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BLM Utah 2025 Third Quarter Competitive Oil and Gas Lease Sale Environmental Assessment

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Uintah and Sanpete Counties, Utah

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TABLE OF CONTENTS

TABLES OF TABLES

TABLE OF FIGURES

TABLE 1. ACRONYMS

ACHP	Advisory Council on Historic Preservation
AIRFA	American Indian Religious Freedom Act
AMR	Air Monitoring Report
AO	Authorized Officer
AOI	Area of Influence
APD	Application for Permit to Drill
APE	Area of Potential Effects
ARMPA	Approve Resource Management Plan Amendment
bbl	barrel(s)
Bcf	Billion Cubic Feet
BLM	Bureau of Land Management
BSU	Biologically Significant Unit
CAA	Clean Air Act
CAP	Criteria Air Pollutants
CFR	Code of Federal Regulations
CH_4	methane
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
COA	condition of approval
CSU	Controlled Surface Use
EA	Environmental Assessment
EIA	U.S. Energy Information Administration
EIS	Environmental Impact Statement
EOI	Expression of Interest
EPA	U.S. Environmental Protection Agency
EPCA	Energy Policy and Conservation Act
ESA	Endangered Species Act
EUR	Estimated Ultimate Recovery
FLPMA	Federal Land Policy and Management Act of 1976
FOOGLRA	Federal Onshore Oil and Gas Leasing Reform Act
GHG	Greenhouse Gas
GHMA	General Habitat Management Area
GIS	Geographic information system
GRSG	Greater Sage-grouse

HAP	Hazardous air pollutant
HUD	Hydrologic unit code
IDT	Interdisciplinary team
IPCC	Intergovernmental Panel on Climate Change
IRA	Inflation Reduction Act
mcf	Thousand cubic feet
MLA	Mineral Leasing Act of 1920
Mt	Megatonnes
N_2O	Nitrous oxide
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act of 1969
NHPA	National Historic Preservation Act of 1966
NO_2	Nitrogen dioxide
NO_x	Nitrogen oxide(s)
NORM	Naturally occurring radioactive material
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSO	No surface occupancy
O_3	Ozone
OHV	Off highway vehicle
PFYC	Potential Fossil Yield Classification
PHMA	Priority Habitat Management Area
PLPCO	Utah Public Lands Policy Coordinating Office
$PM_{2.5}$	Particulate matter equal to or less than 2.5 microns in diameter
PM_{10}	Particulate matter equal to or less than 10 microns in diameter
ppb	Parts per billion
ppm	Parts per million
PRPA	Paleontological Resources Preservation Act
PSD	Prevention of significant degradation
RFD	Reasonably foreseeable development
RMP	Resource management plan
ROD	Record of Decision
ROW	Right of way
SE	Socioeconomics
SHPO	State Historic Preservation Office
TMDL	Total Maximum Daily Load
UTLA	Utah Trust Lands Administration

SME	Surface Management Entity
SQM	Sky Quality Meter
SO_2	Sulfur dioxide
SOP	Standard Operating Procedures
STEO	Short-term energy outlook
T&E	Threatened and Endangered
THPO	Tribal Historic Preservation Office
UDOGM	Utah Division of Oil, Gas, and Mining
UDWR	Utah Division of Wildlife Resources
UDWRi	Utah Division of Water Rights
U.S.C.	United States Code
USDA	U.S. Department of Agriculture
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VFO	Vernal Field Office
VOC	Volatile organic compound
VRM	Visual Resource Management

CHAPTER 1. INTRODUCTION

1.1. BACKGROUND

This Environmental Assessment (EA) documents the Bureau of Land Management's (BLM) review of the anticipated environmental impacts of leasing 14 lease parcels (totaling 19,703.72 acres) on public lands managed by the BLM's Vernal (VFO) and Richfield (RFO) Field Offices which have been nominated for auction in the BLM Utah Third Quarter 2025 Competitive Oil and Gas Lease Sale (Lease Sale). Maps of the nominated lease parcels are contained in Appendix A.

