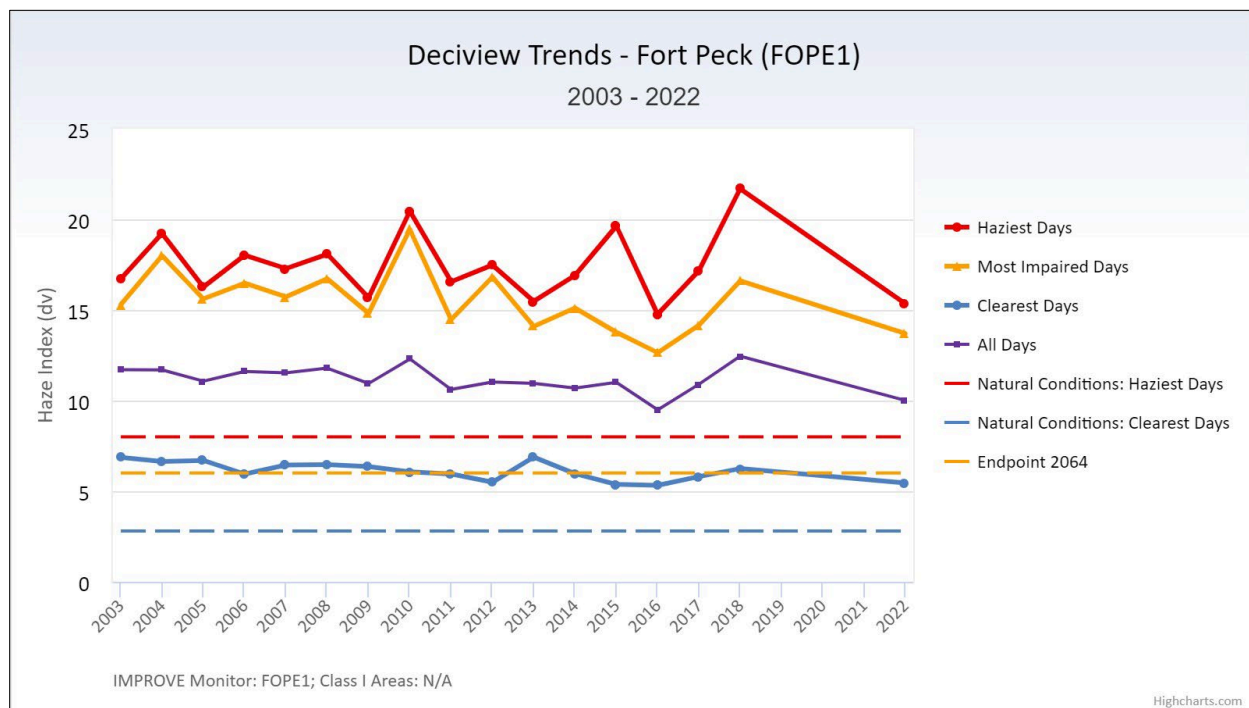
scattering and absorbing light. A deciview (dv) is a unit of measurement used to quantify human perception of visibility and is calculated from the natural logarithm of atmospheric light extinction. One (1) deciview is roughly the smallest change in visibility (haze) that is barely perceptible. Because visibility at any one location is highly variable throughout the year, visibility is characterized by three groupings: 1.) clearest 20% days, 2.) average 20% days, and 3.) haziest 20% days. Average visual range is 60 to 90 miles (100 to 150 kilometers) in many Class I areas in the western United States, equivalent to 9.6 to 13.6 deciview (dv), or about 50 to 70 percent of the visual range that would exist without anthropogenic air pollution from stationary and mobile sources (64 Fed. Reg. 35714).

The Interagency Monitoring of Protected Visual Environments (IMPROVE) Program collects and identifies visibility and composition trends throughout the nation. Figure 3.1-Figure 3.3 provide a graphical representation of annual visibility trends for the nearest IMPROVE monitoring sites to the proposed lease parcels. Based on the data, visibility trends do not appear to have changed significantly

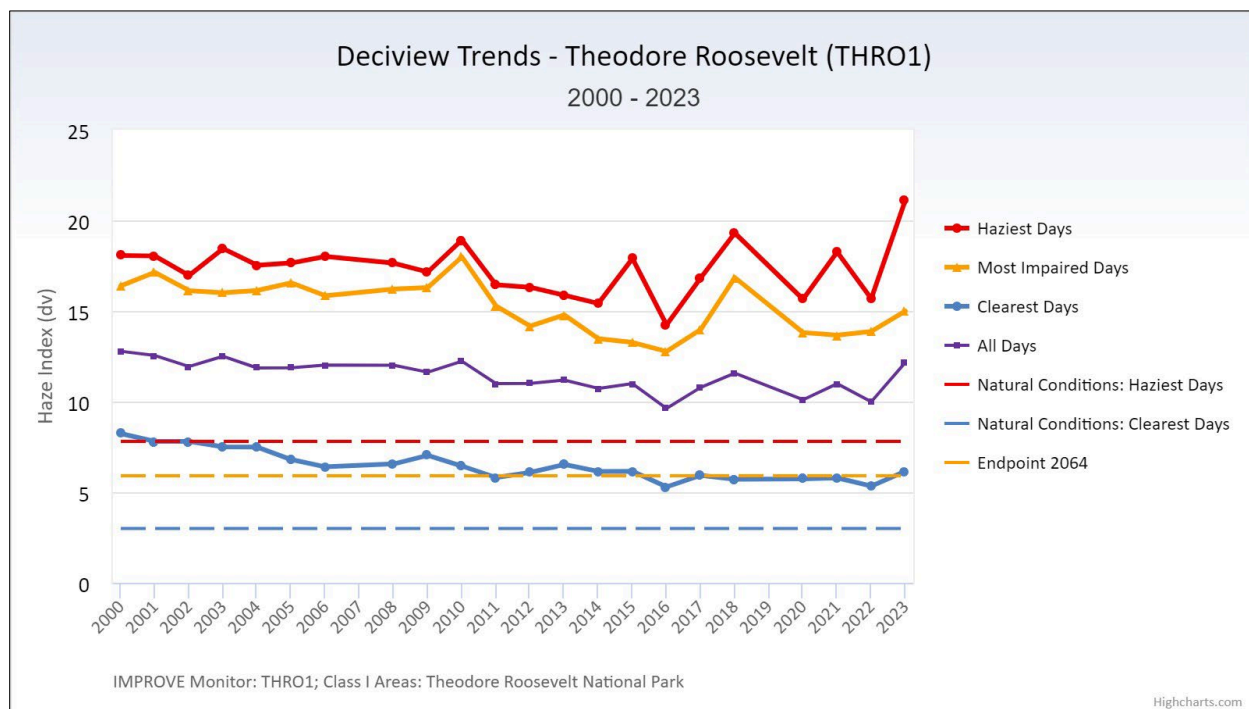
**Figure 3.1 Medicine Lake (MELA1) - Visibility Trends at Medicine Lake National Park, Montana**



Source: Federal Land Manager Environmental Database, 2024

**Figure 3.2 Fort Peck (FOPE1) - Visibility Trends at Fort Peck, Montana**

Source: Federal Land Manager Environmental Database, 2024

**Figure 3.3 Theodore Roosevelt (THRO1) - Visibility Trends at Theodore Roosevelt National Park, North Dakota**

Source: Federal Land Manager Environmental Database, 2024

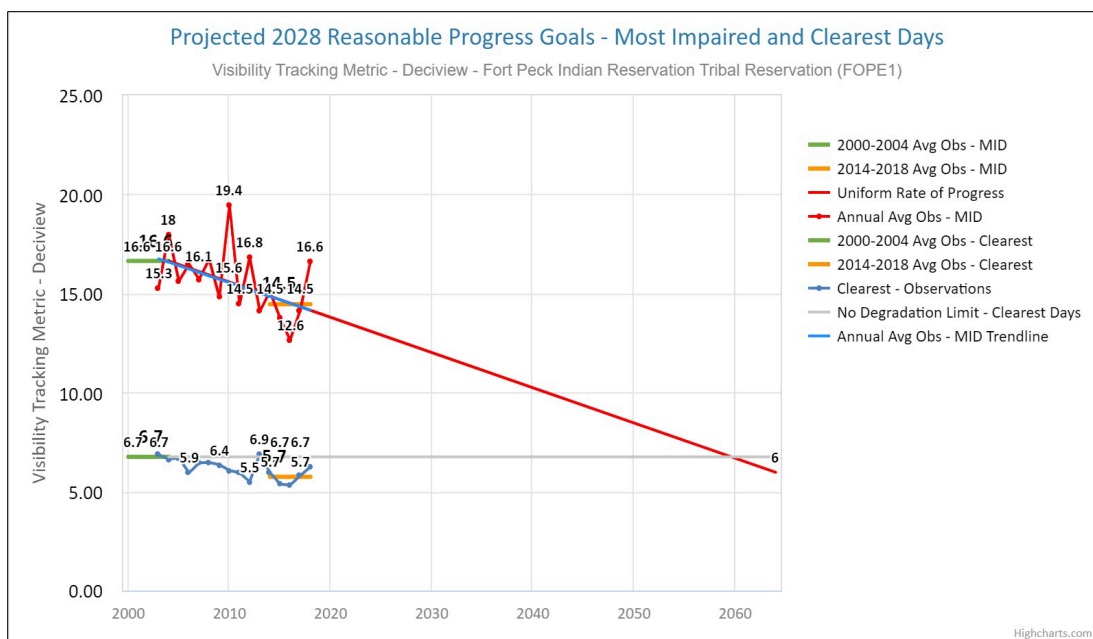
In addition to IMPROVE, the Western Regional Air Partnership (WRAP) Technical Support System (TSS) is an online portal that provides advanced data acquisition and analytical tools for the development



of State and Tribal Implementation Plans to help track progress and improve visibility in Class I areas related to EPA's Regional Haze Rule (([TSS Home \(colostate.edu\)](https://www.colostate.edu))). The TSS summarizes results and consolidates information about air quality monitoring; meteorological and receptor modeling data analyses; emissions inventories and models; and gridded air quality/visibility regional modeling simulations. The projected 2028 reasonable progress goal for the most impaired and clearest days for Medicine Lake Wilderness Area (MELA1), Fort Peck Reservation (FOPE1), Theodore Roosevelt National Park (THRO1), and Lostwood National Wildlife Refuge Wilderness (LOST1) are provided in **Figure 3.4**, **Figure 3.5**, and **Figure 3.6**. The figures illustrate the Uniform Rate of Progress (URP) Glidepath as defined by EPA guidance, compared to IMPROVE measurements for the period 2000-2018. The URP glidepath is constructed for the 20% MID or clearest days using observations from the IMPROVE monitoring site. In general, the URP glidepath starts with the IMPROVE MID for the 2000-2004 5-year baseline and draws a straight line to estimated natural conditions in 2064. For clearest days, the goal is no degradation of visibility from the 2000-2004 5-year baseline, therefore glidepath for clearest days is a straight line from the 2000-2004 baseline to 2064. In the second regional haze planning period, 2064 natural conditions estimates are the same as the 15-year average of natural conditions on MID or clearest days in each year 2000-2014. IMPROVE annual average values are presented as points and 5-year average values are presented as solid lines covering the periods 2000-2004 and 2014-2018.

**Figure 3.4 Projected Reasonable Progress Goals – Medicine Lake Wilderness Area (MELA1), Montana**



**Figure 3.5 Projected Reasonable Progress Goals - Fort Peck Reservation (FOPE1), Montana****Figure 3.6 Projected Reasonable Progress Goals - Theodore Roosevelt National Part (THRO1), North Dakota**

Unlike visibility, atmospheric deposition occurs when gaseous and particulate air pollutants are deposited on the ground, water bodies, or vegetation. The pollutants may be deposited as dust or transported from the atmosphere in the form of rain, fog, or snow. When air pollutants such as sulfur and nitrogen are deposited into ecosystems, acidification or enrichment of soils and surface waters may occur.

Atmospheric nitrogen and sulfur deposition may affect water chemistry, resulting in impacts to aquatic vegetation, invertebrate communities, amphibians, and fish. Deposition can also cause chemical changes in soils that alter soil microorganisms, plants, and trees. Although nitrogen is an essential plant nutrient,



excess nitrogen from atmospheric deposition can stress ecosystems by favoring some plant species and inhibiting the growth of others. Information on wet and dry deposition at Class I areas within the analysis area can be found at EPA's Clean Air Status and Trends Network monitoring program at [Clean Air Status and Trends Network \(CASTNET\) | US EPA](#). The National Park Service air quality data collection and analysis efforts are also provided for a variety of sites across the country ([Air Quality in Parks - Air \(U.S. National Park Service\) \(nps.gov\)](#)). For example, the overall air quality at Theodore Roosevelt National Park is classified as "fair" with a relatively unchanging trend. Air quality conditions for visibility (10.1 dv) and O<sub>3</sub> (57.8 ppb) were described as "fair" with unchanging trends while conditions related to nitrogen deposition was also "fair" (2.6 kilograms per hectare per year (kg/ha/yr)) with an unchanging trend. However, sulfur and mercury deposition for the area was described as "good" with a relatively unchanging trend or no trend available.

In addition to oil and gas emissions sources, air quality and AQRVs are influenced by industrial sources, motor vehicles, agricultural practices, long-range emissions transport, and natural sources such as wildfire smoke. Oil and gas processing and refining facilities are permitted by local, state, tribal, and/or federal agencies, and report pollutant air emissions annually to the EPA. Each proposed new and modified facility is required to demonstrate compliance with NAAQS. The compliance requirements and air monitoring network throughout Montana and North Dakota help ensure that an area remains in compliance with the NAAQS. The criteria pollutant emissions from most oil and gas operations, including from lease sales, can be found in the EPA's National Emission Inventory ([National Emissions Inventory \(NEI\) | US EPA](#)). In addition, projections of regional air quality resulting from oil and gas development on BLM lands is documented in several BLM reports such the 2016 Montana/Dakotas State Office Photochemical Grid Modeling (PGM) Modeling Study Air Resources Impact Assessment—Final Report (BLM, 2016), BLM Cumulative Hazardous Air Pollutants Modeling Final Report (BLM, 2023), ND ARMP/FEIS 2025 (BLM, 2025), and MCFO Proposed Resource Management Plan Amendment/Final Supplemental Environmental Impact Statement (SEIS) (BLM, 2024).

The MCFO, HFO, and NDFO RMPs evaluated impacts to air quality from oil and gas development as well as projections of visibility within the region and assessed regional impacts to air quality from future oil and gas development on BLM administered mineral estate in Montana, North Dakota, and South Dakota. The MCFO, HFO RMP's modelled cumulative impacts in the Montana were predicted to be below the NAAQS for NO<sub>2</sub> and SO<sub>2</sub> while cumulative impacts for O<sub>3</sub>, PM<sub>2.5</sub>, and PM<sub>10</sub> exceeded the NAAQS in isolated areas throughout the state, mostly from natural source group such as fires, biogenic emissions, windblown dust, and lightning NO<sub>x</sub>. The contributions from federal oil and gas and federal coal development were less than 1 percent at the location of the exceedances. However, the NDFO RMP modeling study predicted impacts to visibility at Class I areas in eastern Montana and western North Dakota in which a portion of the predicted impacts can be attributed to future federal oil and gas development (more than 0.5 and 1.0 dv thresholds) at the Theodore Roosevelt, Fort Peck, and Medicine Lake Class I areas as well as predicted the potential for minor impacts attributed to atmospheric deposition of nitrogen compounds in the same region. The North Dakota RMP/EIS reported modeled air quality contributions of new federal oil and gas development (i.e., 2020 onward) including ambient air concentrations of selected criteria pollutants and AQRV contributions for acidic deposition, visibility change, and the ozone W126 index. Peak modeled cumulative values, percent contribution of new federal oil and gas development and time period of the peak value, and peak contribution were discussed. According to the North Dakota RMP, new federal oil and gas wells were expected to contribute between approximately 0.0 percent and 11 percent by pollutant to the maximum cumulative value across North Dakota. The largest fraction would be for hourly NO<sub>2</sub> in the Williston Basin caused primarily by NO<sub>x</sub> emissions from drill rigs and off-road equipment. Class I areas would also experience some air quality impact from federal oil and gas development with the highest impacts observed at the Fort Berthold Indian Reservation. Predicted concentrations for all modeled contaminants were below the NAAQS; however, the peak cumulative modeled concentrations of 1-hour NO<sub>2</sub> and 24-hour PM<sub>10</sub>

were close to the NAAQS. Therefore, potential impact would be addressed through appropriate lease notices and stipulations and/or near-field air modeling for proposed projects. Furthermore, modeled acute and chronic noncarcinogenic HAPs were below the Reference Exposure Levels (RELs) and the estimated incremental cancer risks were also below a one per one million for the carcinogenic HAPs benzene and formaldehyde.

Finally, as a result of the 2023 U.S. Court of Appeals for the Tenth Circuit (*Diné CARE II*) ruling, BLM completed the *Cumulative Hazardous Air Pollutants Modeling Final Report* to assess HAP emissions from BLM-authorized oil and gas development activities (Ramboll 2023a). The modeling effort was completed using the same emission inventories as the BLM Western US Photochemical Air Quality Modeling for 2032. The BLM's Western United States HAP photochemical modeling assessment was prepared to support BLM's analysis of cumulative oil and gas impacts from HAPs originating from oil and gas production in Colorado, Montana, New Mexico, North Dakota, South Dakota, Utah, and Wyoming on public health for existing federal, new federal, and non-federal oil and gas sources that includes six key HAPs (e.g., benzene, toluene, ethylbenzene, xylene, n-hexane, and formaldehyde) since they are common in the oil and gas sector and consistent with regulatory requirements described in the Environmental Protection Agency's New Source Performance Standards (NSPS).

Based on these previous modeling efforts, HAP emissions and concentrations as well as associated cancer risk, hazard index, and hazard quotient values for the modeling grid cell were used to develop an interactive web-based tool to provide potential effects on public health from oil and gas leasing and permitting decisions ([iART Toolkit \(blm.gov\)](https://blm.gov/iART-Toolkit)). Utilizing the web-based tool, the average long-term (annual) concentrations were assessed for cancer risk and noncancer effects from inhalation for the three oil and gas production source groups (e.g., existing federal, new federal, and total non-federal) comprising the geographic area corresponding to the lease sale including Roosevelt County in Montana and Billings and McKenzie County in North Dakota (See **Table 3.3** and **Table 3.4**). Total average lifetime cancer risk from the exposure to three HAPs (benzene, ethylbenzene, and formaldehyde) were calculated by summing the individual cancer risks for each pollutant. On the other hand, chronic noncancer hazards were assessed by calculating the individual hazard quotients (HQ) of each pollutant and the overall hazard index (HI). As shown in **Table 3.3** and, total cumulative cancer risks were below 100 in 1 million while the noncancer hazard index for oil and gas production in each county was below one. The highest calculated potential cancer and noncancer impacts appear to be from nonfederal oil and gas well production for each county.

**Table 3.3 Estimated Average Total Cancer Risk from Circa 2032 Oil and Gas Production.**

County	Cancer Risk <sup>(1)</sup> from Existing Federal Wells	Cancer Risk <sup>(1)</sup> from New Federal Wells	Cancer Risk <sup>(1)</sup> from Nonfederal Wells	Cancer Risk <sup>(1)</sup> from Cumulative Oil and Gas Production	Adjusted Cancer Risk <sup>(1)(2)</sup> From Cumulative Oil and Gas Production
Roosevelt-MT	0.08	0.30	2.75	3.13	0.75
Richland-MT	0.16	0.48	4.34	4.97	1.00
Blaine-MT	0.03	0.11	0.22	0.36	0.086
Rosebud-MT	0.03	0.55	0.40	0.99	0.23
Billings-ND	0.17	0.58	7.33	8.09	1.998

<b>Dunn-ND</b>	0.5132	1.68	31.49	33.69	7.80
<b>McKenzie-ND</b>	0.7918	2.48	39.27	42.54	6.26
(1) Total Average Cancer risk from emissions of benzene, ethylbenzene, and formaldehyde per million people. (2) Adjusted residency risk based on residency factors by county: 16.7 years for Roosevelt County, 14.2 years for Richland County, 16.9 years for Blaine County 16 years for Rosebud County, 17.3 years for Billings County, 16.2 years for Dunn County, and 10.3 years for McKenzie County).					

**Table 3.4 Estimated Average Noncancer Hazard Quotients and Hazard Index from Circa 2032 Oil and Gas Production**

Source	Hazard Quotient (HQ)						Hazard Index (HI)
	Benzene	Toluene	Ethylbenzene	Xylene	n-Hexane	Formaldehyde	
	Roosevelt County-MT						
Existing Federal	0.00005	0.00000	0.00000	0.00002	0.00001	0.00050	0.00058
New Federal	0.00010	0.00000	0.00000	0.00002	0.00002	0.00214	0.00228
Non-Federal	0.00110	0.00001	0.00008	0.00035	0.00023	0.01909	0.02086
Cumulative	0.00126	0.00001	0.00009	0.00038	0.00026	0.02172	0.02373
Richland County-MT							
Existing Federal	0.00012	0.00000	0.00001	0.00004	0.00002	0.00093	0.00113
New Federal	0.00019	0.00000	0.00001	0.00003	0.00004	0.00337	0.00364
Non-Federal	0.00275	0.00002	0.00030	0.00120	0.00053	0.02723	0.03204
Cumulative	0.00307	0.00003	0.00032	0.00128	0.00059	0.03153	0.03681
Blaine County-MT							
Existing Federal	0.000023	0.000000	0.000001	0.000004	0.000004	0.000161	0.000192
New Federal	0.000075	0.000000	0.000002	0.000020	0.000009	0.000719	0.000825
Non-Federal	0.000133	0.000001	0.000005	0.000029	0.000019	0.001441	0.001628
Cumulative	0.000231	0.000001	0.000009	0.000053	0.000032	0.002320	0.002645
Rosebud-MT							
Existing Federal	0.000020	0.000000	0.000001	0.000003	0.000002	0.000232	0.000258
New Federal	0.000161	0.000000	0.000002	0.000014	0.000014	0.004027	0.004219
Non-Federal	0.000177	0.000001	0.000007	0.000028	0.000025	0.002760	0.002999

<b>Cumulative</b>	0.000358	0.000001	0.000009	0.000045	0.000041	0.007020	0.007476
<b>Billings County-ND</b>							
<b>Existing Federal</b>	0.000069	0.000000	0.000005	0.000024	0.000012	0.001211	0.001321
<b>New Federal</b>	0.000201	0.000001	0.000012	0.000056	0.000033	0.004128	0.004433
<b>Non-Federal</b>	0.001762	0.000013	0.000119	0.000606	0.000376	0.053620	0.056510
<b>Cumulative</b>	0.002032	0.000015	0.000137	0.000686	0.000422	0.058960	0.062270
<b>Dunn County - ND</b>							
<b>Existing Federal</b>	0.000143	0.000001	0.000012	0.000051	0.000027	0.003699	0.003932
<b>New Federal</b>	0.000382	0.000002	0.000015	0.000084	0.000071	0.012420	0.012980
<b>Non-Federal</b>	0.000525	0.000003	0.000027	0.000135	0.000098	0.016120	0.016910
<b>Cumulative</b>	0.006688	0.000049	0.000400	0.001993	0.001435	0.232700	0.243100
<b>McKenzie County-ND</b>							
<b>Existing Federal</b>	0.00023	0.000002	0.00002	0.00008	0.00004	0.00569	0.0061
<b>New Federal</b>	0.00056	0.000003	0.00002	0.00013	0.00011	0.01828	0.0191
<b>Non-Federal</b>	0.00821	0.000058	0.00045	0.00231	0.00179	0.29050	0.3033
<b>Cumulative</b>	0.00900	0.000064	0.00050	0.00253	0.00195	0.31450	0.3285

## AIR QUALITY DESIGN CONSIDERATIONS

Various federal and state-level permitting programs ensure the protectiveness of the NAAQS and reduce effects on AQRVs in Class I areas. New major emitting facilities or significant modifications to major emitting facilities are required to undergo PSD preconstruction review. PSD review requires an air quality analysis to assess the project's potential contribution to the NAAQS and PSD increments (maximum allowable increases in air quality over baseline concentrations), a Best Available Control Technology Analysis, and an additional effects analysis (to assess potential effects on soils, vegetation, and visibility) (EPA 2023d). Complete PSD applications are generally forwarded to the NPS Air Quality Division for review to ensure protectiveness of AQRVs at Class I areas.

### 3.4.1.2 *Environmental Effects*

## IMPACTS OF THE PROPOSED ACTION

Substantial air resource impacts are not anticipated from leasing as it is an administrative action. Any potential effects on air quality from the sale of lease parcels would occur at such time that any issued lease is developed and not at the leasing stage itself. The Proposed Action does not authorize or guarantee the number of wells analyzed herein. If leased, drilling of wells on a lease would not be permitted until the BLM approves an APD. Any APD received would be subject to site-specific NEPA review. However,

development assumptions have been made in this EA to better inform the decision maker and the public of potential impacts to air quality if the leases are developed.

Four general phases of post-lease development would generate air pollutant emissions: 1) well development (well site construction, well drilling, and well completion), 2) well production operations (extraction, separation, gathering), 3) midstream (refining, processing, storage, and transport/distribution), and 4) end use (combustion or other uses) of the fuels produced. While well development and production operation emissions (phases 1 and 2) occur on-lease and the BLM has authority over these activities on federal surface and federal minerals, midstream and end-use emissions (phases 3 and 4) typically occur off-lease where the BLM has no authority.

During well development, there could be emissions from earth-moving equipment, vehicle traffic, drilling, and completion activities. NO<sub>2</sub>, SO<sub>2</sub>, and CO would be emitted from vehicle tailpipes. Fugitive dust concentrations would increase with additional vehicle traffic on unpaved roads and from wind erosion in areas of soil disturbance. Drill rig and fracturing engine operations would result mainly in NO<sub>2</sub> and CO emissions, with lesser amounts of SO<sub>2</sub>. These temporary emissions would be short-term during the drilling and completion phases, which are expected to last between 30 and 60 days. During well production and operations there could be continuous emissions from separators, condensate storage tanks, flares or combustors, and daily tailpipe and fugitive dust emissions from operations traffic. During the operational phase of a well, NO<sub>2</sub>, CO, VOC, and HAP emissions would result from the long-term use of storage tanks, pumps, separators, and other equipment. Additionally, dust (PM<sub>10</sub> and PM<sub>2.5</sub>) would be produced due to wind erosion on well pads and roads, and by vehicles servicing the wellsite infrastructure.

As previously described, the effects from oil and gas development on air resources in Montana and North Dakota have been analyzed and described in numerous documents such as the 2015 Miles City RMP (BLM, 2015), BLM-MTDKs State Office Photochemical Grid Model (PGM) Modeling Study (BLM, 2016), ND ARMP/FEIS 2025, HiLine ARMP and FEIS of September 2015, and BLM Cumulative Hazardous Air Pollutants Modeling Final Report (BLM 2023), and MCFO SEIS (BLM 2024).

Potential effects to air quality from the sale of lease parcels would only occur when the issued leases are developed and does not authorize or guarantee the number of wells described and analyzed in the EA. The drilling of wells on a lease parcel would not be permitted until the BLM approved an Application for Permit to Drill (APD). Any APDs received by BLM would be subject to site specific NEPA review; however, the EA would help inform the decision of the APD. In addition, there is a degree of uncertainty in estimating the amount of potential air emissions (including GHGs) for the EA. The oil properties, site geology, drilling and completion methodology, on-site equipment, project acreage, and construction plans are among several variables required to generate emissions estimates. Thus, the BLM may conduct additional air quality analysis during the APD process.

The analysis of air resources in this EA includes a discussion of short-term and long-term impact to air quality from potential oil and gas development on the lease parcels. Short-term impacts would occur from the construction of the well, well pad, access roads, pipelines, and other single occurrence activities. For example, motor vehicles would emit various pollutants such as CO, NO<sub>x</sub>, HCs, and PM as well as increase fugitive dust through increase vehicle traffic and increase wind erosion in areas of soil disturbance while drill rig and fracturing operations would result in an increase in NO<sub>2</sub>, CO, HAPs, VOCs, and SO<sub>2</sub> emissions. In addition, flaring or venting maybe necessary during drilling and well completion that would also result in increased emissions of pollutants such as NO<sub>2</sub>, CO, VOC, and SO<sub>2</sub>; however, the facilities must operate in compliance with all applicable federal and state air quality regulations and permits. Similarly, throughout the long-term operation of the facility, NO<sub>2</sub>, CO, VOCs, and HAPs emissions would result from various equipment such storage tanks, pumps, separators, flares, and other equipment as well as road dust produced by vehicles servicing the facilities. Potential air

emissions of PM<sub>10</sub>, PM<sub>2.5</sub>, NO<sub>x</sub>, SO<sub>2</sub>, CO, VOC, and HAPs for the lease sale are provided in **Table 3.5 and Table 3.6** in which the construction and production emissions are listed separately. The construction process is short-term and would be completed within a few months while other intermittent emissions and production and maintenance emissions would occur throughout the life of the well. Calculations are based on typical development and production scenarios as estimated for the MCFO RMP air analysis. The calculations for pollutant emissions use the number of wells that may be developed within 10 years if the parcels were leased. EPA Tier 4 engine emission factors are used based on previous air emissions modeling using AERMOD indicating potential exceedance of the 1-hour NO<sub>2</sub> NAAQS, but non-Tier 4 engines could be used if current NO<sub>x</sub> to NO<sub>2</sub> conversion factors and modeling demonstrate compliance with the NAAQS.

**Table 3.5 Estimated Air Pollutant Emissions from Well Development and Production**

Activity	# of Wells (1)		PM10		PM2.5		NOx		SO2	
	Oil	Gas	Emission Factor <sup>(2)</sup> (tons/well)	Estimated Emissions (tons)	Emission Factor <sup>(2)</sup> (tons/well)	Estimated Emissions (tons)	Emission Factor <sup>(2)</sup> (tons/well)	Estimated Emissions (tons)	Emission Factor <sup>(2)</sup> (tons/well)	Estimated Emissions (tons)
<b>Montana and North Dakota Field Office <sup>(3)</sup></b>										
Construction (short-term)	12	0	0.51	6.12	0.06	0.72	0.53	6.36	0.11	1.32
Operations (long-term)	12	0	0.08	0.96	0.03	0.36	0.36	4.32	0.0005	0.006
<b>Total Estimated Emissions:</b>				7.08		1.08		10.68		1.326

1. Well numbers based on RFD for this lease sale.
2. Emission factors used in estimated emission calculations developed for 2015 MCFO RMP.
3. Emission factors are consistent across all counties.

**Table 3.6 Estimated Air Pollutant Emissions from Well Development and Production**

Activity	# of wells <sup>1</sup>		CO		VOC		HAPs	
	Oil	Gas	Emission Factor <sup>2</sup> (tons/well)	Estimated Emissions (tons)	Emission Factor <sup>2</sup> (tons/well)	Estimated Emissions (tons)	Emission Factor <sup>2</sup> (tons/well)	Estimated Emissions (tons)
<b>Montana and North Dakota Field Office <sup>(3)</sup></b>								
Construction (short-term)	12	0	2.76	33.12	0.36	4.32	0.03	0.36
Operations (long-term)	12	0	1	12	0.95	11.4	0.08	0.96
<b>Total Estimated Emissions:</b>				45.12		15.72		1.32

1. Well numbers based on RFD for this lease sale.
2. Emission factors used in estimated emission calculations developed for 2015 MCFO RMP.
3. Emission factors are consistent across all counties.

## NO ACTION ALTERNATIVE

Under the No Action Alternative, there would be no impact on air resources and greenhouse gas emissions compared to the proposed action. If the parcels are not available to be leased and potential development on the proposed parcels would not occur, then no increase in estimated emissions would be expected from potential oil and gas development. The No Action Alternative would result in the continuation of already-approved land uses and would not result in new impacts related to exploration of the proposed oil and gas lease parcels.

