

United States Department of the Interior Bureau of Land Management

DOI-BLM-MT-0000-2020-0004-EA

Environmental Assessment Oil and Gas Lease Parcel Sale September 22, 2020

Location:

Miles City Field Office

North Dakota Field Office

Dakota Prairie Grasslands

see Appendix A for list of lease parcels by number and legal description

U.S. Department of the Interior
Bureau of Land Management
Montana / Dakotas State Office
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The Bureau of Land Management's mission is to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

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EXECUTIVE SUMMARY

BLM Montana / Dakotas has prepared this Environmental Assessment for the September 2020 oil and gas lease sale, which considers two alternatives:

- Alternative A: No Action
- Alternative B: Proposed Action
 - The BLM would offer 38 nominated lease parcels encompassing approximately 17,302.43 Federal mineral acres as part of a competitive oil and gas lease sale in the Miles City Field Office, North Dakota Field Office, and within the administrative boundary of the Dakota Prairie Grasslands.
 - No parcels would be offered within designated General Habitat Management Areas (GHMA) or Priority Habitat Management Areas (PHMA) for greater sage-grouse

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.

CHAPTER 1 - PURPOSE AND NEED FOR ACTION

Proposed Action and Background

This environmental assessment (EA) has been prepared to disclose and analyze the potential environmental consequences from leasing 38 nominated lease parcels encompassing approximately 17,302.43 Federal mineral acres located across the Montana/Dakotas BLM in the Miles City Field Office, North Dakota Field Office, and within the administrative boundary of the Dakota Prairie Grasslands. The parcels would be included as part of a competitive oil and gas lease sale tentatively scheduled to occur on September 22, 2020. The proposed parcels are located in Dawson, Sheridan, and Richland County in Montana; Burke, McKenzie, Williams, Billings, and Slope County in North Dakota. Refer to parcel maps in **Appendix C**.

The Bureau of Land Management (BLM) Montana/Dakotas 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)), United States Forest Service (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 Montana/Dakotas 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 Montana/Dakotas State Office prepares a preliminary parcel list and provides them to the field offices for review. The BLM also completes a Lease Prioritization Sequence on the nominated parcels in accordance with WO IM No. 2018-026, and consistent with conservation objectives in the 2015 Rocky Mountain Region Record of Decisions and the applicable Resource Management Plans (RMPs). 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. if there are special resource conditions of which potential bidders should be made aware; and,
4. which stipulations should be identified and included as part of a lease.

If the decision is made to offer lease parcels, the Montana/Dakotas State Office would publish a Notice of Competitive Oil and Gas Lease Sale (Sale Notice) at least 45 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 does not directly result in any surface disturbance. The issuance of an oil and gas lease, however, does grant to the lessee the rights 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. 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).

Purpose and Need

The purpose and need for this action is to respond to EOIs to lease parcels of land for oil and gas development as mandated by Federal laws, including the Mineral Leasing Act of 1920, as amended, Federal Land Policy and Management Act of 1976, and Federal Onshore Oil and Gas Leasing Reform Act of 1987.

Offering parcels for competitive oil and gas leasing provides opportunities for private individuals or companies to explore and develop federal oil and gas resources after receipt of necessary approvals, and to sell the oil and gas in public markets.

Decision to be Made

Based on this review and public comment, the BLM will determine whether or not to offer to sell and issue oil and gas leases on the lease parcels identified, and, if so, identify stipulations that would be included with specific lease parcels at the time of lease sale.

Conformance with Land Use Plans

Pursuant to 40 CFR § 1508.28 and § 1502.21, this EA is tiered to the information and analysis and conforms to the decisions contained in the Miles City Resource Management Plan (RMP) of September 2015 and the North Dakota RMP of April 1988. These plans are the governing land use plan 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 RMPs. An electronic copy of these planning documents are available via the internet on the BLM e-Planning page: https://eplanning.blm.gov/epl-front-office/eplanning/lup/lup_register.do.

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 et al. v. BLM*) 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 22, 2020 Oil and Gas Lease Sale EA in compliance with the terms of the court order, NEPA, and the APA.

This EA is also tiered to the information and analysis and conforms to the decisions contained in the Dakota Prairie Grasslands Final Environmental Impact Statement (July 2002) and Oil and Gas Leasing Record of Decision (June 2003). This conformance applies only to the parcels located within the administrative boundaries of the U.S. Forest Service.

Public Involvement, Consultation, and Coordination

Public scoping for this project was conducted through a 15-day scoping period from April 6 to April 21, 2020 as described in a Press Release issued by the Montana/Dakotas State Office, advertised on the BLM Montana/Dakotas State Office website, and posted online in the BLM NEPA e-Planning website. The BLM also mailed letters to local, state and federal agencies, Tribal entities, and private surface owners informing them of the lease sale and seeking comments. The mailing list is included in the project record.

The BLM coordinates with Montana Fish, Wildlife, and Parks (MFWP), 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 communicated informally with MTFWP and NDGF. No scoping comments were received from USFWS.

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. The BLM notified consulting tribes of the oil and gas lease sale and invited them to identify any issues or concerns that the BLM should consider in this EA. Refer to Chapter 3 for a list of tribes and agencies contacted.

Resource Issues Identified for Analysis

Analysis issues include resource issues that could potentially be affected by oil and gas leasing. The BLM focuses its analysis on “issues that are truly significant to the action in question, rather than amassing needless detail” (40 CFR 1500.1(b)). Consistent with Title 43 Code of Federal Regulations 3131.3, the BLM identified site-specific resource concerns and lease stipulations for proposed parcels through a preliminary review process conducted prior to a 15-day public scoping period. After scoping was completed, the BLM identified issues of concern identified by the public, determined how to address those concerns in this EA, and reviewed and edited lease stipulations as necessary. The following resources/issues will be analyzed in detail in this EA:

Issue 1: Air Resources

What types of emissions would be generated from subsequent oil and gas development of leased parcels? What quantity of pollutants would be produced based upon the Reasonably Foreseeable Development (RFD) scenario? How do these pollutant estimates relate to air quality?

- Indicator: Tons per well and tons per year of PM-10, PM-2.5, NO_x, SO₂, CO, VOCs, HAPs

How would air emissions from subsequent development of leased parcels affect visibility at Class I Airsheds?

- Indicator: Change in deciviews, which is a unit of measurement to quantify human perception of visibility. It is derived from the natural logarithm of atmospheric light extinction coefficient. One deciview is roughly the smallest change in visibility (haze) that is barely perceptible.

What quantity of greenhouse gas emissions (GHG) would be generated from subsequent oil and gas development of leased parcels based upon the RFD scenario? How do these amounts compare to other sources of GHGs?

- Indicator: million metric tons (MMT) per year of carbon dioxide equivalents (CO₂eq)

Issue 2: Socio-economic Conditions

How would the leasing and potential development of these parcels affect local economic activity and revenues for federal, local and state governments?

- Indicator: Total revenue income and bonus bids over 10-year lease term

Issue 3: Water Resources

Previous public comments on oil and gas lease sales in Montana/Dakotas have indicated a concern that hydraulic fracturing can contaminate surface and groundwater, including sources of usable water, and that current regulations are ineffective in protecting surface and groundwater quality. Other comments have indicated a concern that fracking uses large volumes of water, thus potentially negatively affecting water quantity, especially during drought years. What are the direct, indirect, and cumulative effects of potential oil and gas development, including hydraulic fracturing, on parcels that may be offered for lease on surface and groundwater quality and quantity?

- Indicator: Characterize the affected environment in the watersheds where parcels are proposed. Quantify estimated acres of surface disturbance and million gallons water used. Qualitatively assess effects to surface and groundwater resources from oil and gas development.

Resources and Resource Issues Considered but Eliminated from Further Analysis

The following resources/issues are not present and not considered in this EA: lands and realty conflicts, locatable and salable minerals, forest and woodland, cave and karst resources, wilderness study areas, ACECs, and wild and scenic rivers. Other resource issues BLM considered but eliminated from further analysis due to environmental impacts previously analyzed through prior NEPA reviews and/or lease notices or stipulations that were applied to avoid and minimize impacts are discussed below:

Cultural Resources: The application of lease terms and the cultural resource lease notices (CR 16-1, LN 14-2, LN 14-33) 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 adverse effects that cannot be successfully avoided, minimized or mitigated.

Environmental Justice Populations. Executive Order 12898 (Feb. 11, 1994), Federal Actions to Address Environmental Justice in Minority and Low-Income Populations, provides that BLM shall identify and address disproportionately high and adverse human health or environmental effects on low-income populations, minority populations, or Indian tribes that may experience common conditions of environmental exposure or effects associated with a plan or project. The counties containing Federal mineral parcels offered for lease do not meet the threshold to be considered as environmental justice populations. Refer to the project record for additional information.

Paleontology: The application of lease terms and the paleontological lease notices (LN 14-3, LN 14-12, and 14-29) at leasing provides protection to paleontological resources. The paleontological lease notice LN 14-12 is applied to those lease parcels that fall within 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, paleontological lease

stipulation DPG CSU 16-5 is applied to protect these resources.

Native American Religious Concerns: The BLM applied CR 16-1 to all parcels and stipulation DPG NSO 14-16 to 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 adverse effects that cannot be successfully avoided, minimized or mitigated.

Soils Resources and Vegetation: Stipulations, in addition to the Standard Lease STD 16-3, have been applied to applicable parcels to mitigate any impacts associated with leasing or development of these parcels. 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.

Riparian – Wetland Habitats: Stipulations, in addition to the Standard Lease STD 16-3 and DPG 13d, have been applied to applicable parcels to mitigate any impacts associated with leasing or development of these parcels. 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 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.

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 STD 16-3 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). This provides 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.

Recreation: No direct impacts to recreational opportunities would occur as a result of offering leases for sale. 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.

Wildlife:

Aquatic Species and Terrestrial Wildlife: 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. In addition, the BLM placed various lease notices on parcels that

provides notice to a lessee that the BLM may require wildlife surveys at the APD stage, and protective measures may be necessary. For example, Lease Notice LN 14-39 states that a lease area may contain raptor nest sites, nest inventories may be required, and surface occupancy and use may be prohibited or restricted to certain time periods. The LN also notes the BLM may require modification to exploration or development proposals to protect active raptor nests or disapprove any activity that is likely to result in adverse effects that cannot be successfully avoided, minimized or mitigated.

Big Game: BLM reviewed the parcels to determine if the proposed lease areas contain winter range, including crucial winter range, and migratory corridors for big game. The BLM applied stipulations from the Miles City and North Dakota field office RMPs, and, within the administrative boundaries of the Dakota Prairie Grasslands, applied stipulations from the DPG EIS and Oil and Gas leasing ROD. These include no surface occupancy stipulations for bighorn sheep management areas, controlled surface use stipulations for bighorn sheep lambing areas and big game crucial winter range, and timing limitation stipulations for pronghorn winter range, and bighorn sheep lambing areas and habitat. The applied stipulations would minimize or eliminate potential impacts to big game species by avoiding important areas and limiting activities during the times of year when big game species are most vulnerable to impacts.

Sage-Grouse. The Proposed Action alternative originally included five additional parcels, four of which were located in designated Priority Habitat Management Areas (PHMA) for greater sage-grouse, and one of which was located in a designated General Habitat Management Area (GHMA). During scoping, the BLM received comments requesting that these parcels be removed from analysis, or that an alternative would be analyzed that removed these parcels.

The BLM contacted the original nominators that submitted expressions of interest (EOI) on the five respective parcels. Of the five, four withdrew their nominations, and the fifth could not be reached. Based on comments received and the withdrawn nominations, the BLM eliminated the five respective parcels from consideration in this assessment. There are no additional parcels included in the Proposed Action alternative that are within designated habitat management areas or occupied habitat for sage-grouse.

Threatened and Endangered Species: The BLM placed stipulation TES 16-2 (Endangered Species Act Section 7 Consultation) and DPG TES 18a (Threatened, Endangered, and Sensitive Plant or Animal Species Lease Notice) on 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 adverse modification of a designated or proposed critical habitat. Additionally, TES 18a states 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 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** below.

Table 1 USFWS Listed Species and Habitat occurrence in proposed MT/Dakotas September 22, 2020 Oil and Gas Lease Sale

County/Scientific Name	Common Name	Status	Species Present in Lease Parcels	Suitable Habitat Present in Lease Parcels	If species and/or habitat are present, identify stipulations that would avoid/minimize impacts to the species.
Richland County, MT					
<i>Scaphirhynchus albus</i>	Pallid Sturgeon	LE	No	No	
<i>Charadrius melodus</i>	Piping Plover	LT, CH	Unknown	Unlikely	TES 16-2
<i>Sterna antillarum athalassos</i>	Interior Least Tern	LE	Unknown	Unlikely	TES 16-2
<i>Grus americana</i>	Whooping Crane	LE	Unknown	Unlikely	TES 16-2
<i>Myotis septentrionalis</i>	Northern Long-eared Bat	LT	Unknown	Unlikely	TES 16-2
Dawson County, MT					
<i>Scaphirhynchus albus</i>	Pallid Sturgeon	LE	No	No	
<i>Sterna antillarum athalassos</i>	Interior Least Tern	LE	No	No	
<i>Grus americana</i>	Whooping Crane	LE	No	No	
<i>Charadrius melodus</i>	Piping Plover	LT	No	No	
<i>Myotis septentrionalis</i>	Northern Long-eared Bat	LT	Unknown	Unlikely	TES 16-2
Sheridan County, MT					
<i>Charadrius melodus</i>	Piping Plover	LT,CH	No	No	
<i>Grus americana</i>	Whooping Crane	LE	Unlikely	Unlikely	TES 16-2
<i>Calidris canutus rufa</i>	Red Knot	LT	No	No	
<i>Myotis septentrionalis</i>	Northern Long-eared Bat	LT	Unknown	Unlikely	TES 16-2
Burke County, ND					
<i>Grus americana</i>	Whooping Crane	LE	No	Yes	COA attached to the APD at project level
<i>Charadrius melodus</i>	Piping Plover	LT	No	No	
<i>Calidris canutus rufa</i>	Rufa Red Knot	LT	No	No	
<i>Myotis septentrionalis</i>	Northern Long-eared Bat	LT	No	No	
<i>Herperia dacotae</i>	Dakota Skipper	LT	No	No	
Williams County, ND					
<i>Scaphirhynchus albus</i>	Pallid Sturgeon	LE	No	No	
<i>Grus americana</i>	Whooping Crane	LE	No	Yes	COA attached to the APD at project level
<i>Charadrius melodus</i>	Piping Plover	LT	No	No	
<i>Calidris canutus rufa</i>	Rufa Red Knot	LT	No	No	
<i>Sterna antillarum athalassos</i>	Interior Least Tern	LE	No	No	
<i>Myotis septentrionalis</i>	Northern Long-eared Bat	LT	No	No	
McKenzie County, ND					
<i>Scaphirhynchus albus</i>	Pallid Sturgeon	LE	No	No	
<i>Grus americana</i>	Whooping Crane	LE	No	No	
<i>Charadrius melodus</i>	Piping Plover	LT	No	No	
<i>Calidris canutus rufa</i>	Rufa Red Knot	LT	No	No	
<i>Myotis septentrionalis</i>	Northern Long-eared Bat	LT	Unknown	Yes	TES 16-2
<i>Sterna antillarum athalassos</i>	Interior Least Tern	LE	No	No	
<i>Herperia dacotae</i>	Dakota Skipper	LT	No	Unknown	TES 16-2

Billings County, ND					
<i>Grus americana</i>	Whooping Crane	LE	No	No	
<i>Myotis septentrionalis</i>	Northern Long-eared Bat	LE	No	Yes	TES 16-2
Slope County, ND					
<i>Grus americana</i>	Whooping Crane	LE	No	No	
<i>Myotis septentrionalis</i>	Northern Long-eared Bat	LE	No	No	
C = Candidate; PCH = Proposed Critical Habitat; LT = Listed Threatened; CH = Designated Critical Habitat; LE = Listed Endangered; P = Proposed; XN = Experimental non-essential population					

CHAPTER 2 - PROPOSED ACTION AND ALTERNATIVES

Introduction

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 September 2020 oil and gas lease sale.

Alternatives Considered but Not in Detail

During the scoping and public comment period, the BLM received comments that the BLM failed to consider a reasonable range of alternatives, failed to consider an alternative that would analyze impacts to northern long-eared bat, failed to consider an alternative that would protect usable groundwater, and failed to consider an alternative that would remove parcels containing wetlands, floodplains, or riparian areas. In addition, the BLM received comments requesting the removal of all parcels in greater sage-grouse habitat, or analysis of an alternative that would remove all parcels in sage-grouse habitat.

Northern Long-eared Bat. BLM received comments stating that documented occupied habitat for northern long-eared bat (*Myotis septentrionalis*) was identified within 5 miles of five of the parcels located in MCFO: MT-2020-09-0067, -0069, -0071, -0080, and -2092. In previous sales, BLM has received comments and protests stating that, at a minimum, the BLM must prepare a Biological Assessment and initiate ESA Section 7(a)(2) with U.S. Fish and Wildlife Service, or determine whether the proposed action of leasing was covered by a Programmatic Biological Opinion, for impacts to northern long-eared bat.