Table 2 Surface Ownership

Field Office	County	Parcel	Surface Management Entity (SME)	Acres
Richfield	Sanpete	1597	BLM	1,105.43
Richfield	Sanpete	7717	BLM	2,278.15
Richfield	Sanpete	7718	BLM	1,423.80
Vernal	Uintah	1511	BLM	1,589.32
Vernal	Uintah	1514	BLM	960.00
Vernal	Uintah	1520	BLM	998.40
Vernal	Uintah	1542	BLM	40.00
Vernal	Uintah	1605	BLM	2,560.00
Vernal	Uintah	7667	BLM	1,773.47
Vernal	Uintah	7668	BLM	1,040.14
Vernal	Uintah	7673	BLM	605.68
Vernal	Uintah	7674	BLM	600.00
Vernal	Uintah	7716	BLM	2,249.33
Vernal	Uintah	7719	BLM	2480.00
			Total Acres:	**19,703.72**

Of the 14 parcels included in the Lease Sale, three are located in the RFO, totaling 4,807.38 acres. Eleven parcels are located in the VFO, totaling 15,016.34 acres.

1.2. PURPOSE AND NEED

The BLM's purpose in preparing the EA is to respond to Expressions of Interest (EOIs) to lease federal oil and gas resources through a competitive leasing process. The need for the action is established by the BLM's responsibility under the Mineral Leasing Act of 1920 (MLA), as amended, to make mineral resources, such as oil and gas, available for development and as part of the BLM's multiple-use and sustained-yield mandate under the Federal Land Policy and Management Act of 1976 (FLPMA).

1.3. DECISION TO BE MADE

The BLM Authorized Officer (AO) will decide whether to offer for lease any or all of the nominated lease parcels with or without constraints, in the form of lease stipulations, as provided for in the approved land use plan. If the decision is to offer federal minerals for lease, and to subsequently issue a lease if a successful bid is received, standard terms and conditions under Section 6 of the BLM Lease Form (Form 3100-11, Offer to Lease and Lease for Oil and Gas), herein referred to as "standard terms and conditions," would apply as well as any additional terms and conditions as necessary. The BLM AO also has the

authority to defer parcels based on the analysis of potential effects presented in this EA. The Decision Record will identify whether the BLM decided to offer for lease any of the nominated lease parcels and the rationale for the decision.

1.4. BLM LAND USE PLAN CONFORMANCE

The Proposed Action complies with the Vernal Field Office Resource Management Plan (Vernal RMP), October 2008, as amended (BLM, 2008; 2015) and the Richfield Field Office Resource Management Plan (Richfield RMP), October 2008 (BLM, 2008). The nominated lease parcels are in areas that are open to leasing under the Vernal RMP (decisions MIN-10, MIN-11, MIN-12) and the Richfield RMP (decisions MIN-1, MIN-3, MIN-5, MIN-6, MIN-7, MIN-9, MIN-11). The Vernal RMP Appendix K and the Richfield RMP Appendix 11 provide surface stipulations applicable to all surface-disturbing activities. Stipulations attached to the nominated lease parcels are identified and summarized in Appendix B of this EA.

The Proposed Action also complies with the Record of Decision and Utah Approved Resource Management Plan Amendments (ARMPA) for the Great Basin Region Including the Greater Sage-Grouse Sub-Region of Idaho and Southwestern Montana, Nevada and Northeastern California, Oregon, and Utah (BLM, USFS, 2015). More specifically, the Proposed Action complies with the following decision in the ARMPA:

- General Habitat Management Area (GHMA)—Open to fluid mineral leasing, subject to existing planning decisions, which include closed to fluid minerals leasing, no surface occupancy (NSO), controlled surface use (CSU), and timing limitation (TL) stipulations and open to leasing, subject to standard stipulations.

1.5. RELATIONSHIP TO STATUTES, REGULATIONS, POLICIES, AND OTHER PLANS

Purchasers of oil and gas lease parcels are required to comply with all applicable federal, state, and local laws and regulations, including obtaining all necessary permits prior to any lease development activities. A listing of relevant statutes, regulations, and policies is provided in Table 3. Other plans are discussed in Section 1.5.1.

Table 3 Relationship to Statutes, Regulations, and Policies

RELEVANT STATUTE, REGULATION, OR POLICY	RELATIONSHIP TO THE PROPOSED ACTION
Executive Order 14154/Secretary's Order 3418	EO 14154 and the subsequent SO 3418, are intended "…to encourage energy exploration and production on Federal lands and waters, including on the Outer Continental Shelf, in order to meet the needs of our citizens and solidify the United States as a global energy leader long into the future;"
Endangered Species Act (ESA)	The ESA requires all federal departments and agencies to consult with the U.S. Fish and Wildlife Service on all actions authorized, funded, or carried out by the agency to ensure that the action will not likely jeopardize the continued existence of any threatened and endangered species or adversely modify critical habitat. See the text of stipulation HQ-TES-1 in Appendix B.2 Description of Lease Stipulations and for details.