## MITIGATION MEASURES AND RESIDUAL EFFECTS

BLM requires industry to incorporate and implement BMPs, which are designed to reduce effects on air quality by reducing emissions, surface disturbances, and dust from field production and operations. Typical measures include requirements for watering dirt roads or applying magnesium chloride dust suppressants on dirt roads during periods of high use to reduce fugitive dust emissions of PM; colocation of wells and production facilities to reduce new surface disturbance; implementation of directional and horizontal drilling and completion technologies where one well provides access to petroleum resources that would normally require the drilling of several vertical wellbores; maintenance of vapor recovery systems; green completions where technically feasible; and interim reclamation to revegetate areas not required for production facilities to reduce the amount of fugitive dust. Examples of additional air quality control measures imposed at the APD stage may include submission of an emissions inventory for the plan of development, air quality modeling, or implementation of mitigation measures and BMPs. At the APD stage, COAs could be applied based on site-specific environmental analysis in which emission control techniques would be further evaluated for specific lease development projects.

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. In addition, Lease Notice LN 14-18 would be applied to all parcels included in this proposed lease sale for conservation of air resources. The lease notice states, *“The lessee/operator is given notice that prior to project-specific approval, additional air resource analyses may be required in order to comply with the NEPA, FLPMA, and/or other applicable laws and regulations. Analyses may include equipment and operations information, emission inventory development, dispersion modeling or photochemical grid modeling for air quality and/or air quality related value impact analysis, and/or emission control determinations. These analyses may result in the imposition of additional project-specific control measures to protect air resources.”*

If NEPA review reveals air quality impacts, additional control measures may include:

- Use of a Tier 4 non-road diesel engine that meets EPA NO<sub>x</sub> emission standards or equivalent for each diesel-fueled non-road engine with greater than 200 horsepower design rating to be used during drilling or completion activities;
- Reduction in fugitive dust from roads and construction areas by using water, dust suppressants, surfacing, and other means;
- Develop strategies to minimize or eliminate venting using the most efficient means possible, using low or no bleed pneumatics, and promoting instrument air driven equipment, or equipment that is actuated by other means;
- Use of intelligent design and siting of dehydrators so that the number of distributed dehydrators can be reduced, and larger more efficient dehydrators can be used and promote designs that consider cost effective controls for dehydrator vents; and



- Capture for beneficial use or destruction of separated gas from the oil/condensate/produced water streams.

Similarly, one or more of the following measures could be imposed at the development/APD stage if NEPA review showed the potential for significant impacts to air quality:

- Emission control equipment with minimum 95 percent volatile organic compound (VOC) control efficiency;
- Low-emitting drill rig engines, such as Tier 4 diesel engines or natural gas or electric drill rig engines;
- Gas or electric turbines for compression rather than internal combustion engines;
- Replacement of older internal combustion engines with low-emitting engines that meet EPA New Source Performance Standards;
- Water or chemical suppressant application and reduced speed limits to control fugitive dust emissions;
- Multi-well pads to reduce surface disturbance and traffic;
- Replacement of diesel-fired pump jack engines with electrified engines;
- Reinjection of waste gas into no-producing wells or other underground formations;
- Infrared (FLIR) technology to detect fugitive VOC and methane emissions and repair leaking equipment quickly; and
- Additional technologies for reducing methane emissions as recommended by EPA's natural gas STAR program.

### **3.4.1.3 Cumulative Effects**

Cumulative impacts for air quality are the result of the incremental impacts from the Proposed Action when added to other past, present, and reasonably foreseeable future actions. The sections below describe trends in air quality and how they relate to past and present oil and gas activities and projected emissions through modeling for the MTDKs RFD scenarios. The cumulative effects analysis area is the Williston Basin and the surrounding airshed.

## **EMISSIONS TRENDS**

Past and present actions that have affected and would likely continue to affect air quality in the analysis area include surface disturbance resulting from ongoing oil and gas development and associated infrastructure, geophysical exploration, ranching and livestock grazing, range improvements, recreation (including off-highway vehicle use), authorization of rights-of-way for utilities and other uses, and road development. Past and present actions that have affected and would likely continue to affect air quality are too numerous to list here but would include the development or conversion of power plants; the development of energy sources such as oil and gas; the development of highways and railways; and the development of various industries that emit pollutants. These types of actions and activities can reduce air quality through emissions of criteria pollutants including fugitive dust, VOCs, and HAPs, as well as contribute to deposition impacts and a reduction in visibility.

U.S. production of natural gas and petroleum and liquids is projected to rise amid growing demand for exports and industrial uses. U.S. natural gas production is expected to increase by 15% from 2022 to 2050, while crude oil is expected to increase by 11% during the same period. Similarly, oil and gas-related CAP and HAP emissions from existing and foreseeable wells, plus development of lease parcels, are anticipated to rise due to increasing production.

## REASONABLY FORESEEABLE ACTIONS

These leases are not expected to occur contemporaneously and represent only a small fraction of the potential development that was included in the various air quality modeling studies for the Montana and Dakotas. Therefore, this lease sale would be expected to have little to no impact on air quality, visibility, or atmospheric deposition in the area. Additional detailed information on air pollutant emissions can be found in a variety of documents such as the 2015 Miles City RMP (BLM, 2015), HiLine ARMP and FEIS of September 2015, Montana/Dakotas BLM-MTDKs State Office Photochemical Grid Model (PGM) Modeling Study (BLM, 2016), MCFO SEIS (BLM 2024), North Dakota Field Office RMP/EIS (BLM, 2023), and BLM Cumulative Hazardous Air Pollutants Modeling Final Report (BLM 2023). For example, the 2015 MCFO RMP assessed visibility impacts from the exhaust from drill rig engines on Class I areas located approximately 1 km away predicted impacts on color difference and contrast to be less than thresholds used to identify impacts. The 2015 MCFO RMP further analyzed far-field visibility impacts on Class I areas using the CALPUFF dispersion model. The CALPUFF model predicted visibility impacts estimated to be below the 0.5 deciviews ( $\Delta v$ ) threshold included in guidance developed by the National Park Service, US Forest Service, and the U.S. Fish and Wildlife Service (FWS) (FLAG 2010). At each receptor and for each year, zero days were predicted to occur when the 98th percentile change in deciviews would equal or exceed 0.5. Predicted impacts were 9-26 percent of the 0.5 threshold, much below the requirement for further analysis. Based on the results of the 2015 MCFO RMP modeling, oil and gas development is not considered to directly contribute to regional haze or result in visibility impairment.

Similarly, the Air Quality Technical Support Documents for the Montana MCFO RMP and North Dakota RMP/EIS utilized photochemical grid modelling for the future year circa 2028. The MCFO RMP modelled cumulative impacts in the Montana were predicted to be below the NAAQS for NO<sub>2</sub> and SO<sub>2</sub> while cumulative impacts for O<sub>3</sub>, PM<sub>2.5</sub>, and PM<sub>10</sub> exceeded the NAAQS in isolated areas throughout the state, mostly from natural source group such as fires, biogenic emissions, windblown dust, and lightning NO<sub>x</sub> but the contributions from federal oil and gas and federal coal development were less than 1 percent at the location of the exceedances. For North Dakota, the modeling results indicated that NAAQS or state ambient air quality standards would not be exceeded across North Dakota from the cumulative total of all sources modeled with federal oil and gas development contributing approximately up to 4% of O<sub>3</sub>, 11% of NO<sub>2</sub>, 2% of PM<sub>2.5</sub>, 0.5% of PM<sub>10</sub>, and 10% of SO<sub>2</sub>. The largest cumulative concentrations for most pollutants would be impacted by either natural sources or anthropogenic sources other than federal oil and gas development and federal coal-related actions. However, oil and gas wells in North Dakota may be located near Class I areas in which elevated impacts were observed in visibility and deposition. For example, tribal oil and gas sources located within Fort Berthold Indian Reservation revealed potential impacts on nitrogen deposition and visibility in the area. New federal oil and gas development has a maximum potential impact of 1  $\Delta v$  at the federal Class I areas (Lostwood Wilderness and Theodore Roosevelt NP) while the modeled maximum impact of the new federal oil and gas sector was greater than 1  $\Delta v$  for 24 days at Fort Berthold Indian Reservation, 1 day at Lostwood Wilderness, and 0 days at all other Class I areas. Additional detailed information on estimated air pollutant emissions can be found in the Montana and North Dakota RMP Air Resource Technical Support Documents. At the APD stage of the process, site specific information such as well pad location and construction equipment specifications will be available to further analyze and mitigate potential impacts.

### 3.4.2 Issue 2: Greenhouse Gases

#### ***How would future potential development of the nominated lease parcels contribute to greenhouse gas (GHG) emissions?***

Future development of lease parcels under consideration could lead to emissions of methane (CH<sub>4</sub>), carbon dioxide (CO<sub>2</sub>), and nitrous oxide (N<sub>2</sub>O), the three most common GHGs associated with oil and gas development. These GHG emissions would be emitted from activities occurring on the leased parcels, and from the consumption of any fluid minerals produced. However, the BLM cannot reasonably determine at the leasing stage whether, when, and in what manner a lease would be explored or developed.

The uncertainty that exists at the time the BLM offers a lease for sale includes crucial factors that would affect actual GHG emissions and associated impacts, including but not limited to: the future feasibility of developing the lease; well density; geological conditions; development type (vertical, directional, or horizontal); hydrocarbon characteristics; specific equipment used during construction, drilling, and production; abandonment operations; product transportation; and potential regulatory changes over the 10-year primary lease term. Actual development on a lease is likely to vary from what is analyzed in this EA and will be evaluated through a site-specific NEPA analysis when an operator submits an APD or plan of development to the BLM.

For the purposes of this analysis, the BLM has evaluated the potential climate change impacts of the proposed leasing action by estimating and analyzing the projected potential GHG emissions from oil and gas development on the parcels. Projected emissions estimates are based on past actual oil and gas development analyses, and any available information from existing development within the state.

Further discussion of climate change science and predicted impacts as well as the reasonably foreseeable and cumulative GHG emissions associated with BLM's oil and gas leasing actions and methodologies are included in the *2023 BLM Specialist Report on Annual Greenhouse Gas Emissions and Climate Trends* (BLM, 2024) (Annual GHG Report) and the Air Technical Resources Report (BLM 2023b). This report presents the estimated emissions of GHGs attributable to development and consumption of fossil fuels produced on lands and mineral estate managed by the BLM. The Annual GHG Report and Air Technical Resources Report is incorporated by reference as an integral part of this analysis and is available at <https://www.blm.gov/content/ghg/>.

#### **3.4.2.1 Affected Environment**

GHGs act to contain solar energy loss by trapping longer wave radiation emitted from the Earth's surface and act as a positive radiative forcing component. GHGs influence the global climate by increasing the amount of solar energy retained by land, water bodies, and the atmosphere. GHGs can have long atmospheric lifetimes, which allows them to become well mixed and uniformly distributed over the entirety of the Earth's surface no matter their point of origin. The buildup of these gases has contributed to the current changing state of the climate equilibrium towards warming. Past, current, and projected future climate change impacts are described in Chapters 4, 8, and 9 of the Annual GHG Report. These chapters describe currently observed climate trends globally, nationally, and in each state, and present a range of projected impact scenarios depending on future GHG emission levels.

The incremental impacts of global GHGs from a single proposed land management action cannot be accurately translated into its potential effect on global climate change or any localized effects in the area specific to the action. Currently, global climate models are unable to forecast local or regional effects on resources resulting from a specific subset of emissions. However, there are general projections regarding potential impacts on natural resources and plant and animal species that may be attributed to climate

change resulting from the accumulation of GHG emissions over time. In this EA, the BLM uses GHG emissions as a proxy for impacts and provides context with other proxies such as GHG equivalents.

For the purposes of this EA, the projected emissions from the Proposed Action can be compared to modeled emissions that have been shown to have definitive or quantifiable impacts on the climate. **Table 3.7** shows the total estimated GHG emissions from fossil fuels at the global, national, and state scales from 2016 to 2021. Emissions are shown in megatonnes (Mt) per year of carbon dioxide (CO<sub>2</sub>). Chapter 3 of the Annual GHG Report contains additional information on GHGs and an explanation of CO<sub>2</sub>e. State and national energy-related CO<sub>2</sub> emissions include emissions from fossil fuel use across all sectors (residential, commercial, industrial, transportation, and electricity generation) and are released at the location where the fossil fuels are consumed.

Additional information on current state, national, and global GHG emissions as well as the methodology and parameters for estimating emissions from BLM fossil fuel development and cumulative GHG emissions is included in Chapters 5, 6, and 7 of the Annual GHG Report.

**Table 3.7 Global, U.S., North Dakota, and Montana GHG Emissions 2016 - 2021 (Mt CO<sub>2</sub>/yr)**

Scale	2016	2017	2018	2019	2020	2021
Global	36,465.6	36,935.6	37,716.2	37,911.4	35,962.9	37,500
U.S.	4,909.9	4,852.5	4,989.8	4,855.9	4,344.9	4,639.1
North Dakota	---	53	55.6	53.4	50.7	52.7
Montana	---	30.5	31.5	31.6	25.3	27.9

Source: Annual GHG Report, Chap. 5, Table 5-1 (Global and U.S.) and Table 5-2 (State).  
Source: [State GHG Emissions and Removals | U.S. EPA.](#)  
Mt (megatonne) = 1 million metric tons  
NA = Not Available

### 3.4.2.2 *Environmental Consequences*

#### PROPOSED ACTION

While the leasing action does not directly result in development that would generate GHG emissions, emissions from future potential development of the leased parcels can be estimated for the purposes of this analysis. Four general phases of post-lease development processes would generate GHG emissions: 1) well development (well site construction, well drilling, and well completion), 2) well production operations (extraction, separation, gathering), 3) midstream (refining, processing, storage, and transport/distribution), and 4) end use (combustion or other uses) of the fuels produced. While well development and production operation emissions (phases 1 and 2) occur on-lease and the BLM has authority over these activities, midstream and end-use emissions (phases 3 and 4) typically occur off-lease where the BLM has little to no authority.

Emissions inventories at the leasing stage are imprecise because of uncertainties, including the type of mineral development (oil, gas, or both), scale, and duration of potential development, types of equipment (drill rig engine tier rating, horsepower, fuel type), and the mitigation measures that a future operator may propose in their development plan or that the BLM may require. As a result of these uncertainties, the BLM applies several assumptions to estimate emissions at the leasing stage. The number of estimated wells per parcel is based on state data for past lease development combined with per-well drilling, development, and operating emissions data from representative wells in the area. The amount of oil or gas that may be produced if the offered parcels are developed is unknown.

For purposes of estimating production and end-use emissions, potential wells are assumed to produce oil and gas in similar amounts as existing nearby wells. While the BLM has no authority to direct or regulate the end use of the products, for this analysis, the BLM assumes all produced oil or gas would be combusted (such as for domestic heating or energy production). The BLM acknowledges that there may be additional sources of GHG emissions along the distribution, storage, and processing chains (commonly referred to as midstream operations) associated with production from the lease parcels. These sources may include emissions of CH<sub>4</sub> (a more potent GHG than CO<sub>2</sub> in the short term) from pipeline and equipment leaks, storage, and maintenance activities. These sources of emissions are highly speculative at the leasing stage; therefore, the BLM has chosen to assume that midstream emissions associated with lease parcels for this analysis would be similar to the national level emissions identified by the Department of Energy's National Energy Technology Laboratory (NETL 2009, 2019). Section 6.5 of the Annual GHG Report includes a more detailed discussion of the methodology for estimating midstream emissions.

The emission estimates calculated for this analysis were generated using the assumptions previously described above in the BLM Lease Sale Emissions Tool (BLM 2024a) and lease development analysis. Emissions are presented for each of the four phases of post-lease development processes described above.

- Well development emissions occur over a short period and may include emissions from heavy equipment and vehicle exhaust, drill rig engines, completion equipment, pipe venting, and well treatments such as hydraulic fracturing.
- Well production operations, midstream, and end-use emissions occur over the entire production life of a well, which is assumed to be 30 years for this analysis based on the productive life of a typical oil/gas field.
- Production operation emissions may result from storage tank breathing and flashing, truck loading, pump engines, heaters and dehydrators, pneumatic instruments or controls, flaring, fugitives, and vehicle exhaust.
- Midstream emissions occur from the transport, refining, processing, storage, transmission, and distribution of produced oil and gas. Midstream emissions are estimated by multiplying the estimated ultimate recovery (EUR) of produced oil and gas with emissions factors from NETL life-cycle analysis of U.S. oil and natural gas. Additional information on emission factors can be found in the Annual GHG Report (Chapter 6, Tables 6-8 and 6-10).
- For the purposes of this analysis, end-use emissions are calculated assuming all produced oil and gas is combusted for energy use. End-use emissions are estimated by multiplying the EUR of produced oil and gas with emissions factors for combustion established by the EPA (Tables C-1 and C-2 to Subpart C of 40 C.F.R. § 98). Additional information on emission factors and EUR factors can be found in the Annual GHG Report (Chapter 6).

**Table 3.8 and Table 3.9** shows the estimated maximum year and average year GHG emissions over the life of the lease for both 100-year and 20-year global warming potentials (GWPs). Section 3.4 of the Annual GHG Report provides a detailed explanation of GWP.

**Table 3.8 Estimated Direct and Indirect Emissions from Lease Parcels on an Annual and Life-of-Lease Basis (metric tonnes)-Montana**

Year	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> e (100-yr)	CO <sub>2</sub> e (20-yr)
<b>Max Emissions, Year 4</b>	64,702	38.88	0.527	66,004	68,053
<b>Average Year</b>	17,065	11.85	0.139	17,456	18,081
<b>Life of Lease</b>	614,336	426.67	5.002	628,416	650,901

Source: BLM Lease Sale Emissions Tool (BLM 2024a)

**Table 3.9 Estimated Direct and Indirect Emissions from Lease Parcels on an Annual and Life-of-Lease Basis (metric tonnes)-North Dakota**

Year	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> e (100-yr)	CO <sub>2</sub> e (20-yr)
<b>Max Emissions, Year 6</b>	224,060	154.67	1.749	229,146	237,297
<b>Average Year</b>	42,112	33.59	0.325	43,202	44,972
<b>Life of Lease</b>	1,558,151	1,242.89	12.019	1,598,470	1,663,970

**Table 3.10 and Table 3.11** lists the estimated direct (well development and production operations) and indirect (midstream and end-use) GHG emissions in metric tonnes for the subject leases over the average 30-year production life of the lease. In summary, potential GHG emissions from the Proposed Action could result in GHG emissions of approximately 2.3 million metric tonnes of CO<sub>2</sub>e over the life of the leases.

**Table 3.10 Estimated Direct and Indirect Emissions from Lease Parcels on an Annual and Life of Lease Basis (tonnes) – North Dakota.**

Activity	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> e (100-yr)	CO <sub>2</sub> e (20-yr)
Well Development	2,759	1.31	0.033	2,807	2,876
Well Production Operations	16,429	103.84	0.140	19,562	25,034
Mid-Stream	70,878	302.30	1.151	80,201	96,132
End-Use	524,269	19.22	3.678	525,846	526,859
<b>Total (Life of Lease)</b>	<b>614,336</b>	<b>426.67</b>	<b>5.002</b>	<b>628,416</b>	<b>650,901</b>

Source: BLM Lease Sale Emissions Tool (BLM 2024a)

Note: IPCC Sixth Assessment Report GWP: 100-year GWP (CO<sub>2</sub> = 1, CH<sub>4</sub> = 29.8, N<sub>2</sub>O = 273); 20-year GWP (CO<sub>2</sub> = 1, CH<sub>4</sub> = 82.5, N<sub>2</sub>O = 273) (IPCC 2021).

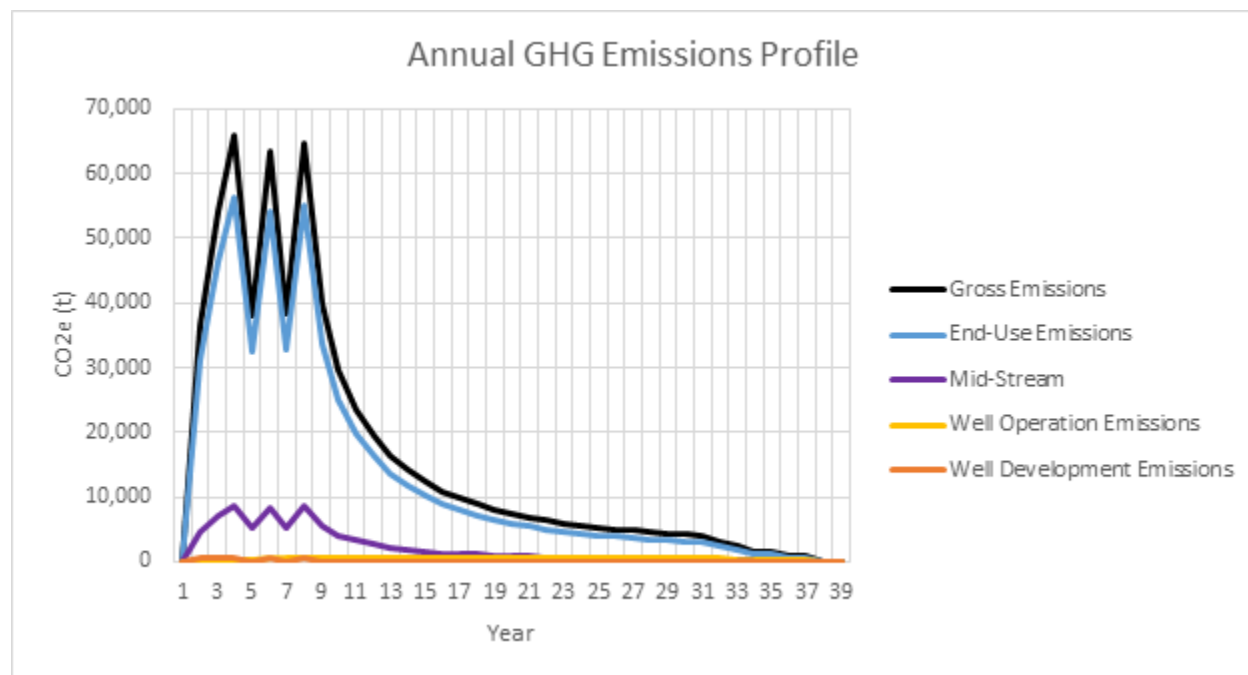
**Table 3.11 Estimated Life-of-Lease Emissions from Well Development, Well Production Operations, Midstream, and End Use (metric tonnes)**

Activity	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> e (100-yr)	CO <sub>2</sub> e (20-yr)
Well Development	3,863	1.83	0.046	3,930	4,027
Well Production Operations	23,001	145.38	0.196	27,387	35,048
Mid-Stream	187,723	1,048.65	2.991	219,789	275,053
End-Use	1,343,564	47.03	8.785	1,347,364	1,349,842
Total (Life of Lease)	1,558,151	1,242.89	12.019	1,598,470	1,663,970

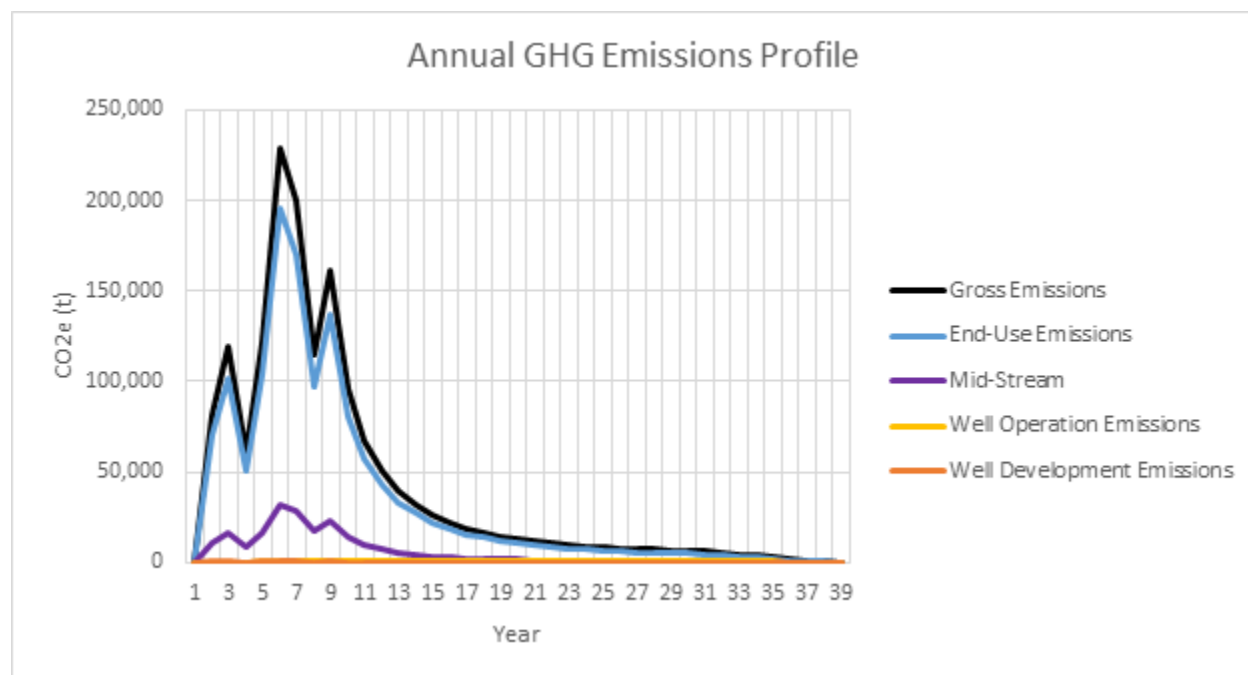
Source: BLM Lease Sale Emissions Tool (BLM 2024b)

Note: IPCC Sixth Assessment Report GWP: 100-year GWP (CO<sub>2</sub> = 1, CH<sub>4</sub> = 29.8, N<sub>2</sub>O = 273); 20-year GWP (CO<sub>2</sub> = 1, CH<sub>4</sub> = 82.5, N<sub>2</sub>O = 273) (IPCC 2021).

Because of declining production rates over time, GHG emissions vary annually over the production life of a well due to declining production rates over time. **Figure 3.7 and Figure 3.8** displays the estimated GHG emissions profile over the production life of a typical lease including gross (total) emissions as well as emissions during the four phases of lease development processes including well development, well production operations, midstream, and end-use.

**Figure 3.7 Montana - Estimated annual GHG emissions profile over the life of a lease**

Source: BLM Lease Sale Emissions Tool (BLM 2024b)

**Figure 3.8 North Dakota - Estimated annual GHG emissions profile over the life of a lease.**

Source: BLM Lease Sale Emissions Tool (BLM 2024b)

To put the estimated GHG emissions for this lease sale in a relatable context, potential emissions that could result from development of the lease parcels for this sale can be compared to other common activities that generate GHG emissions. The EPA GHG equivalency calculator (EPA, 2025) can be used to express the potential average year GHG emissions on a scale relatable to everyday life (<https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>). For instance, the projected average annual GHG emissions from potential development of the subject lease are equivalent to 14,149 gasoline-fueled passenger vehicles driven for one year, 12,641 homes electricity use for one year, or offset by the carbon sequestration of 60,843 acres of forest land.

**Table 3.12** compares the estimated annual lease sale emissions to existing Federal fossil fuel (oil, gas, and coal) emissions, State, and U.S. total GHG emissions.

**Table 3.12 Comparison of the Life-of-Lease Emissions to Other Federal Oil and Gas Emissions**

Reference	Mt CO <sub>2</sub> e1 (Per Year)
MT - Lease Emissions (Maximum Year)	0.066
ND - Lease Emissions (Maximum Year)	0.229
MT Onshore Federal (O&G)2	2.02
MT Onshore Federal (Oil, Gas and Coal)2	24.16



<b>ND Onshore Federal (O&amp;G)2</b>	33.50
<b>ND Onshore Federal (Oil, Gas and Coal)2</b>	39.76
<b>MT Total (all sectors)4</b>	52.25
<b>ND Total (all sectors)4</b>	88.39
<b>U.S. Onshore Federal (Oil &amp; Gas)2</b>	611.55
<b>U.S. All3 Onshore and Offshore Federal (Oil &amp; Gas)2</b>	1027.51
<b>U.S. Federal Onshore (Oil, Gas and Coal)3</b>	1046.33
<b>U.S. Total (Oil, Gas, &amp; Coal)5</b>	7,260.36

1 – Mt (megatonne) = 1 million metric tons. Estimates are based on 100-GWP values.

2 – Federal values come from the BLM Specialist Report on Annual Greenhouse Gas Emissions. Tables ES-1 and ES-2. U.S. Federal-All includes onshore oil and gas production.

3 – All includes both onshore and offshore Federal oil & gas.

4-Total state emissions from all sectors is found in Table 5-2 of the BLM Specialist Report on Annual GHG

Emissions.5- U.S. Total is the total emissions from all the oil gas and coal produced in the U.S. This value may differ from EPA values based on foreign consumption.

## NO ACTION ALTERNATIVE

Under the No Action Alternative, the BLM would not offer any of the nominated parcels in the lease sale. However, in the absence of a Land Use Plan Amendment closing the lands to leasing, they could be considered for inclusion in future lease sales. Although no new GHG emissions would result under the No Action Alternative, the national and global demand for energy is not expected to differ regardless of BLM decision making.

The BLM does not have a model to estimate energy market substitutions at a spatial resolution needed for this onshore production scenario. Reductions in oil and natural gas produced from federal leases may be partially offset by non-federal production (state and private) in the United States (in which case the indirect GHG emissions would be similar), or overseas, in which case the GHG emissions could be higher, to the extent environmental protection requirements for production are less vigorous, and the produced energy would need to be physically transported into the United States. There may also be substitution of other energy resources to meet energy demand. These substitution patterns will be different for oil and gas because oil is primarily used for transportation, while natural gas is primarily used for electricity production and manufacturing, and to a lesser degree by residential and commercial users (EIA 2023b). Coal and renewable energy sources are stronger substitutes for natural gas in electricity generation. The effect of substitution between different fuel sources on indirect GHG emissions depends on the replacement energy source. For example, coal is a relatively more carbon-intense fuel than natural gas and hydroelectricity is the least carbon-intense energy source (see Table 10-3 of the Annual GHG Report). In the transportation sector, alternatives to oil are likely to be less carbon intensive.

Finally, substitution across energy sources or oil and gas production from other locations may not fully meet the energy needs that would otherwise have been realized through production from leases. Price effects may lower the market equilibrium quantity demanded for some fuel sources. This would lead to a reduction in indirect GHG emissions. These three effects are likely to occur in some combination under the No Action Alternative, but the relative contribution of each is unknown. Regardless, GHG emissions under the No Action Alternative are not expected to be zero.

### **3.4.2.3 Cumulative Effects**

The analysis of GHGs contained in this EA includes estimated emissions from the lease as described above. An assessment of GHG emissions from other BLM fossil fuel authorizations, including coal leasing and oil and gas leasing and development, is included in the Annual GHG Report. The Annual GHG Report includes estimates of reasonably foreseeable GHG emissions related to BLM lease sales anticipated during the fiscal year, as well as the best estimate of emissions from ongoing production, and development of parcels sold in previous lease sales. It is, therefore, an estimate of cumulative GHG emissions from the BLM federal mineral estate based on actual production and statistical trends as they are presently known.

The methodologies used in the Annual GHG Report provide estimates of foreseeable short-term and projected long-term GHG emissions from activities across the BLM's federal mineral estate. The foreseeable short-term methodology includes a trends analysis of 1) leased federal lands that are held by production,<sup>2</sup> 2) approved APDs, and 3) leased lands from competitive lease sales projected to occur over the next annual reporting cycle (12 months). The data are used to provide a 30-year life-of-lease projection of potential emissions from all federal oil and gas activities and potential lease actions over the next 12 months. The projected long-term methodology uses oil and gas production forecasts from the EIA to estimate GHG emissions out to 2050 that could occur from past, present, and future development of federal fluid minerals. For both methodologies, the emissions are calculated using life-cycle-assessment data and emission factors. These analyses are the basis for projecting GHG emissions from lease parcels that are likely to go into production during the analysis period of the Annual GHG Report and represent both a hard look at GHG emissions from oil and gas leasing and the best available estimate of reasonably foreseeable cumulative emissions related to any one lease sale or set of quarterly lease sales that could occur annually across the entire federal onshore mineral estate.