Miles City Field Office prepared a Biological Assessment for their RMP revision in 2015, and the USFWS concurred with the BLM's determinations of "may affect or is not likely to adversely affect" the northern long-eared bat (also referred to as northern myotis). The RMP Biological Assessment disclosed that NSO, CSU and other stipulations for riparian and wetland areas would remove oil and gas activity from floodplain /riverine /wetland habitat that may be used by the northern long-eared bat and other listed species and effectively buffer areas used for summer foraging and/or roosting by the species. Refer to Appendix Q of the Miles City RMP, available on ePlanning.

NSO 11-70 prohibits surface occupancy and use in all 100-year floodplains, wetlands, and riparian areas. BLM applied NSO 11-70 to aliquot parts on Parcels -0067, -0069, -0071, -0080, and -2092 in the September 2020 lease sale.

The BLM placed stipulation TES 16-2 Endangered Species Act Section 7 Consultation Stipulation on all parcels all lands. The BLM does not authorize ground disturbance with a lease; therefore, there would be no effect to the northern long-eared bat. For an APD, when actual ground disturbance is proposed, the BLM is required by the "ESA Section 7(a)(2) and the terms of the 2016 Programmatic Biological Opinion...to either initiate consultation with the Fish and Wildlife Service, or make the required determinations and reporting as to whether the proposed action may be covered by the Programmatic Biological Opinion." The BLM would 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 application of the stipulations described above and the BLM's adherence to its obligations under the Endangered Species Act eliminates this alternative from further analysis in this EA.

Groundwater. 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 Onshore Order No. 2 and 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.

Wetlands, Floodplains, Riparian Areas. During initial scoping, the BLM received comments requesting that the BLM analyze an alternative that removes all parcels containing mapped wetlands, floodplains, and riparian areas.

The BLM placed CSU 12-5 on all North Dakota BLM parcels with wetlands, floodplains, and riparian areas. This stipulation restricts surface occupancy and use and would not allow disturbance of these areas, except for essential road and utility crossings. The BLM placed CSU 12-25 on all Montana parcels with riparian or wetland areas. This stipulation requires that a design plan must be approved by the Authorized Officer (AO) for any surface development or use that will occur within 300 feet of wetland or riparian areas. These plans must address potential impacts to riparian and wetland resources, mitigation to reduce impacts, post-project restoration, and monitoring to detect early signs of changes in wetland or riparian function and condition. The BLM placed stipulation DPG CSU 16-2 on all North Dakota FS parcels with wetlands, floodplains, riparian areas and woody draws. This intent of this stipulation is to locate activities and facilities away from the water's edge and outside riparian areas to protect biological and hydrologic features.

Application of these stipulations would adequately protect these resources if the parcels are leased, and if the lessee submits and Application for Permit to Drill (APD) for oil and gas development in proximity to wetland and riparian areas. Therefore, there is not a compelling resource need to develop and analyze an alternative that would defer these parcels.

Sage-Grouse. The Proposed Action alternative originally included five additional parcels, four of which were located in designated Priority Habitat Management Areas (PHMA) for greater sage-grouse, and one of which was located in a designated General Habitat Management Area (GHMA). During scoping, the BLM received comments, including comments from North Dakota Game and Fish, requesting that these parcels be removed from analysis, or that an alternative would be analyzed that removed these parcels.

The BLM contacted the original nominators that submitted expressions of interest (EOI) on the five respective parcels. Of the five, four withdrew their nominations, and the fifth could not be reached. Based on comments received and the withdrawn nominations, the BLM eliminated the alternative that included the five respective parcels from consideration in this assessment.

Alternative A (No Action)

Under the No Action alternative, none of the EOIs to lease (parcel nominations) would be offered for 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 and would remain the same as the affected environment described in Chapter 3. Existing Federal leases for oil and gas properties would continue to generate rental income.

Alternative B (Proposed Action)

The BLM would offer 38 lease parcels encompassing approximately 17,302.43 Federal mineral acres as part of a competitive oil and gas lease sale tentatively scheduled to occur on September 22, 2020 in conformance with the existing land use planning decisions. A BLM interdisciplinary team reviewed all of the parcels and applied stipulations and lease notices designed to avoid or minimize impacts to resources. These stipulations are summarized below, and detailed in **Appendix A** and **B** of this EA.

Miles City Field Office: 12 parcels in Dawson, Sheridan, and Richland Counties (11,713.00 acres).

North Dakota Field Office: 3 parcels in McKenzie, Burke, and Williams Counties (199.97 acres).

Dakota Prairie-Grasslands Administrative Boundary: 23 parcels in McKenzie, Billings, and Slope Counties (5,389.46 acres).

BLM placed No Surface Occupancy (NSO) stipulations on all or aliquot portions of parcels to protect badlands / rock outcrop (NSO 11-69), and streams, riparian areas, wetlands and floodplains (NSO 11-33, NSO 11-70). Within the Dakota Prairie-Grasslands administrative boundary, BLM applied NSO stipulations from the DPG Oil and Gas Leasing Decision to protect slopes greater than 40 percent (DPG NSO 14-1); golden eagle, merlin, and ferruginous hawk nests (DPG NSO 14-5); sharp-tailed grouse and sage-grouse display grounds (DPG NSO 14-7); Little Missouri Scenic Corridor (DPG NSO 14-15); National Register Heritage Sites (DPG NSO 14-16); and inventoried roadless areas (DPG NSO 14-17). Refer to **Appendix A** and **B**.

BLM applied CSU stipulations to all or portions of parcels to avoid and/or minimize impacts to riparian areas and wetlands (CSU 12-5, CSU 12-25), air resources (CSU 12-23), sensitive soils (CSU 12-24), crucial winter range (mule deer) (CSU 12-26), sharp-tailed grouse leks and nesting habitat (CSU 12-27), visual resources (CSU 12-33), and greater sage-grouse general habitat management areas (CSU 12-46). Within the Dakota Prairie-Grasslands administrative boundary, BLM applied CSU stipulations from the DPG Oil and Gas Leasing Decision to avoid and/or minimize impacts to paleontological resources (DPG CSU 16-1); water, wetlands, woody draws, riparian areas, and floodplains (DPG CSU 16-2); special interest areas for paleontological and geological resources (DPG CSU 16-5); high scenic integrity visual resources (DPG CSU 16-6); moderate scenic integrity visual resources (DPG CSU 16-7); and bighorn sheep lambing areas (DPG CSU 16-8). Refer to **Appendix A** and **B**.

BLM applied timing limitation (TL) stipulations to all or portions of parcels to protect the following resources during the time periods when they are most susceptible to impacts from oil and gas activities: waterfowl nesting habitat (TL 13-15). Within the Dakota Prairie-Grasslands administrative boundary, BLM applied TL stipulations from the DPG Oil and Gas Leasing Decision to protect sharp-tailed grouse display grounds (DPG TL 15-1), sage-grouse display grounds (DPG TL 15-2), pronghorn winter range (DPG TL 15-4), bighorn sheep lambing areas (DPG TL 15-7), and bighorn sheep habitat (DPG TL 15-8).

The BLM applied lease notices to the parcels to notify lessees of additional inventory, protection and avoidance requirements for existing/prior land use authorizations (LN 14-1), cultural resources (LN 14-2, LN 14-33), paleontological resources (LN 14-3, LN 14-12, LN 14-29), air resources (LN 14-18), migratory birds (LN 14-20), raptors (LN 14-39), special status species (TES 16-2). Within the Dakota Prairie-Grasslands administrative boundary, BLM applied lease notices to the parcels to notify lessees of additional inventory, protection and avoidance requirements for cultural/paleontological resources and floodplains/wetlands (DPG 13d), special status species (DPG TES 18a, DPG LN 19a), and roadless areas (DPG 22b). Refer to **Appendix A** and **B**.

Based upon calculations made in the Reasonably Foreseeable Development Scenarios, the BLM

estimates that 2-3 new oil wells and 2-3 new gas wells could be drilled in the Miles City Field Office, and six new oil wells could be drilled from four new well pads in the North Dakota Field Office from this lease sale. Refer to **Appendix D**.

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 2 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 Reasonable 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 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 of 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.

For the split-estate lease parcels, the BLM would provide courtesy notification to private landowners that the Federal oil and gas estate under their surface will be included in this lease sale. Prior to approval of the APD, (or Sundry Notice to conduct new surface disturbing activities), the operator must certify as part of the complete application that it has made a good faith effort to reach an agreement with the private surface owner. If the surface owner and operator fail to reach an agreement, the operator must file a bond (determined by BLM, minimum of \$1,000) with BLM for the benefit of the surface owner to cover compensation for reasonable and foreseeable loss of crops and damages to tangible improvements. The BLM will advise the surface owner of appeal rights and will review the value of the bond if the surface owner appeals.

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 Onshore Oil and Gas Order No. 1.

Table 2 September 2020 Lease Sale: Parcels by County, Public Domain & Acquired Lands, Development Potential, and Estimated Surface Disturbance¹

County	Alternative B			Development Potential	Est. # wells	Est. Acres of Surface Disturbance (short / long term)
	# Parcels	BLM Surface	Non-Federal Surface (Split Estate)			
Miles City Field Office						
Dawson	9	7437.92	2915.36	3-high 9-medium	2-3 oil 2-3 gas	10.50 – 15.75 ST 3.90 – 5.85 LT
Sheridan	2	0.00	120.00			
Richland	1	1239.72	0.00			
Total	12	8677.64	3035.36			
			11,713			
North Dakota Field Office						
Billings	9	0.00	1545.02	16-very high 6-high 1-medium 2-low 1-very low	6 oil	28.4 ST 13 LT
Burke	1	0.00	39.97			
McKenzie	13	0.00	3126.44			
Slope	2	0.00	798.00			
Williams	1	0.00	80.00			
Total	26	0.00	5,589.43			
			5,589.43			
Grand Total	38	8677.64	8,624.79		10-12	38.90 – 44.15 ST 16.90 – 18.85 LT
			17302.43			

¹ Total number of wells estimated based on the RFD and rounded to the nearest whole number

CHAPTER 3 – AFFECTED ENVIRONMENT & ENVIRONMENTAL CONSEQUENCES

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 direct, indirect, and cumulative 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 of 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 direct, indirect, and cumulative effects of a specific action. At that time, detailed information about proposed wells and facilities would be provided for particular 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” (USDI and USDA 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 adverse impacts (43 CFR 3101.1-2 Surface use rights; Lease Form 3100-11, Section 6) to protect sensitive resources, and to ensure compliance with laws, regulations, and land use plans.

Methodology and Analytical Assumptions

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 or not 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 each of the applicable ARMPs based upon potential well densities

discerned from the Reasonably Foreseeable Development (RFD) Scenario developed for each 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 September 2020 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.

The analysis area varies by resource, and generally includes the 38 lease parcels of Federal minerals for oil and gas leasing, covering approximately 17,302.43 Federal mineral acres in Dawson, Sheridan, and Richland Counties in Montana, Billings, Burke, McKenzie, Slope, and Williams Counties in North Dakota, as well as a larger area around the parcels to capture indirect and cumulative 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

Of the parcels in Dawson County, Montana, only two are located near an established oil or gas field (Deer Creek Field). The majority of the Dawson County parcels are to the NNE of the Cedar Creek Anticline, an elongate northwest trending anticline approximately 100 miles long and 10 miles wide, located on the northwest flank of the Williston basin. Currently, most production from the Cedar Creek Anticline is from the Red River formation (Late Ordovician).

One parcel in Sheridan County, Montana is located within the Goose Lake Field; the other parcel in this county is located adjacent to the Midby Field. Nearby wells have produced from the Nisku, Bakken, and Red River formations.

The parcel in Richland County is not within an established field but is located near the North Sioux Pass Duperow Field. Nearby wells have produced mainly from the Bakken formation.

In North Dakota, two of the Billings County parcels are within the Tree Top Field, one parcel is within the Whitetail Field, two parcels are within the Tracy Mountain Field, one parcel is within the North Elkhorn Ranch Field, one parcel is within the Elkhorn Ranch Field, one parcel is within the Demores Field, and one parcel is adjacent to the Roosevelt Field. The parcel in Burke County is located adjacent to the Foothills Field. In McKenzie County, one parcel is within the Bicentennial Field, two parcels are within the Cinnamon Creek Field, one parcel is within the Bully Field, one parcel is within the Trailside Field, one parcel is within the Roughrider Field, one parcel is within the Mondak Field, one parcel is within the Pierre Creek Field, one parcel is within the Winter Butte Field, one parcel is within the Randolph Field, two parcels are within the Charlie Bob Field, and one parcel is located adjacent to the Grassy Butte Field. In Slope County, one parcel is within Eleven Bar Field, and one parcel is located near Cash Field. The parcel in Williams County is within the Big Stone Field. These fields are all associated with the Bakken Total Petroleum System which includes the Three Forks and Red River formations.

Air Resources

Air resources include ambient air quality, air quality related values (AQRVs), and climate. AQRVs are resources that are sensitive to air quality and include streams, lakes, soils, vegetation, fish and wildlife, and visibility (National Park Service 2019). As part of the planning and decision-making process, BLM considers and analyzes the potential effects of BLM's and BLM-authorized

activities on air resources. Air resources are affected by pollutant emissions and characteristics, atmospheric chemistry, dispersion meteorology, and terrain.

Affected Environment

The lease parcels proposed in this EA are located in sparsely populated areas of eastern Montana and western North Dakota (**Figure 2**). The affected environment for air resources is determined by the areas that are directly and indirectly affected by emissions from proposed lease parcel oil and gas development activity. Air resources beyond each leased parcel could be affected because air pollution disperses in the atmosphere. The affected environment for air resources would depend on several factors including the type of air pollutant emissions such as stationary, mobile, point, area or fugitive emissions, temperature, emissions quantity, short-term and long-term emissions, quantity of emissions, meteorology and other factors.

The Environmental Protection Agency (EPA) uses an Air Quality Control Region (AQCR), a metropolitan area or a county as the geographic area designated as meeting or not meeting National Ambient Air Quality Standards (NAAQS). A 50 km (31.1 miles) radius around a proposed action is often used for regulatory compliance because this distance is the air dispersion modeling limit for American Meteorological Society / EPA Regulatory Model (AERMOD), a near-field regulatory model that is used to predict compliance with the NAAQS. However, for activities with intermittent and short-term emissions, the radius of significant impact could be lower than 50 km. The direct impacts analysis area is considered as a 50 km (31.1 miles) radius beyond the proposed lease parcels. Indirect impact analysis area is considered at multiple levels including state-wide, the Northern Great Plains, the United States (U.S.) and the world.

Clean Air Act

This section describes the regulatory framework that provides BLM direction for the impact analyses and may provide authorities for BLM's decision to be made. The section also outlines references and data sources used to direct analyses where regulations and authorities are lacking. The Clean Air Act (CAA) of 1963 ([42 U.S.C. § 7401](#)) and subsequent amendments established the framework for setting nation-wide outdoor (ambient) air quality standards for pollutants. The purpose of these standards is to prevent ambient air pollution from reaching levels that harm public health and welfare.

Criteria Air Pollutants

To protect public health and welfare nationwide, the Clean Air Act requires EPA to establish NAAQS for certain common and widespread pollutants based on the latest science. The EPA developed NAAQS for six criteria air pollutants (CAPs), Sulfur Dioxide (SO₂), Particulate Matter equal to and less than 10 micrometers in aerodynamic diameter (PM₁₀), Nitrogen Dioxide (NO₂), Carbon Monoxide (CO), Ozone (O₃), and Lead (Pb). In 2006, the EPA promulgated a NAAQS for Particulate Matter equal to or less than 2.5 micrometer in aerodynamic diameter (PM_{2.5}). The NAAQS (See **Table 3**) established the acceptable levels of pollutant concentration in ambient air. Primary air quality standards are designed to protect human health, with an adequate margin of safety, including sensitive populations such as children, the elderly, and individuals suffering from respiratory diseases. Secondary standards are designed to protect public welfare from any known or anticipated adverse effects of a pollutant (EPA 2019a).

Two additional pollutants of concern, nitrogen oxides (NO_x) and volatile organic compounds

(VOCs) contribute to the formation of the CAP O₃ in the atmosphere. NO_x is formed during combustion and is a combination of various oxides of nitrogen. NO_x is converted to the CAP NO₂ in the atmosphere. There are no NAAQS for NO_x and VOCs.

Table 3 National Ambient Air Quality Standards

Pollutant		Primary/ Secondary	Averaging Time	Level	Form
Carbon Monoxide (CO)		primary	8 hours	9 ppm	Not to be exceeded more than once per year
			1 hour	35 ppm	
Lead (Pb)		primary and secondary	Rolling 3-month average	0.15 µg/m ³ (1)	Not to be exceeded
Nitrogen Dioxide (NO ₂)		primary	1 hour	100 ppb	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		primary and secondary	1 year	53 ppb (2)	Annual Mean
Ozone (O ₃)		primary and secondary	8 hours	0.070 ppm (3)	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
Particle Pollution (PM)	PM _{2.5}	primary	1 year	12.0 µg/m ³	annual mean, averaged over 3 years
		secondary	1 year	15.0 µg/m ³	annual mean, averaged over 3 years
	PM ₁₀	primary and secondary	24 hours	150 µg/m ³	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide (SO ₂)		primary	1 hour	75 ppb (4)	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		secondary	3 hours	0.5 ppm	Not to be exceeded more than once per year

Table source: EPA (2019b) <https://www.epa.gov/criteria-air-pollutants/naaqs-table>

Notes for Table 3 | National Ambient Air Quality Standards are given below.

(1) In areas designated nonattainment for the Pb standards prior to the promulgation of the current (2008) standards, and for which implementation plans to attain or maintain the current (2008) standards have not been submitted and approved, the previous standards (1.5 µg/m³ as a calendar quarter average) also remain in effect.