RELEVANT STATUTE, REGULATION, OR POLICY	RELATIONSHIP TO THE PROPOSED ACTION
Federal Land Policy and Management Act (FLPMA)	FLPMA established guidelines to provide for the management, protection, development, and enhancement of public lands (Pub. L. No. 94-579). Section 103 of FLPMA defines public lands as any lands and interest in lands owned by the United States. For split-estate lands where the mineral estate is an interest owned by the United States, the BLM has limited authority over use of the surface by the surface owner; however, the BLM is required to disclose potential effects connected to the authorization to lease and develop federal mineral estate and to declare how federal mineral estate is managed in the RMP, including identification of all appropriate lease stipulations (43 CFR 3101.13 and 43 CFR 1601.0-7(b); BLM Handbook H-1601.09 and H-1624-1).
Federal Onshore Oil and Gas Leasing Reform Act (FOOGLRA)	The FOOGLRA states that lease sales shall be held for each state where eligible lands are available at least quarterly and more frequently if the Secretary of the Interior determines such sales are necessary.
Mineral Leasing Act (MLA)	The MLA establishes that deposits of oil and gas owned by the United States are subject to disposition in the form and manner provided by the MLA under the rules and regulations prescribed by the Secretary of the Interior, where consistent with FLPMA, the National Environmental Policy Act of 1969, as amended (NEPA; Pub. L. No. 91-90, 42 United States Code [U.S.C.] Section 4321 et seq.), and other applicable laws, regulations, and policies.
National Historic Preservation Act (NHPA)	Leasing is considered an undertaking pursuant to 54 U.S.C. Section 300101 et seq., commonly known as the NHPA, as amended, and 54 U.S.C. Section 306108, commonly known as Section 106 of the NHPA (Section 106). Section 106 requires all federal agencies to take into account the effects on historic properties from a federal undertaking. As a part of Section 106, federal agencies consult with the State Historic Preservation Office (SHPO) on all undertakings authorized, funded, or carried out by the agency. Agencies may follow a phased approach to Section 106 compliance. At the leasing level, BLM conducts an existing records review and consultation with SHPO, Native American Tribes, consulting parties, and public-driven identification of historic properties. Class III cultural resource surveys are an important part of identification at the lease-development level. See the text of stipulation HQ-CR-1 in Appendix B.2 for details. All nominated lease parcels within the VFO for this Lease Sale lie within the exterior boundary[1] of the reservation of the Ute Indian Tribe of the Uintah & Ouray Reservation (Ute Indian Tribe). The Ute Indian Tribe entered into an agreement with the National Park Service and the U.S. Department of the Interior to establish a Tribal Historic Preservation Office (THPO) on September 22, 2021, and thereby assumed the functions of a SHPO overseeing Section 106 responsibilities and undertakings that lie within the exterior boundary of their reservation. Per 36 CFR 800.2(c)(2)(i)(A), an agency consults with the THPO "in lieu of the SHPO regarding undertakings occurring on or affecting historic properties on tribal lands."

[1] The term "exterior boundary" of a reservation refers to the initial boundary established by the first applicable treaty between the United States government and the affected Tribe(s). The originally established exterior boundary for a reservation may be larger than the present-day boundaries. The United States restructured land status and ownership of Tribal lands through various mechanisms such as the Dawes Act (1887), which reduced reservation lands for many Tribes, including the Ute Indian Tribe. Land within a current "exterior boundary" of a reservation may not be administered by Tribes or held in trust for them; many are owned either by private parties or other federal and state agencies.