**Table 3.13** presents the summation of the 30-year life-of-project emissions estimates for both the short and long term as previously described for each state where federal mineral actions have been authorized. The differences between the short- and long-term emissions estimates can be thought of as an approximation of additional leasing that could occur on federal lands and does not take into consideration additional policies, technological advancements in production or end-use efficiency standards, or an accelerated economy-wide transition away from fossil fuel derived energy production. A detailed explanation of the short-term and long-term emissions estimate methodologies are provided in Sections 6.6 and 6.7 of the Annual GHG Report.

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<sup>2</sup> Held by production - A provision in an oil or natural gas property lease that allows the lessee to continue drilling activities on the property as long as it is economically producing a minimum amount of oil or gas. The held-by-production provision thereby extends the lessee's right to operate the property beyond the initial lease term.

**Table 3.13 GHG Emissions from Past, Present, and Reasonably Foreseeable Federal Onshore Lease Development (Mt CO<sub>2</sub>e) GHG Emissions from Past, Present, and Reasonably Foreseeable Federal Onshore Lease Development (Mt CO<sub>2</sub>e)GHG Emissions from Past, Present, and Reasonably Foreseeable**

State	Existing Wells (report year)	Existing Wells (projected)	Approved APDs	New Leasing	Short-Term Foreseeable Totals	Long-Term Projected Totals
Alabama	0.57	8.52	0.00	0.18	8.70	16.62
Alaska	1.27	18.90	20.82	43.96	83.67	36.10
Arizona	0.00	0.00	0.00	0.00	0.00	0.00
Arkansas	0.60	9.52	0.24	0.24	9.99	17.56
California	5.10	70.48	4.75	2.17	77.41	140.49
Colorado	44.72	387.63	16.46	16.29	420.39	1,293.28
Idaho	0.00	0.00	0.00	0.29	0.30	0.00
Illinois	0.01	0.10	0.00	0.02	0.12	0.21
Indiana	0.00	0.00	0.00	0.02	0.02	0.00
Kansas	0.23	3.43	0.00	0.22	3.65	6.70
Kentucky	0.01	0.07	0.00	0.03	0.10	0.22
Louisiana	5.20	64.56	31.84	14.98	111.38	151.44
Maryland	0.00	0.00	0.00	0.00	0.00	0.00
Michigan	0.06	1.17	0.00	0.29	1.46	1.74
Mississippi	0.11	1.50	0.38	0.38	2.25	3.06
Montana	2.02	20.63	1.53	5.41	27.57	56.36
Nebraska	0.01	0.21	0.00	0.03	0.24	0.39
Nevada	0.13	0.99	0.03	0.10	1.12	3.53
New Mexico	399.96	2,844.84	729.98	113.24	3,688.06	11,218.30
New York	0.00	0.01	0.00	0.00	0.01	0.01
North Dakota	33.50	280.74	29.58	6.63	316.95	933.79
Ohio	0.24	2.29	0.00	2.65	4.94	7.04
Oklahoma	1.34	13.21	1.42	1.18	15.81	38.41
Oregon	0.00	0.00	0.00	0.12	0.12	0.00
Pennsylvania	0.00	0.05	0.00	0.67	0.72	0.11
South Dakota	0.10	1.61	0.11	0.11	1.82	2.70
Tennessee	0.00	0.00	0.00	0.00	0.00	0.00
Texas	3.20	35.25	15.07	1.31	51.62	93.23
Utah	12.93	161.65	14.42	29.97	206.04	369.79
Virginia	0.01	0.13	0.00	0.03	0.16	0.25
West Virginia	0.00	0.06	0.00	0.59	0.64	0.12
Wyoming	100.22	892.55	100.35	253.66	1,246.56	2,872.25
<b>Total onshore federal*</b>	612	4,820	967	495	6,282	17,264

Source: BLM Annual GHG Report, Section 7 (BLM 2023b).

\* Totals have been rounded.

As detailed in the 2023 Annual GHG Report, the BLM also looked at other tools to inform its analysis, including the Model for the Assessment of Greenhouse Gas Induced Climate Change (MAGICC)<sup>3</sup> (see Section 9.0 of the Annual GHG Report). BLM conducted MAGICC runs evaluating potential BLM contributions to global climate change and related values for two different climate change projection scenarios. These two scenarios were used because they reflect lower total global projected GHG emissions and will therefore reflect the greatest emissions contribution by the BLM relative to global emissions levels, resulting in a conservative contribution analysis. Of the two IPCC scenarios chosen, the most optimistic evaluates global CO<sub>2</sub> emissions cut to net zero around 2050. This scenario keeps global warming to around 1.5 degrees Celsius (°C) above pre-industrial temperatures. The second, “middle of the road” scenario leaves global CO<sub>2</sub> emissions around current levels before starting to fall by 2050 but does not reach net zero by 2100. In this scenario, temperatures rise 2.7°C by the end of the century. The MAGICC model results show that regardless of the global climate change projection scenario and the pathway that federal fossil fuels emissions follow, federal BLM minerals emissions are predicted to have minimal impacts to future global climate change through the end of the century. The maximum BLM fossil fuel (oil, gas, and coal) contribution to global temperature increases under these two scenarios is 0.015°C and 0.013°C, respectively. Because the projected federal mineral CO<sub>2</sub> emissions constitute a larger portion of the global levels in the most optimistic scenario, the modeled impacts are generally higher than those of the “middle of the road” scenario. The maximum BLM fossil fuel (oil, gas and coal) contribution to global temperature increases under these two scenarios is 0.015 C and 0.013 C, respectively.

Recent short-term energy outlook (STEO) reports published by the EIA (EIA 2025) predict that the world’s oil and gas supply and consumption will increase over the next 18 to 24 months. The STEO projections are useful for providing context for the cumulative discussion as the global forecast models used for the STEO are not dependent on whether the BLM issues onshore leases but are based on foreseeable short-term global supply and demand and include oil and gas development/operations on existing U.S. onshore leases. Recent STEOs include the following projections for the next two years:

- U.S. liquid fuels consumption is projected to increase to 20.55 million barrels per day (b/d) in 2025 up from 20.30 million b/d in 2024.
- U.S. crude oil production is expected to average 13.59 million b/d in 2025 and rise to 13.73 million b/d in 2026.
- U.S. natural gas consumption is expected to average 90.74 Bcf/d in 2025, decreasing slightly to 90.24 Bcf/d in 2026.
- U.S. LNG exports are expected to increase from 12 billion cubic feet/day (Bcf/d) in 2024 to 14Bcf/d in 2025.
- U.S. Coal production is expected to total 478 million short tons (MMst) in 2025 and 476 MMst in 2026.
- Generation from renewable sources is forecast to increase from 1,057.25 billion kW/h in 2025 to 1,142.70 billion kW/h in 2025.

Recent events, both domestically and internationally, have resulted in abrupt changes to the global oil and gas supply. EIA studies and recent U.S. analyses (associated with weather impacts) regarding short-term domestic supply disruptions and shortages or sudden increases in demand demonstrate that reducing domestic supply (in the near-term under the current supply and demand scenario) will likely lead to the import of more oil and natural gas from other countries, including countries with lower environmental and emission control standards than the United States (EIA 2023). Recent global supply disruptions have also

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<sup>3</sup> <https://magicc.org>.

led to multiple releases from the U.S. Strategic Petroleum Reserve in order to meet consumer demand and curb price surges.

The EIA 2023 Annual Energy Outlook (EIA 2023) projects energy consumption increases through 2050 as population and economic growth outweigh efficiency gains. As a result, U.S. production of natural gas and petroleum and liquids will rise amid growing demand for exports and industrial uses. U.S. natural gas production will increase by 15% from 2022 to 2050. However, renewable energy will be the fastest-growing U.S. energy source through 2050. As electricity generation shifts to using more renewable sources, domestic natural gas consumption for electricity generation is expected to decrease by 2050 relative to 2022. As a result, energy-related CO<sub>2</sub> emissions are expected to fall 25% to 38% below the 2005 level, depending on economic growth factors. Further discussion of past, present, and projected global and state GHG emissions can be found in Chapter 5 of the Annual GHG Report.

Carbon budgets are an estimate of the amount of additional GHGs that could be emitted into the atmosphere over time to reach carbon neutrality while still limiting global temperatures to no more than 1.5°C or 2°C above preindustrial levels (see section 9.1 of the Annual GHG Report (BLM, 2024)). At present, no national or Federal agency carbon budgets have been established, primarily due to the lack of consensus on how to allocate the global budget to each nation, and as such the global budgets that limit warming to 1.5 °C or 2.0 °C are not useful for BLM decision making, particularly at the leasing stage, as it is unclear what portion of the budget applies to emissions occurring in the United States.

Stakeholders and members of the public have requested that the BLM consider comparing the estimated Federal oil and gas emissions in the context of global carbon budgets. In the interest of public disclosure, Table 9-1 in the Annual GHG Report provides an estimate of the potential emissions associated with Federal fossil fuel authorizations in relation to IPCC carbon budgets. Total Federal fossil fuel authorizations including coal, natural gas and oil represents approximately 1.95 % of the remaining global carbon budget of 275 GtCO<sub>2</sub> needed to limit global warming to 1.5 C.

### **3.4.2.4 Emission Control Measures Considered in the Analysis**

Emission controls (e.g., vapor recovery devices, no-bleed pneumatics, leak detection and repair) can substantially limit the amount of GHGs emitted to the atmosphere, while offsets (e.g., sequestration, low carbon energy substitution, plugging abandoned or uneconomical wells) can remove GHGs from the atmosphere or reduce emissions in other areas. Chapter 10 of the Annual GHG Report provides a more detailed discussion of GHG mitigation strategies.

The EPA is the Federal agency charged with regulation of air pollutants and establishing standards for protection of human health and the environment. The EPA has issued regulations that will reduce GHG emissions from any development related to the proposed leasing action. These regulations include the New Source Performance Standard for Crude Oil and Natural Gas Facilities (40 CFR 60, OOOOa), Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After November 15, 2021 (40 CFR 60, OOOOb) and Waste Emissions Charge for Petroleum and Natural Gas Systems (40 CFR 99). These regulations impose emission limits, equipment design standards, and monitoring requirements on oil and gas facilities and a waste emissions charge on methane emissions that exceed 25,000 metric tonnes of CO<sub>2</sub>e for applicable petroleum and natural gas facilities currently required to report under the GHG Reporting Rule. In December of 2023, the EPA released a separate rule under the Clean Air Act (CAA) to reduce methane and other harmful air pollutants from new and existing oil and gas operations nationwide, which includes the Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced after November 15, 2021, 40 C.F.R. § 60, Subpart OOOOb; and Emissions Guidelines for Greenhouse Gas Emissions from Existing Crude Oil and Natural Gas Facilities, Subpart

OOOOC. These regulations impose emission limits, equipment design standards, and monitoring requirements on oil and gas facilities and a waste emissions charge on CH<sub>4</sub> emissions that exceed 25,000 metric tonnes of CO<sub>2</sub>e for applicable petroleum and natural gas facilities currently required to report under the GHG Reporting Rule. A detailed discussion of existing regulations and executive orders that apply to BLM management of federal lands, as well as current federal and state regulations that apply to oil and gas development and production, can be found in Chapter 2 of the Annual GHG Report (BLM 2024). Section 2.5 Executive Orders, of the Annual GHG Report, is not being incorporated by reference, because the EOs discussed therein were rescinded in accordance with Executive Order 14154, Unleashing American Energy (January 20, 2025)

In addition to Federal regulations, states have also implemented air quality and greenhouse gas regulations for the oil and gas industry. The Montana Department of Environmental Quality (MDEQ) administers rules and regulations to implement the Montana Environmental Policy Act and the Montana Clean Air Act. MBOGC regulations related to air impacts from oil and gas operations can be found in Title 36, Chapter 22 of the Administrative Rules of Montana (ARM) and include regulation ARM 36.22.1207 which prohibits the storage of waste oil and oil sludge in pits and open vessels. MDEQ rules for air quality permitting and/or registration of oil and gas operations can be found in Title 17, Chapter 8 of the ARM. For example, Chapter 17.8, Subchapter 17.8.7 (Permit, Construction, and Operation of Air Contaminant Sources) requires a facility with a Montana air quality permit to install the maximum air pollution control that is technically practicable and economically feasible. Chapter 17.8, Subchapter 17.8.17 (Registration of Air Contaminant Sources) requirements for oil or gas well facilities include controlling VOC vapors at 95% or greater control efficiency, using submerged fill technology for loading and unloading of hydrocarbon liquids using, and equipping internal combustion engines with nonselective catalytic reduction or oxidation catalytic reduction control devices. The North Dakota Department of Mineral Resources - Oil and Gas Division, regulates the drilling and production of oil and gas including regulations that ban the venting of natural gas and require that vented casinghead gas be burned through a flare (North Dakota Administrative Code 43-02-03-45). The North Dakota Industrial Commission (NDIC) has jurisdiction over the volume of gas flared at a well site to conserve mineral resources and established Order No. 24665 for reducing gas flaring. The Order requires producers to submit a gas capture plan with every drilling permit application. The North Dakota Department of Environmental Quality–Division of Air Quality established registration and reporting requirement and emissions control requirements for oil and gas facilities under North Dakota Air Pollution Control Rules Chapter 33.1-15-20 as well as submerged fill and flare requirements in Chapter 33.1-15-07.

The majority of GHG emissions resulting from federal fossil fuel authorizations occur outside of the BLM's authority and control. These emissions are referred to as indirect emissions and generally occur off-lease during the transport, distribution, refining, and end use of the produced federal minerals. The BLM's regulatory authority is limited to those activities authorized under the terms of the lease, which primarily occur in the "upstream" portions of natural gas and petroleum systems (i.e., the well development and well production phases). This decision authority is applicable when development is proposed on public lands and the BLM assesses the specific location, design, and plan of development. In carrying out its responsibilities under NEPA, the BLM has developed BMPs designed to reduce emissions from field production and operations. BMPs may include limiting emissions from stationary combustion sources, mobile combustion sources, fugitive sources, and process emissions that may occur during development of the lease parcel. Analysis and approval of future development may include the application of BMPs within BLM's authority, included as Conditions of Approval, to reduce or mitigate GHG emissions. Additional measures proposed at the project development stage may be incorporated as applicant-committed measures by the project proponent or added to necessary state-issued air quality permits. Additional information on mitigation strategies, including emissions controls and offset options, is provided in Chapter 10 of the Annual GHG Report.

### 3.4.3 Issue 3: Water Resources

#### ***How would future potential development of the nominated lease parcels affect surface and groundwater quality and quantity?***

The BLM-MTDKs developed a hydraulic fracturing (fracking) white paper that describes industry practices commonly associated with fracking, as well as regulations designed to protect water resources. This white paper is included as **Appendix F** to this EA, and the information is incorporated by reference into this water resources analysis.

Montana Department of Natural Resources (MDNRC) and Conservation and North Dakota Office of the State Engineer & State Water Commission regulate the right to use surface and groundwater in their respective states. State laws require that water rights be established for all beneficial uses of water, including that used for oil well development (drilling and hydraulic fracturing). Depending on location, new water rights or changes to existing water rights may apply ([http://dnrc.mt.gov/divisions/water/water-rights/docs/oil-gas/water\\_options\\_oil\\_development.pdf](http://dnrc.mt.gov/divisions/water/water-rights/docs/oil-gas/water_options_oil_development.pdf)).

In addition, the states administer numerous water quality regulations including the Clean Water Act of 1977, the Water Resources Planning Act of 1962, the Pollution Prevention Act of 1990, and the Safe Drinking Water Act of 1977. The Antidegradation Policy in the Clean Water Act mandates the maintenance of the level of water quality that has been identified as being necessary to support the existing uses of a waterbody (40 CFR Section 131.12(a)). Wastewater will be disposed of in accordance with state, local and federal regulations, including HB1409-38-11.2-07 (North Dakota) and ARM Rules 36.22.1005 & 36.22.1226 (Montana).

BLM surface and split estate parcels would be subject to management decisions contained in their applicable Land Use Plan or Resource Management Plan including the 2025 North Dakota RMP, 2015 Miles City RMP, 2015 HiLine RMP. This RMP designate areas open or closed to fluid mineral leasing and assigns standard terms and conditions as well as stipulations to conserve water resource values.

#### **3.4.3.1 Affected Environment**

##### **SURFACE LANDCOVER**

The 29 lease parcels (9,101.65 acres) associated with the Quarter 3, September 2025 lease sale are located in Dunn, McKenzie, and Billings counties in North Dakota (12 parcels), and Blaine, Richland, and Roosevelt Counties in Montana (17 parcels).

##### **Dunn, McKenzie, and Billings Counties**

Twelve (12) USFS parcels (3,602.65 acres) in North Dakota are located in the Little Missouri National Grassland (LMG) that encompasses about 1.0 million acres in the western region of North Dakota. The LMG is divided into two ranger districts: the McKenzie District in the north and the Medora District in the south. The applicable lease parcels on the Quarter 3, September 2025 lease sale are located in the McKenzie District, and all are within the two Geographic Areas: the Badlands Geographic Area and Rolling Prairie Geographic area. The semi-arid continental climate of both geographic areas consist of erratic precipitation, but averages about 15 inches per year, with about half of that precipitation falling from May through July. Short but intense thunderstorms, sometimes accompanied by hail, are a frequent occurrence between April and September. Moisture deficits are critical during the summer months. Drought cycles are typical, some lasting as long as 10 to 15 years. Yearly temperatures range between -

35°F to 100°F. Snowfall averages about 30 inches per year, but winds, averaging about 10 miles per hour, usually create deep accumulations in draws.

The topography of the Badlands Geographic area includes intricately dissected drainages and draws dropping from grassy ridgelines or butte-like hills and color-banded mounds typical of a badlands landscape. Large slumps and earth flows, typical of a highly erodible landscape, can also be identified. Small inclusions of rolling prairie are also typical of this geographic area. Multi-layered soils are extensively exposed as are soft rock or rock-like substances such as siltstones, clay stones, shale, and sandstones. Other erosion-resistant rocks, such as lignite seams and scoria, are also prevalent. “True” badlands, characterized by largely unvegetated slopes greater than 40 percent are found within this geographic area. Butte escarpments provide unique locations of biologic, geologic, cultural, and archaeological resources.

The topography of the Rolling Prairie Geographic area is characterized as nearly level to rolling hills with some inclusions of scattered buttes and badlands landscapes. The soils are quite well developed and stable and occur beneath a fairly consistent mosaic of grass cover. Butte escarpments provide unique locations of biologic, geologic, cultural, and archaeological resources. Elevations for both geographic areas range from about 1,800 feet above sea level near Lake Sakakawea to about 3,500 feet above sea level atop some of the more prominent buttes.

The desired landscape condition is to maintain the undeveloped character and scenic integrity of the badlands and maintain streams in properly functioning condition or in an upward trend. Long-term soil productivity and properly functioning water cycles are maintained. Properly functioning water cycles are characterized by high infiltration rates, low soil compaction, and minimal overland flows. Energy flow and nutrient cycling are functioning properly to maintain diverse, native plant and animal communities.

### **Richland and Roosevelt County**

Roosevelt County borders North Dakota in northeastern Montana. Elevations ranges from 1,800 feet near the Yellowstone and Missouri Rivers to about 2,900 feet. The Missouri River is the southern border of Roosevelt County. Average temperature is 44°F, and precipitation averages 14 inches per year. Snowfall accumulates November through April and averages 24 inches.

The land in this county can be described as Great Plains mixed-grass Prairie, as there are rolling hills intermittent with vast, wide, glaciated plains. Grasses that typically comprise this area include western wheatgrass, thickspike wheatgrass, green needlegrass, blue grama, and needle and thread. Forb diversity is typically high. In areas where sagebrush steppe borders the mixed grass prairie, common plant associations include Wyoming big sagebrush. Wooded draws are found closer to steep slopes or canyon bottoms and support deciduous trees like green ash and chokecherry. These wooded areas provide habitat for several bird species, small mammals, and deer.

Soils are generally smectitic, well drained, clayey or loamy. Many of the course textured soils have exposed caprock sandstone formations; These soils can be highly erodible, leading to badland-type landscapes that have highly eroded, rugged landforms with sparse vegetation.

### **Blaine County**

The planning area associated with the Hilina RMP consists of mainly grassland ecosystems that have, in places, been converted to agriculture. Known as the Northwestern Glaciated Plains ecoregion, and more specifically the North Central Brown Glaciated Plains (Liberty and Hill counties) and the Glaciated



Northern Grasslands (Blaine and Toole counties), about 60% of the lands on the Hilina remain in native vegetation, with approximately 25% of these lands being managed by the BLM.

The topography of the Northwestern Glaciated Plains region is generally level towards the east and irregular towards the south as this area represents the southern boundary of the continental glaciation and soils are derived from glacial drift. Hummocky moraines locally occur and are characterized by seasonal and semi-permanent ponds and wetlands. Land use is devoted to cattle ranching and farming.

Although changes in terrain, land use, surficial deposits, and soils are evident throughout the Northwestern Glaciated Plains region, it is understood that the general ecoregion extends eastward from the foothills of the Rocky Mountains for hundreds of miles. Dark brown soils are used for crops and range, important for grain farming and grazing. Groundwater can be taken from glacial alluvial deposits and bedrock. ([gaftp.epa.gov](http://gaftp.epa.gov)).

Linear features on the Hilina include roads, railroads, trails, and irrigation systems, including flood control reservoirs and associated water distribution systems. Many of the smaller flood control reservoirs are part of a larger prairie river system that are usually direct tributaries of the Missouri and Yellowstone rivers. Low to mid elevation locations channel rivers with a low gradient into long runs and continuous pools, where many creeks and streams appear to be ephemeral. Substrate characteristics are typically cobble/pebble riffles, when present, and can include large woody debris, deep pools, and undercut banks. ([MT Field Guide, Medium Prairie River](#))

## **Rosebud County**

Rosebud County is in the southeastern portion of the state and are associated with Great Plains mixed-grass Prairie and northern Rocky Mountain foothills (south-central and southwest areas of Big Horn County). Average precipitation for this area is 12 inches, and snowfall is an average of 28 inches. The Big Horn River is the largest river in Big Horn County, begins near Fort Smith, and continues north/northeast where it joins the Yellowstone River, the largest river in Rosebud County.

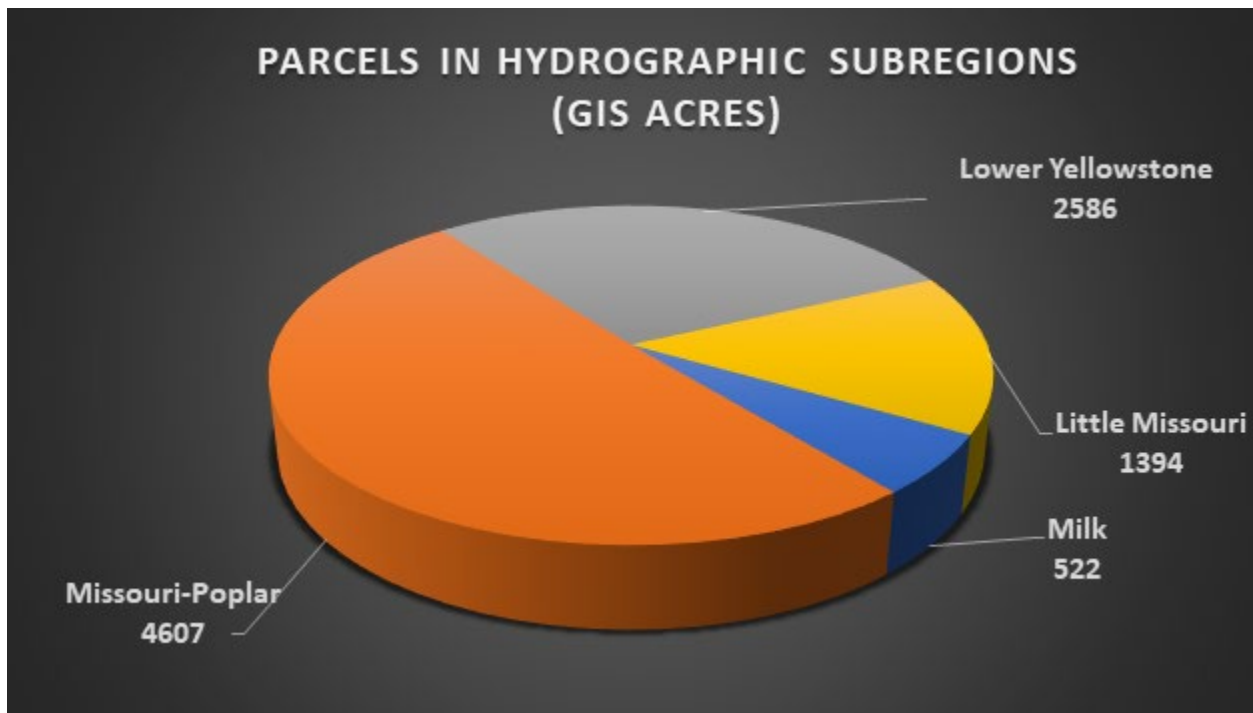
The majority of the county's natural historic plant communities are dominated by western and thickspike wheatgrass, bluebunch wheatgrass, green needlegrass, little bluestem, big sagebrush, and various forbs. Herbaceous shrubbery in bottomlands or subirrigated sites include willow, rose, chokecherry, and buffaloberry.

The topography of these counties varies, as the lands can be gently sloping to very steep coulees or canyons. Soils are considered to be well drained, sandy, loamy, and clayey textured. These soils were formed in semi-consolidate sedimentary beds, baked sandstone, loamy textured, and derived mainly from limestone or dolomite on hillslopes.

## **SURFACE WATER**

Lease parcels associated with the Quarter 3, September 2025 lease sale are distributed throughout the hydrographic subregions hydrologic unit code 6 (HUC-6) identified in Figure 3.9 below. Of these subregions, 51% percent of the leasable area is located in the Missouri-Poplar subregion, 28% percent is in the Lower Yellowstone subregion, 15% percent is in the Little Missouri subregion, and less than 6% is in the Milk sub-region..

**Figure 3.9 Distribution of Lease Parcels throughout the Hydrographic Subregions associated with the September 2025 lease sale. (Note: Subregions represent the 4-digit hydrologic unit codes associated with the USGS' Watershed Boundary Dataset, 2017)**



Most of the consumptive water use in the region comes from surface water, which is especially critical for agricultural operations. According to the National Hydrography Dataset (NHD High\_92V.210), the parcels contain approximately:

- 1.4 miles of perennial streams
- 43.8 miles of intermittent/ephemeral streams
- 1.5 miles of canals and ditches
- 0.26 acres of intermittent lakes/ponds
- 14.8 acres of perennial lakes/ponds
- 0 springs and seeps
- 0 acres of swamp/marsh

Numerous lease parcels in North Dakota and Montana MT-2025-09-6955, 0419, 6959, 0422, 0367, ND-2025-09-0752 are within the confines of the Missouri River, Little Missouri River, or tributaries to the Milk River. Access to mineral interests on this lease parcel will have to be accessed by directional or horizontal wells that are already commonly used in the surrounding acreage. The remaining lease parcels are not within the 100-year floodplain as mapped by the FEMA flood hazard maps. All parcels are within areas defined as “Areas of Minimal Flood Hazard” or in areas that have not been mapped for flood hazards by FEMA. Mapping by FEMA is incomplete across the majority of these leases, especially in remote areas where impacts to life and property are limited (relative to areas with more substantial human development). Site specific assessments of flood hazard would be completed for any subsequent Surface Use Plan of Operations.

The BLM has identified project area surface waters, including streams, tributaries, lakes, and emergent wetlands; the lands are reflected in **Appendix P** in association with each parcel. Riverine systems include wetlands contained within a channel with the exception of those wetlands dominated by trees, shrubs, persistent emergent, emergent mosses, or lichens. Water is usually, but not always, flowing in the riverine systems. Emergent wetlands, scrub-shrub wetlands, and forested wetlands may occur adjacent to the riverine system. (FWS.gov)

### **Stressors and impairments**

Streamflow in the area varies seasonally, with the largest flows commonly occurring in the spring or early summer. Water quality is often indirectly tied to streamflow, as it is largely dependent on the relative contributions of runoff and groundwater. Water quality affects the degree to which water can be used for a beneficial use and monitoring indicates that water quality in the region has been affected by a suite of factors; While the sources of water quality impairment vary considerably among waterbodies, nonpoint source pollution, nutrients, stream alteration, total suspended solids and metals are often listed as the primary causal factors, 2020; *North Dakota Integrated Section 305(b) Water Quality Assessment Report, 2018. Montana DEQ 2020 Final Water Quality Integrated Report.*

### **GROUNDWATER AND CONSUMPTIVE USES**

Groundwater plays an important role in meeting regional demands for water and the type, source, and volume of water varies within and between hydrographic subregions. For example, while less than three percent of water diverted in Montana for beneficial uses in calendar year 2000 was from groundwater, 95 percent of the rural, self-supplied domestic systems operate on groundwater sources (MDNRC), Water Fact Sheet #4). Local groundwater conditions within the vicinity of the lease parcels are highly variable and the quality and availability of groundwater varies greatly across the region. Residents commonly get their groundwater from aquifers consisting of unconsolidated, alluvial valley-fill materials, glacial outwash, consolidated sedimentary rock formations, and some coal beds.

Aquifers in Western Montana are typically in unconsolidated, alluvial valley-fill materials within intermontane valleys. These intermontane valley aquifers often yield relatively large quantities of high-quality water to relatively shallow water wells. Conversely, within the Northern Great Plains (eastern Montana & Western North/South Dakota), bedrock aquifers are often an important source of groundwater (especially in the non-glaciated zone). These aquifers generally support low-producing domestic and stock water wells that have relatively poor water quality from deep beneath the earth's surface (100's of feet).

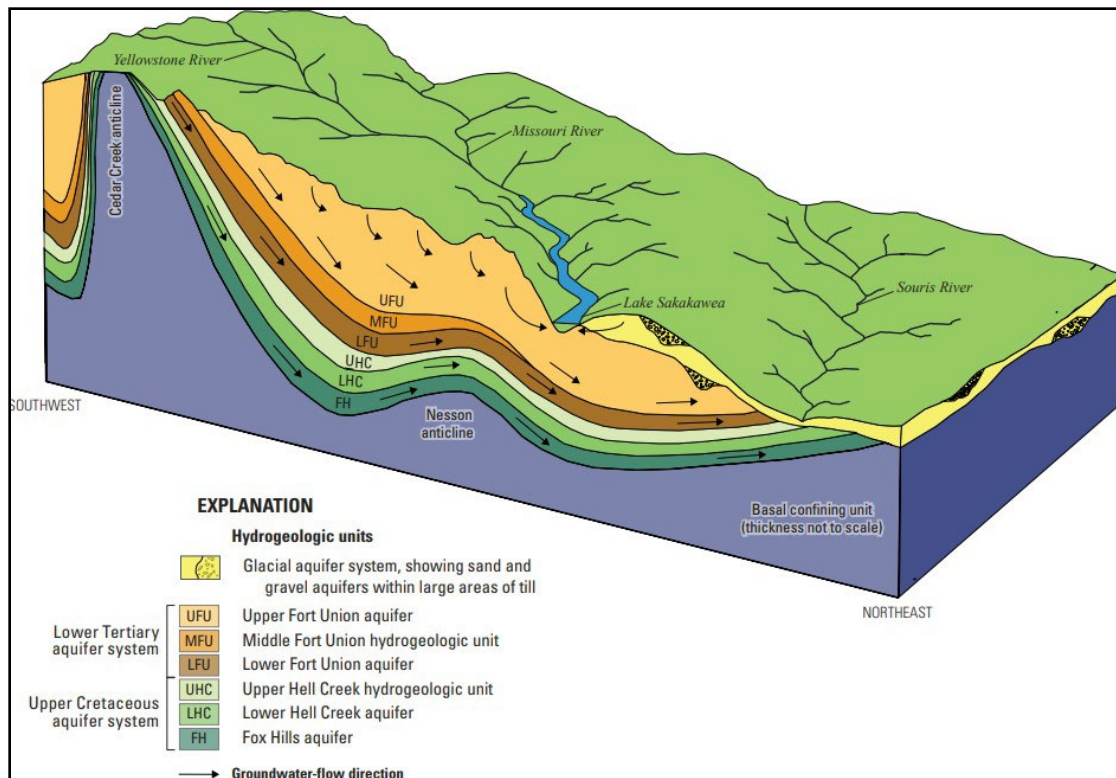
Aquifers associated with preglacial alluvial channels, however, are also an important source of water, especially in the non-glaciated areas of the Northern Great Plains. Similarly, alluvial terrace deposits associated with modern streams often provide groundwater for nearby domestic, stock, and municipal uses, especially along the Yellowstone and other larger rivers in the region. In fact, across the lease area, groundwater stored in modern alluvial stream deposits often represents the most reliably productive aquifers. This is noteworthy, as unconfined aquifers are also among the most susceptible to contamination because they tend to lack confining layers that would otherwise slow/halt the transmission of contaminants from the surface and shallow subsurface directly into the aquifer.