(2) The level of the annual NO₂ standard is 0.053 ppm. It is shown here in terms of ppb for the purposes of clearer comparison to the 1-hour standard level.

(3) Final rule signed October 1, 2015, and effective December 28, 2015. The previous (2008) O₃ standards additionally remain in effect in some areas. Revocation of the previous (2008) O₃ standards and transitioning to the current (2015) standards will be addressed in the implementation rule for the current standards.

(4) The previous SO₂ standards (0.14 ppm 24-hour and 0.03 ppm annual) will additionally remain in effect in certain areas: (1) any area for which it is not yet 1 year since the effective date of designation under the current (2010) standards, and (2) any area for which an implementation plan providing for attainment of the current (2010) standard has not been submitted and approved and which is designated nonattainment under the previous SO₂ standards or is not meeting the requirements of a SIP call under the previous SO₂ standards (40 CFR 50.4(3)). A SIP call is an EPA action requiring a state to resubmit all or part of its State Implementation Plan to demonstrate attainment of the required NAAQS.

The EPA has delegated air quality monitoring, permitting and regulation activities under the CAA to individual states. 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) adopted the NAAQS, conducts ambient air quality monitoring, and develops permitting and registration requirements as well as implementing emission standards for equipment involved in oil and gas development (MT DEQ, 2019). In North Dakota, the Department of Environmental Quality (ND DEQ) Division of Air Quality (ND DoAQ) maintains federal delegation of responsibility for EPA programs, protecting North Dakota's air quality and other regulatory responsibilities under the CAA (ND DoAQ, 2020).

Both ND DoAQ and MT DEQ have developed a network of ambient monitoring sites to assess NAAQS compliance. The CAPs CO and Pb are not routinely monitored because these pollutants do not occur in ambient air in high concentrations anymore. High CO emissions were historically a concern in large population areas where older motor vehicle emissions, traffic congestion and meteorological conditions caused CO ambient issues in the past. With improvement in traffic patterns and cleaner burning engines in newer vehicle fleet, ambient CO concentrations have remained very low. Pb was used in gasoline in the past to increase engine performance and reduce valve wear and was phased out of general use in the U.S. for on-road automobile and truck fuel in the 1970s.

EPA has established regional boundaries, referred to as AQCRs, to control air pollution. An AQCR complying with a specific air quality standard is known as an "attainment area" for that standard and, if out of compliance, the region is known as a "non-attainment area. The proposed parcels for this lease sale are located in attainment areas for the six criteria pollutants.

Oil and gas development and associated construction and production activities can result in emissions that can affect ambient concentrations of PM₁₀, PM_{2.5}, O₃, CO, NO_x, and in some fields, release H₂S and SO₂. Although no Federal Ambient Air Quality Standards exists for H₂S, the state of North Dakota has developed H₂S standards in response to historically high petroleum sulfur content (during the 1980s in particular) and associated high H₂S. Emissions of H₂S have reduced significantly over time as production from these older sites has declined. The Bakken formation, the focus of the most recent oil and gas activity in the state, has been found to result in very low H₂S emissions when compared to legacy (non-Bakken) operations (ND DoAQ, 2019). The CAP SO₂ is released when gas containing H₂S is combusted.

Hazardous Air Pollutants

Under the CAA, the EPA also regulates emissions of hazardous air pollutants (HAPs), also referred to as federal air toxics, that are suspected to cause cancer or other serious health effects. The EPA's

current list includes 187 HAPs. The emissions of HAPs are regulated by industrial source categories that must install emissions control equipment. The EPA is required to develop regulations for all industries that emit one or more of the pollutants in significant quantities (EPA 2020a).

HAPs are also released from oil and gas operations, including well drilling, well completion, and venting. New equipment emissions standards such as Maximum Achievable Control Technologies (MACT) and New Source Performance Standards (NSPS) are used to control HAPs' emissions. Examples of listed HAPs associated with the oil and gas industry include formaldehyde, benzene, toluene, ethyl benzene, isomers of xylene (BTEX) compounds, and normal-hexane (n-hexane). HAPs do not have ambient air quality standards and ambient monitoring data for HAPs are not available.

Greenhouse Gases

Greenhouse gases (GHGs) became regulated pollutants on January 2, 2011 under the Prevention of Significant Deterioration (PSD) and Title V Operating Permit Programs (EPA 2020b) because of their contribution to global climate change effects. The EPA's GHG Tailoring Rule (40 CFR Parts 51, 52, 70, et al.) set initial emissions thresholds for PSD and Title V permitting for major emission sources under the CAA. On June 23, 2014, the U.S. Supreme Court issued its decision in *Utility Air Regulatory Group v. EPA*, 134 S. Ct. 2427 (2014) ("UARG"). The Court held that EPA may not treat GHGs as an air pollutant for purposes of determining whether a source is a major source required to obtain a PSD or title V permit.

EPA's Mandatory Reporting Rule (40 CFR Part 98, Subpart C) does not require control GHG, it only requires that sources above the threshold levels monitor and report emissions. This provides a basis for future EPA policy decisions and regulatory initiatives regarding GHGs. Reported emissions are recorded in EPA's Greenhouse Gas Reporting Program (GHGRP) database, which has published GHG emissions since 2010.

The United States Global Change Research Program (USGCRP) is a Federal program that was established by Presidential Initiative in 1989 and mandated by Congress in the Global Change Research Act of 1990 ([Public Law 101-606 \(11/16/90\) 104 Stat. 3096-3104](#)). The Global Change Research Act of 1990 mandates that the USGCRP deliver a report to Congress and the President no less than every four years, the latest in 2019, on the effect of climate change and the trends in global climate change (USGCRP, 2019). **Appendix E** includes a discussion of GHGs, climate and climate change.

Prevention of Significant Deterioration

The PSD program is a CAA permitting program designed to protect public health and welfare and to preserve, protect, and enhance the air quality in national parks, national wilderness areas, national monuments, and other areas of special value.

The CAA gives special air quality and visibility protection to national parks larger than 6,000 acres and national wilderness areas larger than 5,000 acres that were in existence when it was amended in 1977 (NPS, 2019a). These areas are designated "Class I" areas. The Federal Class I Areas and Native American Class I areas in Montana and North Dakota are shown in Figure 1. All other areas are "Class II" allowing for a moderate amount of air quality deterioration. Because air pollution is often regional in nature, reductions in pollution to improve visibility in Class I parks will also improve visibility in all parks in the surrounding area. The PSD program applies to new (or modified) major stationary sources in attainment areas; PSD major sources are defined as those

sources that emit 100 tons per year (tpy) or more of any CAP for specifically listed source categories or that emit 250 tpy of any CAP and are not in a specifically listed source category.

Figure 1 Clean Air Act Class I Areas

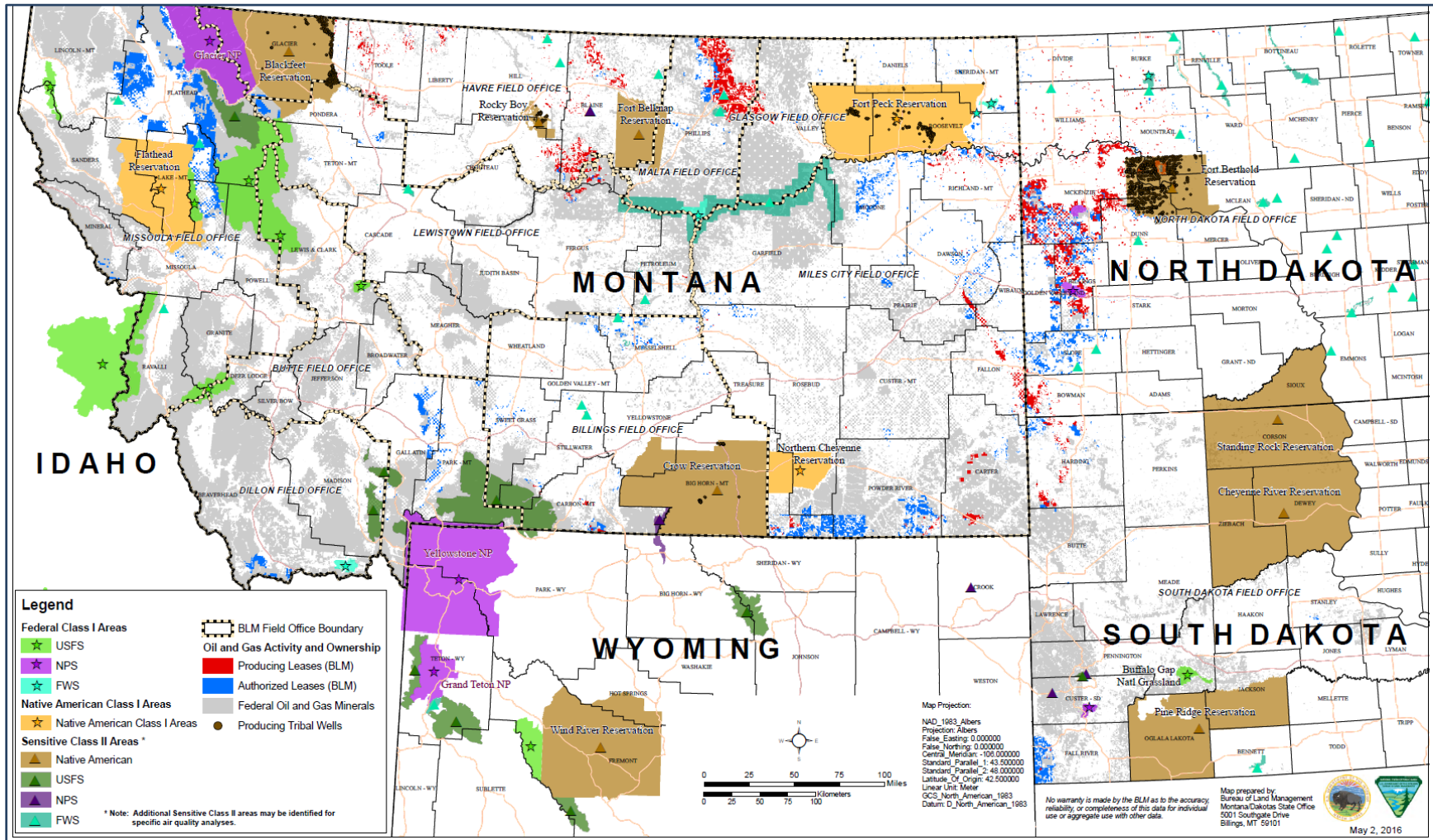
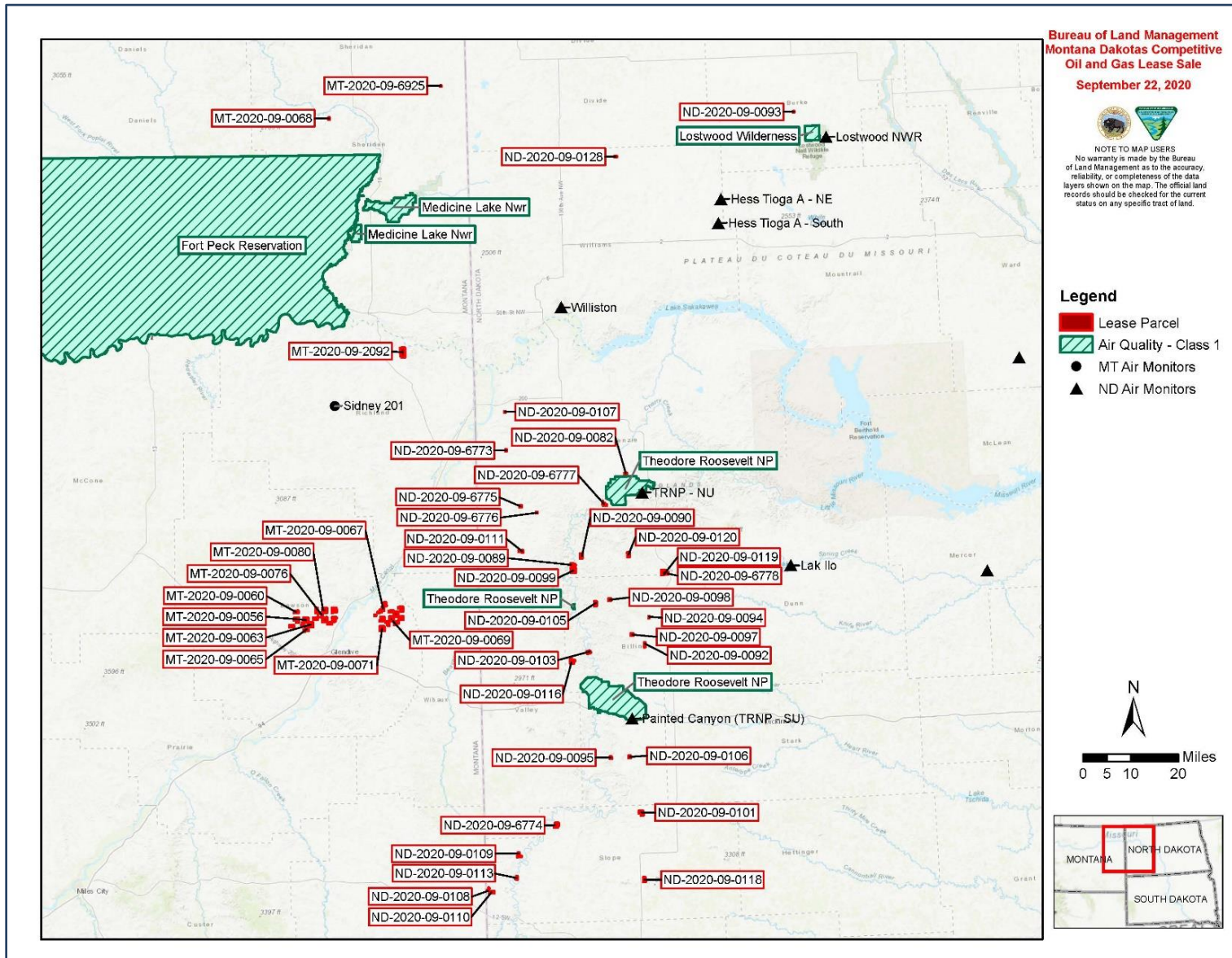


Figure 2 Proposed BLM Lease Parcels, CAA Class I area and air monitors



Air Quality Related Value

An Air Quality Related Value (AQRV) is defined as a resource “for one or more Federal areas that may be adversely affected by a change in air quality”. The resource may include visibility or a specific scenic, cultural, physical, biological, ecological, or recreational resource identified by the federal land manager for a particular area” (NPS, 2019). The requirement to assess impacts to AQRVs is established in the PSD rules. The Federal land manager for each Class I area has the responsibility to define and protect the AQRVs at such areas and to consider whether new emissions from proposed major facilities (or modifications to major facilities) would have an adverse impact on those values. Ambient air pollution can affect AQRVs through increased pollutant concentrations and result in adverse effects to vegetation, visual impairment of scenic views, and increased acidity through dry and wet deposition of air pollutants. AQRVs on federal lands are identified and managed within the respective jurisdictions of several land management agencies in designated Class I areas. To prevent degradation of air quality in pristine areas, the CAA gives special air quality and visibility protection to national parks and national wilderness that are classified as Class I areas. Figure 1 shows a map developed for the BLM Resource Management Plans and includes the states of Montana, North Dakota and South Dakota, the BLM field office boundaries, existing oil and gas activities and ownerships, and the federal Class I areas located in the region. Existing conditions related to AQRVs were described in the Miles City, Billings, and HiLine Resources Management Plans and the reader is referred to these plans for additional background information.

Atmospheric deposition occurs when gaseous and particulate air pollutants are deposited on the ground, water bodies or vegetation. The pollutants may settle as dust or get washed from the atmosphere in rain, fog, or snow. When air pollutants such as sulfur and nitrogen are deposited into ecosystems, they may cause acidification, or enrichment of soils and surface waters. 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 <https://www.epa.gov/castnet/castnet-site-locations>.

Visibility

Section 169A of the CAA established a national visibility goal to prevent future visibility impairment and remedy any existing impairment in Class I areas. Visibility and haze are regulated under the Regional Haze Rule of the CAA (40 CFR 51 Subpart P). Visibility refers to the clarity with which scenic vistas and landscape features are perceived at great distances. Impairment refers to human-caused air pollution. In 1999, the EPA promulgated the Regional Haze Rule to address regional haze, which refers to haze that impairs visibility in all directions over a large area. Haze forms when sunlight encounters particle matter pollution (PM₁₀ and/or PM_{2.5}) and aerosols dispersed in the air. The Regional Haze Rule calls for state and Federal agencies to work together to establish goals and emission reduction strategies to improve visibility in Class I areas (EPA, 2020c). Individual states are required to address visibility in their SIPs. North Dakota implemented the Regional Haze Requirements in NDAC 33.1-15-25 that became effective in January 2019. The EPA published a Montana SIP for regional haze plan in 2012 (Federal Register vol 77, No 181, Sep 18, 2012). Subsequently, MT DEQ published a five-year regional haze progress report in August 2017 (MT DEQ, 2020b).