RELEVANT STATUTE, REGULATION, OR POLICY	RELATIONSHIP TO THE PROPOSED ACTION
Clean Air Act (CAA)	The CAA's General Conformity Rule mandates that Federal agencies evaluate reasonably foreseeable emissions that result from its actions in a nonattainment area to determine if they conform with the applicable regulatory agency implementation plans (40 CFR 93.153). The rule takes into account air pollution emissions associated with actions that are federally funded, licensed, permitted, or approved, and ensures emissions do not contribute to air quality degradation, thus preventing the achievement of state and federal air quality goals. In short, general conformity refers to the process of evaluating plans, programs, and projects to determine and demonstrate they meet the requirements of the CAA and an applicable implementation plan.
Clean Water Act (CWA)	The CWA (33 U.S.C. § 1251 et seq.) establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters. The basis of the CWA was enacted in 1948 and was called the Federal Water Pollution Control Act, but the Act was significantly reorganized and expanded in 1972. The "Clean Water Act" became the Act's common name with amendments in 1972.
43 CFR Part 3100 and 43 CFR Subpart 3120	The regulations at 43 CFR Part 3100 govern onshore oil and gas leasing, development, and production of federal minerals. The regulations at 43 CFR Subpart 3120 govern competitive oil and gas lease sales. The BLM recently updated these oil and gas leasing regulations to implement provisions of the Inflation Reduction Act (IRA) pertaining to royalty rates, rentals, and minimum bids; update the bonding requirements for leasing, development, and production; and revise some operating requirements.

1.5.1 Other Plans

There are three non-federal resource management planning documents that have a relationship to the Proposed Action. Each of these is identified and discussed below. The Proposed Action directly aligns with these plans because it contemplates making available for competitive leasing nominated oil and gas lease parcels.

- State of Utah Resource Management Plan (State of Utah, 2023). The State RMP defines the State's policies, goals, and objectives for the management of natural resources on public lands. With respect to energy production (including petroleum and natural gas), the State RMP indicates that "Utah's general policy on energy production is that it supports all forms of energy. Utah is an 'all-of-the-above' state and believes there is room in its energy portfolio for all forms of energy."
- Uintah County Resource Management Plan (Uintah County, 2022). The Uintah County RMP was updated on October 31, 2022. The objectives from chapter six "Energy" include:
    - "Support balanced and responsible natural-resource development that benefits the public and generates revenues for public service providers to help pay for public infrastructure improvements needed to achieve economic diversity."
    - "Expedite the processing, granting, and streamlining of mineral and energy leases and applications to drill, extract, and otherwise develop all existing energy and mineral resources located within the Uintah Basin Energy Zone, including oil, natural gas, oil shale, oil sands, gilsonite, phosphate, gold, uranium, copper, solar, and wind resources."

- Sanpete County Resource Management Plan (Sanpete County, 2017). The Sanpete County RMP states the following:
    - OBJECTIVES

    a. Responsible energy development is the standard in the county.

    b. Opportunity for energy development is created.

    - POLICIES

    3. Support balanced and responsible natural-resource development that benefits the public and generates revenues for public service providers to help pay for public infrastructure improvements needed to achieve economic diversity.

    4. Minimize impacts to ecology and scenery from fluid and solid mineral development while still allowing such development to continue to benefit the economy. Encourage oil, gas and mining companies to use the best technology and mitigation techniques to protect natural amenities and natural resources.

    5. Support and participate in planning for locally produced sustainable energy and its local consumption and transport.

1.6. INTERNAL SCOPING

Beginning on February 14, 2025, the BLM interdisciplinary team (IDT) conducted internal scoping to identify issues, potential alternatives, and data needs by reviewing the leasing actions within the context of the applicable land use plans under the NEPA framework. Weekly meetings were held with IDT members during the parcel review process. The IDT met from April 7 to April 11, 2025, to work cooperatively to draft the initial EA. In addition, other resource-specific meetings with resource specialists were held to aid in refining issues related to the nominated lease parcels.

1.7. EXTERNAL SCOPING

The BLM held a public scoping period from February 25, 2025, until March 28, 2025. BLM received 14 comment submittals via ePlanning during the scoping period. Comment submittals contained comments on the following topics:

- Objections to oil and gas leasing in general
- Potential restrictions on public access to the affected area
- Potential harm to waterways from spills
- Climate change
- Potential damage to Lands with Wilderness Characteristics
- Potential harm to special status species
- Concern for declining air quality and contributions to water shortages

- General support for resource extraction

The preliminary Lease Sale EA will be made available for a public comment period from May 7 to June 6, 2025. All comments received will be reviewed and analyzed. Substantive comments will be responded to in Appendix C.