The Williston Basin aquifer is often divided into three units; the uppermost glacial till, lower Tertiary, and the Upper Cretaceous. These three aquifer systems cover 91,000 square miles throughout the Williston Basin with a maximum thickness of 2,900 feet deep in the center and thinning towards the edge of the basin. It is underlain by 800 – 3,000 feet of relatively impermeable marine shales that serve as the basal confining unit. The main components of recharge to groundwater are precipitation and infiltration from streams and reservoirs. Most groundwater discharge is to streams and reservoirs, groundwater pumping is

a small part (less than 5 percent) but increasing withdrawals from 1960-2005 have caused groundwater levels to drop locally. (USGS Groundwater availability of the Williston Basin, 2018), (Potential effects of energy development on environmental resources of the Williston Basin in Montana, North Dakota, and South Dakota — Water resources: U.S. Geological Survey Scientific Investigations Report 2017–5070–C). (Potential effects of energy development on environmental resources of the Williston Basin in Montana, North Dakota, and South Dakota — Water resources: U.S. Geological Survey Scientific Investigations Report 2017–5070–C).

Most water used in hydraulic fracturing comes from surface water sources such as lakes, rivers, and municipal supplies. As of 2018 industrial water use which includes hydraulic stimulation made up 10.1% of all consumptive water use within North Dakota. North Dakota's Office of the State Engineer is responsible for managing the State's water resources as directed under Chapter 61-04 of North Dakota's Century Code, and Article 89-03 of the State Administrative Code. Water intended for hydraulic stimulation requires a temporary water permit which necessitates a point of diversion review by a state hydrologist which is either granted or denied based on Chapter 61-04-06. Temporary water permits and reviews are publicly available under the ND.GOV website ([https://www.swc.nd.gov/reg\\_approp/waterpermits/](https://www.swc.nd.gov/reg_approp/waterpermits/))

The amount of water used in hydraulic fracturing, particularly in shale gas formations, may appear substantial but is often small when compared to other water uses such as agriculture and municipal supply. Groundwater can be used to augment surface water supplies where it is available in sufficient quantities; however, in 2013 the North Dakota office of the State Engineer formalized a policy that restricted industrial uses from utilizing groundwater from the Fox Hills Aquifer. This policy had already been enforced on a case- by-case basis since the early 1980's. (Wanek 2009; pg.90) This aquifer has sufficient hydraulic head to naturally flow to the surface without the use of pumps and ranchers have drilled approximately 500 wells into this aquifer to water livestock in the western part of North Dakota, allowing the watering of livestock in areas with no electrical infrastructure. The rate of decline of hydraulic head has decreased at 1.5-3ft per year since 1995 centered in McKenzie County North Dakota (Wanek 2009, Fischer 2013, Thamke et al 2018). In the next 100 years it is expected that the majority of these naturally flowing wells will cease to flow.

**Figure 3.10 Groundwater aquifers and flow in the Williston Basin region (From Long et al., 2018)**

The BLM frequently receives comments asking for an alternative that would protect usable groundwater, defined under the Safe Drinking Water Act as an aquifer with water that contains less than 10,000 mg/L (10,000 ppm) of total dissolved solids. However, a separate alternative to protect usable groundwater is not warranted because protection of groundwater would be required for any APD that is approved on a lease parcel. Authorization of proposed projects would require full compliance with local, state, and federal directives and stipulations that relate to surface and groundwater protection, and the BLM would deny any APD that proposes drilling and/or completion processes that are insufficient to protect of usable water, as required by 43 CFR § 3162.5-2(d). Any proposed drilling/completion activities would have to comply with Onshore Order No. 2, 43 CFR § 3160 regulations, and not result in a violation of a Federal and/or State laws that prohibit degradation of surface or groundwater quality.

The majority of lease parcels for the September 2025 lease sale parcels are within the Williston Basin development area. The remaining 3 parcels are located in Rosebud and Blaine counties.

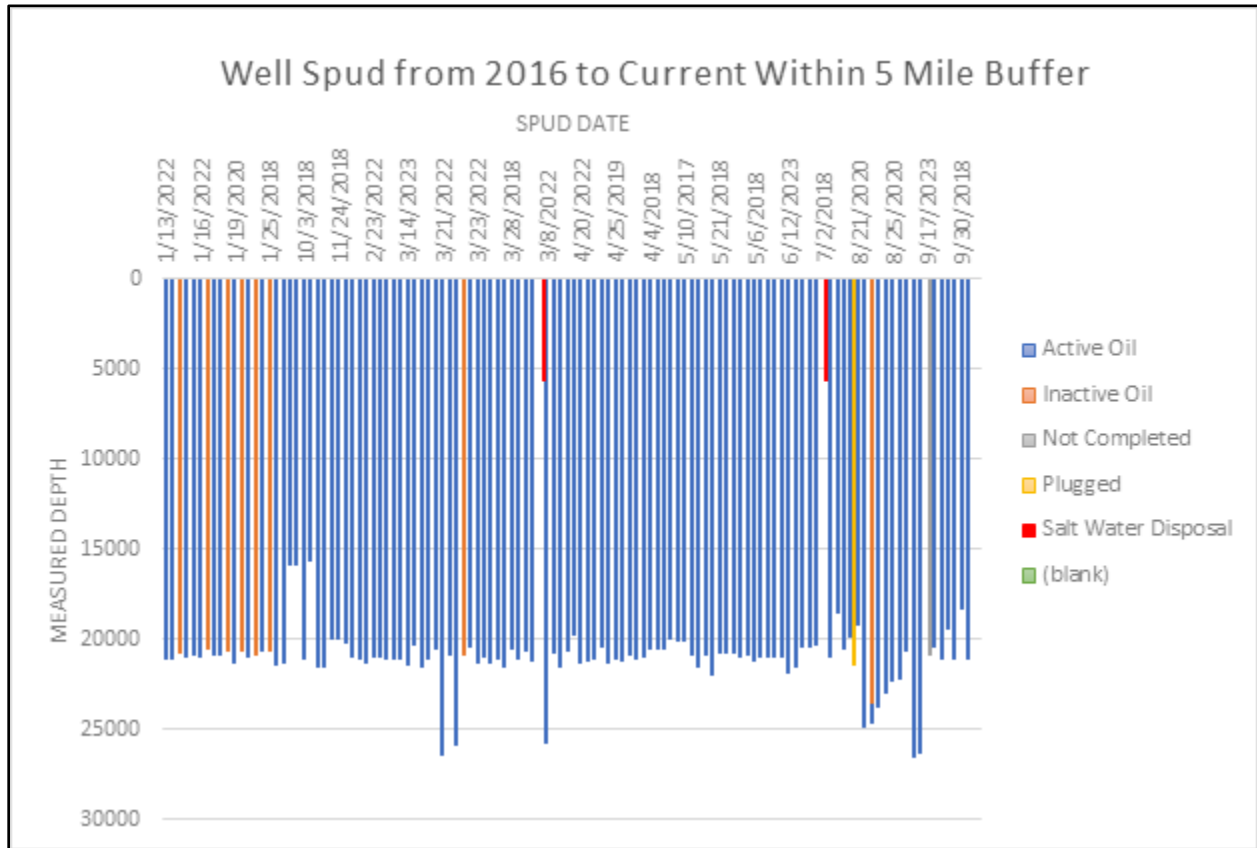
### Williston Basin

Parcels for the Quarter 3, September 2025 lease sale within Billings, Dunn, McKenzie, Richland, and Roosevelt counties are part of the Williston Basin unconventional Bakken/Three Forks development area. The probable development scenario is continued horizontal well development within the Bakken and Three Forks formations.

Due to the large number of wells and increasing activity in this area; only well data after 2016 was used to display in the graph. Older data was considered and looked at but the amount of development and focus on the Bakken and Red River since 2010 has not changed and we don't foresee it to change in the immediate future.

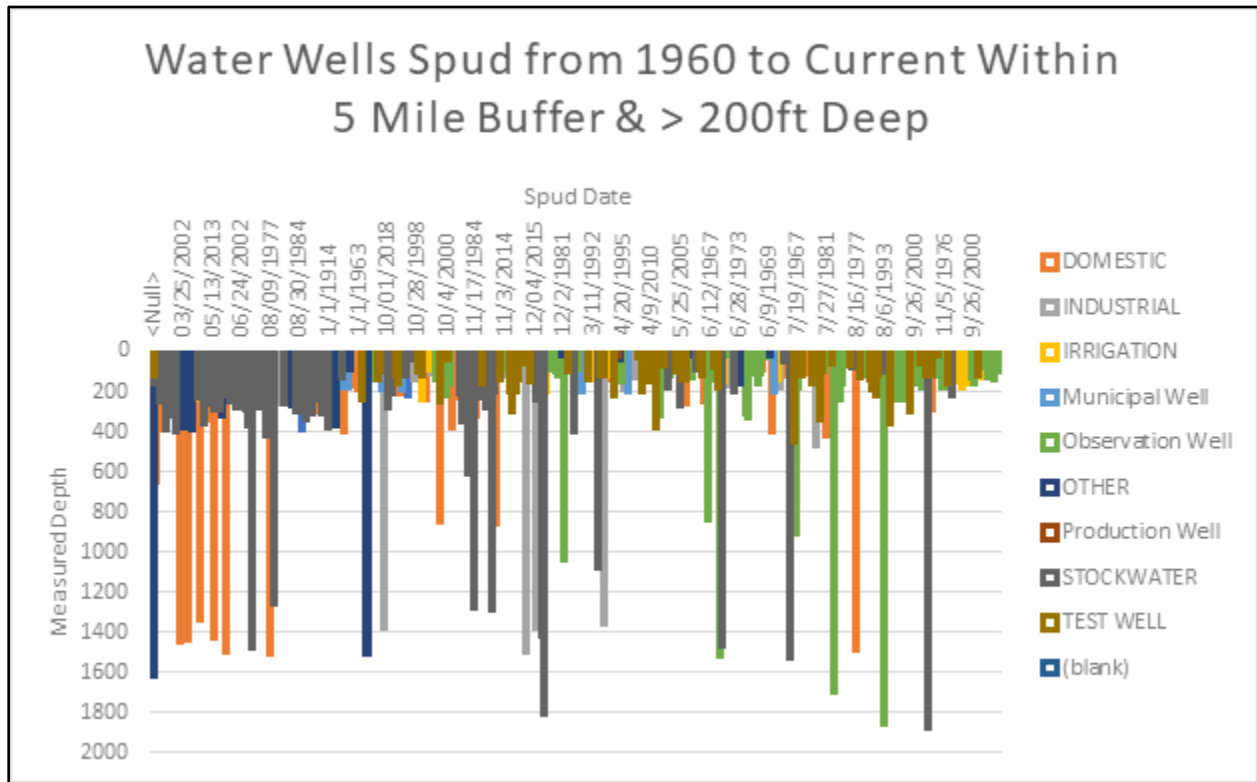
**Figure 3.11** shows a large number of wells at greater than 10,000ft measure depth. These are all horizontal Bakken Oil and Gas (OG), or Three Forks wells. There have also been 2 wells drilled to ~5000ft that are used as saltwater disposal injection (SWD) wells into the Cretaceous sand intervals.

**Figure 3.11 Graph of total depth of Oil and Gas wells within 5 miles of September 2025 North Dakota parcels colored by use. Saltwater disposal wells start at approximately 5000 ft or deeper. Wells 10,000 ft or deeper are targeting the Bakken and Three Forks formations.**



**Figure 3.12** shows surrounding consumptive use groundwater wells that are 1000's of feet shallower than the horizontal well development in Williston Basin. Water wells within 5 miles of these lease parcels are all less than 2000 ft deep.

**Figure 3.12 Graph of total depth of water wells within 5 miles of September 2025 North Dakota lease parcels colored by use**



### Rosebud County:

Parcels MT-2025-09-0403 and MT-2025-09-0270 are located in Rosebud County, 7N 39E Section 30. These lease parcels exist on the flank of the Ingomar Anticline. There are approximately 20 wells that trend in a NW-SW direction that were drilled in 2002 by True Oil LLC within ~8 miles of this lease parcel. These wells targeted Shallow Cretaceous Sand intervals ~2000ft of depth for natural gas. They were not economic and shut-in after showing 100's of MCF production per 24 hours during their initial well tests. Within the last couple years the operator has begun to plug or sell this group of wells. One well, the Pindell 33-30 (25-087-21681) which is also in 7N 39E Section 30, was sold to a local landowner that has converted the well for domestic use through the Montana Board of Oil and Gas (MBOGC). Administrative Rule of Montana 36.22.702 dictates that standard spacing for a gas well is 640 acres or one governmental section. The operator of this well submitted communitization agreement CA MTM 112176 to communitize the unleased federal minerals in section 30 to comply with the state spacing orders on 2/8/2021. Unleased federal minerals that are within a communitization agreement fall under MS-3160 Drainage Protection Manual as a drainage case. Wells that are subject to drainage are leased to prevent loss of unpaid royalties within the public oil and gas domain. The leasing of this parcel is due to bureaucratic processes that dictate pooling and well spacing within the state of Montana and will likely not result in the drilling of any new wells.

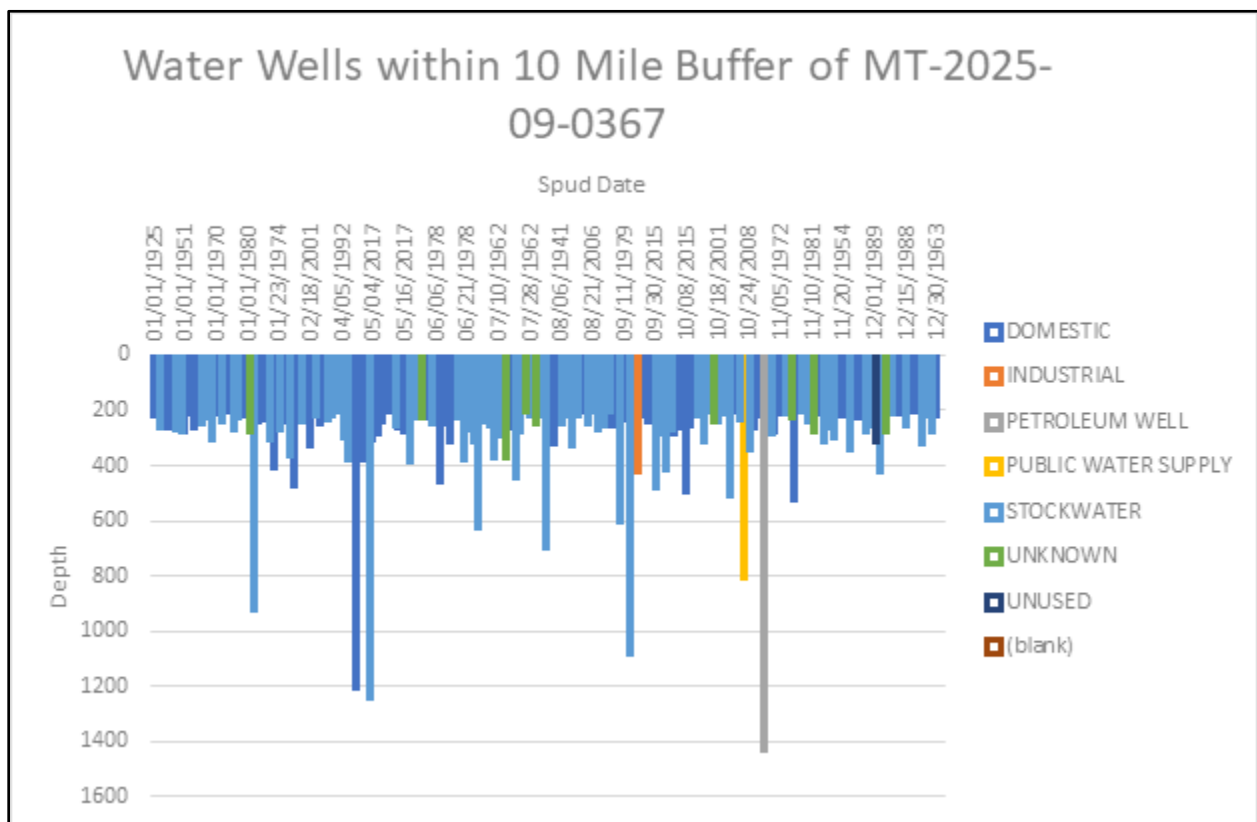
### Blaine County:

There is a single parcel available for lease in the September 2025 lease sale, MT-2025-09-0367. There are numerous oil and gas fields in the surrounding acreage including Laredo, Tiger Ridge, Bowes, Rabbit Hills, Battle Creek, and other minor fields.

Laredo, Tiger Ridge, Battle Creek are gas fields that produce from structural traps formed by thrust faults in the Cretaceous sand intervals. The producing intervals are shallow, structurally complex, and laterally discontinuous. It is common to find dry holes in the middle of the gas field. Vertical wells have been drilled since the 1960's with very limited recent exploration due to the depressed price of natural gas. The Bowes, and Rabbit Hills produce oil from the Jurassic Ellis Group including the Piper and Sawtooth formations. Both fields are structural traps and were initially developed with vertical wells. The Bowes field has been directionally drilled in the 2000's targeting the same formations. The field is also currently undergoing secondary recovery with water injection. Since, 2018, there have been 8 wells permitted into the Sawtooth formation in the surrounding acreage with two wells currently producing. The wells produce 500-1500 bbls/month with shallow declines. These wells are economic to drill, and the likely development scenario for this group of leases given the higher oil prices for the last four years.

Water wells within 5 miles of these lease parcels are all <1600ft deep. **Figure 3.13** shows surrounding consumptive use groundwater wells are 1000's of feet shallower than the Sawtooth formation which is between 4000 ft and 4500 ft deep across this parcel.

Figure 3.13 Graph of total depth of water wells within 5 miles of September 2025 North Dakota lease parcels colored by use.



### Field Development Summary

Lease parcels for the Quarter 3, September 2025 lease sale parcels within Billings, Dunn, McKenzie, Richland, and Roosevelt counties are within the Williston Basin development area.



The probable development scenario for these parcels are horizontal unconventional wells into the Bakken and Three Forks formations. This has been the predominate development scenario for the last 15 years and will likely continue. The Bakken and Three Forks formations are all greater than 9,000 feet deep while all the water wells used for consumptive use are shallower than 2,000 feet deep. Between the water wells and oil producing horizons are Cretaceous sands that are often used for the disposal of fluids utilizing saltwater disposal wells.

While there is sufficient vertical separation between existing groundwater wells and horizontal wells to make vertical fracture growth between the two zones highly unlikely, the higher permeability sands between the two zones makes the vertical propagation of hydraulic fluid past this zone even less likely. There is not a conflict between groundwater aquifers and horizontal well development due to hydraulic vertical fractures in this group of lease parcels.

Recent oil and gas activity in Blaine County points toward conventional vertical oil and gas exploration into the Sawtooth Formation based on close successful wells drilled on private and state mineral lands. It is likely this activity will continue based on oil production rates and current oil prices. Horizontal well development is not likely for the Blaine County lease parcel.

The two parcels in Rosebud County are being leased to comply with state spacing requirements for an existing fee well within the spacing unit.

### **3.4.3.2      *Environmental Effects***

#### **Surface Water**

Future oil and gas exploration and development of a lease parcel could affect surface water resources by causing the removal of vegetation, soil compaction, and soil disturbance in uplands within the watershed. The potential effects from this are accelerated erosion, increased overland flow, decreased infiltration, increased water temperature, channelization, and water quality degradation associated with increased sedimentation, turbidity, nutrients, metals, and other pollutants. Erosion potential can be further increased in the long term by soil compaction and low permeability surfacing (e.g., roads and well pads), which increases the energy and amount of overland flow by decreasing infiltration, and in turn changes flow characteristics, reduces groundwater recharge, and increases sedimentation and erosion. As acres of surface disturbance increase within a watershed, effects on water resources could correspondingly increase. However, due to the footprint of disturbance associated with the RFD (30.5 acres short term disturbance, and 14.94 acres long-term disturbance over 29 parcels), these potential impacts to water resources are expected to be minor. Furthermore, site specific effects would be more fully analyzed upon receipt of an APD and minimized through vegetation reestablishment and the application of BMPs and other conditions of approval to mitigate impacts of development.

Future oil and gas exploration and development of a lease parcel could also result in spills or produced fluids that could potentially affect surface and/or groundwater resources in the short and/or long term. These spills from oil and gas exploration/development have the potential to contaminate aquifers with salts, drilling fluids, fluids and gases from other formations, detergents, solvents, hydrocarbons, metals, naturally occurring radioactive materials, and nutrients; change vertical and horizontal aquifer permeability; and increase hydrologic communication with adjacent aquifers (EPA 2004).

From January 2024 through January 2025, ND Department of Environmental Quality reported 186 Oil/Gas Spill type incidents that were not contained, for example, an overflow of the facility boundaries or a leak from a facility pipeline. The Department reported another 533 incidents that were contained

within the boundaries of the production or exploration facility during the same time period. The ND Department of Environmental Quality receives their data from the Oil and Gas Division whenever Oilfield Environmental Incident Report is filed. All spills are reported; volumes from 3 gallons to >300 bbls are listed. Spill materials include fluids (diesel, oil, produced water, frac fluids, fresh water), solids (bentonite), and gases (propane). Not all spills may reach or impact a drinking water resource. For example, on 10/03/2021, 220 barrels of brine spilled onto a cultivated field 1,320 feet from the nearest water well. Actions were taken to recover the fluid, and it was removed for disposal. The incident report notes that the produced water pooled within the field and that the area had been flagged for monitoring. The area was excavated and follow up readings will be taken as necessary to determine if any other actions will be needed (incident 764). All of these incident reports are available online at: <https://northdakota.hazconnect.com/ListIncidentPublic.aspx>.

The size of the spill and site characteristics will influence whether a spill reaches a drinking water resource. Sandier soils and more permeable rock can increase the potential for spills to reach groundwater or migrate into surface water bodies. Spill prevention and response factors would be incorporated as COAs at the APD stage and may reduce the frequency and severity of impacts to surface water resources.

Some surface waters associated with the lease parcels are currently impaired from natural and anthropogenic features **Appendix H** and are discussed in the Affected Environment section. Fluid mineral development could additionally affect water resources during exploration, drilling, production, and/or abandonment. The magnitude of these impacts would depend largely on the specific activity, season, proximity to waterbodies, location in the watershed, density of development, hydrogeologic characteristics of the affected area, effectiveness of mitigation, time until reclamation success, and characteristics of any hydrologically connected aquifers. Adherence to applicable regulations (i.e., 43 CFR §3171 – §3177; wastewater disposal, water right, and water quality laws, etc.), as well as stipulations regarding steep slopes, erosive soils, streams, waterbodies, floodplains, and wetlands would minimize impacts that may be associated with future development (see **Appendix A** and **B**).

Alterations in watershed hydrology outside of the no surface occupancy zones could affect the water resources in these systems relative to the size of the watershed in which the disturbance were to occur. Produced water from conventional oil and gas development could impact the quality of surface water and groundwater through impoundments, injection, and discharge. Left untreated, produced water discharge and infiltration, or leaking produced water disposal pits could reach stream channels via subsurface flow, which could decrease water quality. However, use of produced water/waste pits are rigorously regulated for use in the State of North Dakota and since 2012 pits as a form of disposal are seldom used and must be approved by the Director (North Dakota Century Code 38-12-02). Proper wastewater disposal methods, including siting and design of disposal pits in accordance with state and federal regulations, would minimize or avoid these impacts.

## Groundwater

Potential effects to deeper aquifers may include cross-aquifer mixing through the wellbore or along fractures that extend between aquifers. All wells would be cased and cemented pursuant to North Dakota Department of Health (NDDH) rules, Montana Board of Oil and Gas (MBOGC) 36.22, Montana Code Annotated (MCA) Title 82, Montana Department of Environmental Quality (MDEQ), and 43 CFR § 3171, and 43 CFR § 3172. All wells also would be constructed according to relevant NDDH regulations to prevent cross-aquifer contamination. There would be minor potential for commingling of waters during well construction if proper well drilling procedures and completion techniques are employed. Refer to **Appendix F**, Fracking White Paper, and **Appendix F2** (Bakken) for further discussion.

BLM reviewed existing groundwater and oil/gas well data to identify any multiple use conflicts between groundwater use and petroleum development around the lease acreage that is scheduled to be made

available for fluid minerals development in the Quarter 3, September 2025 lease auction. The large caveat to this assessment is that prior to lease sale, it cannot be guaranteed which geologic formation will be targeted in any one area. However, BLM can make an educated guess based on prior petroleum activity in the area.

BLM produced a series of maps for the proposed lease parcels showing the true vertical depth of surrounding oil and gas wells. There are points on each of these maps representing the location and depth of surrounding water wells. Refer to **Appendix G**. Furthermore, Underground injection control regulations would isolate injection zones from potentially useable aquifers, which would limit the potential for impacts to surface or groundwater resources.

The use of any specific water source on a federally administered well requires review and analysis of the proposal through the NEPA process, which will be completed at the APD stage. The Gold Book, Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development (BLM and USFS 2007) would be followed, and site-specific mitigation measures, BMPs, design features, and reclamation standards would be implemented and monitored to minimize effects to water resources. All proposed actions must comply with local, state, and federal regulations, including North Dakota, and Montana water laws.

## Water Quality

Offering the parcels for lease would have no direct impact to surface or groundwater resources. Any potential effects on water from the sale of lease parcels would occur at the time the leases are developed (at the APD stage) and could be both short and long-term. Potential indirect and cumulative impacts from oil and gas leasing on water resources are also discussed in the applicable ARMP and FEIS for each field office and incorporated here by reference.

Pursuant to CWA section 303(d)(1), 33 U.S.C. § 1313(d)(1), each state is further required to identify those waters that do not meet water quality standards—called the “303(d)(1) list.” The 303(d) list is short for a state’s list of impaired and threatened waters. States are required to submit their list for EPA approval every two years. For each water on the list, the state identifies the pollutant causing the impairment, when known. Natural impairment features include Nitrogen, total dissolved solids (TDS), mercury, and an increase or decrease in specific conductivity because of background soil characteristics. Anthropogenic features include highways, roads, bridges; dams and impoundments that impact hydrostructure flow; agriculture, which contributed nutrients (**Appendix H and P**) to a water body; grazing, which can introduce pathogens (E. Coli) and/or physical alterations to a water body; and crop production that can affect the salinity, TDS, and sulfate levels of a water body.

The BLM is required to comply with state water quality standards and utilizes BMPs and design features to avoid, minimize, or mitigate potential impacts that could contribute to water quality impairment; Therefore, the BLM has identified, through the EPA WATERS Geoviewer website, which parcels nominated for this lease sale have proximity to impaired water bodies (See **Appendix H**):

Parcel MT-2025-09-0419, 6955, 6959 are within the Missouri river below the confluence with the poplar river. This river portion is 303D impaired due to both a flow regime modification and temperature caused by downstream hydro-structure flow modifications. (MDEQ 2021)

Parcel ND-2025-09-0423, is within First Hay Creek from the headwaters to the mouth of the Yellowstone River. This river portion is aquatic life 303D impaired due to metals, nitrogen, phosphorus, sediment, and total dissolved solids, caused by lack of riparian buffer width and health, coupled with insufficient water flows and crop production. (MDEQ 2021).

There are no state-designated source-water protection areas or municipal supply watersheds associated with the nominated parcels of this lease sale. There are no public supply water wells associated with the nominated parcels of this lease sale. There are no sensitive areas and no areas of critical environmental concern, or other valued areas where important aquatic resources may be impacted associated with the nominated parcels of this lease sale.

A Reasonably Foreseeable Development (RFD) scenario for oil and gas leasing at the plan level was analyzed in the RMP for the North Dakota field office, and Miles City field office. The BLM used the plan level RFD to develop an RFD for this lease sale, which is summarized in **Table 3.1**, and further described in **Appendix D**. The associated estimates of surface disturbance relate to the potential scope and magnitude of impacts to surface hydrology and are used to provide context in this EA. The RFD for this lease sale estimates surface disturbance over the 10-year leases associated with the Quarter 3, September 2025 lease sale as 14.94 acres of long term (LT) disturbance.

Produced water from conventional oil and gas development could impact the quality of surface water and groundwater through impoundments, injection, and discharge. Left untreated, produced water discharge and infiltration, or leaking produced water disposal pits could reach stream channels via subsurface flow, which could decrease water quality. Proper wastewater disposal methods, including siting and design of disposal pits in accordance with state and federal regulations, would minimize or avoid these impacts. Underground injection control regulations would isolate injection zones from potentially useable aquifers, which would limit the potential for impacts to surface or groundwater resources.

Standard stipulation 16-3 requires the Agency to furnish data on any special areas, which may include domestic water supplies within 1,000 feet of parcels and stipulates that surface use or occupancy will be controlled to prevent damage to surface or other resources.

The use of any specific water source on a federally administered well requires review and analysis of the proposal through the NEPA process, which will be completed at the APD stage. The Gold Book, Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development (BLM and USFS 2007) would be followed, and site-specific mitigation measures, BMPs, and reclamation standards would be implemented and monitored in order to minimize effects to water resources. All proposed actions must comply with local, state, and federal regulations, including Montana and North Dakota water laws.

## Water Quantity

Oil and gas drilling operations could affect available quantities of surface water and groundwater. Hydraulic fracturing uses billions of gallons of water every year at the national and state scales however, when expressed relative to total water use or consumption, hydraulic fracturing generally accounts for only a small percentage, usually less than 1%. (USEPA, 2016, page 4-46, Haines 2017).

The BLM estimated future water consumption associated with the Quarter 3, September 2025 lease sale based on the sale specific RFD. The estimates were made with the following assumptions: (1) all wells ultimately put into production as a result of this lease sale utilize hydraulic fracturing, (2) the underlying factors used to estimate future development under the sale specific RFD scenario persist, and (3) actual water use per well is similar to the state median water use estimates as noted in **Appendix F**, Fracking White Paper. All estimates are approximate and could vary substantially based on site characteristics and other factors like the length of horizontal laterals and hydrocarbon extraction intensity.

- North Dakota: 3,598.27 lease acres = 7 projected wells. 7 wells \* 5 million gallons/well = 35 million gallons

- Montana: 5,499 lease acres = 5 projected wells. 5 wells \* 5 million gallons/well = 25 million gallons

Future potential development of the twelve horizontal wells in the nominated lease parcels is estimated to use approximately 184 Acre-Feet (AF) of groundwater which would be frontloaded in the first 5 years of the 20-year development scenario (consistent with the RFD time frame). The water use associated with development of the lease parcels would be approximately 36.8 AF for the first 5 years as the wells are drilled, which represents less than 0.01% of the analysis area of Blaine, Richland, Roosevelt, Rosebud, Billings, Dunn, and McKenzie Counties total yearly water use (1,242,206 AF), and 0.2% of the 2015 water use in the mining category for the analysis area (17,698 AF). The largest water use category within the analysis area is irrigation, comprising 92% of all water use within the analysis area. The demand from future potential development of the nominated lease parcels (184 AF) is minor when contrasted with the annual water demand of the analysis area in any given year. The analysis area 2015 water use (1,242,206 AF), and the demands of other sectors in the analysis area such as irrigation (1,140,684 AF in 2015) and mining (17,698 AF in 2015). If more water-intensive stimulation methods (e.g., slickwater fracturing) are implemented, if laterals become longer, or if more wells than estimated are drilled, aggregate water use could increase from the estimates provided in the RFD. Alternatively, water use estimates could be lower if produced water is reused or recycled for use in hydraulic fracturing or if methods such as nitrogen completions are implemented. Horizontal wells in the area are typically drilled in the Bakken or Three Forks formations. The trend of increasing lateral lengths and increasing water consumption has plateaued as of 2017 within the Bakken area. Water use for development of the nominated lease parcels comes from a mixture of groundwater and surface water. The North Dakota Department of Water Resources (DWR), and the Montana Department of Natural Resources and Conservation (DNRC) regulates the use of surface and groundwater for each respective state. Therefore, the BLM does not anticipate any effects from the leasing decision on water quantity.