Class I areas are managed by the National Park Service, U.S. Fish and Wildlife Service, U.S. Forest

Service, and several Native American Tribes. The Class I areas in western North Dakota are Lostwood National Wildlife Refuge (NWR) in Burke County, Theodore Roosevelt National Park (TRNP) consisting of three separate units: North Unit (NU) in McKenzie County, Elkhorn Ranch Unit in Billings County, and South Unit (SU) in Billings County, North Dakota; and the Class I areas in eastern Montana are Fort Peck Indian Reservation and Medicine Lake NWR. The primary anthropogenic sources of visibility impairment in North Dakota Class I Areas include electric utility steam generating units, energy production and processing sources, agricultural production and processing sources, prescribed burning, and fugitive dust sources. Visibility impairment due to single sources may be assessed for the purposes of satisfying requirement for programs such as PSD. The Federal Land Managers' Air Quality Related Values Work Group (FLAG) has defined procedures for visibility assessment for major emission sources subject to CAA's PSD regulations. For projects subject to NEPA, a cumulative analysis is done when an EIS is prepared. The Interagency Monitoring of Protected Visual Environments program (IMPROVE) was initiated in 1985 to establish current visibility conditions and monitor trends in national parks and wilderness areas. The IMPROVE monitoring program and trends are discussed in a separate section.

Pollutant particles in the atmosphere can impair scenic views, degrading the contrast, colors, and distance an observer is able to see. 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.

Figure 2 shows the locations of the proposed parcels allocated for the September 2020 lease sale and their proximity to Class I areas and ambient air monitors. The Class I areas in the vicinity of one or more of the proposed parcels are Fort Peck Reservation, Medicine Lake National Wildlife Refuge (NWR), Lostwood NWR and the three distinct units of Theodore Roosevelt National Park (TRNP).

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 natural and anthropogenic scattering and absorption. Pollutants contribute to haze by scattering and absorbing light. A deciview is a unitless measure of visibility (haze) that quantifies visual perception. It 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.

IMPROVE Monitoring

Under the IMPROVE program, there are four monitoring stations, two in eastern Montana at Fort Peck and Medicine Lake (**Figure 3 and Figure 4**), and two in western North Dakota at Lostwood NWR and TRNP-SU (**Figure 5 and Figure 6**) which collect visibility data and determine regional haze level (Federal Land Manager Environmental Database, 2020). Average visual range is 60 to 90 miles (100 to 150 kilometers) in many Class I areas in the west, equivalent to 13.6 to 9.6 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).

Figure 3 Visibility Trends at Fort Peck, Montana

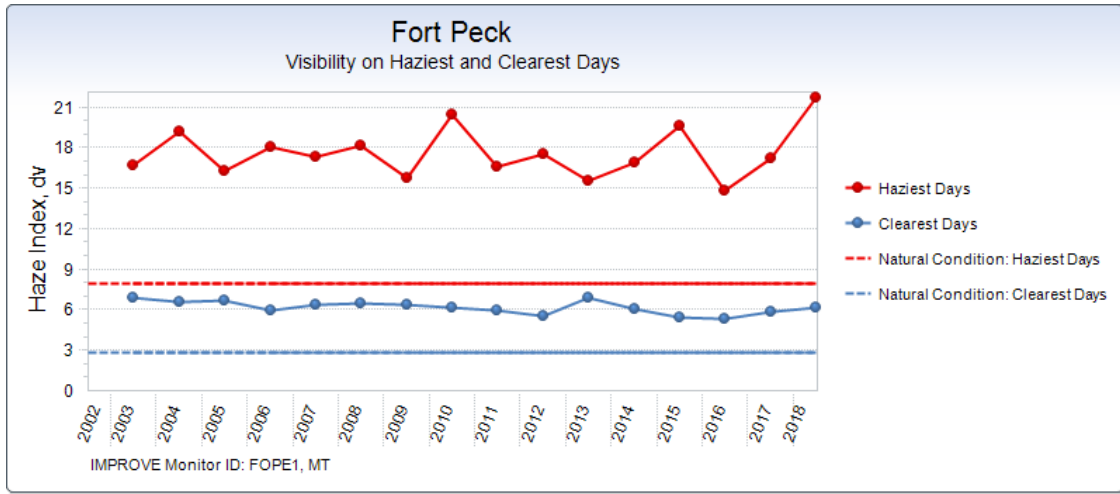


Figure 4 Visibility Trends at Medicine Lake, Montana

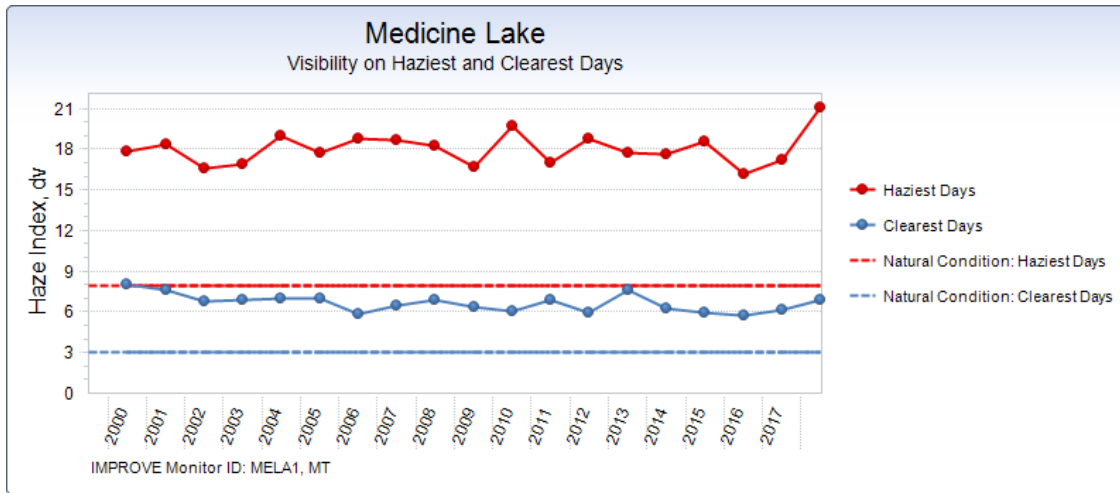


Figure 5 Visibility Trends at Lostwood Wilderness, North Dakota

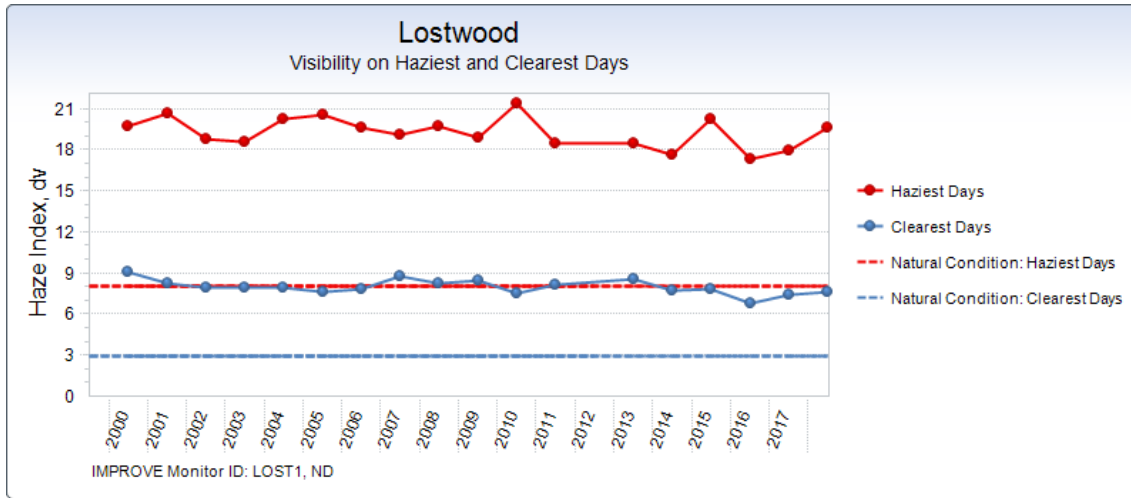
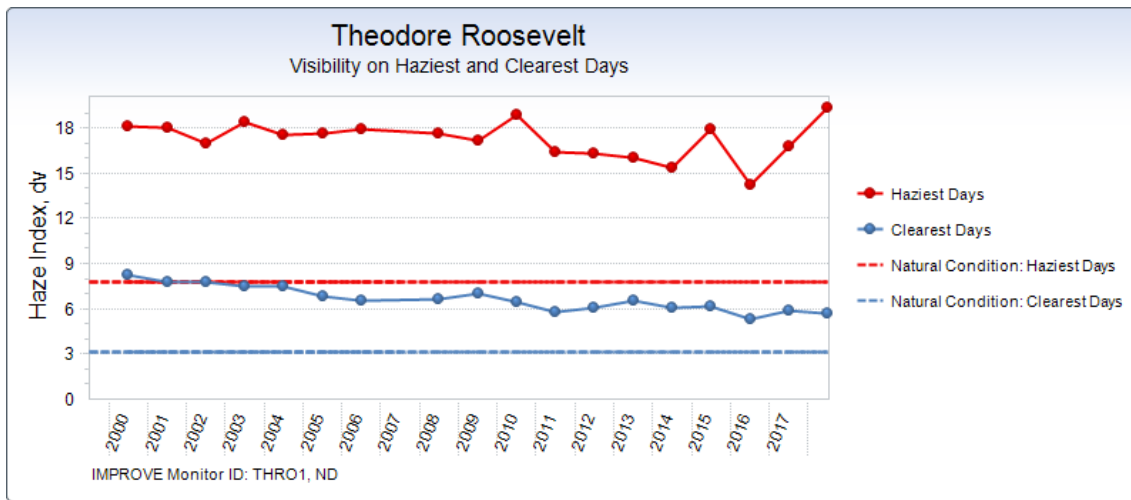


Figure 6 Visibility Trends at TRNP-SU, North Dakota



Visibility Trend Source: Federal Land Manager Environmental Database, 2020;
<http://vista.cira.colostate.edu/Improve/data-page/> Webpage accessed on 2020/05/03

Figures 3 through 6 show haze index charts in deciview for sixteen (2002-2018) years from Fort Peck and nineteen (2000-2018) years from Medicine Lake, Lostwood NWR and TRNP-SU. Haze index on the chart is given in deciview, a unitless measure of visibility that quantifies visual perception. A higher deciview is indicative of lower visual range and 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 seasonally throughout the year, it is characterized by three groupings: the clearest 20% days, average 20% days, and haziest 20% days. Because visibility at any one location is highly variable seasonally throughout the year, it is characterized by three groupings: the clearest 20% days, average 20% days, and haziest 20% days.

From 2003 to 2018, the clearest days at Fort Peck site (**Figure 3**) have seen a decreasing dv trend of -0.05 dv/year (from 6.9 dv in 2003 to 6.2 in 2018). The annual average haze index for the haziest

days at Fort Peck site has a slight upward trend of 0.33 dv/year (from 16.7 dv in 2003 up to 21.7 dv in 2018).

From 2000 to 2018, the clearest days in the Medicine Lake (**Figure 4**) have seen a dv trend of -0.06 dv/year (maximum of 8.0 dv in 2000 to 6.9 in 2018). The annual average haze index for the haziest days at Theodore Roosevelt National Park has a slight upward trend of 0.06 dv/year (from 17.8 dv in 2000 up to 21.1 dv in 2018).

The Lostwood NWR site (**Figure 5**) has remained fairly constant since 2001 from a visibility perspective. Trends show a slight decline in dv on the clearest days of -0.08 dv/year (9.1 dv in 2000 to 7.6 dv in 2018) and haziest days -0.006 dv/year (19.7 dv in 2000 to 19.6 dv in 2018) (Federal Land Manager Environmental Database, 2020).

From 2000 to 2018, the clearest days in the TRNP-SU (**Figure 6**) have seen a dv trend of -0.14 dv/year (maximum of 8.2 dv in 2000 to 5.7 in 2018). The annual average haze index for the haziest days at Theodore Roosevelt National Park has a slight upward trend of 0.06 dv/year (from 18.1 dv in 2000 up to 19.3 dv in 2018).

The measurement at the four IMPROVE sites show that the changes in visibility trend are less than 1 dv since the first decade of the twenty-first century (since 2003 for the Fort Peck site and since 2000 for Lostwood, Medicine Lake, and TRNP-SU sites) and would not be perceptible to human eye.

Ambient Air Quality Monitoring

As required by the CAA and EPA's State Implementation Plan (SIP) requirements, both MT DEQ and ND DoAQ operate a network of ambient air monitoring stations to measure CAPs in ambient air and assess air quality compliance in Montana (MTDEQ, 2020c) and North Dakota (ND DoAQ, 2019). The measured pollutant concentrations are then compared to NAAQS. Ambient air monitoring in the vicinity of the proposed lease parcels in western North Dakota, are conducted at four monitoring sites at Williston, Lostwood NWR, TRNP-NU and TRNP-SU. In Montana, Sidney 201 in Richland County and Broadus monitor located in Powder River County are the closest ambient air monitors to the proposed lease parcels. Broadus monitor is over 100 km away from the nearest proposed lease parcels and is not included in this discussion. Thus, there are adequate ambient monitoring sites in the region that determine the status of ambient air quality in eastern Montana and western North Dakota.

Of the forty-three proposed lease parcels, at least twenty-seven are located within 50 km from an ambient air monitor. The proposed lease parcel MT-2020-09-2092 is located 28 km from Sidney 201 in Richland County, and twenty other proposed parcels are within 100 km from the Sidney 201 monitor. Several proposed lease parcels in North Dakota and Eastern Montana, are located within 50 km from TRNP-NU and Painted Canyon (TRNP-SU) monitors. The lease parcel ND-2020-09-0082 in McKenzie County is 8 km from TRNP-NU, ND-2020-09-0106 in Billings County is 13 km from Painted Canyon (TRNP-SU) monitor and ND-2020-09-0093 in Burke County is 13 km from air monitor at Lostwood NWR. The ambient air quality data measured at the four ambient air monitors Sidney 201, Lostwood NWR, TRNP-NU, TRNP-SU and monitors in Williams county are given in **Tables 4 through 8**. Together these monitors well represent the air quality in the region.

The recent five-year (2014-2018) air pollutant data from Sidney (**Table 4**), Lostwood NWR (**Table 5**), TRNP-NU (**Table 6**), Painted Canyon at TRNP-SU (**Table 7**) and Williams County (**Table 8**) lists the concentration of CAPs measured in the region. Please note that not all monitors measure all pollutants. The tables list ambient CAPs concentrations for different time periods (1-hour, 8-hour, 24-hour or annual) from each monitoring site and compares the pollutant concentration to the NAAQS limit for each pollutant. The ‘Highest Percent of NAAQS’ in the last column was calculated by selecting the highest pollutant concentration from each row for the 2014-2018 collection period and dividing by the NAAQS limit. The tables show that the maximum air quality statistics are below the NAAQS threshold and the area is in compliance.

Table 4 Ambient Air Monitor Data from Sidney Monitor

Pollutant ID	Standard	Averaging Period ¹	Units	Station Name	Monitored Concentration in 2014-2018					NAAQS	Highest Percent of NAAQS
					2014	2015	2016	2017	2018		
NO ₂	Primary & Secondary	1-hour	ppb	Sidney	9	8	10	8	12	100	12%
NO ₂	Primary & Secondary	Annual	ppb	Sidney	1.19	0.51	0.6	0.9	0.92	53	2%
O ₃	Primary & Secondary	8-hour	ppb	Sidney	56	56	55	60	62	70	89%
PM ₁₀	Primary & Secondary	24-hour	mg/m ³	Sidney	138	76	75	68	75	150	92%
PM _{2.5}	Primary & Secondary	24-hour	mg/m ³	Sidney	15	15	12	12	11	35	43%
PM _{2.5}	Primary & Secondary	Annual	mg/m ³	Sidney	7	7	5.6	5.2	4.9	12	58%
SO ₂	Primary & Secondary	1-hour	ppb	Sidney	5	5	7	37	6	75	49%

Notes for Sidney Monitor Data:

Table shows NAAQS data. Montana also has other state specific air quality standards. The Sidney site is in compliance with Montana state standards

Montana Data from Montana DEQ Air Monitoring Network Plan and <https://www.epa.gov/outdoor-air-quality-data/monitor-values-report>

DEQ operates the Sidney site, a Special Purpose Monitor to assess impacts from oil and gas production in eastern Montana.

Sidney Site was relocated in 2017 to corner of CR 326 and State Highway 201 and data was collected for part of 2017 at this site

PM₁₀ values listed are maximum measured 24-hour values. For compliance purposes, it is the second-high annual value that should not exceed NAAQS.