1.8. ISSUES

Through internal and external scoping, the following issues were identified for detailed analysis in this EA:

- What quantities and types of air pollutants would be produced from potential development of the nominated lease parcels? How would air pollutant emissions affect air quality and air quality related values?

- How would potential development of the nominated lease parcels contribute to greenhouse gas (GHG) emissions and climate change?

- How would future potential development of the nominated lease parcels impact GRSG and its habitat in the Deadman's Bench/Book Cliffs portion of the Uintah population area?

An additional 24 issues were identified, considered, and analyzed in brief (AIB) during review of the Proposed Action. These issues, and rationale for why they were not analyzed in detail, are presented in Section 3.5.

Table 4 lists resources or concerns that were considered but determined to not warrant further analysis in this EA.

Table 4 Resources Not Analyzed in this EA

RESOURCE OR CONCERN	RATIONALE FOR NOT ANALYZING IN EA
Prime and Unique Farmlands	There are no Prime and Unique Farmlands, as defined by 7 CFR 657.5, found within the project analysis area.
Wild Horses and Burros	The nominated lease parcels do not intersect with any designated herd areas (HAs) or herd management areas (HMAs) for wild horses or burros. The nearest HA or HMA is the Hill Creek Herd Area, which is approximately 3.5 miles west of nominated lease parcel 7671. Therefore, analysis of potential effects to wild horses and burros is not warranted.
Lands, Access, and Realty	Future potential development of the nominated lease parcels would be subject to existing land rights and interests (e.g., easements and water rights). Any potential land use conflicts would be resolved through other processes, such as administrative or legal proceedings, independent from this NEPA review.
Fuels and Fire Management	The potential for ignition of wildland fire from activities associated with future potential development of the nominated lease parcels would be minimized to the extent practicable through adherence to all applicable federal, state, and local fire safety requirements. No specific concerns or conflicts were identified through internal scoping relating to the effects of future potential development following leasing on fuels and fire management.

RESOURCE OR CONCERN	RATIONALE FOR NOT ANALYZING IN EA
Travel and Transportation Management	All of the nominated lease parcels are within the RFO and VFO Travel Management Areas (TMA). Roads constructed as part of well completion would not be open to public use and would not be added to the public access network; therefore, no change to the applicable travel management plans would be required. Use of the existing travel and transportation network within the BLM parcels would not be substantially changed by the Proposed Action.
Areas of Critical Environmental Concern (ACEC)	The Nine Mile Canyon ACEC is 16.5 miles to the west and topographically screened from the nearest lease parcel. The Pariette Wetlands ACEC is 23 miles west of the nearest lease parcel. Potential indirect impacts from oil and gas lease development would not be noticeable at this distance.
National & State Parks	There are no National Parks in the vicinity of any proposed lease parcels. Yuba State Park, which is the closest national or state park to the Project area, is 3.5 miles north of and topographically screened by mountains from the nearest parcel. Potential impacts from oil and gas lease development would not be noticeable.
National Scenic and Historic Trails (NSHT)	There are no NSHTs within or near any proposed lease parcels.
National Wildlife Refuges (NWR)	The Ouray NWR is 16 miles west of and topographically screened from the nearest lease parcel. Potential impacts from oil and gas lease development would not be noticeable at this distance.
National Conservation Areas (NCA)	The John Wesley Powell NCA is 24 miles north of the nearest lease parcel and topographically screened by Split Mountain. Potential impacts from oil and gas lease development would not be noticeable at this distance.
National Monuments (NM)	Dinosaur NM is 17 miles north of the nearest lease parcel. Potential indirect impacts from oil and gas lease development would not be noticeable at this distance.
Wilderness	The Desolation Canyon Wilderness is 20 miles southwest of and topographically screened from the nearest lease parcel. Potential indirect impacts from oil and gas lease development would not be noticeable at this distance.

1.9. PUBLIC PROTEST PERIOD

In compliance with 43 CFR 3120.1-3, the Notice of a Competitive Lease Sale (NCLS) will be made available for a 30-day protest period. If the BLM receives timely protests, it will resolve all protests prior to the sale related to those protests.