While many areas within the lease sale are experiencing low or medium to high water stress and estimated water consumption associated with the RFD scenario is minor (relative to existing uses & available supply), some areas are experiencing high Baseline Water Stress. Areas with higher baseline water stress would be more likely to experience depletion of surface and groundwater resources and/or competition among users from additional future development than areas with lower baseline water stress.

The potential for impacts associated with future development depends on the combination of water withdrawals and water availability at a given withdrawal location, as well as factors such as wastewater disposal methods and amounts. For example, where water withdrawals are relatively low compared to water availability, impacts are unlikely to occur. Where water withdrawals are relatively high compared to water availability, impacts are more likely. Areas reliant on declining groundwater are particularly vulnerable to more frequent and severe impacts from cumulative water withdrawals, including withdrawals for hydraulic fracturing. Among surface water sources, smaller streams are more vulnerable to frequent and severe impacts from withdrawals. Seasonal or long-term drought can also make impacts more frequent and severe for surface water and groundwater sources.

Water withdrawals could lead to reduced aquifer water levels, reduced streamflow (through direct withdrawals or drawdown of aquifers that are hydraulically connected to nearby streams or springs), altered hydroperiods, and impacts to water quality parameters associated with stream flow. Typically, produced water from conventional oil and gas wells would originate from a depth below useable aquifers or coal seams and would be unlikely to affect freshwater resources.

Potential site-specific effects would be analyzed at the time of a receipt of an Application for a Permit to Drill. In the event of exploration or development, site-specific mitigation measures would be identified to avoid or minimize potential impacts to water resources prior to land disturbance. Compliance with state

regulations and implementation of BMPs, operator committed measures, design features, and COAs at the APD stage would help minimize the impacts of water withdrawals on surface and groundwater by ensuring that water rights are established for all beneficial uses of water, ensuring that water resources are not over-appropriated, and considering the impacts of water withdrawals to groundwater wells and hydraulically connected surface waters. A lessee/operator would be required to obtain valid water rights from the states prior to operation, which would help to minimize the potential for impacts to the hydrologic system, other water users, and related ecological processes. Additional information on water rights and the availability of water resources in the project area can be obtained at the local North Dakota State Water Commission (NDSWC) or MDNRC.

### **3.4.3.3 Mitigation Measures and Residual Effects**

The applied lease stipulations provide guidance and parameters for the development of each lease. Lease stipulations described here and in Appendices A and B are specific for the protection of surface and groundwaters. Oil and gas lease stipulations are established for erosion control, soil, and water preservation specifically include: The BLM's Standard 16-3 stipulation which is an overarching, general stipulation applied to all of the leases being analyzed. Standard 16-3 includes sections for esthetics, erosion control, controlled or limited surface use, APDs, cultural and paleontological resources, and endangered and threatened species. (Post Van Der Burg 2022) The stipulations that specifically impact surface water (and soils) would include erosion control measures and controlled surface use (CSU).

During the commencement of the APD process the project and proposed location, to include all surface disturbing activity, is assessed for potential impacts to the site. Controlled surface use is utilized if the lease and proposed project location includes a special area with special values and require special attention for certain resources that includes surface water. There are specific setbacks in the Standard 16-3 stipulation for all waterbodies, rivers, streams, domestic water supplies and flood plains including 500 feet within the 25-year flood plain from reservoirs, lakes, and ponds and intermittent, ephemeral, or small perennial streams; 1,000 feet within the 100-year flood plain from larger perennial streams, rivers, and domestic water supplies. This stipulation allows for project placement to be strictly controlled and even excluded. Further, modifications can be made for those restrictions for the maintenance and operations of oil and gas wells.

Much like the BLM stipulations, other Surface Management Agencies (SMA), such as the USFS provide stipulations for parcels within their jurisdictional boundaries. In conjunction with the erosion control and setback authorities listed in the Standard 16-3, the USFS stipulations mitigate for erosion by prohibiting projects on slopes of greater than 40%. Stipulation LMG2020-NSO-01 states "Surface occupancy and use is prohibited on slopes greater than 40 percent to protect soil resources from loss of productivity, prevent erosion on steep slopes, soil mass movement, and resultant sedimentation". The application of this stipulation and the additional assessment of the lands at APD commencement mitigate any effects to surface waters that may be impacted by soil conditions and erosion.

Similar to the above stipulations, CSU 12-5 prohibits surface disturbance of riparian areas of wetlands, intermittent, ephemeral, or perennial streams and rivers, with the exception of essential road and utility crossings. NSO 11-33 (no surface occupancy), provides for no surface occupancy within 200 feet of wetlands, lakes, and ponds. As previously mentioned, these stipulations are applied during the lease process; enforcement of these authorities in the field and at the APD stage would require field observations and data review of the existing conditions and resources. This field review allows for the appropriate placement of well pads, roads, utilities, and ancillary facilities therefore mitigating any effects to surface waters as implied by the lease stipulation.

Comparable to Standard 16-3 the USFS stipulations LMG2020-CSU-01 and LMG2020-LN-01 give notice to potential lessees that proposed activities may contain lands with riparian ecosystems and that development in that area could be highly restricted in order to preserve, restore, and enhance the values provided by floodplains and wetlands.

The DPG personnel apply and enforce their stipulations in an equivalent manner as the BLM by conducting field visits, completing data reviews of the existing conditions and resources, and coordinating with lessees to modify their proposed project to protect the resource.

The application and enactment of all SMA stipulations may be achieved through field (onsite) and data reviews of soil types, average rainfall, stormwater management, engineered drawings, GIS, etc. Specialists and interdisciplinary personnel commonly perform these reviews. Project constraints such as placement, timing, and design could be altered from the initial proposal based on these observations, reviews, and the known potential impacts that are typical of oil and gas development. Equally important are potential BMP's and design features that may be added. The modifications to the project, if approved, would be documented and part of any approval.

Given the limited disturbance estimated in the reasonably foreseeable development scenario (see **Table 3.1**), the potential for future development associated with the Quarter 3, September 2025 lease sale to contribute to the cumulative impacts of water resources is correspondingly limited and likely negligible (relative to other water uses and potential sources of contamination).

However, with more oil and gas wells being developed in proximity to fresh water, there is a potential for groundwater and surface water decline, as well as an increased possibility for nonpoint source pollution associated with ground disturbance to affect water quality in receiving waterbodies. The vulnerability of the decline and related impacts to existing water users and environmental processes is directly associated with the water need, the quantity and quality of the groundwater, and the cumulative withdrawals and is likely correlated to existing and predicted Baseline Water Stress within the potentially affected basins. Water used to develop any of the proposed parcels could have a cumulative depletion effect, especially if other oil and gas development and regional water uses exceed recharge rates in the basins, potentially affecting surface flows and groundwater elevations. Such effects could be exacerbated during periods of drought. BMPs and design features to reduce runoff, erosion, and potentially associated nonpoint source pollution to downstream waterbodies would minimize cumulative effects to water quality.

Groundwater recharge rates can be extremely low, and groundwater pumping can exceed recharge rates in many areas of the country (Konikow, 2013). Cumulative drawdowns can affect surface waterbodies since groundwater can be the source of base flow in streams and alter groundwater quality by mobilizing chemicals from geologic sources, among other means (DeSimone et al., 2014).

Aquifers can be affected directly and indirectly by increasing the number of wells in an area. Direct impacts are a result of direct use of the groundwater. Indirect ramifications could result from declines in surface water resources (or vice versa) which could lead to increased groundwater withdrawals and net cumulative depletions of groundwater (Castle et al., 2014; Georgakakos et al., 2014; Konikow, 2013; Famiglietti et al., 2011).

It should be noted that cumulative impacts on water quality findings associated with hydraulic fracturing appear inconclusive at this time, but localized impacts to surface water quality associated with dense surface disturbance have been observed elsewhere. It has been observed that pumping can promote changes in reduction-oxidation (redox) conditions and thereby mobilize chemicals from geologic sources (DeSimone et al., 2014). Similar patterns of groundwater quality degradation associated with prolonged

aquifer depletion (i.e., salinization and contamination) have also been observed. (U.S. Environmental Protection Agency; 2016a).

As studies are conducted and ramifications are analyzed they will be instrumental in developing better science to determine cumulative impacts to the environment. When the science of these studies is complete, they will be incorporated to the analysis of oil and gas lease sales to determine the best course of action according to the science.

### **3.4.4 Issue 4: Cultural Resources**

#### ***How would the leasing and potential development of these parcels affect cultural resources to include Native American Religious Concerns, National Register Heritage Sites, and National Historic Landmarks and Trails?***

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 and both National and State level protocols. 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.

The BLM MTDKs, USFS, and USACE conducted screening and gathered comments to assess potential impacts on cultural resources for the lease parcels and to identify known historic properties, traditional cultural properties (TCPs), sacred sites, and traditional use areas within the area of potential effects (APE) for the lease sale. The records review was completed for 29 parcels, totaling 9,101.65 acres. Indicating the presence of 50 historic properties and 71 previous inventories

Past lease sales have seen input from the National Park Service. Parcels that were identified as being in close proximity to the Lewis and Clark National Historic Trail (L&C NHT) administered by the National Park Service include MT-2025-04-0413. This trail, spanning about 3,700 miles from Wood River, Illinois, to the Columbia River mouth in Oregon, is overseen by the National Park Service (NPS) in collaboration with federal, state, and local agencies; tribal nations; nonprofit organizations; and private landowners. The L&C NHT follows the outbound and inbound routes of the 1803 to 1806 Lewis and Clark Expedition also known as the Corps of Discovery. In North Dakota's Missouri River valley, the L&C NHT splits into two paths at the Yellowstone and Missouri Rivers confluence. The L&C NHT commemorates the expedition's encounters and diverse cultures, emphasizing interactions with Native American tribes. (<https://www.nps.gov/lecl/learn/historyculture/index.htm>).

The nominated lease parcels have been assigned the National HQ-CR-1 Lease Stipulation, which requires additional cultural resource analyses pursuant to Section 106 of the NHPA, to include identification, effects assessment, consultation, and if necessary, resolution of potentially negative effects, prior to the authorization of any ground-disturbing activities associated with the oil and gas lease. Additionally, the nominated lease parcels assessed within this EA have also been assigned Lease Notice LN 14-2, which requires compliance with Section 106 of the NHPA and consistent with MTDKs State Office guidance for cultural resource protection (see **Appendix B**). In effect, this lease notice notifies lessees that the BLM, if it ultimately offers these leases, could require intensive cultural resource inventories, Native American consultation, and mitigation measures to avoid effects—the costs for which would be borne by the lessee—and that the BLM may require modifications to activities that are likely to affect significant historic properties, those eligible for the National Register of Historic Places (NRHP), TCPs or sacred sites for which no mitigation measures are possible. Such measures could include the development of COAs to protect cultural resources. The BLM would work with consulting parties, including any tribes or



Native American Communities that might attach religious and cultural significance to properties within the APE, to identify additional historic properties when an APD is received and may develop COAs to mitigate physical, audible, or visual impacts to sensitive cultural resources. This identification constitutes a separate undertaking that would be analyzed through the NHPA Section 106 process at that time.

### 3.4.4.1 *Affected Environment*

A review of the Montana State Historic Preservation Office (SHPO), North Dakota State Historic Preservation Office (ND SHPO) and BLM Cultural Resource Databases shows that 71 cultural resource inventories have been conducted in the sections of the proposed parcels for the oil and gas lease sale.

There have been 57 cultural properties recorded within the confines of the proposed parcels. **Table 3.14** summarizes the information obtained from Class III Cultural Resource inventories which has occurred to date within a one-mile radius of proposed lease parcel boundaries. Data includes the cultural location ID, National Register of Historic Places (NRHP) eligibility determinations (if known), and a brief description of the National Register of Historic Places status .

**Table 3.14 Summary of Cultural Resource Locations, Site Description, and NRHP Status**

Site #	Site Description	NRHP Eligibility Recommendation
32MZX37	Site Lead	Unevaluated
32MZX436	Isolated Find- Projectile Point	Unevaluated
32MZ376	CM Scatter	Unevaluated
32MZ1218	CM Scatter- Chipped Stone	Unevaluated
32MZ1189	Architecture- Log Cabin	Not Eligible
24RB1035	Historic Railroad	Eligible
24RB1362	Historic Vehicular/Foot Bridge	Unevaluated
24RB1886	Historic Vehicular/Foot Bridge	Unevaluated
24RB1887	Historic Industrial Development	Unevaluated
24RB1888	Historic Log Structure	Not Eligible
24RB1889	Historic Vehicular/Foot Bridge	Unevaluated
24RB1890	Historic Road	Unevaluated
24RB1891	Historic Transmission Line	Not Eligible
24RB2542	Historic Lewis and Clark Trail (Rosebud County Segment)	Eligible
24RB2798	Historic Road	Eligible
24RL0067	Precontact Stone Circle	Unevaluated
24RL0071	Precontact Rock Cairn(s)	Unevaluated
24RL0072	Precontact Lithic Material Concentration	Unevaluated
24RL0083	Precontact Lithic Material Concentration	Unevaluated
24RL0087	Historic Mining	Not Eligible
24RL0088	Historic Mining	Not Eligible
24RL0119	Historic Vehicular/Foot Bridge	Unevaluated
24RL0120	Historic Vehicular/Foot Bridge	Unevaluated
24RL0202	Precontact Rock Cairn(s)	Not Eligible
24RL0246	Precontact Kill Site/Trap	Eligible
24RL0247	Historic Irrigation System	Unevaluated
24RL0248	Precontact Lithic Material Concentration	Unevaluated
24RL0249	Precontact Lithic Material Concentration	Unevaluated
24RL0250	Precontact Lithic Material Concentration	Unevaluated
24RL0254	Historic Homestead/Farmstead	Unevaluated
24RL0290	Precontact Rock Cairn(s)	Unevaluated
24RL0304	Precontact Lithic Material Concentration	Unevaluated
24RL0305	Precontact Lithic Material Concentration	Unevaluated
24RL0356	Historic Homestead/Farmstead	Not Eligible

24RL0386	Precontact Rock Cairn(s)	Unevaluated
24RL0470	Historic Lewis and Clark Trail (Richland County Segment)	Eligible
24RL0492	Historic Trash Dump	Not Eligible
24RL0494	Precontact Rock Cairn(s)	Unevaluated
24RL0495	Precontact Rock Cairn(s)	Eligible
24RL0498	Precontact Rock Shelter or Cave	Unevaluated
24RL0499	Precontact Stone Circle	Unevaluated
24RL0510	Precontact Lithic Material Concentration	Unevaluated
24RL0513	Precontact Lithic Material Concentration	Unevaluated
24RL0628	Fossil Paleontological Locality	Unevaluated
24RL0679	Historic Road	Unevaluated
24RV0020	Historic Mining	Unevaluated
24RV0040	Historic Mining	Unevaluated
24RV0041	Historic Mining	Unevaluated
24RV0207	Precontact Lithic Material Concentration	Unevaluated
24RV0208	Precontact Lithic Material Concentration	Unevaluated
24RV0299	Precontact Stone Circle	Unevaluated
24RV0677	Precontact Lithic Material Concentration	Eligible
24RV0699	Precontact Stone Circle	Unevaluated
24RV0723	Precontact Stone Circle	Unevaluated
24RV0727	Precontact Lithic Material Concentration	Unevaluated
24RV0737	Precontact Rock Cairn(s)	Unevaluated
24RV0971	Historic Lewis and Clark Trail (Roosevelt County Segment)	Eligible

The majority of previously recorded sites within the proposed lease parcels are precontact which can be classified into four functional types – habitation, procurement, industrial, and ritual – as determined from features, artifacts, and other cultural remains present.

Habitation sites consist of features/materials which indicate everyday domestic activities including, but not limited to, clothing construction and food preparation. Examples of such sites are debris scatters (middens or trash scatters), hearths, cairns (stone piles), and tipi rings.

Procurement sites consist of features representing specific subsistence activities such as hunting bison, deer, or pronghorn, and gathering wild plants. Buffalo jumps, traps, and impoundments (with associated processing areas) are the most common procurement sites in the resource area. Such sites are characterized by large deposits of bones at the base of bluffs and cliffs or in steep coulees.

Industrial sites are generally represented by scatters of stone waste debris (debitage), hammer stones, rough or damaged tools, and chunks of fine-grained stone and quartzite. The best source material can be found in Valley and Phillips Counties.

Ritual or ceremonial sites include rock art panels, burials, medicine wheels, intaglios, cairns, and rock or wooden vision quest structures.

### **Archaeological Site Density and Distribution**

The average site density for prehistoric sites in the general area has been calculated at one site per 66 acres (Walker-Kuntz and Walker-Kuntz 2007, 49). This site density figure is misleading because the sites are not randomly distributed across the landscape but are more numerous in some areas than in others.

The archaeological site distribution pattern of the glaciated prairie is considered quasi-random in nature; that is, sites are distributed randomly across large portions of the landscape, without regard to general landform types or environmental zones, but there are also certain areas where sites are concentrated. The random distribution pattern occurs in the undifferentiated uplands of the glaciated prairie or rolling

hinterlands; the sites found here are invariably small habitation and industrial types (tipi rings, cairns, and lithic scatters).

The concentrated pattern occurs along the principal drainages or in moraine areas; these areas contain large numbers of small and large habitation sites, as well as most procurement and ritual/ceremonial sites. Also, site densities appear to vary with respect to ecological zones (sagebrush/grass plains, river breaks, forested escarpments and plains, and forested mountains and foothills), and sites tend to be concentrated on major topographical features (ridges, buttes, escarpments, stream terraces, toe slopes, etc.)

### **Historic Trails**

Parcels in the project area that are in close proximity to the L&C NHT include MT-2025-04-0413. The trail in the project area consists of a water route that runs along the Missouri (Lake Sakakawea Reservoir) and Yellowstone Rivers and an auto tour route that is part of existing highways in North Dakota. The auto tour route, consists of State Highway 23, State Highway 200, State Highway 1804, State Highway 1806, State Highway 58, US Highway 85, US Highway 2, and Interstate 94. The landscape consists of the river valleys, associated tributaries, butte-like hills, badlands, and rolling hills. Contemporary and commercial development in the area includes hydroelectric dams, recreation areas, private cabin sites, agricultural infrastructure, and oil and gas infrastructure, and municipal infrastructure. The water route passes through the townships of New Town, ND, Four Bears Village, ND, and Williston, ND, Poplar, MT, Wolf Point, MT, Sidney, MT, Glendive, MT, Miles City, MT, and Forsyth, MT. The trail also passes through two reservations in the project area: Fort Berthold Reservation and Trenton Indian Service Area in North Dakota and Fort Peck Reservation in Montana.

### **Historic Site Types:**

Historical sites in eastern Montana are typically associated with westward expansion of the United States and generally postdate 1890. Historic Period sites that predate 1890 are rare in the area and are usually associated with engagements between the United States military and Native American tribes or the occasional trading post. Sites that postdate the 1890s are primarily associated with homesteading and associated land use needs. The bulk of the known Historic Period sites consist of homesteads/farmsteads and residences, many of which consist of foundations, depressions, and other remnant or ruined architecture. In addition to residences, other cultural resources associated with homesteading include agricultural and ranching infrastructure, such as irrigation ditches, livestock watering facilities, fences, corrals, and trash disposal locations. Access routes to residences and water are also common in the region, and historical transportation sites – including but not limited to railroads, highways, residential access roads, and bridges – are among the most common site types (Aaberg et al. 2006). Historical sites associated with mineral extraction and industrial development – including but not limited to mines, wells, power alignments, communications lines and towers, and associated access routes – begin appearing in the 1920s, with intensive development generally postdating 1950.

#### **3.4.4.1 No Action Alternative**

Under the No Action Alternative, the BLM would not offer any of the nominated parcels in this lease sale. However, in the absence of a Land Use Plan Amendment closing the lands to leasing, they could be considered for inclusion in future lease sales. If the parcels are not available to be leased and potential development on or near the proposed parcels would not occur, then no impacts to cultural resources would be expected from potential oil and gas development. The No Action Alternative would result in the continuation of already-approved land uses and would not result in new impacts related to exploration of the proposed oil and gas lease parcels.

### 3.4.4.2 *Proposed Action*

Under Alternative B, 29 parcels encompassing approximately 9,101.65 acres would be offered for sale. Those parcels that are successfully leased will generate Federal bonus bid revenue and annual rents, which will be collected on leased parcels not held by production. While the leasing action does not directly result in development that would generate surface disturbance, potential future development of the leased parcels are reasonably foreseeable and can be estimated for the purposes of this lease sale.

Due to horizontal directional drilling on fee land, federal and private mineral interests on lease parcels can be reached from a surface location near, but not on, federal property. Some of the parcel's surface is submerged by water. For this reason and per the BLM lease stipulations and USFS lease stipulations to include no surface occupancy, any proposed development scenario would likely come from a pre-existing pad off-lease.

There are many existing anthropogenic impacts which may be considered historic properties such as municipalities, roads, reservoirs, etc. along much of the Lewis and Clark Trail. The BLM and USFS have applied stipulations to the lease parcels for the protection of the historic and cultural resources that include HQ-CR-1 and Standard 16-3 which would require the BLM to complete its obligations under NHPA and other authorities to include consultation with the NPS, and Standard 16-3 which requires the submission of an APD and potentially a site-specific cultural resource inventory prior to any proposed surface disturbance. Specifically, a Controlled Surface Use Stipulation (CSU 12-33), Lease Notices LN 14-2, LN 14-14, LN 14-22, and a No Surface Occupancy Stipulation (NSO 11-83) have been applied to the applicable previously mentioned parcels to protect the trail resources.

At the time of development, the APD and proposed surface use plan of operations will include design features and mitigation measures to reduce, avoid, or minimize potential impacts to the historic and cultural resources based on results of the prerequisites of the stipulations.

### **Cultural resources and Native American Religious Concerns**

Consultation, collaboration, and coordination for the identification of cultural resources and mitigation of disturbance or detrimental effects is robust and ongoing. The BLM has applied lease terms and stipulations to proposed parcels that include HQ-CR-1, Standard 16-3, LN 14-2, LN 14-14, LN 14-22, LN 14-33, and NSO 11-84 (see **Appendix B** for definitions). The result of the applying these stipulations at leasing provides protection to cultural resources. The BLM will not approve any ground disturbing activities that may affect such properties or resources until it completes its obligations associated with the stipulations that are applied to each respective parcel as well as applicable requirements of the National Historic Preservation Act and any 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 potentially negative effects that cannot be successfully avoided, minimized, or mitigated. Within the administrative boundaries of the USFS Dakota Prairie Grasslands, LMG2020-LN-03 is applied to protect these resources on all the parcels in North Dakota.

In addition, the BLM will apply COAs to protect such properties, which may affect or limit oil and gas development. Through tribal consultation, such measures may include COAs to mitigate audible and visual impacts to sensitive TCPs. The processing of lease development applications is a separate undertaking that would be analyzed through the Section 106 process at that time, as directed in law, regulation, and policy. No specific Native American concerns have been identified on the subject lease parcels; however, this consultation is considered ongoing. If the nominated parcels are leased, future potential development would go through separate NEPA and NHPA processes as directed by regulation and current policy.

## **The Native American Graves Protection and Repatriation Act (NAGPRA)**

NAGPRA establishes a clear protocol when human remains and associated artifacts are unearthed on federal land, whether during an archaeological survey or a construction project. Under this law, the discovery triggers an immediate pause in activity, requiring the responsible party to promptly notify the appropriate federal agency. The surface management agency then takes on the responsibility of reaching out to local Native American tribes who may have ancestral or cultural ties to the site, ensuring they are brought into the process early on.

In the government-to-government consultations, tribal representatives play a vital role, sharing insights into cultural and spiritual importance of the remains. Tribes often advocate for the need to treat these discoveries with the utmost respect, emphasizing that the remains are not artifacts but sacred connections to their heritage. Typically, the tribes request the repatriation of these items, seeking to restore them to their rightful place within their community.

The federal agencies involved take careful steps to document the findings, creating a detailed record of the remains and artifacts to ensure transparency and accountability. This process paves the way for their eventual return to the tribes. The repatriation often culminates in a reburial ceremony, where tribal members come together to honor their ancestors. These ceremonies are steeped in tradition, featuring rituals that reflect the tribe's spiritual beliefs and practices to include songs, prayers, or offerings—designed to lay the remains to rest with dignity and reverence.

This entire process serves as a reminder of the need for cultural sensitivity and open, respectful communication when dealing with archaeological discoveries tied to Native American history. It highlights how legal frameworks like NAGPRA can bridge the gap between modern land use and ancient heritage, fostering collaboration between federal entities and tribal nations to honor the past while navigating the present.

## **Cumulative Effects**

Given the limited disturbance estimated in the reasonably foreseeable development scenario (See Chapter 2, **Table 3.1**), the potential for future development associated with the Quarter 3, September 2025 lease sale to contribute to the cumulative impacts of cultural resources is correspondingly limited and likely negligible. The mitigation discussed for the L&C NHT is applied to the lease parcels and the likelihood of off-lease development negates any negative impacts to the L&C NHT as a result of leasing the listed parcels. Any off-lease development will be authorized by the BLM at the time of APD approval and will be administrated through BLM guidance, specifically BLM IM 2018-014.

As previously stated, Tribal consultation and coordination is ongoing for all BLM projects. Chapter 4 contains a summary of consultation and coordination for this analysis, as well as a list of all tribal entities, governments, and historic preservation officers contacted to participate in the writing of this EA. A single scoping comment was submitted by Tribal entities. The Northern Arapaho THPO assessed the likelihood of encountering religious and culturally significant sites as high. They requested to be informed and supplied with a cultural resource inventory report at the time an APD is submitted. The stipulations applied to each lease parcel (specifically HQ-CR-1 and STD 16-3) and applicable laws prohibit surface disturbance on any lands that may have possible historic properties and/or protected resources. These resources include, but are not limited to: locations associated with the traditional beliefs of Native American groups about its origins, culture history, and nature of the world; a location where Native American religious practitioners have historically gone, and are known to go today to perform ceremonial activities in accordance with traditional cultural rules of practice; a location where an identifiable community has carried out economic, artistic, and other cultural practices important in maintaining its historical identity, or any other Traditional Cultural Property not described here. As such, with continued

coordination and consultation and adherence to laws and regulations, any detrimental effects to Cultural and Native American Religions concerns could be fully mitigated.

**Native American Religious Concerns:** Native American belief systems and traditional practices can vary widely across traditional tribal lands and require ongoing consultation and coordination to ensure that an action authorized by the BLM will not impede upon or impair practices or locations that are deemed as Traditional Cultural Properties or are otherwise important. The BLM applied HQ-CR-1 to all parcels that may have possible 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 purchaser of a lease is entitled to develop the parcel consistent with lease stipulations and must have an approved Application for Permit to Drill (APD), including a plan of operations and a review and consideration of Native American religious concerns, before ground disturbing activities can begin. The BLM may require modification to exploration or development proposals to protect unevaluated, eligible, or other such properties, or disapprove any activity that is likely to result in potentially negative effects that cannot be successfully avoided, minimized, or mitigated.

### **3.4.5 Issue 5: Big Game**

#### ***What are the effects to pronghorn winter range and migration routes if the parcels nominated in the September 2025 lease sale are leased and subsequently developed for oil or gas production?***

In 2015, the BLM approved Record of Decisions and Approved Resource Management Plans and Amendments for the Rocky Mountain Region, which includes the Miles City Field Office. The Miles City field office designated pronghorn antelope a priority species (i.e., Miles City RMP FEIS, vol. 1, 3-45). BLM planning guidance (Handbook 1601-1) provides direction for the designation of priority species and priority habitat for management for fish or wildlife species recognized as significant for at least one factor such as density, diversity, size, public interest, remnant character, or age. For priority species and habitat, H1601-1 provides that the BLM shall:

Describe desired habitat conditions and/or population for major habitat types that support a wide variety of game, non-game, and migratory bird species; acknowledging the states' roles in managing fish and wildlife, working in close coordination with state wildlife agencies, and drawing on state comprehensive wildlife conservation strategies. Identify actions and area-wide use restrictions needed to achieve desired population and habitat conditions while maintaining a thriving natural ecological balance and multiple-use relationships.

During the 2015 RMP revisions, Miles City coordinated with Montana Fish, Wildlife, and Parks (MTFWP) to identify crucial winter range for big game species. At the time of the RMP revision, data was only available to identify crucial winter range for mule deer. MTFWP identified large blocks of general winter range for pronghorn, but data was lacking to map discrete areas of crucial winter range more accurately in the RMP. The RMP does not identify migration corridors for any big game species.

Consistent with H 1601-1, the BLM developed CSU 12-26 to facilitate long-term maintenance of big game wildlife populations and applies the stipulation to parcels located in crucial winter range, which states:

CSU 12-26: Surface occupancy and use is subject to the following operating constraint: prior to surface occupancy and use within crucial winter ranges for big game wildlife, a plan must be approved by the Administrative Officer that maintains the functionality of habitat.

CSU 12-26 may be subject to a variety of waivers, exceptions, or modifications (WEMs) if the Administrative Officer finds that:

- The action will not impair the function or suitability of the winter range habitat,
- Portions of the leasehold no longer contains viable winter range,
- Wintering animals no longer occupy significant portions of the area, and/or
- There is no reasonable likelihood of future use (the specific language varies by stipulation).

On November 15, 2018, the BLM issued Secretarial Order 3362: Site Specific Management Activities to Conserve or Restore Big Game Habitat. SO 3362 emphasizes the importance of conserving and improving elk, mule deer, and pronghorn habitat. In particular, S.O. 3362 directs that the BLM “appropriately apply site-specific management activities, as identified in State land use plans, site-specific plans, or the Action Plan that conserve or restore habitat necessary to sustain local and regional big-game populations...” Site-specific management activities that can help conserve or restore big game habitat as outlined in S.O. 3362 include avoiding development in the most crucial winter range or migration corridors during sensitive seasons, minimizing development that would fragment winter range and primary migration corridors, and limiting disturbance of big game on winter range.

For the July 2019 and subsequent lease sales, In the interim, BLM developed Lease Notice 14-40 for MFTWP identified pronghorn general winter range, which states:

**Lease Notice 14-40:** The lease area may contain habitat for big game winter range and/or migration corridors delineated by Montana Fish, Wildlife and Parks. The lessee/operator is given notice that prior to project-specific approval, the authorized officer may require modifications to exploration and development proposals to conserve or restore habitat necessary to sustain local and regional big-game populations (Secretarial Order 3362, November 15, 2018, and 43 CFR 3101.1-2). The objective of the requirements would be to conserve, restore, minimize, avoid and/or limit activities that could impact habitat for big game winter range and/or migration corridors. Site-specific requirements would be identified during environmental review processes and would be developed into the project proposal as terms and conditions of the subsequent approval.

In 2020 MTFWP initiated several studies of pronghorn seasonal use areas and migration corridors across the state, including distinct populations in Garfield and Rosebud Counties in eastern Montana. The study concluded in 2023. In 2024, MTWF published final results of the pronghorn telemetry research. In the Rosebud-Garfield Study area, MTFWP fitted 91 female pronghorn with GPS collars and monitored the movements of those individuals. Of the 91 pronghorn collared, 47 died and 3 collars malfunctioned (DeVoe et al. 2024, 16). This study identifies pronghorn movements in the vicinity of the proposed lease parcels in Rosebud County (0270 and 0403).