Table 5 Ambient Air Monitor Data from Lostwood NWR Monitor

Pollutant ID	Standard	Averaging Period ¹	Units	Monitored Concentration in 2014-2018					NAAQS	Highest Percent of NAAQS
				2014	2015	2016	2017	2018		
NO ₂	Primary & Secondary	1-hour	mg/m ³	14	13	12	10	11	100	14%
NO ₂	Primary & Secondary	Annual	ppb	2.1	1.96	1.67	1.67	2.22	53	4%
O ₃	Primary & Secondary	8-hour	ppb	58	60	59	59	57	70	86%
PM ₁₀	Primary & Secondary	24-hour	mg/m ³	47	103	79	66	65	150	69%
PM _{2.5}	Primary & Secondary	24-hour	mg/m ³	15	24	23	24	16	35	69%
PM _{2.5}	Primary & Secondary	Annual	mg/m ³	5.7	5.5	4.1	4.3	2.9	12	48%
SO ₂	Primary & Secondary	1-hour	ppb	26	26	23	20	19	75	35%

Table 6 Ambient Air Monitor Data from TRNP-NU Monitor

Pollutant ID	Standard	Averaging Period ¹	Units	Monitored Concentration in 2014-2018					NAAQS	Highest Percent of NAAQS
				2014	2015	2016	2017	2018		
NO ₂	Primary & Secondary	1-hour	mg/m ³	11	12	12	10	9	100	12%
NO ₂	Primary & Secondary	Annual	ppb	1.64	1.66	1.3	1.3	1.66	53	3%
O ₃	Primary & Secondary	8-hour	ppb	57	58	57	58	58	70	83%
PM ₁₀	Primary & Secondary	24-hour	mg/m ³	30	57	57	59	55	150	39%
PM _{2.5}	Primary & Secondary	24-hour	mg/m ³	15	18	17	20	17	35	57%
PM _{2.5}	Primary & Secondary	Annual	mg/m ³	4.6	3.4	2.8	3.7	4.2	12	38%
SO ₂	Primary & Secondary	1-hour	ppb	5	6	6	7	7	75	9%

Table 7 Ambient Air Monitor Data from Painted Canyon at TRNP-SU Monitor

Pollutant ID	Standard	Averaging Period ¹	Units	Monitored Concentration in 2014-2018					NAAQS	Highest Percent of NAAQS
				2014	2015	2016	2017	2018		
O ₃	Primary & Secondary	8-hour	ppb	56	58	58	60	59	70	86%
PM _{2.5}	Primary & Secondary	24-hour	mg/m ³	11	17	16	17	15	35	49%
PM _{2.5}	Primary & Secondary	Annual	mg/m ³	4.5	4.9	4	4	3.8	12	41%
SO ₂	Primary & Secondary	1-hour	ppb	8	5	5	5	4	75	11%

Table 8 Ambient Air Monitor Data from Painted Canyon at Monitors in Williams County

Pollutant ID	Standard	Averaging Period ¹	Units	Station Name	Monitored Concentration in 2014-2018					NAAQS	Highest Percent of NAAQS
					2014	2015	2016	2017	2018		
O ₃	Primary & Secondary	8-hour	ppb	Williston	58	58	56	57	58	70	83%
PM ₁₀	Primary & Secondary	24-hour	□g/m ³	Williston	108	147	104	82	57	150	98%
PM _{2.5}	Primary & Secondary	24-hour	□g/m ³	Williston	19	25	22	23	18	35	71%
PM _{2.5}	Primary & Secondary	Annual	□g/m ³	Williston	7.9	6.9	4.5	4.1	4.5	12	66%
SO ₂	Primary & Secondary	1-hour	ppb	Hess Tioga				17	14	75	23%

Note for Tables 2 to 6. ¹ For averaging period data description, please refer to notes following Table 1. Ambient Air Quality Standards.

Air Quality Index

EPA’s Air Quality Index (AQI) is an indicator of overall air quality because takes into account all of the CAPs measured within a geographic area. Although AQI includes all available pollutant measurements, many areas have monitoring stations for some, but not all, of the pollutants (EPA, 2020). The EPA calculates AQI from local air monitoring sites such as the ones discussed in the Ambient Air Quality Monitoring section. The AQI provides the public an estimate of how clean or polluted ambient air is and whether associated health effects might be a concern in a region. An index value is calculated for each air pollutant measured. The highest of those index values is the AQI value, and the pollutant responsible for the highest index value is the "Main Pollutant." The AQI number ranges from 0 to 500. The higher the AQI value, the greater the level of air pollution and the greater the health concern. For example, an AQI value of 50 represents good air quality with little potential to affect public health, while an AQI value over 300 represents hazardous air quality. AQI values below 50 are considered ‘good’, AQI below 100 are considered as satisfactory. An AQI of 100 corresponds to the NAAQS for a pollutant.

The EPA AQIs were obtained for the recent five-year period 2015 to 2019 for Richland, Billings, Burke, and McKenzie counties. AQI data are not available for Sheridan, Slope and Dawson counties because there are no air quality monitors near those areas.

The five-year AQI statistics in **Table 9** show that the AQI was rated good for 85.1-92.2%, moderate for 7.1-13.7%, and unhealthy for 0.3-1.2% of the total measurement days. Both good and moderate AQI statistics are considered acceptable to the general public and range from 98.8% in Williams county to 99.7% in Billings county during 2015-2019. The AQI data statistics indicate that the air quality in the area surrounding the proposed lease parcels continue to maintain air quality standards.

Table 9 EPA AQI 2015-2019 County Data Summary

County	Days with AQI 2015-2019 ¹	Days Rated Good	Days Rated Moderate	% good and moderate	Days Rated unhealthy ¹	% Days Rated Good	% Days Rated Moderate	% Days Rated Unhealthy
Richland, MT	1817	1619	188	99.4%	10	89.1%	10.3%	0.6%
Billings, ND	1821	1678	137	99.7%	6	92.1%	7.5%	0.3%
Burke, ND	1818	1677	129	99.3%	12	92.2%	7.1%	0.7%
McKenzie, ND	1813	1672	133	99.6%	8	92.2%	7.3%	0.4%
Williams, ND	1826	1554	251	98.8%	21	85.1%	13.7%	1.2%

¹ includes days rated unhealthy for sensitive groups, unhealthy, and very unhealthy

² Table 2-B lists AQI data available on EPA's AQI webpage on 5/1/2020.

Source: EPA Air Data (EPA 2020) <https://www.epa.gov/outdoor-air-quality-data> (accessed 05/01/2020)

Climate and Climate Change

Climate is the composite of generally prevailing weather conditions, such as temperature and precipitation, of a particular region over a long period of time. Climatologists use 30-year historical averages of variables, such as temperature and precipitation, as benchmarks to put the magnitude of a change into historical context. Climate change is a long-term change in weather patterns that have come to define Earth's local, regional and global climates. Changes observed in Earth's climate since the early 20th century are primarily driven by human activities, particularly fossil fuel burning, which increases heat-trapping greenhouse gas levels in Earth's atmosphere, raising Earth's average surface temperature. These human-produced temperature increases are commonly referred to as global warming (NASA, 2019).

A discussion of climate and climate change is presented in **Appendix E, Section 2**. In summary, climate change is defined by the Intergovernmental Panel on Climate Change (IPCC) as “a change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties, and persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes or external forces such as modulations of the solar cycles, volcanic eruptions and persistent anthropogenic changes in the composition of the atmosphere or in land use” (IPCC 2014).

Current ongoing global climate change is caused, in part, by the atmospheric buildup of greenhouse gases (GHGs), which may persist for decades or even centuries. The buildup of GHGs such as carbon dioxide (CO₂), methane (CH₄), Nitrous Oxide (N₂O), and fluorinated gases since the start of the industrial revolution has substantially increased atmospheric concentrations of these compounds compared to background levels. These compounds absorb more energy from the earth's surface and re-emit a larger portion of the earth's heat back to the earth, rather than allowing the heat to escape into space under more natural conditions of background GHG concentrations.

When comparing emissions of different GHGs, a concept called the global warming potential (GWP) is used to convert amounts of other GHGs into CO₂ equivalents (abbreviated as CO₂e or CO₂eq in climate change literature). Specifically, GWP is a measure of how much energy the emissions of 1 ton of a GHG will absorb over a given period of time, relative to the emissions of 1 ton of CO₂ in the same timeframe. The larger the GWP, the more that a given gas warms the Earth

compared to CO₂. The GWP for CO₂ by definition is 1 regardless of the time period used, because it is the gas being used as the reference. For more information on what a GWP is, where it comes from, and how the BLM uses them in analysis, please refer to Section 3.3.1 (pages 3-6 through 3-8) of the Miles City Field Office Final Supplemental Environmental Impact Statement and Proposed Resource Management Plan Amendment ([DOI-BLM-MT-C020-2019-0004-RMP-EIS](#)) available on ePlanning and in the BLM Miles City Field Office (BLM, 2019).

Environmental Impacts - Alternative A (No Action)

Under the No Action Alternative, there would be no impact on air resources 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 impacts related to exploration of the proposed oil and gas lease parcels.

Environmental Impacts - Alternative B (Proposed Action)

NEPA air quality impact analyses assess potential air quality impacts that could occur from development within the project area and from other documented regional emissions sources. Leasing the subject parcels would have no direct impacts on ambient air quality. Any potential effects on air quality would occur if and when the leases are developed for oil and gas activities. The following paragraphs discuss the type of air pollutant emissions that could be expected from future oil and gas development as a result of the proposed lease sale, and if the parcels are leased and developed in the future. The calculated air pollutant emissions include estimates of CAPs, HAPs and GHG emissions, and the possible relationship to climate change is discussed in **Appendix E**. In addition, the direct, indirect, and cumulative impacts from oil and gas development on air resources are analyzed in the MCFO SEIS/RMPA.

It is important to note that at the leasing stage, there is a degree of speculation and uncertainty with regard to the amount of air pollutant emissions (including GHGs) that could occur since specific design details are not known. The type of petroleum product, depth of geologic play, drilling and completion methodology, equipment and vehicle make, model, engine size, project acreage, and construction plans are among several variables required to generate meaningful emissions estimates. These factors determine the concentration, duration, and characteristics of associated pollutants. Therefore, the BLM may conduct additional analysis for air quality impacts at the Application for Permit to Drill (APD) stage if development is proposed in the future on any of the lease parcels proposed for this sale. In addition, Lease Notice LN 14-18 would be applied to all parcels included in this proposed lease sale for conservation of air resources and Controlled Surface Use stipulation CSU 12-23 would be applied to all parcels in the Miles City field offices.

Air Pollutants and GHG Emissions

Oil and gas development can result in emissions of CO, NO_x, PM₁₀, PM_{2.5}, VOCs, and GHGs, and in some fields with higher sulfur content, SO₂ may be released. HAPs may be emitted from oil and gas operations, such as from well drilling, well completion, and venting. Since there are no ambient air quality standards for HAPs, the EPA has developed regulations for HAPs based on industrial source categories. HAPs are controlled during the production and processing phase through specific NSPS and MACT stipulations in air quality permits.

Air quality within a short distance from construction, drilling and completion activities would be temporarily affected by increased dust levels, exhaust gas emissions from rigs and vehicle engines, and

other activities related to the surface disturbance prior to drilling, and during the drilling/completion of the gas wells. Flaring or venting of produced gas may be necessary during drilling, completion, and testing operations and would be conducted in compliance with BLM and state requirements. The future direct emissions estimates from the lease sales are given in **Tables 10, 11** and **12**.

The analysis of air resources includes a discussion of short-term and long-term impact to air quality from reasonably foreseeable oil and gas development. The direct, indirect, and cumulative impacts from oil and gas development on air resources were analyzed in the MCFO RMP/SEIS. This EA refers to the MCFO RMP air analysis as the emissions analyzed are representative of the proposed parcels and the conditions, assumptions, and methodology, and environmental effects described in the RMP air analysis are still valid.

The MCFO 2019 Final SEIS/RMPA was prepared in response to a United States District Court, District of Montana opinion and order (Western Organization of Resource Councils, et al. V. BLM). The SEIS/RMPA included two additional air quality components:

- Analysis of the environmental consequences of downstream combustion of coal, oil, and gas open to development.
- Calculation of 20-year GWP analysis in addition to the 100-year GWP analysis.

For downstream and GHG 20-year analysis, this EA uses the procedures from the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (IPCC 2014) and the MCFO 2019 SEIS/RMPA (BLM 2019).

Additional air quality analysis conducted for the MCFO SEIS considers the indirect, off-site downstream GHG impact and also both 100-year and 20-year GWPs from potential future development and production on the leased lands. The September 2020 Lease Sale would represent only a small fraction of the potential development that was included in the comprehensive air quality modeling study conducted by the BLM and discussed under Cumulative Impacts section of the modeling report (BLM 2016). Thus, the September 2020 Lease Sale would be expected to have minimal impact on air quality, visibility, or atmospheric deposition.

Direct Criteria Pollutant, VOC and HAPs Emissions

The leasing action by itself would not affect air resources. However, future oil and gas activities on the lease parcels would affect air resources. In eastern Montana, a total of twelve (12) parcels are proposed for sale with nine (9) lease parcels in Dawson county, two (2) lease parcels in Sheridan county and one (1) lease parcel in Richland county. In western North Dakota, of the thirty-one (31) parcels proposed for sale, nine (9) lease parcels are located in Billings county, one (1) is located in Burke county, thirteen (13) are located in McKenzie county, seven (7) are located in Slope county, and one (1) is located in Williams county. The proposed well development total in the "MCFO RFD Deliverable Sep 2020" is 4-6 wells with 46% of the wells being oil wells and the rest gas wells (**Appendix D**). The "North Dakota RFD September 2020" (**Appendix D**) estimates that approximately four (4) oil well pads will be constructed, and six (6) productive oil wells will be drilled.

The air pollutant emissions calculations use the three (3) oil well and three (3) gas wells to be developed in eastern Montana and six (6) oil wells to be developed in North Dakota. These are the maximum number of wells projected in the RFDs. The emission rates of pollutants PM₁₀, PM_{2.5}, NO_x, SO₂, CO, VOC and HAPs are given **Table 10** and **Table 11**. The construction and production emissions are listed separately in the emission tables and the total emissions are also given. The construction process is short-term and would be completed within a few months after initiation and emissions would be intermittent.

The production and maintenance emissions 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 specified Tier 4 engine emission factors are used due to previous near field air emissions modeling using AERMOD indicating potential exceedance of the 1-hour NO₂ NAAQS, but non-Tier 4 engines could be used, if current NO_x to NO₂ conversion factors and modeling demonstrate compliance with the NO₂ NAAQS.

Direct and Indirect GHG Emissions

Direct emissions of GHGs occur at the site during well development and production if the leased sites are developed. The direct GHG emissions were calculated using a 100-year GWP potential of 28 for CH₄ and 265 for N₂O listed in the IPCC Fifth Assessment Report (IPCC 2014). Total estimated direct GHG emissions were also calculated using the 20-year GWP of 84 for CH₄ and 264 for N₂O. Total direct GHG emissions for the proposed action for the 20-year CO₂eq (GWP20) are estimated at 0.09217 million metric tons (MMT) of CO₂ equivalents per year as compared to the 100-year CO₂eq (GWP100) of 0.09196 MMT/year (**Table 12**). The 20-year CO₂eq is slightly higher since the global warming potential of CH₄ is higher due to its shorter lifespan of about twelve years in the atmosphere. **Appendix E** discussed GHG emissions from this lease sale and the scale of this projects when compared to cumulative impacts at regional, national and global scales.

While the leasing action itself would not generate any direct GHG emissions, the BLM recognizes that the reasonably foreseeable consequence of leasing may lead to oil and gas development, and that such development could result in an increase in GHG emissions due to the post production or “downstream” uses of the petroleum products produced from these parcels. Projected direct emissions from development of the lease parcels represents approximately 0.00001% of total 2018 U.S. GHG emissions calculated by EPA in the U.S. GHG Emission Inventory (EPA, 2020d). Additionally, this represents 0.0106% of major facility emissions in Montana and North Dakota reported in 2018 and available from EPA’s Facility Level Information on Greenhouse Gas Tool (FLIGHT) (EPA 2019f). The indirect GHG emissions are reported to the EPA by major emission sources such as power plants, fuel suppliers and refiners in the annual GHG emissions inventory compiled by the EPA. Please refer to **Table 3** in **Appendix E** for comparisons of the September 2020 lease sale emissions to larger scale GHG emissions. The EPA’s Greenhouse Equivalency Calculator is a useful tool for relating the GHG emissions to common uses of energy and resulting GHG emissions. The September 2020 Lease Sale parcels when developed completely and operational, would result in direct GHGs emissions equal to those emitted by 1,383 passenger cars driven in one year or the energy used by 739 homes. EPA uses 100-year CO₂e in the U.S GHG emission inventories and the comparisons in this section use 100-year CO₂e emissions.

Table 10 Estimated Direct Air Pollutant Emissions from Well Development and Production

Location	Activity	# of Wells ¹		PM ₁₀		PM _{2.5}		NO _x ⁴		SO ₂	
		Oil	Gas	Emission Factor ² (tons/well)	Estimated Emissions (tons)	Emission Factor ² (tons/well)	Estimated Emissions (tons)	Emission Factor ² (tons/well)	Estimated Emissions (tons)	Emission Factor ² (tons/well)	Estimated Emissions (tons)
Miles City Field Office											
Dawson, Richland and Sheridan Counties, Montana	Construction (short-term)	3		0.51	1.53	0.06	0.18	0.53	1.60	0.11	0.32
Dawson, Richland and Sheridan Counties, Montana	Operations & Maintenance per year (long-term)	3		0.08	0.25	0.03	0.09	0.50	1.50	0.0005	0.0015
Dawson, Richland and Sheridan Counties, Montana	Construction (short-term)		3	0.21	0.62	0.03	0.09	0.17	0.51	0.0030	0.01
Dawson, Richland and Sheridan Counties, Montana	Operations & Maintenance per year (long-term)		3	0.02	0.07	0.01	0.03	0.22	0.65	0.0003	0.0009
North Dakota Field Office											
Billings, Burke, McKenzie, Slope and William Counties, North Dakota	Construction (short-term)	6		0.51	3.06	0.06	0.36	0.53	3.20	0.11	0.64
Billings, Burke, McKenzie, Slope and William Counties, North Dakota	Operations & Maintenance per year (long-term)	6		0.08	0.51	0.03	0.18	0.50	3.00	0.0005	0.0029
Total Estimated Emissions:						7.57		1.11		12.05	1.30

Table 11 Estimated Direct Air Pollutant Emissions from Well Development and Production (cont.)