CHAPTER 2. DESCRIPTION OF ALTERNATIVES

2.1. INTRODUCTION

The VFO lease parcels are in southeastern Uintah County, stretching from Highway 45 on the north to the Bookcliff mountains to the south. The RFO parcels are located in northwestern Sanpete County along the border with Millard County between Highways 50 and 28. The maps of the nominated lease parcels are found in Appendix A Figures/Maps.

This EA addresses three alternatives in detail: Section 2.2 Alternative A – Proposed Action, Section 2.3, Alternative B – Greater Sage-grouse Alternative, and 2.4 Alternative C – No Action Alternative.

2.2. ALTERNATIVE A – PROPOSED ACTION

Under the Proposed Action, the BLM would offer for competitive leasing federal oil and gas resources associated with the 14 nominated lease parcels (see Appendix A Figures/Maps). Surface management, the legal land description of the nominated lease parcels (totaling 19,823.72 acres), and lease stipulations and notices attached to the parcels are included in Appendix B.

An issued lease may be held for ten years, after which the lease expires unless oil or gas is being produced in paying quantities (43 CFR 3107.2-1).[2] The drilling of wells on leased parcels is not permitted until the leaseholder submits, and the BLM approves (subsequent to additional site-specific environmental review documentation), a complete Application for Permit to Drill (APD) package (Form 3160-3) following the requirements specified under Onshore Oil and Gas Orders listed in 43 CFR Subpart 3162.[3] The BLM has authority, according to the standard terms and conditions of the leases, to attach conditions of approval (COAs) to an APD that reduce or avoid impacts to BLM-managed public lands, resources, and/or resource values.

Under 43 CFR 3101.12, "Such reasonable measures may include, but are not limited to, relocation or modification to siting or design of facilities, timing of operations, specification of interim and final reclamation measures, and specification of rates of development and production in the public interest. At a minimum, modifications that are consistent with lease rights include, but are not limited to, requiring relocation of proposed operations by up to 800 meters and prohibiting new surface disturbing operations for a period of up to 90 days in any lease year."

2.3. ALTERNATIVE B – GREATER SAGE-GROUSE ALTERNATIVE

Under this alternative, ten of the 14 parcels (parcels 1597, 7717, 7718, 1511, 1520, 1542, 1605, 7673, 7674, and 7719 (13,800.78 acres), would be offered for competitive leasing. Four nominated lease parcels (1514, 7667, 7668, and 7716; 6,022.94 acres) would not be offered because all or portions of these parcels contain GRSG GHMA. These four parcels would not be included in this Lease Sale but could be considered in a future sale.

[2] The regulations, however, recognize an exception to this rule for a lease that is within an operating Unit and the Unit is held by production of wells on other leases within the Unit.

[3] Additional Information regarding the BLM's oil and gas management program can be accessed online at: https://www.blm.gov/programs/energy-and-minerals/oil-and-gas/.

2.4. ALTERNATIVE C – NO ACTION ALTERNATIVE

Under the No Action Alternative, the BLM would not offer any of the nominated lease parcels for competitive leasing in this Lease Sale. However, the nominated lease parcels could be considered for inclusion in one or more future competitive oil and gas lease sales.

2.5. ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED ANALYSIS

The BLM considered three action alternatives in addition to Alternatives A and B but eliminated these alternatives from detailed analysis. These alternatives, along with rationale for their dismissal from detailed analysis, are discussed below.

2.5.1. No New Greenhouse Gas Emissions Alternative

Under this alternative, the BLM would defer all lease parcels so that no new greenhouse gas emissions would occur. This alternative was dismissed from detailed analysis because it is the same as the No Action Alternative (Alternative C), which is already analyzed.

2.5.2. White River Avoidance Alternative

Under this alternative, the BLM would defer offering parcel 1520, which contains segments of the White River in Uintah County. This segment of the White River has been identified as eligible but not suitable for designation under the Wild and Scenic River Act in the VFO RMP. The BLM dismissed this alternative from detailed analysis because three existing NSO lease stipulations attached to the proposed parcel cover 991.4 acres (95.5%) of the parcel, which includes those areas closest to the White River. The three lease stipulations (UT-S-47, UT-S- 87, and UT-S-120) would apply an NSO for up to 0.5 mile along both sides of the White River, and a CSU (UT-S-278) to protect and restore cottonwood bottoms for bald eagle winter habitat. The portion of the parcel not covered by the three stipulations (47 acres or 4.5%) lies approximately 0.65 mile from the White River and along the southern edge of the parcel. Future potential development within the parcel can only occur in the area not covered by the stipulations. Therefore, the stipulations coupled with the 0.65-mile distance from the river adequately protect the river and bald eagle habitat. Detailed analysis would not provide any additional information.