Of the 29 nominated parcels in the September 2025 sale:

- Two parcels are in MTFWP identified pronghorn general winter range in Rosebud County (0270 and 0403). BLM applied LN 14-40 to these parcels.
- LN 14-40 was applied to nine parcels in Richland and Roosevelt Counties within MTFWP identified mule deer winter range within the Miles City Field Office (0419, 0422, 0426, 6957, 0420, 0421, 0427, 6955, and 6959).

- Parcel 0367 is within RMP designated big game winter range. BLM applied TL 13-48.
- One of the North Dakota parcels (6880) contains state- mapped bighorn sheep lambing and winter range. BLM applied TL 13-18 and TL 13-19.
- Two of the North Dakota parcels (6880 and 6879) are within big game birthing areas. BLM Applied TL 13-53.

For the reasons discussed above, this analysis considers effects to pronghorn winter range and migration routes from road density and oil and gas well pad density for the Rosebud County Montana Parcels, which are two factors known to affect big game habitat effectiveness.

### **3.4.5.1      *Affected Environment***

Pronghorn antelope are one of the most common big game animals found throughout the State of Montana where adequate habitat remains. In 2024, MTFWP estimated there were 121,296 pronghorn distributed across portions of southwestern, central, and eastern Montana, down from 133,434 in 2023 and 155,279 in 2022. (Montana Fish, Wildlife, and Parks 2024) In the spring of 2023, Montana experienced late winter conditions, which may offer a possible explanation for the decline in pronghorn population numbers from 2022 to 2023.

MTFWP notes that pronghorn populations were abundant, and at or above regional population objectives/long-term averages (LTAs) throughout their range in Montana during the mid-2000s with harvest totaling 33,500 at the latest peak in 2007. Following widespread blue-tongue virus (BTV) outbreaks in the subsequent two years, then the record cold and snowy winter in 2010-2011, harvest fell to a low of 8,200 in 2013. Pronghorn populations typically rebound quickly with favorable weather conditions, yet numbers of pronghorn in many of FWP administrative region 4, 5, 6, and 7's hunting districts (HDs) are less than 50 percent of population objective despite multiple years of favorable weather and minimal harvest. Rosebud lies within region 7. Pronghorn populations in Garfield and Rosebud Counties have not fully rebounded after the BTV and severe winter related declines. (FWP pronghorn proposal 2019).

The optimum habitat for pronghorn consists of open, rolling sagebrush grassland, as free from human disturbance as possible. Browse, primarily sagebrush, is vital in the pronghorn diet. Pronghorn utilize the sagebrush grassland habitats almost exclusively during the winter (HiLine FEIS, vol. 1, 423). In eastern Montana, crucial winter habitat is largely contained within identified greater sage-grouse priority habitat and at lower levels within crucial mule deer winter range (Miles City FEIS, vol. 1, 3-48).

In a recent study of migration behavior of pronghorn on their northern range in Alberta and Saskatchewan, Canada and northeastern Montana, Jakes et al. (2018) found that 55 percent of individuals undertook seasonal migrations. Migrating pronghorn captured in Montana or Saskatchewan traveled a mean Euclidean distance of 66.4 km (41.3 miles) in the spring, and 51.8 km (34.2 miles) in the fall. The longest annual migration in the Jakes et al. (2018) study was by an individual migrating a Euclidean distance of 435 km (270.3 miles) and 888 km (551.8 miles) measured pathway distance. Jakes et al. (2018) also documented facultative winter migration, where pronghorn moved from one winter range to another in response to extreme weather events. In another recent study in northeastern Montana, Tack et al. (2019) notes that pronghorn in northeastern Montana have been observed switching between migratory and resident behavior, although losing migration behavior would likely reduce regional populations that are more vulnerable to human- dominated landscapes. In MTFWP's pronghorn study, Devoe et al. (2024), individuals exhibited a range of movement patterns, but a majority of individuals demonstrated non-



migratory behaviors in all studied areas except the Big Hole. Roughly a third of collared individuals in the study switched migratory strategies each year.

As noted in the FEIS for the HiLine RMP, higher densities of permanent facilities and roads have been found to increase adverse impacts to wildlife, although investigations on landscape-level effects have only been completed on a few species. Donovan et al. (2024) identified a relationship between the increasing oil and gas development and long-term decline in pronghorn productivity in Wyoming herd units. Their model selection analysis revealed that the cumulative number of oil and gas wells is the strongest predictor of these productivity declines within units. Ungulates predictably avoid areas during active exploration and drilling, moving to denser cover and areas farther from human activity. Kolar (2009) studied resource selection of pronghorn in North Dakota between January 2005 and March 2008. During the summer, pronghorn were twice as likely to use areas that were greater than 1 km (0.6 mi) from primary roads (paved) and were two times more likely to use areas greater than 3.1 km (1.9 mi) from secondary roads (high grade gravel and maintained county roads) than areas less than 3.1 km (0.6 mi) from secondary roads. Pronghorn avoided secondary roads in the winter and were 7.5 times less likely to select areas within 1 km (0.6 mi) from secondary roads than they were to select areas beyond 3.1 km (0.6 mi) (Kolar 2009).

In a study on factors influencing seasonal migrations of pronghorn across the northern sagebrush steppe, Jakes et al. (2018) found that pronghorn avoided spring stopover sites with increased well densities while they avoided fall migration pathways with increased road densities. Jakes et al. (2018) further identified priority corridors through Canadian Forces Base (CFB) Suffield grassland complex in Alberta Canada, despite a high density of oil/natural gas development. He notes that innovative infrastructure at CFB Suffield keeps most of the oil/natural gas operations underground and close to the limited number of roads on base (Jakes, 2015, 176).

Across studies, ungulates showed avoidance responses to human development an average of 1 km (0.62 miles) from the human disturbance (Hebblewhite 2008, 108; Jakes et al. 2020). When they are consistently applied, seasonal use restrictions are a valuable tool for limiting disturbance to wildlife at sensitive times of year. However, seasonal restrictions are currently limited to exploration and drilling phases of oil field development. Oil and gas operations also disturb and displace wildlife throughout a production life of up to 40 years and longer (Wyoming Game and Fish 2010). A 15-year study of resident pronghorn in the Greater Yellowstone Ecosystem found that mean avoidance distance from well pads in winter habitat increased over time by 22 percent and that pronghorn dispersal from the area increased by 57 percent as the study area was developed from a well density of 0.18 per km<sup>2</sup> (0.11 mi<sup>2</sup>) to 5.45 per km<sup>2</sup> (3.39 mi<sup>2</sup>) (Sawyer et al. 2018). In the north sagebrush steppe pronghorn populations in Montana and Alberta, Jakes et al. (2020) found that anthropogenic disturbance features, including road, oil, and natural gas well densities, were a primary factor in determining pronghorn migration habitat selection.

Wyoming Game and Fish identified impact thresholds based on well pad densities and acreages of disturbance that correspond to *moderate*, *high*, and *extreme* impacts to habitat effectiveness. **Habitat effectiveness** refers to the degree to which a habitat or its components fulfill specific habitat functions, or the degree to which a species or population is able to continue using a habitat for a specific function. All three levels of impact – moderate, high, and extreme – result in a loss of habitat effectiveness. To the extent reasonable, seasonal use restrictions, standard management practices, and appropriate habitat mitigation could be applied at all levels of development to avoid and minimize impacts. Impact thresholds for crucial pronghorn winter range are identified in **Table 3.15** below.

**Table 3.15 Impact thresholds for terrestrial resources**

	Category of Impact
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Species and Habitat Function	Moderate	High	Extreme
Pronghorn Crucial Winter Range	1-4 well pad locations or <20 acres disturbance per square mile	5-16 well pad locations or 20-80 acres disturbance per square mile	>16 well pad locations or >80 acres disturbance per square mile

**Source:** Recommendations for Development of Oil and Gas Resources within Important Wildlife Habitats, Version

#### 6. Wyoming Game and Fish, April 2010.

- **Moderate Impact:** Impairment of habitat function becomes discernable – however the impact can be significantly reduced or eliminated through seasonal use restrictions, standard or best management practices.
- **High Impact:** Impairment of habitat function increases – the impact will be more difficult or at times impossible to effectively mitigate within the project area. The impact can be reduced, but probably not eliminated through seasonal use restrictions and more intensive management and mitigation practices.
- **Extreme Impact:** Habitat function is substantially impaired or lost – the impact cannot be fully mitigated within the project area but can be partially reduced through seasonal use restrictions and intensive management and mitigation practices.

In a study of wildlife and energy development in the Upper Green River Basin of Wyoming, Beckmann found that pronghorn have a higher probability of use closer to well pads, when habitat loss from surface disturbance is less than five percent. Overall, though, probability of use declines as the distance to the nearest well pad increases. On average, habitat patches with the highest probability of use have 3.8 percent surface disturbance due to construction of roads and well-pads versus 5.3 percent and 5.2 percent surface disturbance for patches with high to medium use, respectively (Beckman et al. 2011, 79 - 84).

Beckman et al. (2011) also reported that across all winters except 2005, pronghorn utilized areas closer to gas wells when snow depths were greater, perhaps using associated roads to facilitate movement. In general, barring 2005, the interactive snow depth parameters suggest that when snow is deeper, pronghorn are more likely to use areas closer to disturbance and wells, likely because those disturbed areas are situated in the most crucial pronghorn winter habitat that becomes necessary during winters of high snowfall. Beckman suggested that true impacts of gas field development may only be seen during the most severe winters in the Upper Green River Basin when animals are forced by higher snow depths to utilize other parts of the gas fields (Beckman et al. 2011, 95).

### Analysis Methods

BLM assessed baseline condition of open road density and oil and gas well pad density in a 1705.7mi<sup>2</sup> (41.3 miles x 41.3 miles) area surrounding the lease parcels, which are metrics reported in the cited literature to influence pronghorn movements and habitat use. The size of the analysis area was selected because 41.3 miles is the mean spring migration distance reported by Jakes et al. (2018) in northeastern Montana, and is a large enough area to capture direct, indirect, and cumulative effects (Jakes et. al. 2018). The analysis area represents the best available information regarding pronghorn seasonal migration in eastern Montana. Migration distances in other places including Wyoming, North Dakota, Idaho, and Alberta, Canada reported both larger and smaller pronghorn migration distances. Although the pronghorn populations for Saskatchewan and northeastern Montana are located in the Northwestern Glaciated Plains ecoregion (characterized by gently rolling grassland plains and hills) and central eastern Montana is

located in the Northwestern Great Plains ecoregion (characterized by rolling shale plains moderately dissected with flat-topped buttes and badlands). The Northern Glaciated Plains ecoregion is more representative of habitat types found across eastern Montana than the other ecoregions. Migration distances reported for southwestern Wyoming (Middle Rockies and Wyoming Basin ecoregions) were not used, specifically because pronghorn must travel longer distances around mountains, which are lacking in eastern Montana. The average spring migration distance for study areas in MTFWP's pronghorn movement study is 28.6 miles (DeVoe et al. 2024). The size of the analysis area captures habitat effectiveness beyond the average distance for spring migration from the MTFWP telemetry project.

Within this analysis area, BLM used TIGER data to identify open roads; TIGER roads line and shapefile data are an extract of selected geographic and cartographic information from the U.S. Census Bureau's Master Address File / Topologically Integrated Geographic Encoding and Referencing (MAF/TIGER) Database (MTDB). The MTDB represents a seamless national file with no overlaps or gaps between parts, however, each TIGER/Line shapefile is designed to stand alone as an independent data set, or they can be combined to cover the entire nation (<https://catalog.data.gov/dataset/tiger-line-shapefile-2017-nation-u-s-primary-roads-national-shapefile>). Due to the broad scale coverage of TIGER data across the nation, it is not going to include every road on the landscape, especially unimproved two track roads. However, it provides a consistent dataset for identifying improved roads across large geographic areas and across state lines. BLM used State of Montana data to identify all currently producing oil or gas wells. Closed and abandoned wells were excluded because they would have minimal to no effect on big game.

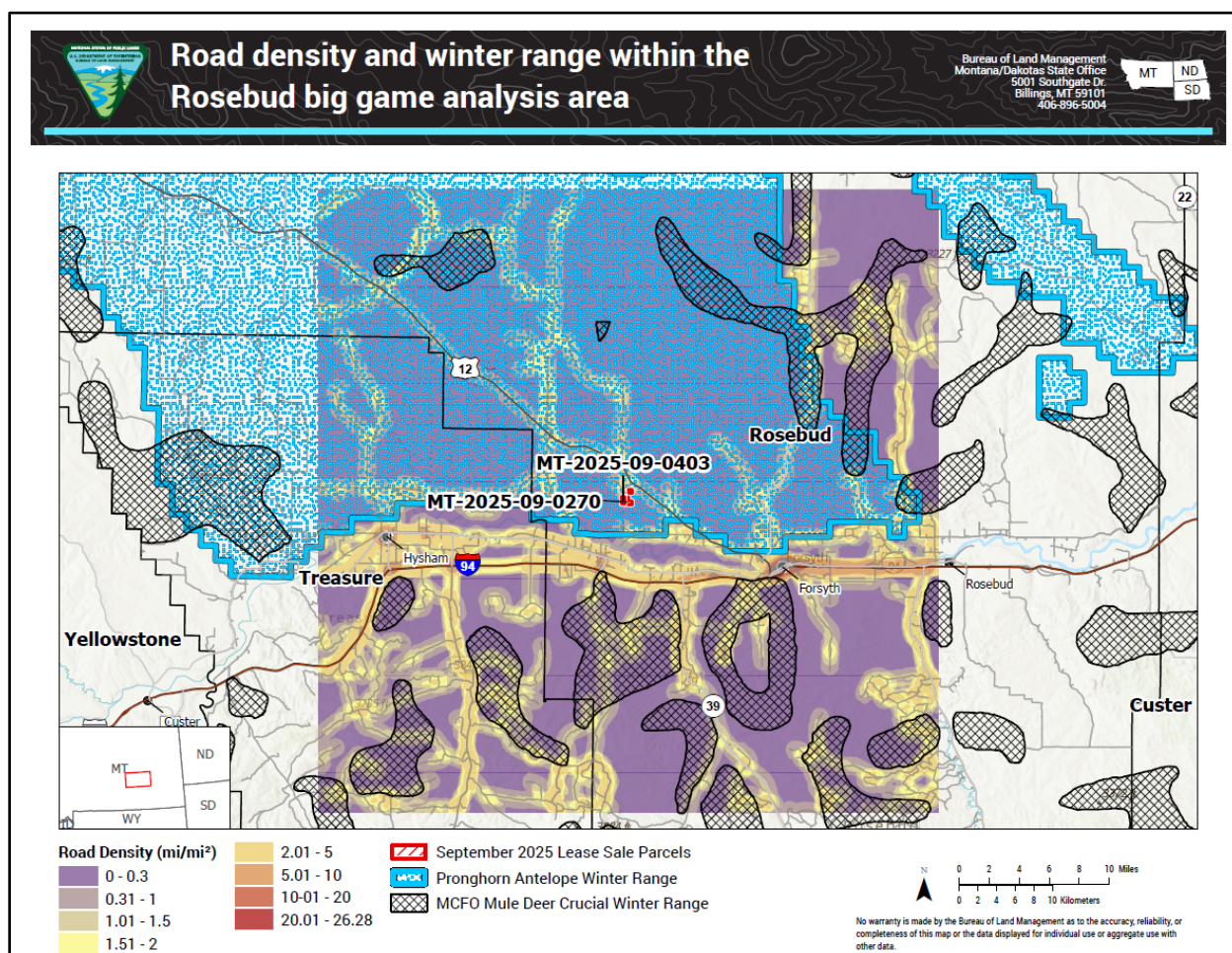
## Road Density

The threshold of open road development used in the Billings RMP to minimize impacts to big game winter range and calving areas from roads is 1.0 mi/mi<sup>2</sup>. Overall, approximately 71.53 percent of the analysis area provides areas with road densities less than 1.0 mi/mi<sup>2</sup>. Pronghorn are most likely to use these areas. Approximately 11.76 of the analysis area has a road density between 1.01 mi/mi<sup>2</sup> and 1.5 mi/mi<sup>2</sup>, which corresponds to a moderate impact. Literature suggests that pronghorn would use these areas to a lesser degree than the areas free from roads but may use roads to facilitate movement during winters with high snowfall. Approximately 16.71 percent of the analysis areas are highly impacted by open roads. There are areas that pronghorn would likely avoid except during extreme winters. Refer to **Table 3.16** below and **Figure 3.14**.

**Table 3.16 Road density within a 1705.7 mi<sup>2</sup> analysis area centered around Rosebud County parcels**

Road Density (mi/mi <sup>2</sup> )	Percent of Analysis Area	Degree of Impact
0-0.30	56.09	Very Low
0.31-1.0	15.44	Low
1.01-1.5	11.76	Moderate
1.51-2.0	6.63	High
2.01-5.0	9.00	Very High
5.01-26.28	1.08	

**Figure 3.14 Road Density and winter range within the Rosebud big game analysis area**





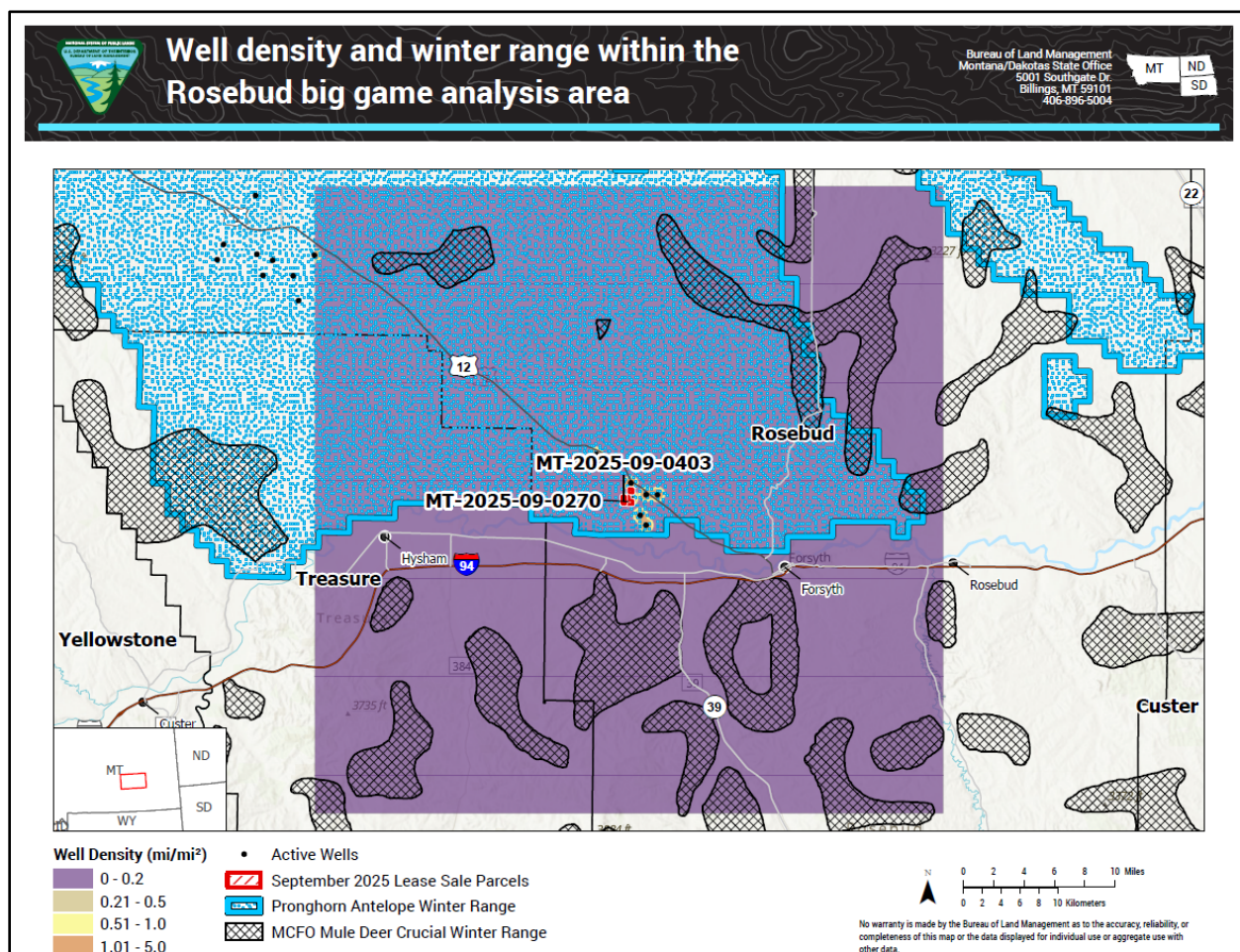
## Well Pad Density

Using the thresholds identified by Wyoming Game and Fish, approximately 99.64 percent of the Analysis Area is free from oil and gas development (i.e., not impacted), approximately 0.16 percent have a low level of impact, 0.20 percent are moderately impacted, 0 percent are highly or extremely impacted. Refer to **Table 3.17** below and **Figure 3.15**.

**Table 3.17. Well Density in 1705.7 mi<sup>2</sup> analysis area around the Rosebud County Parcels**

Well Density (wells/mi <sup>2</sup> )	Percent of Analysis Area	Degree of Impact
0 - 0.2	99.64	None
0.21 - 0.5	0.07	Low
0.51 - 1.0	0.09	Low
1.01 - 5.0	0.20	Moderate
5.01 - 10.0	0	High
10.01 - 20.0	0	High
20.01 - 31.0	0	Extreme

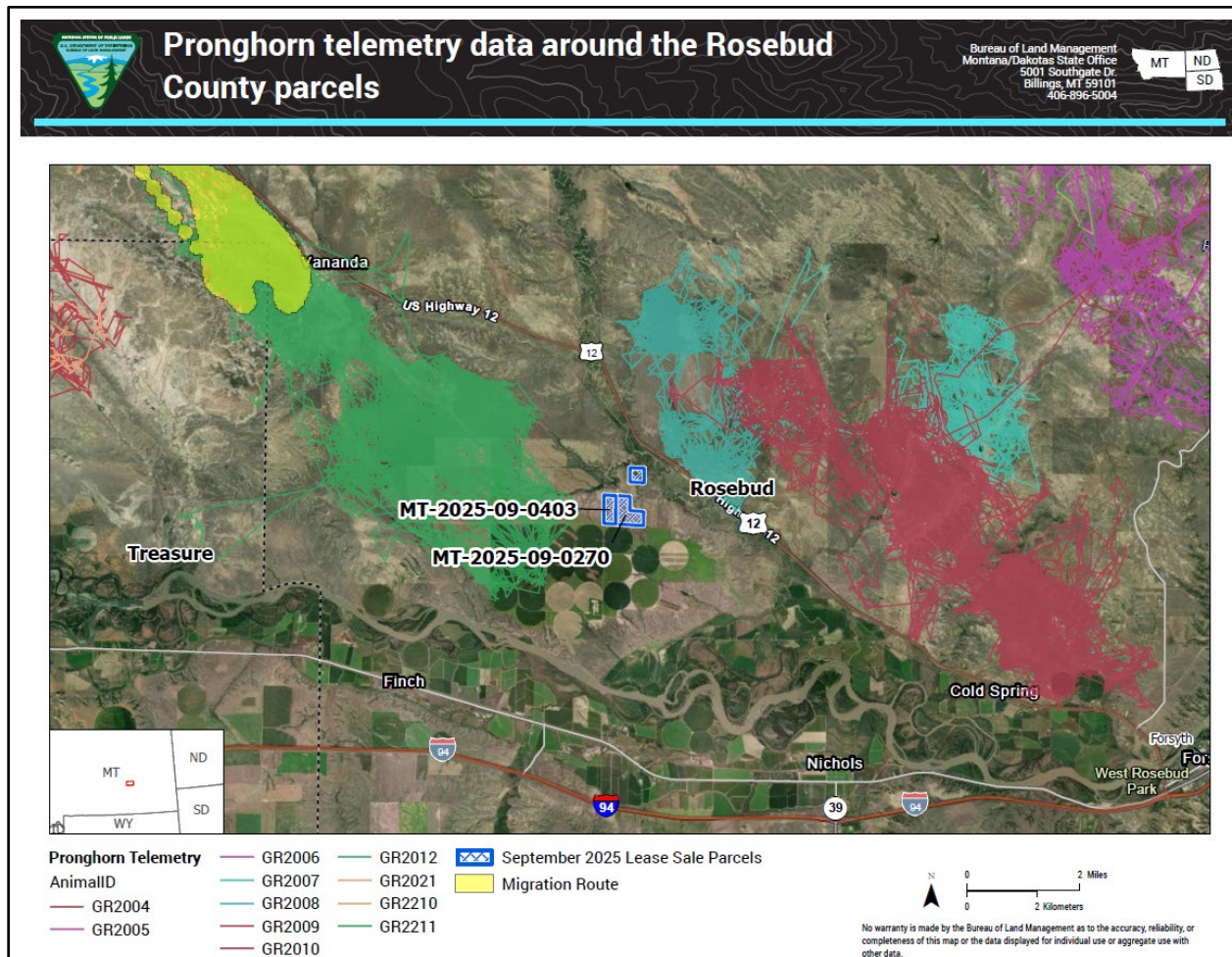
**Figure 3.15 Well Density and winter range within the Rosebud big game analysis area.**



## Telemetry Data

The BLM reviewed telemetry data from a three-year study in Rosebud and Garfield Counties to evaluate pronghorn movements. BLM compared the data to the road density and oil/gas well pad density models, and reviewed data for proximity to the proposed lease parcels. The data indicates that 24 collared pronghorn occupied the analysis area during the study. Collared pronghorn occupy the northern portion of the analysis area, north of Interstate 94 and the Yellowstone River. Pronghorn likely occupy the southern portion of the analysis area as well, but there were no collared animals from the MTFWP telemetry study in that area. Pronghorn form mixed-sex groups that can number into the hundreds some years in the late/fall winter, so it is a valid assumption that there are additional pronghorn occupying and traveling through the analysis area with the collared individuals. By comparing the preliminary results of the telemetry data with the location of proposed lease parcels, it is apparent that pronghorn are wintering to the east and west of the proposed lease parcels. The data does not show any pronghorn activity within the parcels. The telemetry data also validates the road density and oil/gas well pad density models, showing that pronghorn are spending the majority of their time in areas identified as having high habitat effectiveness. Refer to **Figure 3.16**.

**Figure 3.16. Pronghorn Telemetry data around the Rosebud County parcels**



### **3.4.5.2 No Action Alternative**

Under no action, BLM would not hold the September 2025 oil/gas lease sale. None of the parcels would be offered for sale, sold, or subsequently developed. Therefore, there would be no effect to pronghorn general winter range from this action. Pronghorn general winter range would continue to be influenced by baseline open road and well pad density.

Overall, baseline development patterns suggest that high road density reduces habitat effectiveness to a larger degree compared to oil and gas well pad density. Approximately 17 percent of the analysis area is comprised of areas containing high road density compared to zero percent containing high oil and gas well pad density. Telemetry data suggests that Hwy 12 serves as a barrier to pronghorn movement, with numerous individuals residing on either side of this highway without crossing it. Only a few individuals were documented crossing this highway during any season.

Other disturbances on the landscape may also influence habitat effectiveness. Migratory populations of both sage-grouse and pronghorn in the Northern Great Plains have demonstrated avoidance of cultivated lands (Tack et al. 2019). In winter, nutrient-rich vegetation is scarce, and the majority of pronghorn's diet consists of evergreen browse, mainly sagebrush species that protrude through the snow. However, during the summer, forage quantity is peaked and pronghorn forage on diverse vegetation, including forbs, legumes, and perennial crops (Jakes 2015). Approximately 7.22 percent of the Rosebud County analysis areas is cultivated or altered with some other anthropogenic disturbance. Telemetry data in the area show pronghorn avoiding certain cultivated lands. Additionally, fences within the Garfield-Rosebud study area serve as a barrier to daily and seasonal pronghorn movements (DeVoe et al. 2022).

While these factors suggest that habitat effectiveness may be reduced across portions of the analysis area, telemetry study results show identified pronghorn migration routes and seasonal ranges throughout the northern portion of the analysis area. MTFWP developed an integrated population model (IPM) to identify factors affecting pronghorn population growth across study areas, including the Rosebud-Garfield area that a portion of the analysis area falls into. The IPM results for Hunting District 701, which the Rosebud County parcels fall into, show population growth being positively correlated with 4-month recruitment and adult female survival. The model suggests populations in eastern Montana have been stable since 2015 (Devoe et al. 2024).

### **3.4.5.3 Proposed Action**

Offering parcels for lease would not result in immediate ground disturbance. However, once a lease is sold the lessee maintains valid existing rights to the federal mineral resource. Effects to pronghorn general winter range could occur later in time when a lease is developed. At the leasing stage the specific location and extent of development is unknown. The BLM would complete project specific NEPA analysis when an Application for Permit to Drill (APD) is submitted. It is at this time that project specific avoidance, minimization, and mitigation measures would be identified. This analysis looks at the parcels in aggregate and discusses potential effects from future development on or surrounding the lease parcels should it occur.

As summarized in **Table 3.1** and detailed in **Appendix D**, the BLM estimates that two to three oil and gas wells could be drilled on the Miles City Field Office parcels, resulting in about 5-11 acres of short-term and 1-4 acres of long-term disturbance. The Rosebud parcels have low development potential. Parcels 0270 and 0403 in Rosebud County are the least likely to be developed of the parcels in Miles City Field Office. These parcels are also unlikely to be developed due to their involvement in a drainage case. Refer to **Appendix D**.



Oil and gas development could negatively affect pronghorn by allowing for well development during crucial timing periods, increased road density, and increased well density beyond thresholds found to be detrimental to pronghorn. **LN 14-40** would potentially require avoidance and minimization measures at the APD stage to reduce impacts to MTFWP identified pronghorn winter range.

MTFWP identified pronghorn winter range occurs in the northern half of the analysis area. The Rosebud County lease parcels are located outside of an existing oil or gas field, in an area characterized primarily by low well pad density and low to moderate road density. The distribution of existing roads across the analysis areas suggests that high road density could be reducing habitat effectiveness across portions of pronghorn general winter range (refer to Alternative A above).

Parcels 0270 and 0403 are located in a large block of pronghorn general winter range in Rosebud County that is characterized by low to moderate road and oil/gas well pad density. This area corresponds to sage-grouse habitat that BLM characterized as Category 6 in the case of parcel 0270 due to lack of disturbance and proximity to leks and Category 3 in the case of parcel 0403 due to existing disturbance and proximity to leks.

Based on the road density model and preliminary telemetry data, oil, and gas development on parcels 0270 and, 0403 would be less impactful compared to development in other portions of pronghorn winter range within the analysis area. While located in general winter range, telemetry data does not show pronghorn traveling through or spending the winter in the immediate vicinity of parcels 0270 and 0403. The road density model shows the parcels within an area of low to moderate road density, but they are close to areas of higher road density and close to Highway 12. These parcels are located in the vicinity of the few active wells within the analysis area. MTFWP delineated a pronghorn migration route from the telemetry data in the northwest portion of the analysis area, approximately 6.5 miles from the parcels. Oil and gas development to the north, east, or west of 0270 and 0403 could potentially place additional stress on pronghorn migrating between spring/summer and their winter range, result in travel disruptions, or possibly increased risk of mortality. Refer to the wildlife maps in **Figure 3.14, Figure 3.15, Figure 3.16.**

In the Rosebud County analysis area, oil/gas development is generally concentrated within a few miles of the parcels 0403 and 0270 in the center of the analysis area. There are scattered dry holes and plugged and abandoned wells throughout the analysis area. The telemetry data shows that one collared individual spent the spring in the area around one of the active gas wells but moved to undisturbed habitat for the winter. Both of the parcels are located adjacent to areas of existing oil/gas development, and new disturbance occurring on the parcels has potential to be co-located with existing disturbances. New disturbance on the parcels would be far enough from the identified migration route to not place stress on the individuals utilizing it. Oil/gas development on the parcels could reduce habitat effectiveness if not co-located, but the parcels are situated near areas of lower habitat effectiveness that the telemetry data does not show utilization of.