Location	Activity	# of wells ¹		CO		VOC		HAPs	
		oil	gas	Emission Factor ² (tons/well)	Estimated Emissions (tons)	Emission Factor ² (tons/well)	Estimated Emissions (tons)	Emission Factor ² (tons/well)	Estimated Emissions (tons)
Miles City Field Office									
Dawson, Richland and Sheridan Counties, Montana	Construction (short-term)	3		2.76	8.27	0.36	1.07	0.03	0.10
Dawson, Richland and Sheridan Counties, Montana	Operations & Maintenance per year (long-term)	3		1.00	3.00	0.95	2.85	0.08	0.24
Dawson, Richland and Sheridan Counties, Montana	Construction (short-term)		3	1.23	3.69	0.07	0.20	0.01	0.02
Dawson, Richland and Sheridan Counties, Montana	Operations & Maintenance per year (long-term)		3	0.47	1.40	0.15	0.45	0.01	0.04
North Dakota Field Office									
Billings, Burke, McKenzie, Slope and William Counties, North Dakota	Construction (short-term)	6		2.76	16.53	0.36	2.14	0.03	0.19
Billings, Burke, McKenzie, Slope and William Counties, North Dakota	Operations & Maintenance per year (long-term)	6		1.00	6.00	0.95	5.69	0.08	0.48
Total Estimated Emissions:					38.90		12.39		1.06

Table 12 Estimated Direct GHG Emissions from Well Development and Production

Location	Activity	# of wells 1	GHGs (100-year CO _{2eq})			GHGs (20-year CO _{2eq})	
		oil	gas	Emission Factor (MT/well)	Estimated Emissions (MMT)	Emission Factor (MT/well)	Estimated emissions (MMT)
Miles City Field Office							
Dawson, Richland and Sheridan Counties, Montana	Construction (short-term)	3		508.99	0.0015	522.28	0.0016
Dawson, Richland and Sheridan Counties, Montana	Operations & Maintenance per year (long-term)	3		117.20	0.0004	152.38	0.0005
Dawson, Richland and Sheridan Counties, Montana	Construction (short-term)		3	220.77	0.0007	226.62	0.0007
Dawson, Richland and Sheridan Counties, Montana	Operations & Maintenance per year (long-term)		3	41.30	0.0001	53.22	0.0002
North Dakota Field Office							
Billings, Burke, McKenzie, Slope and William Counties, North Dakota	Construction (short-term)	6		508.99	0.0031	522.28	0.0031
Billings, Burke, McKenzie, Slope and William Counties, North Dakota	Operations & Maintenance per year (long-term)	6		117.20	0.0007	152.38	0.0009
Estimated Direct Emissions(MMT/year):					0.00642		0.00691

Notes for Tables 10, 11 and 12:

Air emissions from each pad includes construction and Operation & Maintenance (O&M) emissions. Construction emissions are short term emissions; O&M emissions are expected during the life of a well. The emissions given for O&M are in tons/year.

Acronym Definitions: PM₁₀ = particulate matter less than 10 microns, PM_{2.5} = particulate matter less than 2.5 microns, NO_x = nitrogen oxides, SO₂ = sulfur dioxide, CO = carbon monoxide, VOC = volatile organic compounds, HAPs = hazardous air pollutants (benzene, toluene, ethylbenzene, xylene), GHGs= greenhouse gas emissions in carbon dioxide equivalents; MT = metric tons; MMT = million metric tons

¹ The "MCFO RFD Deliverable Sep 2020" projects 46% oil wells and remaining to be gas wells (Appendix D). The "NDFO RFD September 2020" predicts all oil wells and no gas wells.

² Criteria pollutants and HAPs emission factors used in estimated emission calculations were developed for MCFO RMP and included in the Air Resource Technical Support Document (ARTSD) for Emission Inventories, Near-Field Modeling, and Visibility Screening, October 2014.

⁴ NO_x is a combination of nitrogen oxides that are formed during combustion. NO_x is converted to the CAP NO₂ in the atmosphere.

Table 13 Projected Indirect Downstream GHG Emissions from Combustion

Location	# of wells estimated for Leasing EA		Ave oil prod. Rate	Ave. gas prod. Rate	CO ₂ Emission Factor ¹	CH ₄ emission factor	N ₂ O emission factor	CO ₂	CH ₄	N ₂ O	100-year CO ₂ eq ²	20-year CO ₂ eq
	oil	gas	BBL/day/well	MCF/day/well	gm/MMBTU			emissions in MT/ year			MMT/year	
Miles City Field Office												
Dawson, Richland and Sheridan Counties, Montana	3		20		74,540	3	0.6	9,468	0.38	0.08	0.009499	0.009520
		3		40	53,060	1	0.1	2,384	0.04	0.00	0.002387	0.002389
North Dakota Field Office												
Billings, Burke, McKenzie, Slope and William Counties, North Dakota	6		84.3		74,540	3	0.6	79,816	3.21	0.64	0.080076	0.080255
		0			53,060	1	0.1	-	-	-	0.000000	0.000000
Projected Indirect Downstream Emissions MMT/year CO₂eq											0.091962	0.092165

Notes:

¹EPA (2018) Emission Factors for Greenhouse Gas Inventories, from https://www.epa.gov/sites/production/files/2018-03/documents/emission-factors_mar_2018_0.pdf

² IPCC (2013) Myhre, G. et al. Anthropogenic and Natural Radiative Forcing in: Climate Change 2013:

The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change

Average production rate in BBL/Day/well and MCF/Day/Well are from Final SEIS & Proposed RMPA, Appendix B, page B-4. MCFO_FEIS_RMPS_Oct2019

ND oil production information from U.S. Energy Information Administration (Dec 2019). The Distribution of U.S. Oil and Natural Gas Wells by Production Rate

Visibility

Emissions from oil and gas development have the potential to impact visibility in Class I areas. Of the thirty-eight (38) parcels proposed for sale, twenty-six (26) parcels are located within 50 km from a Class I area. Parcel Number ND-2020-09-0093 in Burke County (**Figure 2**) is located 6 km from Lostwood Wilderness. Lease parcels MT-2020-09-0068 (Sheridan County), MT-2020-09-2092 (Richland County) and MT-2020-09-6925 (Sheridan County) are located 12, 20, and 31 km respectively from Fort Peck Reservation. Twenty-three parcels are located within 50 km from TRNP and five lease parcels are located within 10 km of TRNP. The nearest two lease parcels to TRNP are located in McKenzie County, ND-2020-09-0082 (1 km), ND-2020-09-6777 (1 km); the other three nearest parcels within 10 km to TRNP are ND-2020-09-0105 (7 km), ND-2020-09-0116 (7 km) and ND-2020-09-0116 (8 km) in Billings County.

The 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 were less than thresholds used to identify impacts. The MCFO RMP further analyzed far-field visibility impacts on Class I areas using the CALPUFF model. The CALPUFF predicted visibility impacts are estimated to be below 0.5 change in deciviews (Δdv) at each Class I and Class II area analyzed. This threshold is included in guidance developed by the National Park Service, US Forest Service, and the FWS (FLAG 2010). At each receptor and for each year, zero days are 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 MCFO RMP modeling, oil and gas development is not considered to directly contribute to regional haze or result in visibility impairment.

BLM Best Management Practices (BMP)

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 additional analysis shows impacts, additional control measures may include:

- Use of a Tier 4 non-road diesel engine that meets EPA NO_x 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;
- Developing 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;

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

Controlled surface use stipulation, CSU 12-23, requiring the use of Tier IV or equivalent drill engines, would be applied to all leases issued within the Miles City, Billings, and HiLine planning areas. One or more of the following measures could be imposed at the development/APD stage if additional analysis showed the potential for significant impacts to air quality:

- Emission control equipment with minimum 95 percent volatile organic compound (VOC) control efficiency on petroleum storage tank batteries;
- 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; and
- Forward looking 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.

Cumulative Impacts

The act of leasing parcels would not cause direct or cumulative effects to resources because no surface disturbance would occur. Potential lease exploration and development activities proposed through individual APD submission will be subject to future BLM decision-making and NEPA analysis. The BLM assumes there is a high interest in development of any leased parcels but, even if lease parcels are leased, it is uncertain when and if development would actually occur. Therefore, the types, magnitude and duration of potential impacts cannot be precisely quantified at the leasing stage and would vary according to many factors.

The Proposed Action may contribute incrementally to the deterioration of ambient air quality in the region. The development would result in additional emissions during development and production activities. The severity of these incremental impacts could be elevated based on the amount of contemporaneous development in surrounding areas.

In addition to direct air pollution listed in **Tables 10, 11 and 12**, this EA considers cumulative impacts. A component of cumulative impacts is indirect emissions resulting from the processing of and future combustion of crude oil. The processing and combustion would occur in the future far from the project area. The indirect GHG emissions are given in **Table 13**. In addition to the proposed project, local air quality and long-range visibility are influenced by industrial sources, motor vehicles, agricultural practices,

and natural sources such as wildfire smoke. Oil and gas processing and refining facilities are permitted by local, state, tribal and federal environmental agencies and report their pollutant emission inventories annually to the EPA. Additionally, each proposed new and modified emission facility are required to demonstrate NAAQS compliance with modeling or monitoring. The compliance requirements and air monitoring network throughout Montana and North Dakota by MT DEQ and ND DoAQ ensure that an area remains in NAAQS compliance.

The indirect criteria pollutants from end use of oil produced from this project would be reported to the EPA and in nationwide EPA National Emission Inventory. The cumulative impact to regional air quality resulting from oil and gas development on BLM lands is well documented in several BLM reports. In 2019, the BLM MCFO released a [Final Environmental Impact Statement and Resource Management Plan Amendment \(2019 FEIS/RMPA\)](#). The 2019 MCFO FEIS/RMPA includes a discussion of climate change and 20-year and 100-year Global Warming Potential (GWP) factors to determine cumulative and downstream GHG emissions (BLM 2019). Impacts to air quality from potential oil and gas development have also been analyzed in several MCFO analyses, including the [Air Resource Management Plan](#), the [2008 Final Supplement to the Montana Statewide Oil and Gas Environmental Impact Statement and Amendment of the Powder River and Billings Resource Management Plans](#), and the [Montana/Dakotas State Office PGM Modeling Study Air Resource Impact Assessment – Final report \(BLM 2016\)](#). The direct, indirect, and cumulative impacts from oil and gas development on air resources were also analyzed in the Proposed Resource Management Plan and Final EIS for the Miles City Field Office, Billings Field Office, Glasgow Field Office, and Havre Field Office.

The MCFO Air Resource Management Plan evaluated near field impacts to air quality from oil and gas development as well as cumulative impacts to visibility within the region. This air emissions analysis resulted in the inclusion of the [Appendix I - Miles City Field Office Air Resource Management Plan: Adaptive Management Strategy for Oil and Gas Resources](#). This adaptive management strategy specifies actions to address air quality impacts from oil and gas development. BLM's Best Management Practices in the preceding section of this EA, lists the methods used to reduce air pollution.

The MCFO Air Resource Management Plan also included a commitment by BLM to complete additional air emissions modeling to assess regional impacts to air quality from future oil and gas development. This commitment was fulfilled and a photochemical grid modeling (PGM) was performed. The results are included in the [Montana/Dakotas State Office PGM Modeling Study Air Resource Impact Assessment – Final report \(Montana/Dakotas Photochemical Grid Modeling Study \(DOI-BLM-MT-0000-2018-0004-OTHER NEPA\)\)](#). The PGM study evaluated potential air quality AQRV impacts due to future oil and gas activity on BLM-MT/DK administered mineral estate in Montana, North Dakota, and South Dakota.

The results of the 2016 PGM Study are applicable to this EA as the development potential for the proposed Lease Sale was included within the reasonably foreseeable development (RFD) scenarios analyzed in the PGM study. The results show that none of the modeling (emissions and impact) scenarios yielded values in excess of the NAAQS or state ambient air quality standards for O₃, PM_{2.5}, PM₁₀, SO₂, NO₂ or CO and impacts to air quality and public health are expected to be minimal in future years at the predicted rate of oil and gas development across the region. However, the modeling study predicted impacts to air quality related values at Class I areas in eastern Montana and western North Dakota. A portion of the predicted impacts to visibility can be attributed to future federal oil and gas development and are predicted to be in excess of 0.5 and 1.0 dv thresholds at the Theodore Roosevelt, Fort Peck and Medicine Lake Class I areas. The modeling study also predicted the potential for small impacts due to atmospheric deposition of nitrogen compounds in the same region. In response to the predicted results and concerns from federal land managers at the Class I areas, the BLM (with input from other federal and state partners) initiated and conducts an air monitoring study in the Medicine Lake, Montana, area to measure key pollutants of concern to visibility and compare to predicted impacts. The BLM has funded a deposition study at

Medicine Lake that is implemented by Colorado State University and has funded the MT DEQ to install and operate two ambient air quality monitors in Lewistown and Malta. The purpose of these collaborations is to ensure the prevention of degradation of ambient air quality and to take corrective actions if the trend in deposition and monitoring show degradation in ambient air quality due to BLM's actions.

It should be noted that the PGM modeling study analyzed potential impacts from all reasonably foreseeable oil and gas development within the region over the next twenty (20) years. The proposed lease sale projects twelve (12) wells to be developed in eastern Montana and western North Dakota. These leases not expected to occur contemporaneously and are not located in proximity to each other (**Figure 2**). The lease sale would represent only a small fraction of the potential development that was included in the PGM modeling study and would be expected to have little to no impact on air quality, visibility, or atmospheric deposition. Additional detailed information on estimated air pollutant emissions can be found in the Air Resource Technical Support Document (ARTSD) for Emission Inventories, Near-Field Modeling, and Visibility Screening, October 2014. Cumulative impacts were also addressed in the air analysis for the 2008 *Final Supplement to the Montana Statewide Oil and Gas Environmental Impact Statement and Amendment of the Powder River and Billings Resource Management Plans (Oct. 2008)*.

It should be noted that the PGM study analyzed potential impacts from all reasonably foreseeable oil and gas development within the region over the next 20 years. If lease parcels are developed, they would foreseeably represent only a small fraction of potential development that was included in the modeling study and would similarly contribute a very small fraction to the identified impacts on air quality, visibility, and atmospheric deposition. Cumulative impacts to air quality, visibility, and deposition are anticipated to be mitigated through the use of BMPs, notices that additional analysis and control measures may be required, and stipulations such as the use of Tier 4 or other low emission engines.

This EA incorporates by reference March 2020 lease sale and MCFO 2019 SEIS/RMPA. These documents are found in the BLM e-planning website.

- Miles City Field Office RMP Supplemental EIA/Plan Amendment – DOI-BLM-MT-C020-2019-0004-RMP-EIS ([DOI-BLM-MT-C020-2019-0004-RMP-EIS](#))
- 2020 March Oil and Gas Lease Sale ([DOI-BLM-MT-0000-2020-0001-EA](#))
- Montana/Dakotas Photochemical Grid Modeling Study ([DOI-BLM-MT-0000-2018-0004-OTHER_NEPA](#))

Cumulative GHG emissions from existing wells and foreseeable well development are discussed in **Appendix E** and the MCFO SEIS/RMPA (DOI-BLM-MT-C020-2019-0004-RMP-EIS (DOI-BLM-MT-C020-2019-0004-RMP-EIS)). Chapter 3, “Affected Environment and Environmental Consequences”, of the 2019 MCFO RMPA/SEIS, includes the GHG calculations and climate change discussion.

Tables 3-7 and 3-8 in the 2019 MCFO SEIS/RMPA list the overall fossil fuel production considered in indirect downstream and cumulative GHG emissions. The production is based on a reasonably foreseeable development (RFD) scenario detailed in the SEIS. MCFO SEIS/RMPA summarizes emissions from Federal, non-Federal, and other cumulative sources within the BLM MCFO region as well as GHG emissions from BLM Buffalo Field Office

Calculated emissions include well construction, operation, maintenance, reclamation, and combustion of produced oil and gas. Details on the methods and assumptions for the calculations are also provided in the RMPA/SEIS and the Air Resource Technical Report (ARTSD) for the MCFO.

The September 2020 lease sale GHG emissions and regional GHG emissions due to oil and gas activity are summarized below and compared to the U.S. oil and gas production and combustion emissions:

- The 2019 MCFO SEIS/RMPA annual average estimate of federal and non-federal cumulative GHG emissions from coal, oil and gas extraction in Montana, North Dakota and Wyoming is 526.3 MMT 100-year CO₂eq and 546.4 MMT 20-year CO₂eq (See Tables 3-7 and 3-8 of MCFO SEIS/RMPA).
- The total regional cumulative GHG emissions from federal oil and gas regional production for FY 2018 in Montana, North Dakota, South Dakota and Wyoming is 137.63 MMT 100-year CO₂eq and 137.94 20-year CO₂eq.
- The total U.S. GHG emissions from federal oil and gas production for FY 2018 is 371.35 MMT 100-year CO₂eq and 372.19 MMT 20-year CO₂eq.
- The total GHG emissions from federal oil and gas production in Montana for FY 2018 is 6.45 MMT for 100-year CO₂e and 6.47 MMT 20-year CO₂e. Montana's federal oil and gas production results in GHG emissions that is 1.74% of total U.S. GHG emissions from federal and oil and gas activity for FY 2018 (BLM Oil and Gas Statistics 2018).
- The total GHG emissions from federal oil and gas production in North Dakota for FY 2018 is 36.02 MMT for 100-year CO₂e and 36.10 MMT 20-year CO₂e. North Dakota's federal oil and gas production results in GHG emissions that is 9.70% of total U.S. GHG emissions for FY 2018 (BLM 2020. Oil and Gas Statistics).
- The annual direct GHG emissions from this lease sale is projected to be 0.0064 MMT and is 0.002% of GHG emissions from U.S federal oil and gas activity.
- To provide context to the size of this project, the direct GHG emissions from the proposed lease sales are compared to the U.S GHG emissions of 5,547 MMT calculated by EPA in the U.S. GHG Emission Inventory (EPA 2020d). The direct GHG emissions from this project would result in 0.00010% of 2018 U.S. GHG emissions from federal oil and gas activity.
- The direct and indirect GHG emissions from this lease sale represents approximately 0.0106% of the 2018 U.S. GHG emissions computed by EPA. These emissions would incrementally contribute to climate change discussed in **Appendix E**.

There are currently no established significance thresholds for GHG emissions that BLM can reference in NEPA analyses, but all GHGs contribute incrementally to the climate change phenomenon. When determining NEPA significance for an action, BLM is constrained to the extent that cumulative effects (such as climate change) are only considered in the determination of significance when such effects can be prevented or modified by decision-making (see BLM NEPA Handbook, pg.72). While GHG emissions resulting from individual decisions can certainly be modified or potentially prevented by analyzing and selecting reasonable alternatives that appropriately respond to the action's purpose and need, BLM has limited decision authority to meaningfully or measurably prevent the cumulative climate change impacts that would result from global emissions. The data presented above show BLM's limited potential contribution to global emissions and climate change.

Socioeconomic Conditions and Environmental Justice

Affected Environment

The social and economic environment of the counties containing the parcels proposed are described in detail in their associated RMP and FEIS. This section provides updated estimates of population and other socioeconomic variables within the study area, which includes all of the counties containing the Federal parcels covered in this EA.

The eight counties with proposed parcels have an estimated population of 75,781 (U.S. Census Bureau, 2020). Approximately 30% of this total population lives in the Montana counties and 70% lives in North Dakota counties. County-level population ranged from Williams County, ND (population 35,350) to Slope County, ND (population 763).

Nearly 23% of the population of McKenzie County, ND belongs to a race other than White and/or identifies as Hispanic. This is higher than the threshold in North Dakota for identifying Environmental Justice populations (21%). In addition, 20.4% of Williams County, ND's population belong to the same cohorts (nonwhite and/or Hispanic). This statistic places Williams County just below the threshold. For the rest of the counties covered in the proposed action, the percentage of the county population belonging to one or more Environmental Justice cohort were not significantly greater than that percentage for the state's overall population.

Economic Conditions

The social and economic environment of the counties containing the parcels proposed are described in detail in their associated RMP and FEIS. This section focuses upon economic aspects related to the potential federal oil and gas lease sales.

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 considered to be held by production and the lessee is required to make royalty payments to the Federal Government.

Table 14 provides information on existing oil and gas leasing for the counties that have parcels nominated for the Sept 2020 proposed leasing action. Existing federal oil and gas leases on federal non-Indian properties located in these counties produced an average of \$361 thousand dollars in federal bonus bids and rental income annually between 2015 and 2019. 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 can be measured in terms of the jobs, income, and public revenue it generates. 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 \$2.00 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 \$1.50 an acre for the first five years and \$2.00 an acre for the second five years of the lease. Additionally, Federal oil and gas production in Montana is subject to production taxes or royalties. The Federal oil and gas royalties on production from public domain minerals equal 12.5 percent of the value of production (43 CFR 3103.3.1).

Table 14 Average Annual Bonus Bid and Rental Payments for Existing Oil and Gas Leases on Non-Indian Federal Mineral Estates (2015-2019)

State	Geography	Average Annual Bonus Bids and Rents
MT	Dawson	\$323,236
MT	Richland	\$101,386
MT	Sheridan	\$4,321
MT	Total	\$428,943
ND	Billings	\$56,837
ND	Burke	\$17,856
ND	McKenzie	\$33,711
ND	Slope	\$76,031
ND	Williams	-\$252,140
ND	Total	-\$67,705
	Grand Total	\$361,238
Source: ONRR data, https://revenue.data.doi.gov/downloads/federal-revenue-by-location/ Accessed 5/12/2020.		

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 from oil and gas from public domain lands are distributed to the state. 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.

Environmental Impacts - Alternative A – No Action

Under the No Action Alternative, none of the nominated parcels would be offered for sale and no federal

bonus bid or rental incomes would be received for the parcels awarded leases. Existing Federal leases for oil and gas properties would continue to generate rental income (see Error! Reference source not found.). Other existing economic uses of these nominated parcels would continue.

Table 15 Estimated Federal Revenue Associated with the September 2020 Lease Sale No Action Alternative.

State	Geography	Average Annual Bonus Bids and Rents
MT	Dawson	323,236
MT	Richland	101,386
MT	Sheridan	4,321
MT	Total	428,943
ND	Billings	56,837
ND	Burke	17,856
ND	McKenzie	33,711
ND	Slope	76,031
ND	Williams	-252,140
ND	Total	-67,705
	Grand Total	361,238
Source: ONRR data, https://revenue.data.doi.gov/downloads/federal-revenue-by-location/ Accessed 5/12/2020.		

Environmental Impacts - Alternative B Proposed Action

Under Alternative B, 38 proposed parcels are 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. As described in **Economic Conditions**, these revenues are collected by the federal government, which then distributes a portion of the revenues collected to the state and counties. The amount that is distributed is determined by the federal authority under which the Federal minerals are being managed.

Table 16 Alt B - Estimated Federal Revenue Associated with the September 2020 Lease Sale

Field Office	County	Total Acres	Years 1-5 (\$1.50/acre) ^{1,2}	Years 6-10 (\$2.00/acre) ^{1,2}	Bonus Bid (Min. \$2.00/acre) ^{1,2}	Total Rental Income and Bonus Bids Collected over 10-Year Lease ^{1,2}			
						Federal	State	County/Local	Total
North Dakota	Billings	718	1,077	1,436	1,436	7,141	5,180	1,680	14,001
	Burke	40	60	80	80	398	289	94	780
	McKenzie	1,975	2,963	3,950	3,950	19,641	14,250	4,622	38,513
	Slope	790	1,185	1,580	1,580	7,857	5,700	1,849	15,405
	Williams	80	120	160	160	796	577	187	1,560
	Total	3,603	5,405	7,206	7,206	35,832	25,996	8,431	70,259
Mile City	Dawson	10,353	15,530	20,706	20,706	102,961	74,697	24,226	201,884
	Richland	120	180	240	240	1,193	866	281	2,340
	Sheridan	1,240	1,860	2,480	2,480	12,332	8,947	2,902	24,180
	Total	11,713	17,570	23,426	23,426	116,486	84,509	27,408	228,404
TOTAL		15,316	22,974	30,632	30,632	152,318	110,505	35,839	298,662
1 Dollar value of parcel rental and bonus bid payments over time. Not discounted.									
2 Assumes all parcels are successfully leased at minimum regulatory rental rate and bonus bid.									

In this analysis Federal leasing revenue estimates (lease rent and bonus bids) are based upon the number of acres being offered. There are no guarantees that any of the parcels offered for lease will receive bids, and until the lease sale is conducted it is unknown which and how many of the offered parcels will be leased.

Due to energy market volatility and the dynamics of the oil and gas industry, the BLM cannot predict the exact economic effects of this leasing action. These effects are specific which successfully leased parcels will be developed and which developed parcels will produce paying quantities of Federal fluid minerals.

Given this uncertainty, in this analysis revenue estimates are limited to the direct effects of leasing and are calculated under the following assumptions:

1. One hundred percent of the proposed parcels will be sold.
2. Federal rental income will be collected during the full term of the leases (10 years).
3. All parcels are leased at the regulatory minimum bonus bid and rental rates.

These estimates are provided in **Table 16**. Using these assumptions Alternative B would generate bonus bids totaling \$30,632 annual rental income of \$22,974 for lease years 1 through 5, and annual rental income of \$30,632 for years 6 through 10. The total value of all rentals and bonus bids received would be \$298,662.

In this scenario the lease parcels in Dawson County, Montana would generate over \$200 thousand dollars in lease rent and bonus bid revenues, representing 88% of the total revenue generated from MT parcels and 62% of the total revenue generated in this lease sale. Dawson County parcels would generate one-time bonus bids totaling \$20,706, annual rents of \$15,530 per year in each of the first five years, and \$20,706 per year for the second five years. Total revenues from Slope and McKenzie Counties, ND would generate \$15,405 and \$38,513 respectively. For the other counties, total bonus bid and rental

revenues range from \$24,180 (Sheridan County, MT) to \$780 (Burke County, ND).

As noted above, Federal rental income and bonus bids from the lease sale described in Alternative B would be shared with the state and county where the parcel is located. During the course of these leases the Federal Government would collect \$165,000, the states of MT and ND would collect and retain \$120 thousand and \$26 thousand respectively and local governments in the counties containing parcels would share nearly \$36 thousand in rental and bonus bids.

Cumulative Impacts

The direct, indirect, and cumulative economic impacts from potential subsequent oil and gas development are discussed in the RMP and FEIS covering the county where the development would take place. Oil and gas development affect employment and labor income generated by 1) payments to counties associated with the leasing and rent of Federal minerals, 2) royalty payments associated with production of Federal oil and gas, and 3) economic activity generated from drilling and associated activities. The magnitude of these types of economic affects is based upon the level and pace of development that is unknown at this time.

The scoping process identified socioeconomic conditions as an area of potential concern. The pace and scale of oil and gas development can often concern local communities. Rapid development can drive important social changes due to the influx of people to these areas who find employment in the oil and gas industry and ancillary service industries. Rapid population growth for unprepared communities can cause stress on community resources such as educational infrastructure, roads and utilities, emergency services, and community cohesion. Should oil and gas leasing and subsequent development occur, impacts to people living near or using the area in the vicinity of the lease would potentially occur. Oil and gas exploration, drilling, or production, would potentially inconvenience these people through increased traffic and traffic delays, noise, and visual impacts. These impacts would be particularly noticeable in rural areas in which oil and gas development has not occurred previously. The level of inconvenience would depend on the activity affected, traffic patterns within the area, noise levels, the length of time and season in which these activities occurred, and other factors. Creation of new access roads would potentially allow increased public access and exposure of private property to vandalism. For leases in which the surface is privately owned and the mineral estate is federally owned, surface owner agreements, standard lease stipulations, and BMPs would potentially address many of the concerns of private surface owners.

Executive Order 12898 requires the analysis of disproportionately high and adverse human health effects and environmental effects on environmental justice populations. Environmental effects may include “ecological, cultural, human health, economic, or social impacts on minority communities, low-income communities, or Indian tribes when those impacts are interrelated to impacts on the natural or physical environment” (page 26); CEQ, 1997. Based upon U.S. Census Bureau data, McKenzie County, ND met the criteria for minority environmental justice populations due to the percent of residents identifying themselves as belonging to a race other than white and/or of Hispanic origin. In addition, Williams County, ND was just below the threshold for the same population demographics. Adverse effects to historical and current cultural and traditional uses and values in this area are correlated to the amount of surface-disturbing or other disruptive activities allowed under the proposed action.

The BLM considers all input from persons or groups regardless of age, income status, race, or other social or economic characteristics. The outreach and public involvement activities taken for this effort, including the consultation of tribes, are described in Chapter 1.

Nearly 23% of the population of McKenzie County, ND belongs to a race other than White and/or identifies as Hispanic. This is higher than the threshold in North Dakota for identifying Environmental Justice populations (21%). In addition, 20.4% of Williams County, ND's population belong to the same cohorts (nonwhite and/or Hispanic). This statistic places Williams County just below the threshold. For the rest of the counties covered in the proposed action, the percentage of the county population belonging to one or more Environmental Justice cohort were not significantly greater than that percentage for the state's overall population.

Water Resources

Introduction

What are the direct, indirect, and cumulative effects of potential oil and gas development, including hydraulic fracturing, on parcels that may be offered for lease on surface and groundwater quality and quantity?

BLM Montana/Dakotas 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.

BLM surface and split estate parcels would be subject to management decisions contained in their applicable Resource Management Plan including the 2015 Miles City RMP, 1988 North Dakota RMP, and the 2003 DPG Oil and Gas Leasing ROD and associated FEIS. These RMPs designate areas open or closed to fluid mineral leasing and assign standard terms and conditions as well as stipulations to conserve water resource values. Those stipulations include:

- NSO 11-70 (Miles City): Surface occupancy and use is prohibited within perennial or intermittent streams, lakes, ponds, reservoirs, 100-year floodplains, wetlands, and riparian areas.
- NSO 11-71 (Miles City): Surface occupancy and use is prohibited within State-designated Source Water Protection Areas.
- CSU 12-5 (North Dakota): Surface occupancy or use will be subject to the following special operating constraint: No disturbance of riparian areas of wetlands, intermittent, ephemeral, or perennial streams and rivers would be allowed except for essential road and utility crossings.
- CSU 12-25 (Miles City): Surface occupancy and use is subject to the following operating constraints: prior to surface occupancy and use within 300 feet of riparian and/or wetland areas, a plan must be approved by the AO with design features that demonstrate how all actions would maintain and/or improve the functionality of riparian/wetland areas.
- DPG CSU 16-2 (Forest Service): Surface occupancy or use is subject to the following special operating constraints: Try to locate activities and facilities away from the water's edge and outside the riparian areas, woody draws, wetlands, and floodplains.

Exceptions are not allowed in streams, natural lakes, or wetlands. However, the BLM may authorize modifications or waivers for riparian areas and floodplains if the operator can demonstrate that: (1) there is no practicable alternatives to locating facilities in these areas, (2) the proposed actions would be designed to maintain or enhance resource functions, and (3) all reclamation goals and objectives would be met. The BLM may also grant modifications or waivers to these stipulations if an operator can

demonstrate that the proposed action would not adversely impact wetland or riparian function or associated water quality, or portions of the lease area does not contain wetlands or riparian areas.

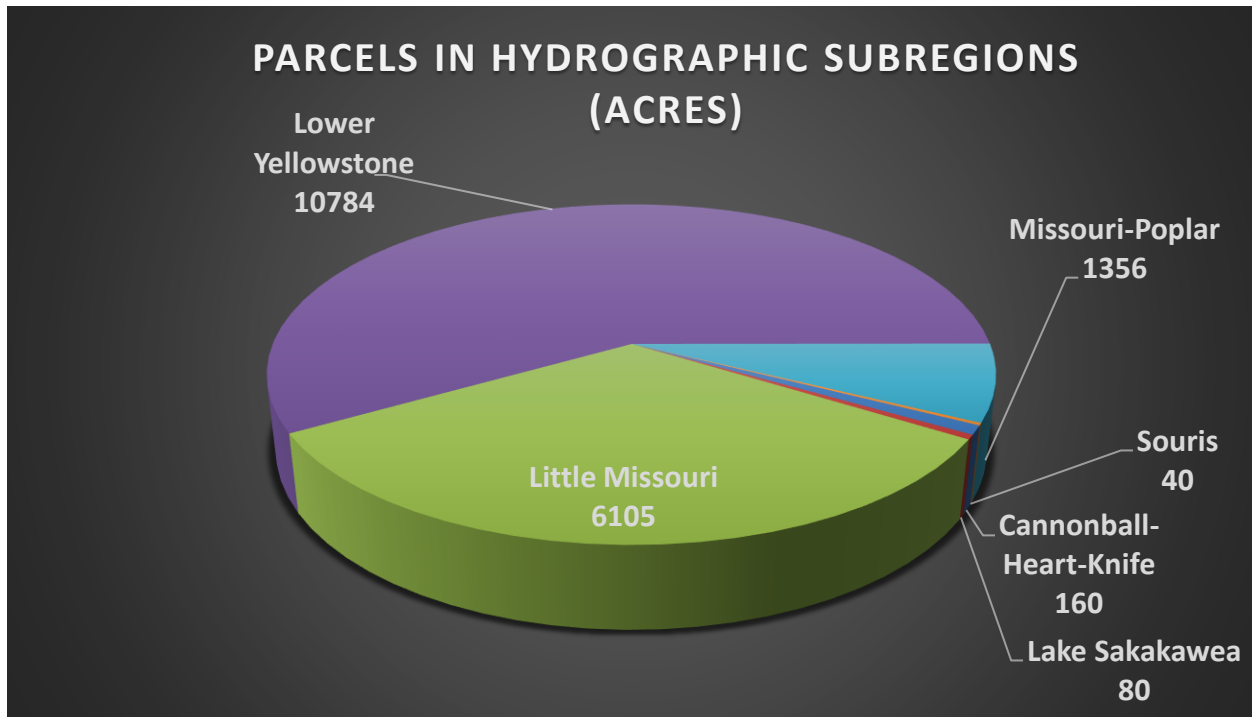
Montana Department of Natural Resources and Conservation and North Dakota Office of the State Engineer & State Water Commission regulate the right to use surface and groundwater in their respective states. State laws require that water rights be established for all beneficial uses of water, including 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).

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)). Waste water 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).