It is worth noting that both of the nominated Rosebud County parcels located in MTFWP pronghorn general winter range are also located in designated GHMA for sage-grouse. Because the area is in GHMA and not PHMA, neither the No Surface Occupancy stipulation nor the density disturbance cap apply. If BLM were to receive an APD for development on any of these parcels, the location a well pad and access road may need to be negotiated to reduce impacts to both pronghorn general winter range and sage-grouse habitat. The BLM may modify the siting of the proposed location by no more than 200 meters consistent with 43 CFR § 3101.1-2. The BLM may approve the application as submitted or with appropriate modifications or conditions or return the application and advise the applicant of the reasons for disapproval if project impacts cannot be adequately mitigated (43 CFR § 3162.3-1 (h)).

### **Reasonably Foreseeable (Cumulative) Effects**



The BLM reviewed previous lease parcels offered for sale since the 2015 ARMPs were approved to identify areas that may be developed in the future. As previously noted, once a lease is sold the lessee maintains valid existing rights to the federal mineral resource. While it is unknown if any particular lease parcels would be developed, it is reasonable to assume that there is continued industry interest to develop oil and gas resources in areas that are currently producing.

In Rosebud County, BLM offered 30 parcels 2015-2023, none of which are within the pronghorn analysis area. Parcels 0270 and 0403 were previously offered but not sold in 2024. If previous lease parcels are developed that do not have either the CSU or the LN, oil and gas development could encroach into pronghorn general winter range or a migration corridor without any operating constraints on disturbance. BLM started applying Lease Notice 14-40 to parcels in MTFWP pronghorn general winter range for the July 2019 and subsequent sales. There are no other previous lease sale parcels offered from 2015-2025 within the Rosebud County analysis area, therefore development without constraints on disturbance is unlikely in this area.

The Rosebud County parcels are not likely to see additional development. The water resources analysis notes that these parcels are being leased due to a communitization agreement pertaining to a well in 7N 39E Section 30. The unleased federal minerals in the Rosebud parcels within that agreement are being leased due to drainage. The BLM self-nominated these parcels to protect the federal mineral interest. The leasing of these parcels complies with pooling and well spacing requirements within the state of Montana and are not likely to result in the drilling of any new wells.

### **3.4.6 Issue 4: Greater Sage-Grouse**

***What are the direct, indirect, and cumulative effects to sage-grouse habitat from potential oil and gas development associated with the lease parcels? When a parcel stipulation is “controlled surface use”, how would on/off site development affect surrounding sage-grouse habitat in the broader landscape?***

The greater sage-grouse is an upland game bird native to Montana, North and South Dakota, and eight other western states. Due to habitat loss and fragmentation, the population of sage-grouse has declined across its range. As recently as 2015, the U.S. Fish and Wildlife Service (USFWS) considered it for listing under the federal Endangered Species Act. On October 2, 2015, USFWS published its decision (US FWS 2015) that listing was not warranted due to the commitments federal agencies and western states made to institute regulatory mechanisms and habitat protection measures.

The greater sage-grouse is classified as a BLM special status sensitive species. Under Manual 6840 (Special Status Species Management; US BLM 2008), actions authorized by the BLM shall further the conservation of Bureau sensitive species. Bureau sensitive species are managed consistent with species and habitat management objectives in land use and implementation plans to promote their conservation and to minimize the likelihood and need for listing under the Endangered Species Act. Manual 6840 directs the BLM to incorporate best management practices, standard operating procedures, conservation measures, and design criteria to mitigate specific threats to Bureau sensitive species during the planning of activities and projects.

In 2015, the BLM approved Record of Decisions and Approved Resource Management Plan Amendments (ARMPA) for the Great Basin and Rocky Mountain Regions (US BLM 2015a, US BLM 2015b), which cover the Montana/Dakotas BLM. The Billings, HiLine (Glasgow, Malta, and Havre), Lewistown, Miles City Field Offices in Montana, and North and South Dakota Field Offices are part of the Rocky Mountain Region. Lewistown completed a RMP revision in 2021. Each of these field offices manages BLM designated sage-grouse habitat. The Rocky Mountain ROD and Resource Management

Plans or Plan Amendments provide a set of management decisions focused on specific greater sage-grouse conservation measures on BLM-administered lands and provide overall resource management plan direction for managing all resources on BLM-administered land in their respective Planning Areas.

The RMPs designate areas as open or closed to fluid mineral leasing (resource allocations) and designate specific areas that provide sage-grouse habitat as Priority Habitat Management Areas (PHMAs), General Habitat Management Areas (GHMA), or Restoration Habitat Management Areas (RHMA) subject to management actions designed to avoid and minimize disturbances associated with proposed projects (i.e., stipulations). A key component of the 2015 RMPs is that PHMA is open to fluid mineral leasing subject to no surface occupancy (NSO) stipulations without waiver or modification and with limited exception. Additional stipulations across HMAs, may include No Surface Occupancy – NSO, Controlled Surface Use – CSU, and / or Timing Limitations - TL.

## **PRIORITIZATION OBJECTIVE**

In addition to the resource allocations and stipulations, the BLM RMPs describe a Prioritization Objective, which in addition to allocations that limit disturbance in PHMAs and GHMAs, prioritize oil and gas leasing and development outside of identified PHMAs and GHMAs. This is to further limit future surface disturbance and encourage new development in areas that would not conflict with sage-grouse. This objective is intended to guide development to lower conflict areas and as such protect important habitat and reduce the time and cost associated with oil and gas leasing development by avoiding sensitive areas, reducing the complexity of environmental review and analysis of potential impacts on sensitive species, and decreasing the need for compensatory mitigation (Rocky Mountain ROD, page I-25).

To clarify how the prioritization objective would be implemented, the BLM Washington Office issued Instruction Memorandum (IM) 2016-143 (US BLM 2016) on September 1, 2016, which was replaced with IM 2018-026 (US BLM 2017). However, in the MT District Court Order in Case 4:18-cv-00069-BMM Document 147 Filed 05/22/20, the court found that the December 2017 and March 2018 Lease Sales and BLM Instruction Memorandum 2018-026 violated FLPMA and vacated the subject leases. The Order states BLM must prioritize non-sage-grouse habitat to accomplish two purposes: “to further limit future surface disturbance and encourage new development in areas that would not conflict with sage-grouse habitat.” The court found that BLM allows entities to develop oil and gas resources through a competitive leasing process but may withhold or defer parcels for various reasons, including environmental concerns. The MT District Court determined that the Prioritization Objective in the 2015 RMPs is “intended to guide development to lower conflict areas and as such protect important habitat.

Concurrently, the Montana/Dakotas BLM issued IM No. MT-2020-018 (US BLM 2020). This IM provides guidance on prioritizing implementation decisions for BLM oil and gas leasing and development in sage-grouse habitat across the Montana/Dakotas in a manner that is consistent with the 2015 Approved Resource Management Plans (RMPs) and Plan Amendments for Montana / Dakotas RMPs, and the MT District Court Order cited above. This IM provides a framework for BLM to follow when making a decision to lease nominated parcels. In general, parcels are prioritized by whether they are, or are not, within 3.1 miles of a lek, if there is existing disturbance on the lease, and the oil and gas potential.

## **ADDITIONAL CONSIDERATIONS AND BACKGROUND**

In addition to the policy above for leasing in GRSG habitat, the BLM issued regulations implementing the leasing provisions in the Inflation Reduction Act. Specifically, these regulations cover how the BLM should evaluate the nominated lease parcels preference against five criteria (**see Appendix J**). Furthermore, US Department of Interior, BLM Permanent Instruction Memorandum (PIM) No. 2018-014

(US BLM 2018a) provides guidance for directional drilling into federal mineral estate from well pads on non-federal locations (which could occur under a No Surface Occupancy scenario). The policies and procedures in PIM 2018-014 apply to the processing of APDs for wellbores that produce Federal minerals from well pads that are located on entirely non-Federal land, commonly referred to as fee-fee-fed. This IM clarifies that BLM's jurisdiction extends to surface facilities on entirely non-Federal lands solely to the extent of assuring production accountability for royalties from Federal and Indian oil and gas and provides guidance for complying with NEPA and other regulations when processing APDs under three specific Fee/Fee/Fed situations. The IM explicitly states that BLM has no jurisdiction to require an APD before an operator may begin pad and road construction or drilling on the non-Federal land, but that APD approval is necessary to drill into the Federal mineral estate. It also describes various scenarios for consideration of alternatives and how to conduct an effects analysis.

Mitigation policy, especially BLM's ability to require compensatory mitigation, has varied for the BLM since the development of permanent policy in 2016, BLM's Mitigation Manual Section (MS-1794: US BLM 2021d) and Handbook (H-1794-1: US BLM 2021e). The 2016 policy was the result of lessons learned and approaches from interim policy over ten years, and covered how the BLM would implement a consistent approach, utilize mitigation to address impacts, and ensure the BLM utilizes a landscape-scale approach, maintain durability, and monitor mitigation. However, under the next administration Secretarial Order 3360 rescinded the Mitigation Manual and Handbook, and the BLM issued, IM 2018-093 (US BLM 2018b), replaced by IM 2019-018 (US BLM 2019), to provide guidance to the BLM related to offsite compensatory mitigation and supersede all previous policies. Then, after another administration change, BLM issued IM 2021-038 (US BLM 2021b), to rescind IM-2019-018 and then BLM IM 2021-046 (US BLM 2021c) to reinstate the BLM's Mitigation Manual Section (MS-1794) and Handbook (H-1794-1). Under this policy the BLM will follow the mitigation hierarchy to avoid damage, minimize impacts, and compensate for any residual impacts. Furthermore, BLM IM 2023-037 (US BLM 2023d) established policy for the BLM to follow when approving and working with third party mitigation-fund holders (e.g., see the Montana Sage-Grouse Conservation Program below).

Due to continued range wide declines of sage-grouse (e.g., Coates et al. 2021), potential inconsistency between management and new sage-grouse science, and rapid changes, including from climate change effects, across western sagebrush landscapes, the BLM filed a Notice of Intent in the Federal Register to amend land use plans across 11 western states (US BLM 2021a). By addressing, and possibly amending, sage-grouse management the BLM will consider approaches to avoiding, minimizing, restoring, or offsetting disturbances and habitat loss associated with declining sage-grouse populations. The BLM land use plan amendments are aimed to meet sensitive status species policy, BLM Manual 6840 (Special Status Species Management), that directs the BLM to further the conservation of Bureau sensitive species and manage these species consistent with objectives set to minimize the likelihood and need for listing under the Endangered Species Act. Included aspects of sage-grouse management in the planning efforts include adjustments, based on the best available science, to habitat boundaries, approaches to minimize disturbance (caps and buffers to important habitat), leasing and development of mineral resources (including prioritization of resources), strategies for restoration, and additional actions to activities and threats associated with sage-grouse populations and habitats. The BLM analyzed these adjustments to sage-grouse management and released a Proposed Plan Amendment and Final EIS in November 2024 (US BLM 2024).

In Montana, development of the Montana Sage-Grouse Conservation Strategy set up a process to conserve sage-grouse habitat across all lands in the state, and apply to any projects requiring a state permit, technical assistance, or state grant funds in designated sage-grouse habitat (MT DNRC 2020). Montana's strategy outlines stipulations for land uses and activities occurring in designated sage-grouse habitat, requires newly proposed land uses and activities to avoid, minimize, and reclaim impacts to sage-grouse habitat to the extent feasible, and to provide compensatory mitigation for any remaining impacts,

including those that are indirect or temporary. On October 4, 2018, the Montana Sage Grouse Oversight Team (MSGOT) approved the Montana Mitigation System Policy Guidance Document for Greater Sage-Grouse and the Habitat Quantification Tool Technical Manual (HQT).

On January 11, 2019, the Final Adoption Notice was published in the Montana Administrative Register, and the HQT and mitigation policy guidance document took effect January 12, 2019. It is based upon Executive Orders 12-2015 and 21-2015 and the Greater Sage-Grouse Stewardship Act. Montana's Mitigation System is not only informed by the best available science, but also is required to incorporate new science as it becomes available. The System draws on findings and science from the U.S. Fish and Wildlife Service's (USFWS) Conservation Objectives Report (COT), the 2015 USFWS Not Warranted Finding, and the recommendations of the Montana Greater Sage-Grouse Habitat Conservation Advisory Council. These sources describe the key threats to sage grouse and their habitat and offer biologically based strategies for management and conservation in both the short and long-term. Lastly, the approach is based on deliberations of the Montana Mitigation Stakeholders Team (Stakeholders Team) (Policy Guidance Document, p. 4). The HQT calculates the functional acres lost on a debit project and gained on a credit project. Functional acres are based on the quality and quantity of affected habitat. The policy guidance document applies signal multipliers for development projects to incentivize voluntary conservation and consistency with the Montana Sage-Grouse Habitat Conservation Plan or specific provisions of federal land use plans (policy guidance document, p. 60).

The Montana Policy Guidance defines the processes and information necessary to create, buy, or sell mitigation credits suitable for meeting sage grouse mitigation requirements within the State of Montana. The HQT calculates the functional acres lost on a debit project and gained on a credit project. Functional acres are based on the quality and quantity of affected habitat. For APDs in Montana, BLM adopts any State-required mitigation as a project design feature consistent with Mitigation Manual Section (MS-1794) and Handbook (H-1794-1).

### **3.4.6.1      *Affected Environment***

Greater sage-grouse occupy sagebrush landscapes across eleven western states. Sage-grouse numbers and habitat have declined since regular assessments began in the 1960s. Sage-grouse are typically sensitive to disturbance, while also requiring large landscape to facilitate seasonal movements. Sage-grouse may reside near (within a handful of miles) their spring breeding grounds, leks, or undertake migratory movements between seasonal habitats. Differences between seasonal movements across the range may be driven by weather, juxtaposition of seasonal habitats, and other factors. In the Northeastern portion of their range, they are found in southwestern and eastern Montana, northwestern South Dakota, and southwestern North Dakota from the Canadian to the Wyoming border (Greater Sage Grouse, viewed 4/21/2023 at <https://www.fws.gov/species/greater-sage-grouse-centrocercus-urophasianus>).

The Western Association of Fish and Wildlife Agencies (WAFWA) divided the GRSG range into seven Management Zones. The majority of GRSG habitat in Montana is part of Management Zone 1 (and all parcels in GRSG habitat included in this sale), along with populations in the Dakotas and northeastern Wyoming. The Dakotas are on the far eastern edge of greater sage-grouse range and the two states' populations are considered at high risk of extirpation because of their small numbers and isolation. Sage-grouse in the Dakotas form a population with connected areas in eastern Montana and northeast Wyoming, though it is unclear how many birds move between the states (Cross et al. 2016, Row et al. 2018, Oyler-McCance et al. 2022). In Wyoming active leks have remained stable over the last couple decades (about 1,100), but the average male lek count has declined, and in northeast Wyoming, active lek numbers are decreasing (Christiansen 2013).

In Montana, there are about 1,000 confirmed active sage-grouse leks, out of 1903 known lek locations (MT FWP 2024). The number of confirmed active leks has grown since 2002 as survey efforts have identified new leks and have been able to identify the status of unconfirmed leks. Sage-grouse populations tend to cycle, often declining by 50 percent and then doubling again within 10 years, and average male lek counts range from above 40 to just below 20 in Montana (MT SGWG 2005). Over a period of 20+ years, Montana population estimates have ranged from a high of 115,543 in 2006 to a low of 35,565 in 2014 (MT FWP 2024). Recent population declines have been attributed to extreme drought that limited wet areas with critical food resources during the late summer brood-rearing season (MT FWP 2024). Therefore, the MT FWP concludes that the apparent decline in estimated population numbers in 2018 – 2019 and 2022-24, is likely a result of natural fluctuations and cautions that management decisions should be based on patterns over longer time frames (MT FWP 2024). While recovery following drought (e.g., in 2021 and 2022) is expected to take a few years, GRSG have yet to rebound to 2021 numbers, remaining steady since 2022.

This analysis considers impacts to sage-grouse habitat from subsequent oil and gas development, with a focus on leks within 3.1 and 5 miles of the lease parcels. The 2015 RMPs direct the BLM to consider impacts to leks from actions requiring NEPA analysis using lek buffer-distances identified in the USGS Report Conservation Buffer Distance Estimates for Greater Sage-Grouse – A Review (Manier et al. 2014). The interpreted range for energy development spans a lower distance of 3.1 miles and an upper distance of 5 miles. Consideration of impacts within this analysis area is also supported in relevant research. In a study of sage-grouse in southeastern Montana, Foster and others (2013) found that 59 percent of sage-grouse nests were within one mile of a known lek location, 84% within 2 miles, 93% within 3 miles, and 97% within 4 miles. However, leks are the focus of activity in the breeding season, and sage-grouse populations can show high variability between use-patterns across seasonal habitats (Manier et al. 2014; Connelly et al. 2011). For most populations, it is assumed that most movements and seasonal use is within about 5 miles of leks (Manier et al. 2014), but longer distance movements and unique populations do exist (e.g., Newton et al. 2017).

In this lease sale there are 3 parcels of the 29 offered, within GRSG habitat, found in the Miles City and Havre Field Offices (covered in the HiLine RMP). The Miles City and HiLine RMPs defines confirmed, provisionally confirmed, and unconfirmed leks. Within confirmed leks, an *Active Lek* is a lek with at least two years with two or more males documented. An *Inactive Lek* is a lek that was active but then had 10 years with no sign of lek activity, with at least three years of survey during strutting seasons within those ten years.

This analysis focuses on the trend and conditions around active leks and other available information about the use and quality of GRSG habitat. Based upon information in the State of Montana lek database, there are two active leks within 3.1 or 5 miles of these parcels (**Table 3.18**), found in Blaine County.

**Table 3.18. Lek Status for leks w/in five miles of September 2025 Lease Sale Parcels**

	Miles City, Rosebud County	Havre	
Name(s)	RO-150	SG24-005, SG24-008	SG24-008A
Status	Inactive	Active	Inactive
Parcels w/in 3.1 miles	0270	0367	0367
Parcels w/in 5 miles	0270 0403	0367	0367

To prioritize parcels according to IM MT-2020-018 the BLM overlaid the proposed parcels on designated habitat and sorted them into seven categories based upon existing disturbance, development potential, and location inside/outside of a 3.1-mile lek buffers. In addition, in accordance with 43 CFR 3120.32 the BLM determined each parcel's leasing preference (see **Appendix J** and **Table 3.19**).

**Table 3.19 Sage-Grouse Assessment Category, Parcel Acres, and Potential**

Parcel	County	Category and Reference	Preference	O&G Potential	Acres	Type of Habitat
MT-2025-09-0270	Rosebud	6 - No Existing Disturbance/ Outside 3.1 mile from Lek/ Low RFD	Low	Low	160	GHMA
MT-2025-09-0403	Rosebud	3 - Within Existing Disturbance/ Outside 3.1 mile from Lek	Low	Low	68.78	GHMA
MT-2025-09-0367	Blaine	4 - Within Existing Disturbance/Within 3.1 miles of Lek	Low	Low	521.66	GHMA

### 3.4.6.2 *Environmental Impacts*

This analysis assumes all BLM oil and gas stipulations to conserve habitat would be applied on the lease parcels consistent with all applicable RMPs and Land Use Plans and provisions in the 2015 sage-grouse amendments, and that any off-lease development could occur consistent with applicable state regulations and BLM policy.

The BLM analyzed the effects of managing sage-grouse habitat in accordance with the BLM stipulations in the FEIS for each applicable RMP, and that analysis is hereby incorporated by reference into this analysis. In the BLM (2015a, 2015b) Record of Decisions the BLM determined that these stipulations strike a balance between long-term conservation of public land and resources with commodity production, recreation access, and services, and provide a layered management approach that offers the heightened level of protection for sage-grouse in the most valuable habitat (BLM 2015a: Miles City page 3-4, Alt E/HiLine, page 3-18, BLM 2015b). The 2015 FEISs analyzed cumulative effects to sage-grouse for all of WAFWA Management Zone 1 because it encompasses areas with similar floristic conditions containing important GRSG habitat, and includes sage-grouse populations in the Dakotas, Northern Montana, Powder River Basin, and the Yellowstone watershed (BLM 2015a: Miles City FEIS, page 1609; BLM 2015b: HiLine FEIS, page 1609).

The Miles City and HiLine RMPs recognize that a large percentage of sage-grouse habitat in Management Zone 1, lies outside of BLM's jurisdiction and that coordination with other agencies and private landowners will be important to conserving habitat:

Due to the patchwork distribution of land ownership, the conservation results obtained on any ownership are limited unless conservation actions are enacted across ownership boundaries.

Anthropogenic features, including oil and gas well pads, may negatively affect sage-grouse habitat at various spatial scales (Naugle et al. 2011, Johnson et al. 2011). Numerous studies have concluded that oil and gas development negatively affect sage-grouse lek persistence and attendance, nesting, brood-rearing and winter habitat selection, chick survival, and population growth rates. Several of those studies are briefly summarized below.

- In a study of sage-grouse in western Wyoming, Holloran (2005) observed that greater sage-grouse avoided breeding within or near development boundaries of natural gas fields, and that the number of displaying males declined as distances from leks to gas-field-related disturbance sources decreased (i.e., drilling rigs, producing wells, and main haul roads), and as traffic volumes within 3 km of leks increased.
- Holloran et al. (2010) noted that sage-grouse adult males and females exhibited strong fidelity to breeding sites and seasonal ranges, implying that population dispersal and response of a population to habitat fragmentation depends on yearling cohorts. Holloran noted that nesting yearling females avoided nesting within 950 meters (about 1 km / 0.6 mile) of natural gas infrastructure, and that a female will nest within a 272-ha area (672 acres) over its lifetime. Yearling females appeared to select nesting sites at the spatial scale of their lifetime nesting areas, and avoided areas within the infrastructure of natural-gas fields.
- After controlling for habitat, Walker et al. (2007) found support for negative effects of coal bed natural gas (CBNG) development within 0.8-km and 3.2-km of the lek and for a time lag between CBNG development and lek disappearance.
- Tack (2009) found that the probability of a lek being large (> 25 males) decreased as the number of producing oil and gas wells in a 12.3km radius from the lek increased (i.e., a high well density). These effects were found with a 4-year time lag. Furthermore, maintenance of larger leks likely requires undisturbed habitats at large scales and the occurrence of large leks is reduced near the edge of the species range, and when leks are more isolated.
- Dinkins et al. (2014) observed that sage-grouse selected habitat with lower densities of oil and gas structures at all reproductive stages.
- Johnson et al. (2011) found that, across the range of the species, trends on leks within 5.0-km of a producing oil or natural gas well were depressed.
- Holloran et al. (2015) found that sage-grouse avoided areas with high well pad densities in southwestern Wyoming during the winter regardless of differences in activity levels associated with well pads.
- Doherty et al. (2008) found that sage-grouse were 1.3 times more likely to occupy sagebrush habitats that lacked CBNG wells within a 4-km<sup>2</sup> area, compared to those that had the maximum density of 12.3-wells/4.0-km<sup>2</sup> allowed on federal lands, and that GRSg avoid CBNG development in otherwise suitable winter habitat.
- Manier et al. (2014) synthesized studies of energy development impacts of GRSg and noted that the casual factors of human land-use on GRSg are commonly difficult to assess due to concurrent types of surface disturbing activities (roads, well-pads, powerlines, etc.). Overall, the combined level of activity (i.e., human footprint) in the landscape surrounding a lek was negatively associated with lek persistence.

Offering parcels for lease would have no direct effects on sage-grouse and sage-grouse habitat; however, once a lease is sold the lessee maintains valid existing rights to the federal mineral resource. Direct, indirect, and cumulative effects may occur at the time the leases are developed at the APD stage. At the leasing stage, which this document covers, the specific location and extent of development is unknown. Project specific proposals would be evaluated at the Application for Permit to Drill (APD) stage, and would undergo site specific NEPA review, as well as proceed through a review by the Montana Sage Grouse Habitat Conservation Program for parcels in Montana (because a state permit would be required). It is at this time that project specific avoidance, minimization, and mitigation measures would be identified. This analysis looks at the parcels in sage-grouse habitat in aggregate and discusses potential effects from future development surrounding the lease parcels should it occur.

## NO ACTION ALTERNATIVE

Under No Action, the BLM would not conduct the Quarter 3, 2025 lease sale. None of the parcels would be offered for sale, sold, or subsequently developed. There would be no impact to sage-grouse from this action. Sage-grouse habitat would continue to be managed by the BLM on federal lands in accordance with existing regulations.

### 3.4.6.3 *Impacts of the Proposed Action Alternative*

The BLM utilizes a sale specific Reasonably Foreseeable Development (RFD) scenario to consider potential effects from leasing using development potentials identified in the applicable RMPs. As summarized in **Chapter 2** and detailed in **Appendix D**, the BLM estimates approximately 12 oil or gas wells could be developed on/around the 29 parcels in the September 2025 (Q3) lease sale. For those three parcels in sage-grouse habitat, the sale specific RFD estimates very limited development (1-3 wells total) as the potential is low for the three GRSG parcels (**Table 3.19**). Furthermore, the two parcels in Rosebud County, 0403 and 0270 are part of a communitization agreement and are being leased for drainage issues due to spacing requirements (see Groundwater section for more detail). Due to these circumstances, it is not likely any new development would occur on these two parcels. Of the total of 29 parcels in this sale 3 are in GRSG habitat, 2 of 16 in Miles City and 1 of 1 in HiLine. The BLM applied the following stipulations:

**GHMA Habitat.** The BLM applied the following Controlled Surface Use (CSU) and Timing Limitation (TL) stipulations on all or aliquot portions for parcels in the lease sale, including:

- CSU 12-30, Miles City (1 parcel), Surface occupancy and use within 2 miles of the perimeter of a lek active within the past 5 years may be restricted or prohibited
  - MT-2025-09-0403, MT-2025-09-0270 (all lands)
- CSU 12-67, HiLine (1 parcel), Surface disturbing or disruptive activities may be restricted within 2 miles of GRSG leks.
  - MT-2023-09-0367 (all lands)

**Winter Range.** The BLM applied the following stipulations for big game and/or sage-grouse winter range:

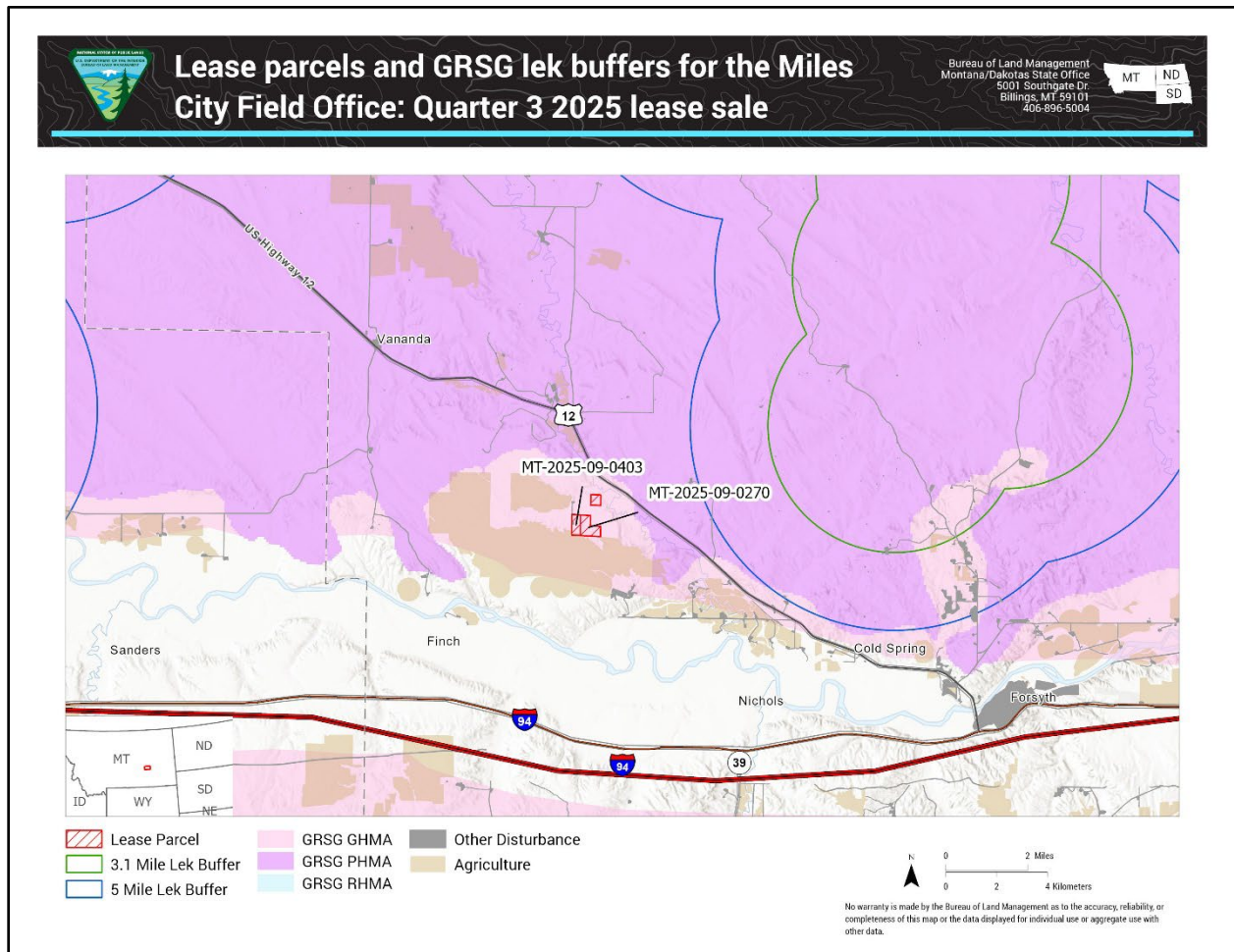
- TL 13-48, HiLine (1 parcel), Surface occupancy and use is prohibited from December 1 through May 15 in Big Game/GRSG winter range
  - MT-2025-09-0367 (all lands)

See Appendix A for all applied stipulations, and Appendix B for a definition of the stipulations. These stipulations are intended to avoid or minimize direct impacts to sage-grouse on the proposed parcels. In addition, the BLM applied lease notices to all BLM parcels with sage-grouse habitat. **LN 14-11** provides notice that a lease may contain important sage-grouse habitat, and that the operator may be required to implement specific measures to reduce impacts of oil and gas operations, which would be determined during the environmental review process at the APD stage. **LN 14-37** provides notice to a lessee/operator that mitigation measures and/or compensatory mitigation measures may be required to conserve, enhance, and restore Greater Sage-Grouse habitat, which would also be determined during the environmental review process at the APD stage. Any drilling proposal in Montana would require a state permit, and as such would be required to adhere to Montana sage-grouse requirements for compensatory mitigation across all lands in designated habitat. BLM Montana/Dakotas is fulfilling RMP mitigation requirements through coordination and compliance with the State of Montana's Sage Grouse Conservation Strategy, implemented by the Sage Grouse Habitat Conservation Program.