Affected Environment

Lease parcels associated with the September 2020 Lease Sale are distributed throughout the hydrographic subregions (HUC-6) identified in Error! Reference source not found. below. Of these subregions, 58 percent of the leasable area is located in the Lower Yellowstone, 33 percent is located in the Little Missouri, 7 percent is located in the Missouri-Poplar, and less than 1 percent is located in Cannonball-Heart-Knife, Lake Sakakawea, and Souri. ND-2020-09-0119 and ND-2020-09-6778 are < 1 mile from the Sweet Crude Travel Center (truck stop) non-community source water protection area. Under the Revised Total Coliform Rule (RTCR) all North Dakota public Water Systems are required to submit microbiological samples monthly for analysis. The Sweet Crude Travel Center is flagged on multiple Annual ND drinking water compliance reports going back to 2015 on failure to monitor. It also received a Microbiological maximum contaminant level violation (MCL) in 2015. (*Montana Department of Environmental Quality*), (*North Dakota Source Water Protection*).

Figure 7 Distribution of Lease Parcels throughout the Hydrographic Subregions associated with the September 2020 lease sale



(Note: Subregions represent the 4-digit hydrologic unit codes associated with the USGS' Watershed Boundary Dataset, 2017)

Surface Water

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:

- 1.47 miles of perennial streams
- 197.6 miles of intermittent/ephemeral streams
- 4.86 miles of canals and ditches
- 1.97 acres of intermittent lakes/ponds
- 43 acres of perennial lakes/ponds
- 0 springs and seeps
- 0 acres of swamp/marsh

All leases are outside of the one-hundred-year floodplain defined by FEMA but 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.

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 (*Montana 303(d)/305(b) Integrated Report, 2016; North Dakota Integrated Section 305(b) Water Quality Assessment Report, 2016*). The BLM is required to comply with state water quality standards and utilizes BMPs to avoid, minimize, or mitigate potential impacts that could contribute to water quality impairment.

Lease ND-2020-09-0099 borders the Little Missouri River. The portion of the river that borders this lease parcel was listed as impaired in the 2016 water quality assessment report due to *E. coli*. with a probable cause of grazing in riparian or shoreline zones. (*EPA 303d Listed Impaired Waters 2015*). (*Integrated Section 305(b) Water Quality Assessment Report and Section 303(d) List of Waters Needing Total Maximum Daily Loads*) (*MTDEQ Final 2018 Water Quality Integrated Report*)

Groundwater

Groundwater plays an important role in meeting regional demands for water. 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 (Montana Department of Natural Resources, *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, or 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 wells that have relatively poor water quality from deep beneath the earth's surface (100's of feet). However, aquifers associated with pre-glacial alluvial channels 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.

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.

There are 114 groundwater wells within a 1-mile buffer from the September 2020 lease sale acreage. These wells are primarily being used for stock water and domestic use (**Figure 8**). The majority of these

wells are drilled within the top 500ft of the surface with the deepest well being 1,580ft deep (**Figure 9**). All lease parcels exist within the USGS defined Bakken total petroleum system which includes the Three Forks formation. Recent development around these lease parcels have targeted the Bakken/Three Forks TPS and future development will likely target the same formations. Horizontal Bakken/Three Fork wells in McKenzie county are drilled ~11,000ft deep from surface while those Slope, Sheridan, Dawson, Richland, and Willams counties are slightly shallower from 10,000ft to 9,000ft deep from surface. No impact is expected on existing groundwater wells with future Bakken/Three Forks petroleum development in this area due to the large vertical separation between the existing groundwater wells and the Bakken petroleum system. The “Montana/Dakotas Bakken Hydraulic Fracture Height in Relation to Groundwater Protection” **Appendix F** document is applicable for all the September 2020 lease sale parcels.

Figure 8 Distribution of groundwater wells within 1 mile of September lease sale parcels.

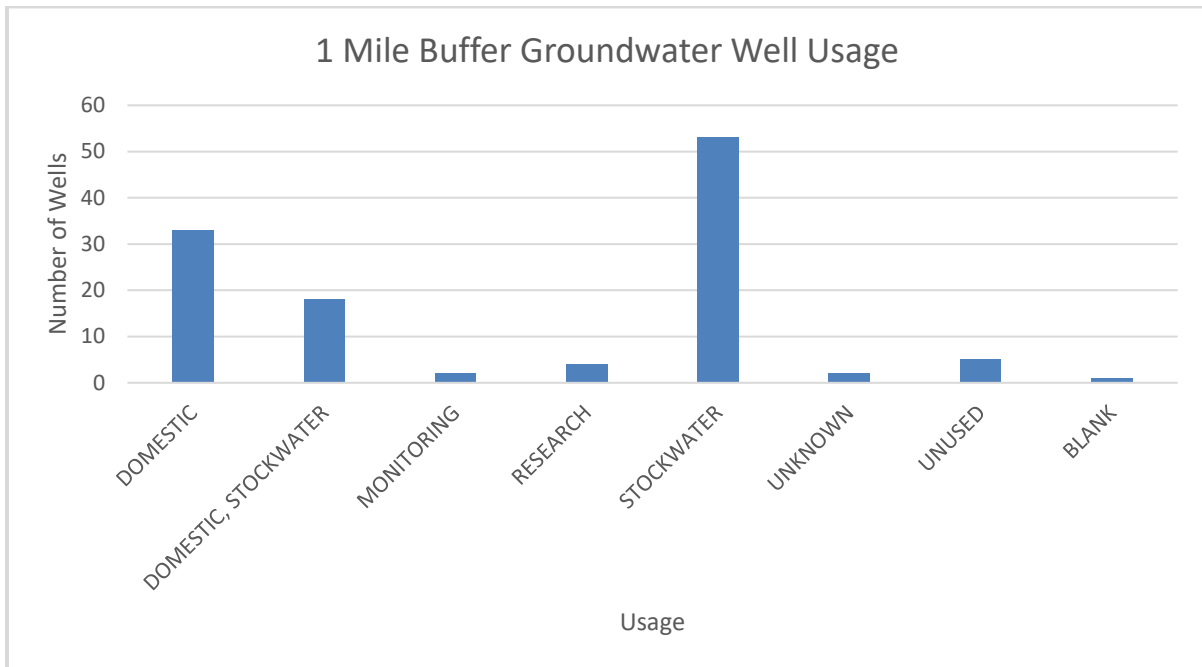
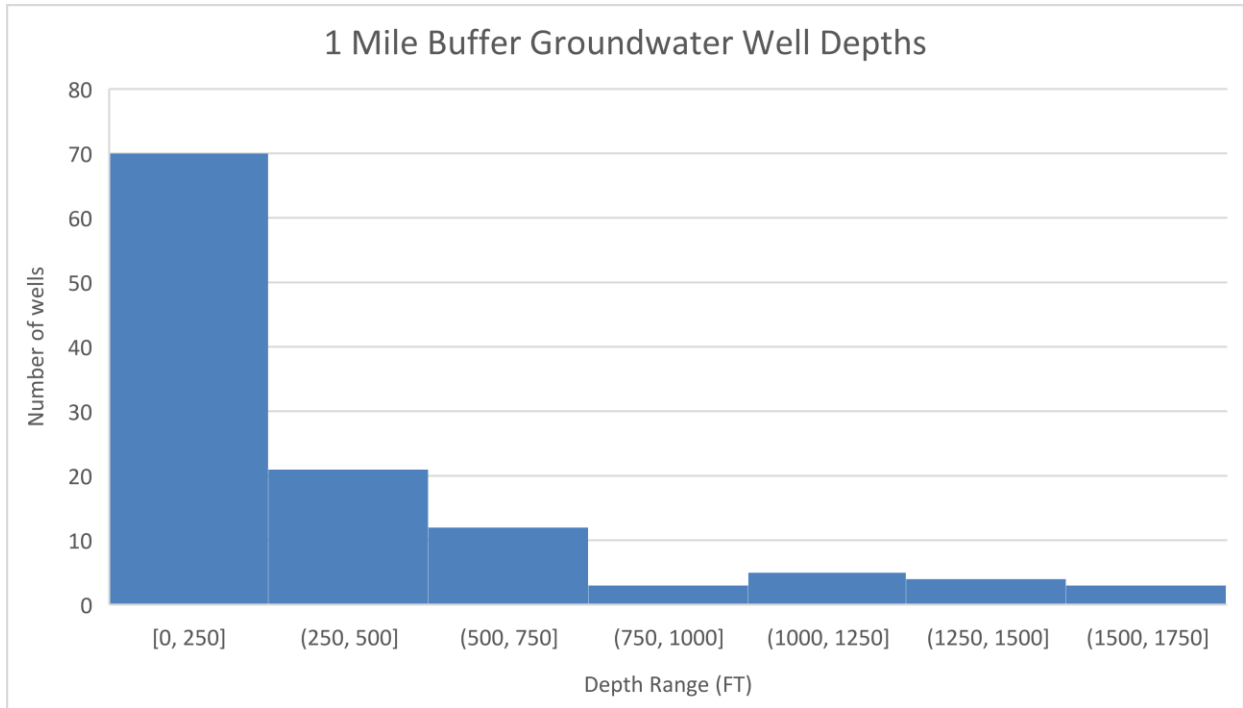


Figure 9 Groundwater well depth for groundwater wells within 1 mile of the September lease sale parcels.



There are numerous adjacent Class IIR and Class IID injection wells permitted in the Red River ~9000’ft TVD, Mission Canyon ~7500’ft TVD, and Dakota sands ~4000’ft TVD within the Bakken TPS however, there are no EPA aquifer exemption zones within a 1 mile buffer from the September 2020 lease sale acreage.

Consumptive Uses

Type, source, and volume of water use varies within and between hydrographic subregions. Most water used in hydraulic fracturing comes from surface water sources such as lakes, rivers, and municipal supplies. However, groundwater can be used to augment surface water supplies where it is available in sufficient quantities. 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.

Environmental Impacts - Alternative A No Action

There would be no impacts to groundwater or surface water resources from the No Action Alternative.

Environmental Impacts - Alternative B Proposed Action

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.

Fluid mineral development could 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. Onshore Orders No. 1, 2 & 7; 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, but such impacts would likely be small and proportional to the footprint of the disturbance (noted below), relative to the size of the watershed in which the disturbance were to occur.

A Reasonably Foreseeable Development (RFD) scenario for oil and gas leasing at the plan level was analyzed in the applicable FEIS for the RMP for each field office. The BLM used the plan level RFD to develop a RFD for this lease sale, which is summarized in Chapter 2 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 September 2020 lease sale as:

- Miles City: the Reasonably Foreseeable Development for the Miles City Field Office lease parcels is 4-6 wells (2-3 oil wells and 2-3 gas wells). Short term disturbance is estimated to be 10.50-15.75 acres and long-term surface disturbance is estimated to be 3.90-5.85 acres.
- North Dakota: the Reasonably Foreseeable Development for the North Dakota Field Office lease parcels is 6 oil wells to be drilled from four new well pads. Short term disturbance is estimated to be 28.4 acres and long-term surface disturbance is estimated to be 13 acres.

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 adverse impacts to surface or groundwater resources.

Standard stipulation STD 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. There are no known wells within 1000 feet of the proposed parcels (North Dakota State Water Commission, Montana Groundwater Information Center & SDDENR, and Onshore Order 2. III. B for Montana).

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.

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 is 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, which in turn changes flow characteristics, reduces groundwater recharge, and increases sedimentation and erosion. As acres of surface disturbance increase within a watershed, however, effects on water resources could correspondingly increase. However, due to the limited footprint of disturbance associated with the RFD, these potential impacts to water resources are expected to be minor. Furthermore, site specific effects would be more fully analyzed upon receipt of an Application for a Permit to Drill and minimized through vegetation reestablishment and the application of BMP's to reduce erosion, and other conditions of approval.

Future oil and gas exploration and development of a lease parcel could result in spills or produced fluids that could potentially affect surface and/or groundwater resources in the short and/or long term. Oil and gas exploration/development could 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). Spills of oil and brine continue to occur regularly.

From March 2018 through March 2019, ND Department of Health reported 337 incidents that were not contained, for example, an overflow of the facility boundaries or a leak from a facility pipeline. The Department reported another 638 incidents that were contained within the boundaries of the production or exploration facility during the same time period. The ND Department of Health receives their data was from the Oil and Gas Division whenever Oilfield Environmental Incident Report is filed. Not all spills may reach or impact a drinking water resource. For example, on 3/1/2019, 85 barrels of brine spilled onto pastureland 1000 feet from the nearest water well. Actions were taken to recover the fluid, and it was removed for disposal. The incident report notes that there may be some grass kill in the spring and that follow up readings will be taken when the ground thaws to determine if any other actions will be needed (incident 20190301215407). All of these incident reports are available on line at: <https://deq.nd.gov/FOIA/Spills/defaultOGNotContained.aspx/> and <https://deq.nd.gov/FOIA/Spills/defaultOGContained.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 Conditions of Approval at the APD stage and may reduce the frequency and severity of impacts to surface water resources from spills.

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 Montana Board of Oil and Gas Conservation (MBOGC) and North Dakota Department of Health (NDDH) rules, and Onshore Orders No. 1 & 2. All wells also would be constructed according to relevant MBOGC, NDDH, and Montana Department of Environmental Quality (MDEQ) 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, **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 September 2020 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 contour maps for each lease parcel showing the true vertical depth of surrounding oil and gas wells. There are colored points on each of these maps representing the location and depth of surrounding water wells. The water well color corresponds to the true vertical depth and uses the same color scale as the true vertical depth of the surrounding petroleum wells contour map. The color shades from vary from blue (shallow) to green to yellow to orange to red (deep). This allows a rapid method to determine vertical separation between the primary zone of petroleum development and deepest points of any water wells. Refer to **Appendix G**.

Water Quantity

Oil and gas drilling operations could affect available quantities of surface water and groundwater, but are expected to be small, especially when compared to other consumptive water uses within the region. For example, while hydraulic fracturing uses billions of gallons of water every year at the national and state scales, 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).

The BLM estimated future water consumption associated with the September 2020 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. T 9 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.

- Miles City: 11,713.00 lease acres with assumed 0.000512 wells/acre = 6 wells. 6 wells * 5 million gallons/well = 30 million gallons
- North Dakota: 5589.43 lease acres with assumed 0.001073 wells/acre = 6 wells. 6 wells * 5 million gallons/well = 30 million gallons

If drilling technology improves and economic considerations increase the average lateral length of horizontal wells and hydrocarbon extraction intensity, future water use and wastewater production would likely correspondingly increase, as would the potential for adverse impacts to water resources.

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; see estimates below), some areas are experiencing high Baseline Water Stress (most parcels in Southern Montana, including the parcels in the Miles City field office area). 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, adverse 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 adversely 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 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 Montana Department of Natural Resources and Conservation (MDNRC) Water Resources Office, and the North Dakota State Water Commission (NDSWC).

Cumulative Impacts

Given the limited disturbance estimated in the reasonably foreseeable development scenario (see Chapter 2, **Table 2**), the potential for future development associated with the September 2020 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 adversely 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 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. However, 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.

List of Preparers (Interdisciplinary Team)

Table 17 List of Preparers

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Socioeconomics Analysis	Economist	Scott Rickard
Water Resources Analysis	Petroleum Engineer	Tyler Croft
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GIS	GIS Specialist	Annette Yeager
Reasonably Foreseeable Development Scenarios	Petroleum Engineers	Kyle Paradis
Big Game	Natural Resource Specialist GIS Specialist	Amy Waring Annette Yeager
Paleontological Review	Paleontologist	Greg Liggett
Groundwater Appendix Review	Petroleum Engineers	Mark Robillard, Kyle Paradis
Wildlife Review	Wildlife Biologists	John Carlson, Chris Boone, Fiona Petersen
Cultural Resources Review	Archaeologists	CJ Truesdale
Stipulation Review	Natural Resources Specialist	Bobby Baker

List of Tribes & Agencies Contacted

Tribes

- Nez Perce
- Shoshone-Bannock
- Blackfeet Nation
- Rocky Boy (Chippewa Cree)
- Confederated Salish and Kootenai Tribes
- Crow Tribe
- Ft. Belknap Indian Community (Assiniboine, Gros Ventre)
- Ft. Peck Tribes (Sioux and Assiniboine)
- Little Shell Chippewa Tribe
- Northern Cheyenne Tribe
- Mandan Hidatsa and Arikara Nation
- Spirit Lake Sioux Tribe
- Standing Rock Sioux Tribe
- Turtle Mountain
- Cheyenne River Sioux Tribe
- Crow Creek Sioux Tribe
- Flandreau Santee Sioux Tribe
- Lower Brule Sioux Tribe
- Rosebud Sioux Tribe of Indians
- Oglala Sioux Tribe
- Sisseton-Wahpeton Oyate
- Yankton Sioux Tribe
- Eastern Shoshone Tribe
- Northern Arapaho Nation
- Santee Sioux Tribe of Nebraska
- Lower Sioux Indian Community
- Confederated Tribes of the Colville Indian Reservation
- Confederated Tribes of the Umatilla Indian Reservation
- Comanche Nation
- Kiowa Nation

Local Government, State, and Federal Agencies

- MT Fish, Wildlife and Parks
- US Fish and Wildlife Service
- US Army Corps of Engineers
- US Fish and Wildlife Service
- MT Dept. of Natural Resources and Conservation
- MT Dept. of Environmental Quality
- US Environmental Protection Agency
- Montana Historical Society
- County Commissioners
- North Dakota Game and Fish
- North Dakota Dept. of Trust Lands
- Theodore Roosevelt National Park
- Little Missouri National Grassland
- State Historical Society of ND
- Red Rocks National Wildlife Refuge
- Bureau of Indian Affairs

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