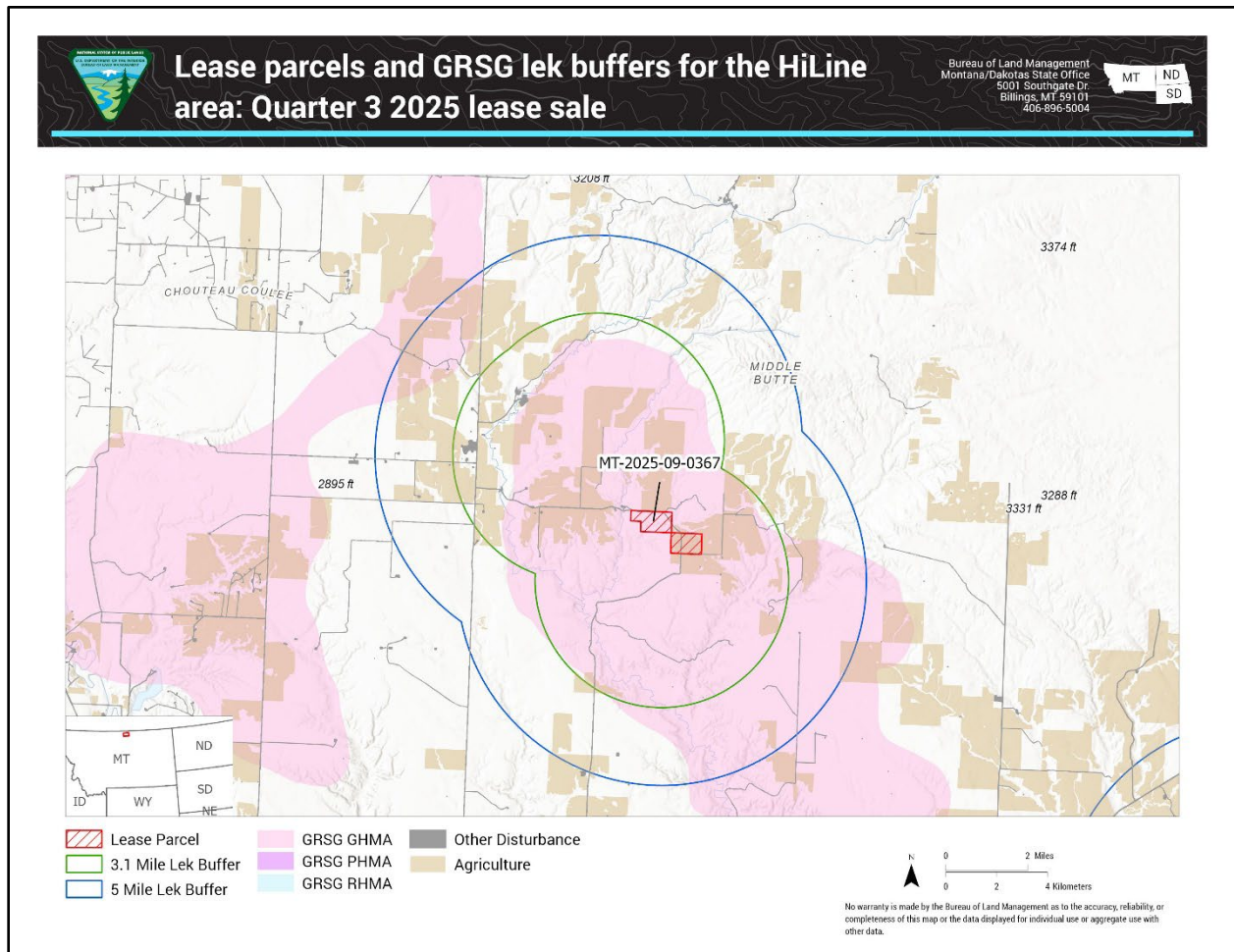


As previously noted, the BLM estimates that up to two wells, but likely 0-1, could be drilled on or in the vicinity of the parcel in the HiLine (Blaine County) and likely no new wells would be associated with leases in Rosebud County (Miles City FO). Previous comments have noted that restricting surface use (such as through a NSO or CSU) would simply shift the impact off site where the stipulation no longer applies. The length of a directional drill is typically less than two miles, with some very rare exceptions of distances of up to four miles (personal communication with BLM fluid minerals staff; May 2023). Depending on the spatial arrangement of leks and GRSG seasonal habitat, development may still be within distances or habitats with impacts to GRSG populations. Development of parcels, including off site development, where there is currently no existing disturbance, and high or medium development potential has a greater chance of impacting sage-grouse habitat compared to development of parcels with existing disturbance where colocation can occur or parcels with low development potential where activity is unlikely. The BLM reviewed lek locations within 3.1 and 5 miles of the parcels and consider impacts to habitats surrounding these leks.

The two Miles City parcels, MT-2025-09-0270 and MT-2025-09-0403, located in Rosebud, have no active leks within five miles of parcels. These parcels are located in GHMA, but near to PHMA (**Figure 3.17**). Disturbance in the area of these two parcels includes agricultural fields to the south and west, and major roads. Highway 12 located about one mile to the northeast and Interstate 94 between 4 and 5 miles to the south (**Figure 3.17**). There are no leks in the area, parcel 0403 is a category 3 and parcel 0270 is category 6. Due to the distance to any active leks it is unlikely that development on these parcels would have a substantial impact on GRSG or occupied habitat. While CSU 12-30 has been applied, these parcels are farther than two miles from any currently known leks. Furthermore, these parcels are being leased due to drainage potential from existing development, therefore, any drilling activity is unlikely. If there was development following the sale of these parcels a site-specific analysis would relook at current lek status, and without an active lek within 2 miles, the BLM would consider impacts based on LN-11 and LN-37 to mitigate impacts. Parcel 0403 includes existing disturbance, and the surrounding area also has existing disturbance, therefore it is possible that any surface disturbance associated with development of the lease could be collocated in already disturbed areas.

**Figure 3.17 Miles City FO, Rosebud County: Lease parcels and GRSG Lek Locations**

Within the HiLine Havre Field Office there are two active leks within 3.1 miles of the parcel MT-2025-09-0367 (**Table 3.18, Figure 3.18**). The leks within 3.1 miles of parcel MT-2025-09-0367 are SG24-008 and SG24-005. The BLM reviewed lek population data for these leks and noted they have not had any documented attendance recently, however, these leks have also either not been unattended for 10 years or had three zero counts, so do not have the survey effort to be classified as inactive. Disturbance in the area is high, but primarily agriculture. Other disturbances, such as road density, is low (**Figure 3.18**). While the leks in the area are categorized as active, and the parcel is within 3.1 miles of those leks, these leks have not been occupied since at least 2014. Parcel MT-2025-09-0367 is in GHMA and is a category 4 parcel; CSU 12-67 and TL 13-48 have been applied to protect GRSG habitat. CSU 12-67 would restrict surface disturbing activities within 2 miles of an active lek, and TL13-48 would limit construction activity from December 1 through May 15. The parcel includes existing disturbance, and the surrounding area also has existing disturbance, therefore it is likely that any surface disturbance associated with development of the lease could be collocated in already disturbed areas.

**Figure 3.18 Havre FO, Blaine County: Lease parcels and GRSG Lek Locations**

While BLM involvement is more limited at the APD stage when development occurs on private lands off lease, the State of Montana sage-grouse program requirements apply to private lands. In addition, any development in mapped sage-grouse habitat in Montana that requires a state permit must comply with provisions of the Montana Sage Grouse Conservation Strategy, as well as needing to submit their project to the Montana Sage grouse Conservation Program, thus ensuring analysis of project impacts to sage-grouse habitat on all lands in the State of Montana.

Requirements, include, but are not limited to:

- No surface occupancy (NSO) within 0.6 mile of an active lek in core habitat,
- Timing restrictions outside the NSO perimeter up to 4 miles from an active lek in core habitat (March 15 – July 15 for breeding, nesting, and early brood-rearing habitat, December 1 – March 15 for winter concentration areas),
- NSO within 0.25 miles of an active like in general habitat, and
- Timing restrictions up to 2 miles from an active lek in general habitat.

According to the Montana Sage-grouse Conservation Strategy, any proposals for deviations from these stipulations, undefined activities, or exceptions must demonstrate that the proposed activities will not cause declines in sage-grouse populations in core areas. In addition, Montana's Sage-grouse Habitat Conservation Program ensures statewide consistency across all lands for implementing the mitigation

hierarchy including first avoiding and minimizing impacts, and then compensating for residual impacts of development. The BLM would coordinate with the Montana Sage-grouse Conservation Program on any project in designated sage-grouse habitat. Consistent with IM 2019-018 (12/6/2018), BLM would incorporate any State of Montana required sage-grouse compensatory mitigation into the design of a project action, which allows BM to meet existing RMP requirements for net conservation gain. While the effects of any specific oil and gas development project are unknown at the leasing stage, the regulatory mechanisms in place for both the BLM and State of Montana EO provide a multi-pronged approach for addressing specific threats to the species. Specifically, where existing conditions and development potential (e.g., through the prioritization process and this analysis) are conducive to leasing BLM proposed parcels, additional mitigation requirements are in place to reduce impacts to GRSG, and where appropriate, additional development within GRSG can be avoided.

#### **3.4.6.4 Cumulative Impacts**

The September 2025 lease sale is one sale in part of a nationwide mineral leasing program, whereby the BLM offers federal minerals for sale. In accordance with the Federal Onshore Oil and Gas Leasing Reform Act of 1987 and BLM Manual 3120, each BLM state office will hold sales at least quarterly if lands are available for competitive leasing. Going forward, the BLM anticipates offering parcels across any District in the MT/Dakotas where EOIs have been submitted. The direct, indirect, and cumulative effects of a minerals leasing program were evaluated in the FEIS for the applicable RMPs and that analysis is incorporated by reference into this EA.

Approximately 64 percent of sage-grouse habitat in Montana is in private ownership. Therefore, managing threats to the species across all lands is important to conserving sage-grouse habitat in the state. As previously noted, the State of Montana adopted a Habitat Quantification Tool (HQT) and Montana Mitigation System Policy Guidance Document for Greater Sage-Grouse in January 2019. BLM participated in this stakeholder process to develop these documents. The HQT document provides the methodology for assessing direct/indirect impacts and quantifying debits and credits; the policy guidance document defines the processes and information necessary to create, buy, or sell mitigation credits suitable for meeting sage-grouse mitigation requirements within the State of Montana. Both the BLM RMPs and the State of Montana stipulations for developing in sage-grouse habitat apply (including density and disturbance limits in PHMA), and a full suite of mitigation options are available to avoid/mitigate impacts. Together with the State of Montana Sage-grouse Habitat Conservation Program, there are regulatory mechanisms in place to reduce cumulative impacts to sage-grouse habitat across Montana.

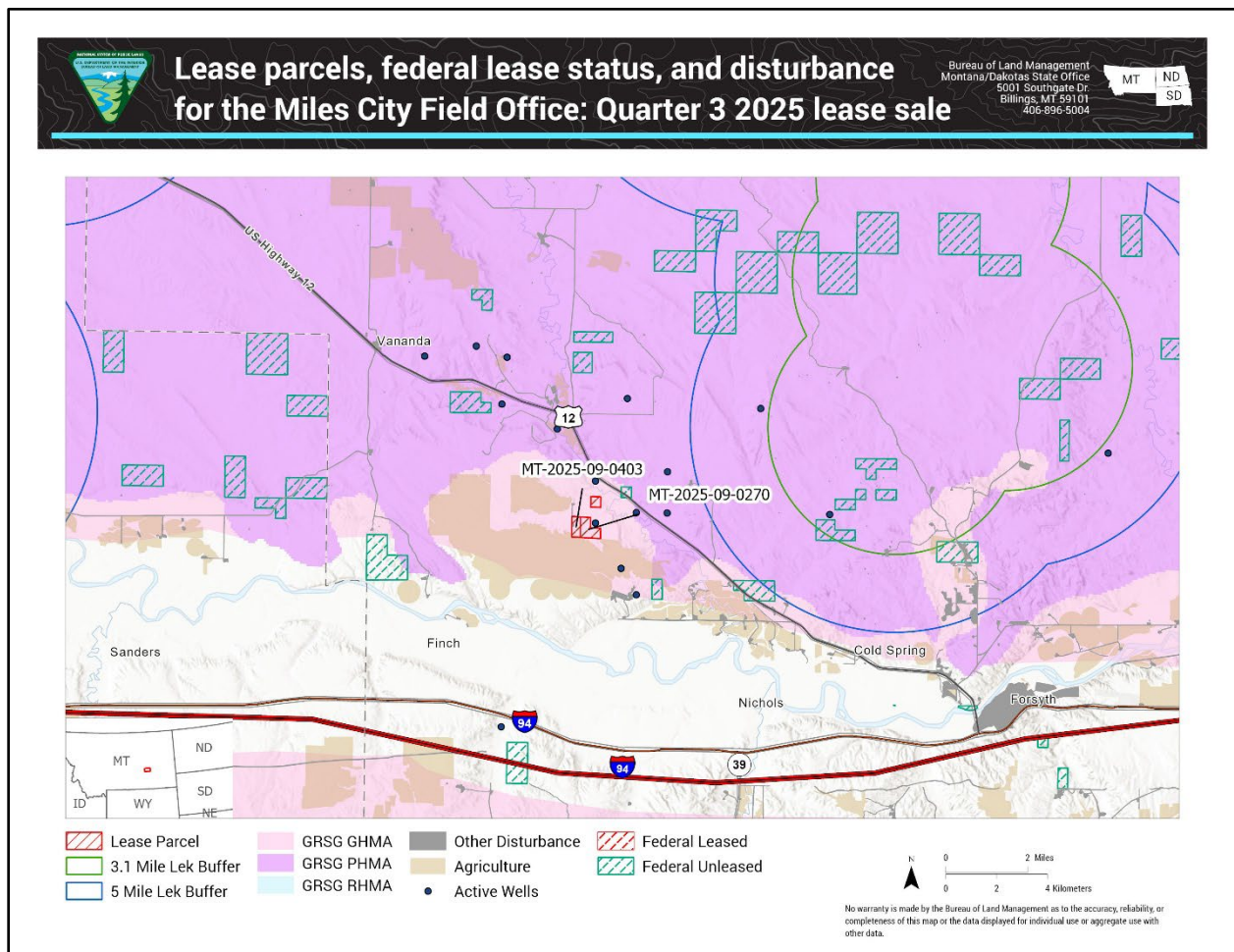
Oil and gas development potential is highly variable across the Montana/Dakotas. It is relatively low for western Montana. Development pressure is much higher across the HiLine and eastern Montana. In 2023, the highest producers of oil were Richland County, Roosevelt County, and Fallon County. The 2023 highest gas producers were Powder River County, Richland County, and Phillips County. Refer to the detailed RFDs in **Appendix D**. The BLM produced maps overlaying sage-grouse habitat, 3.1 and 5 mile lek buffers, and existing surface disturbance (see **Figure 3.17** and **Figure 3.18**). In addition, the BLM prepared maps to examine currently leased federal parcels and active oil and gas wells (**Figure 3.19** and **Figure 3.20**), to examine, the potential for sage-grouse habitat to be impacted from multiple years of oil/gas leasing and development for parcels in this lease sale. This analysis is to allow the BLM to ascertain cumulative impacts of the 3 parcels that overlap GRSG habitat in this lease sale. For each grouping of parcels this allows an analysis of whether oil and gas activity would be a new stressor to GRSG populations and habitat or would be part of the existing environment. For areas where construction of a new oil/gas well on or near the sage-grouse parcels would not overlap spatially or temporally with existing oil/gas developments, this would be a novel threat to sage-grouse. When combined with other activities and disturbances, and considering the existing sage grouse habitat, population trends, spatial



arrangement of leks (including large vs. small leks), the BLM can analyze how leasing proposed parcels may change the risk of an area moving from providing habitat for dense sage-grouse populations (multiple large leks), habitat for a viable but medium-low density population (stable but limited or no large leks), or an area where disturbance thresholds are passed, and the habitat may not support a viable population. The BLM also considered how sage-grouse viability is impacted by West Nile Virus, weather, land use patterns, and other factors, to assess if and how oil/gas development could compound these stressors.

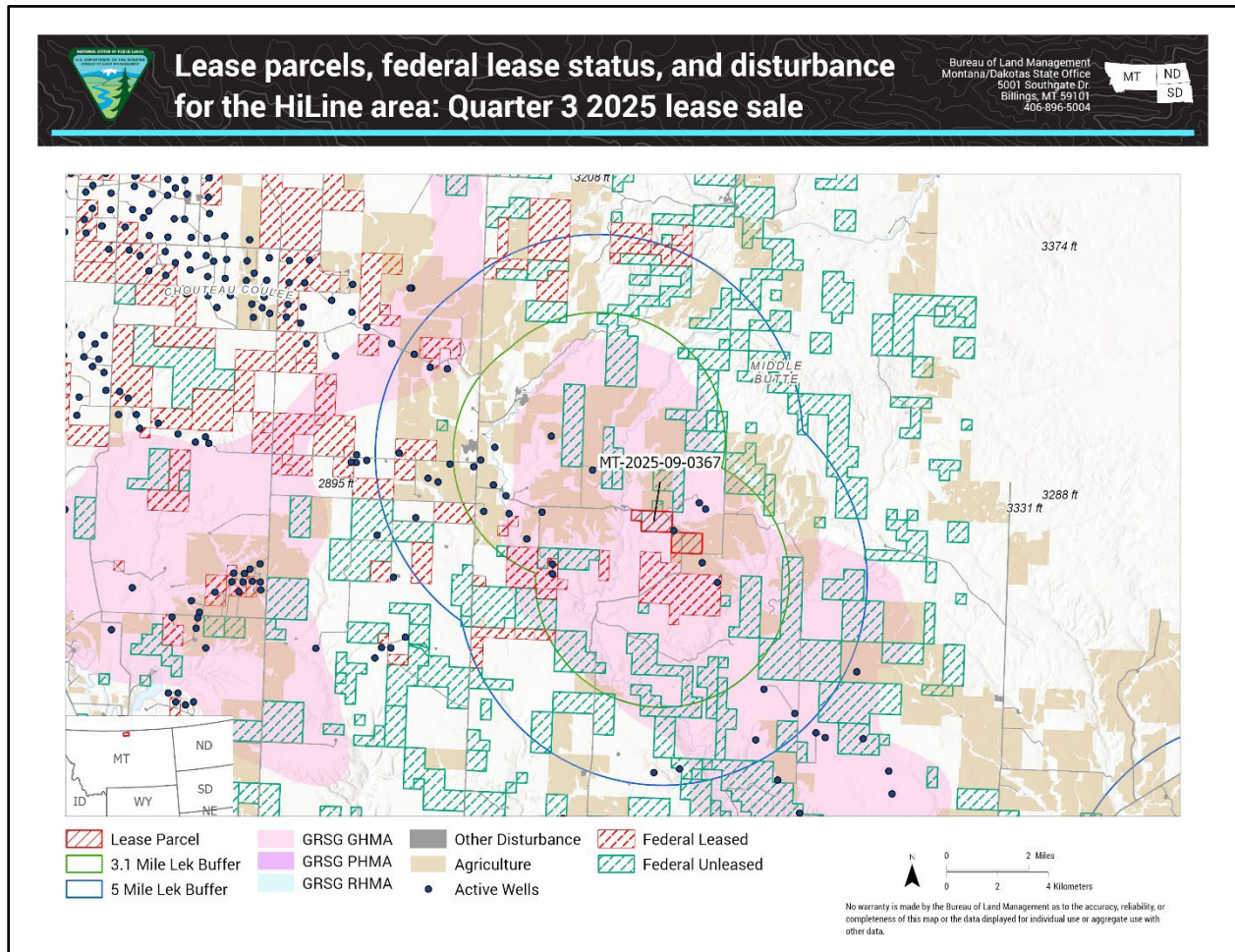
Parcels 0270 and 0403 in the Miles City Field Office have no active leks within 5 mi. Federal parcels within the area are very limited, and there is moderate density of active wells in the immediate vicinity of the September 2025 parcels (**Figure 3.19**). Leasing the September 2025 parcels would be unlikely to increase the density of oil and gas wells in this location due to establishing a communitization agreement to access federal minerals from an existing well, due to drainage. In the event additional wells developed, due to the distance from known GRSG leks and other habitats would have limited impact on GRSG habitat in an already disturbed landscape.

**Figure 3.19 Miles City FO, Rosebud County: Lease parcels and Cumulative Disturbance**



Parcel 0367 (GHMA) is within 5 mi of leks SG24-008 and SG24-005. There are currently leaseholders of multiple federal parcels within five miles of the track and active producing wells. In addition, a moderate density of active wells exists to the east within 4 miles and a higher density to the northeast at about 8 miles (**Figure 3.20**). For these leks, current disturbance is high and, as discussed above, lek attendance has been zero for almost ten years. Leasing the September 2025 parcels would possibly lead to increased density of oil and gas wells but other prior disturbance and isolation has already likely led to the abandonment of the nearby leks.

**Figure 3.20 Havre FO, Blaine County: Lease parcels and Cumulative Disturbance**



## CHAPTER 4. CONSULTATION AND COORDINATION

The following consultation and coordination efforts with tribes, individuals, organizations, and agencies were conducted for the proposed leasing actions.

### 4.1 SUMMARY OF CONSULTATION AND COORDINATION

The BLM coordinates with Montana Fish, Wildlife, and Parks (MTFWP), North Dakota Game and Fish (NDGF) and the U.S. Fish and Wildlife Service (USFWS) to identify wildlife concerns, protective measures, and apply stipulations and lease notices associated with oil and gas lease sales. While the BLM manages habitat on BLM lands, the state agencies are responsible for managing all 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. The BLM mailed letters to MTFWP, NDGF, and USFWS informing them of scoping and EA comment periods. The BLM has also communicated informally with NDGF. The NDGF and USFWS have submitted scoping comments and incorporated those in the EA where applicable.

Additionally, the BLM coordinates with the USFS DPG McKenzie and Medora Ranger Districts to identify resource concerns and apply stipulations and lease notices to lease parcels proposed within the administrative boundaries of the DPG McKenzie and Medora Ranger Districts. Refer to **Table 4.1** for the list of Agencies contacted.

**Table 4.1 List of Agencies Contacted**

Army Corps of Engineers	Omaha District	
Center for Biological Diversity		Randi Spivak
Dept. of Env. Quality	Director	Sonja Nowakowski
Div of Ecological Services		Jodi Bush
DNRC MT board of O&G		Tom Richmond
DNRC-Eastern Land Office		Chris Pileski
Earthjustice	Rocky Mountain	
EPA Region 8 NEPA Program		Amelia Platt, Jody Ostendorf
Friends of the Earth		Marcie Keever
Ft. Peck Army Corps of Engineers		Darin McMuriy
LCTHF	Executive Director	Lindy Hatcher
Lewis & Clark National Historic Trail		Denise Nelson
Little Missouri National Grassland		Cale Bickerdyke
Mariah Energy		Lenny Behm
Montana DNRC	Northern District Field Office	
Montana DNRC	Trust Land Management HQ	
Montana Environmental Information Center		Derf Johnson
Montana Historical Society		Dr. Mark Baumler
Montana Trout Unlimited		
MT Fish, Wildlife, and Parks		Melissa Watson

MT Fish, Wildlife, and Parks		Deb O'Neill
MT Preservation Alliance		Chere Justio
National Wildlife Federation	Northern Rockies Proj. Office	
National Wildlife Federation	Northern Rockies Proj. Office	
ND Game and Fish		Patrick T. Isakson
North Blaine Cooperative State Grazing District		Cheryl Schuldt
North Dakota Dept of Trust Lands		
North Dakota Office		USFWS
North Dakota Petroleum Council	Regulatory Affairs	Eric Delzer
Public Lands Solutions		Jason Keith
South Dakota Dept. of Game, Fish and Parks		
State Historical Society of ND		Claudia Berg
The Wilderness Society		Ben Tettlebaum
Theodore Roosevelt Conservation Partnership		
Theodore Roosevelt National Park		Heidi Riddle
US Environ. Protection Agency Reg 8	Helena Office	
USFS NPNHT Admin.		Sandi McFarland
USFS NPNHT CMP		Sandra Broncheau-McFarland
USFS NPNHT PAO		Roger M. Peterson
Western Energy Alliance		Esther Wagner
Western Env. Law Center		Morgan O'Grady
Wild Montana (Montana Wilderness Association)		Aubrey Bertram, Emily Cleveland
National Park Service		
National Park Service		
U.S. Army Corps of Engineers	Montana/Helena Regulatory Office	Attention: Supervisor, CENWO-ODR-MT
U.S. Army Corps of Engineers	North Dakota/Bismarck Regulatory Office	Attention: Supervisor, CENWO-ODR-ND

## 4.2 TRIBAL CONSULTATION

Tribal consultation for the leasing actions is done on a government-to-government basis. The BLM initiated government-to-government consultation for the Quarter 3 2025 Competitive Oil and Gas Lease Sale under NEPA and NHPA in March 2025. Refer to **Table 4.2** for the list of Tribes contacted.

**Table 4.2 List of Tribes Contacted**

Blackfeet Nation	THPO	John Murray
Blackfeet Tribe	Chairman	Rodney Garavais
Cheyenne River Sioux Tribe	THPO	Steve Vance
Cheyenne River Sioux Tribe	Tribal Chairman	Ryman LeBeau
Chippewa Cree Tribe	THPO	Jonathan Windy Boy
Chippewa Cree Tribe	Tribal Chairman	Harlan Baker
Comanche Nation	Chairman	Forrest Tahdooahnippah
Comanche Nation	THPO	Martina Minthorn



<b>Confederated Salish &amp; Kootenai Tribes</b>	Vice Chairman	Tom McDonald
<b>Confederated Salish &amp; Kootenai Tribes</b>	Chairman	Mike Dolson
<b>Confederated Tribe of the Umatilla Indian Reservation</b>	Chairman	Gary Burke
<b>Confederated Tribe of the Umatilla Indian Reservation</b>	THPO	Carey Miller
<b>Confederated Tribes of the Colville Indian Reservation</b>	Chairman	Jarred-Michael Erickson
<b>Confederated Tribes of the Colville Indian Reservation</b>	THPO	Guy Moura
<b>Confederated Tribes of the Colville Indian Reservation</b>	CBC	Milton Davis
<b>Confederated Tribes of the Colville Indian Reservation</b>	CBC	John Sirois
<b>Confederated Tribes of the Colville Indian Reservation</b>	CBC	Kiana Sam
<b>Confederated Tribes of the Colville Indian Reservation</b>	CBC	Darnell Sam
<b>Crow Creek Sioux Tribe</b>	Chairperson	Peter Lengkeek
<b>Crow Creek Sioux Tribe</b>	THPO	Merle Marks
<b>Crow Tribe</b>	Chairman	Frank White Clay
<b>Crow Tribe</b>	THPO	Aaron Brien
<b>Eastern Shoshone Tribe</b>	Chairman	John St. Claire
<b>Eastern Shoshone Tribe</b>	THPO	Josh Mann
<b>Flandreau Santee Sioux Tribe</b>	President	Anthony Reider
<b>Flandreau Santee Sioux Tribe</b>	THPO	Gerrie Kills A Hundred
<b>Fort Peck Tribe</b>	THPO	Dyan Youpee
<b>Ft. Belknap Tribe</b>	Acting THPO	Michael J. Black Wolf
<b>Ft. Belknap Tribe</b>	CAO	Delina Cuts The Rope
<b>Ft. Belknap Tribe</b>	Environmental Protection Manager	Ina Nez Perce
<b>Ft. Belknap Tribe</b>	President	Jeffery Stiffarm
<b>Ft. Peck Tribe</b>	Chairman	Justin Gray Hawk
<b>Kiowa Nation</b>	Chairman	Lawrence Spottedbird
<b>Kiowa Nation</b>	THPO(Acting)	Amanda Hill
<b>Little Shell Chippewa Tribe</b>	Chairman	Gerald Gray
<b>Little Shell Chippewa Tribe</b>	THPO	Dwayne Reid
<b>Lower Brule Sioux Tribe</b>	Chairman	Clyde Estes
<b>Lower Brule Sioux Tribe</b>	Cultural Resources	Boyd Gourneau
<b>Lower Sioux Indian Community</b>	President	Robert Larson
<b>Lower Sioux Indian Community</b>	THPO	Cheyenne St. John
<b>Nez Perce Tribe</b>	Chairman	Shannon Wheeler
<b>Nez Perce Tribe</b>	NAGPRA Coordinator	Robert Taylor
<b>Nez Perce Tribe</b>	THPO	Keith "Pat" Baird
<b>Nez Perce Tribe</b>	Director Cultural Resources CRP Director	Nakia Williamson
<b>Nez Perce Tribe</b>	Tribal Archaeologist	Josiah Pinkham
<b>Northern Arapaho Nation</b>	Chairman	Keenan Groesbeck
<b>Northern Arapaho Nation</b>	THPO	Crystal Cbearing
<b>Northern Cheyenne Tribe</b>	THPO	Teanna Limpy
<b>Northern Cheyenne Tribe</b>	President	Gene Small
<b>Northern Plains Resource Council</b>		Adam Haight

<b>Oglala Sioux Tribe</b>	President	Frank Star Comes Out
<b>Oglala Sioux Tribe</b>	Project Coordination	Trina Lone Hill
<b>Rosebud Sioux Tribe</b>	President	Kathy Wooden Knife
<b>Rosebud Sioux Tribe</b>	THPO	Ione Quigley
<b>Santee Sioux Tribe of Nebraska</b>	Chairman	Alonzo Denney
<b>Santee Sioux Tribe of Nebraska</b>	THPO	Larry Thomas
<b>Shoshone-Bannock Tribes Fort Hall Reservation</b>	Chairman	Lee Juan Tayler
<b>Shoshone-Bannock Tribes Fort Hall Reservation</b>	Cultural Resources Director	Louise E. Dixey
<b>Shoshone-Bannock Tribes Fort Hall Reservation</b>	Environmental Program Manager	Christina Cuttler
<b>Sisseton-Wahpeton Oyate Tribe</b>	Chairman	J. Garret Renville
<b>Sisseton-Wahpeton Oyate Tribe</b>	THPO	Dianne Desrosiers
<b>Spirit Lake Sioux Tribe</b>	Chairman	Lonna Jackson Street
<b>Spirit Lake Sioux Tribe</b>	THPO	Kenny (KJ) Gray Water
<b>Standing Rock Sioux Tribe</b>	Chairperson	Janet Alkire
<b>Standing Rock Sioux Tribe</b>	THPO	Tyrel Iron Eyes/ Jon Eagle
<b>Three Affiliated Tribes</b>	Chairman	Mark Fox
<b>Three Affiliated Tribes</b>	THPO	Allan Demaray
<b>Three Affiliated Tribes</b>	THPO Sec 106	Darren Joe Myrick
<b>Turtle Mountain Band of Chippewa</b>	Chairman	Jamie Azure
<b>Turtle Mountain Band of Chippewa</b>	Cultural Resources	Jeff Desjarlais Jr.
<b>Turtle Mountain Band of Chippewa</b>	THPO	Larus Longie
<b>Yankton-Sioux Tribe</b>	Chairperson	Robert Flying Hawk
<b>Yankton-Sioux Tribe</b>	Project Coordination	Colton Archambeau

The BLM consults with Native Americans under various statutes, regulations, and executive orders, including the American Indian Religious Freedom Act, the National Historic Preservation Act, the Native American Graves Protection and Repatriation Act, the National Environmental Policy Act, and Executive Order 13175-Consultation and Coordination with Indian Tribal Governments. Tribal consultation is ongoing, and the BLM MTDKs will remain available to engage with tribes and respond to any consultation requests. If the nominated parcels are leased, future potential development would go through separate NEPA and NHPA processes as directed by regulation and current policy.

## CHAPTER 5. LIST OF PREPARERS

**Table 5.1** contains a list of individuals that contributed to preparation of this EA.

<b>Name</b>	<b>Area of Expertise</b>	<b>Organization</b>
Cale Bickerdyke	Mineral and Lands Supervisor, USFS Coordination	USFS DPG
Tyler Croft	Petroleum Engineer - Water Resources, Reasonably Foreseeable Development Scenario	BLM MTSO
Greg Liggett	Geologist (Paleontology)	BLM MTSO
Joshua Chase	Archaeologist	BLM MTSO
Courtney Carlson	Archaeologist	BLM MCFO
Michael Diercks	Archaeologist	BLM NDFO
Andrew Hug	GIS Specialist	BLM MTSO
Mark Peterson	Air Resources Specialist - Air Resources, GHG Emissions	BLM MTSO
David Wood	Wildlife Biologist Wildlife, Listed Species (Greater Sage-grouse)	BLM MTSO
Jessica McDermott	Geospatial Ecologist Big Game, Greater Sage-grouse	BLM MTSO
Scott Rickard	Economist	BLM HQ 310
Omar Goyzueta	Natural Resource Specialist - Coordination, Editor	BLM GFFO
Robert Baker	Natural Resource Specialist – Coordination	BLM MCFO
Hattie Payne	Natural Resource Specialist - Project Lead and Coordination	BLM MTSO

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