2.5.3. Low Preference Parcel Avoidance Alternative

This alternative would involve offering for competitive leasing only high-potential lands for oil and gas development, which have limited multiple-use conflicts, if any. The alternative would defer offering parcels that either pose potential resource conflicts or have only moderate or low potential for oil and gas development. Resource conflicts identified for the nominated parcels have been addressed in this EA. The lease stipulations and notices presented in chapter 3 provide adequate protections for the resources from potential conflicts, therefore this alternative is not needed. Additionally, removal of parcels from lease consideration would not contribute to the fulfillment of EO 14154, Unleashing American Energy.

Regulations (see 43 CFR § 3120.32) describe the parcel preference review process based on specific criteria. The regulation does not prohibit leasing parcels of lower preference even if no parcels meet any or all criteria for a high preference lease parcel. See Appendix D. Leasing Preference Rating for Nominated Lease Parcels.

2.5.4. LWC Avoidance Alternative

Under this alternative, the BLM would defer offering parcels 1520, 7673 and 7674 which are within lands with wilderness characteristics (LWC) inventory units found to have wilderness characteristics. LWC inventory findings are only a resource determination and are not officially a special land use allocation or designation. The identified lease parcels are in LWC units that the BLM has chosen to not solely manage for the protection of their wilderness character in the applicable VFO RMP. The BLM dismissed this alternative from detailed analysis because the VFO is not managing the lands for their wilderness characteristics, nor would leasing impair wilderness characteristics because the application of NSO stipulations to those parcels would be adequately protective.

CHAPTER 3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL EFFECTS

3.1. INTRODUCTION

This chapter contains the effects analysis related to the issues. Section 3.2 describes the analysis assumptions for the future potential development of the nominated lease parcels. Section 3.3 presents the relevant past, present and reasonably foreseeable actions. Section 3.4 describes the effects of the No Action Alternative for all issues. Section 3.5 presents the issues that are analyzed in brief. Section 3.6 presents the issues that are analyzed in detail.

Lease stipulations and notices are referred to throughout the analysis in Sections 3.5 and 3.6 in terms of their protective influence on resources that may be impacted by future potential development of the nominated lease parcels. Lease stipulations "are conditions of lease issuance which provide protection for other resources values or land uses by establishing authority for substantial delay or site changes or the denial of operations within the terms of the lease contract" (BLM, 1990). Lease stipulations are enforceable terms of the lease contract and supersede any inconsistent provisions of the standard lease form. Lease notices (also referred to as Information Notices in BLM Handbook H-1624) provide "notice of existing requirements and may be attached to a lease by the AO at the time of lease issuance to convey certain operational, procedural, or administrative requirements relative to lease management within the terms and conditions of the standard lease form" (BLM, 1990). Lease notices may not serve as the basis for denial of lease operations. However, they offer resource protections because they result in information gathering and the identification of resource values and land uses that the BLM, based on its authority under section 6 of the lease form, can require protection for within the constraints enumerated in the lease form (e.g., terms and conditions that would be attached at the APD stage) (also see Section 2.2 for a discussion of the standard terms and conditions).

3.2. ANALYSIS ASSUMPTIONS

While issuance of a lease would not directly authorize any oil and gas development or production, future oil and gas development and production is a reasonable outcome of a granted lease right. There are currently no development proposals for the nominated lease parcels because they have not been leased, therefore BLM does not have parcel specific information related to oil and gas development. For the purpose of this analysis, Section 3.2.1 outlines the methods for estimating number of wells, acres of surface disturbance, and potential production volumes associated with the future potential development of the 14 nominated lease parcels.

It is unknown when, where, or to what extent subsequent well sites, roads, and associated infrastructure would be proposed in the event the BLM decides to lease the nominated lease parcels. Future potential development of the nominated lease parcels could include the following phases (Appendix E provides a summary of the phases of oil and gas development):

- Well Development,
    - Vegetation and soil removal
    - Construction of Pads, roads and pipelines
- Drilling
    - Mud/cuttings
    - Well completion
    - Hydraulic Fracturing
- Production and Operation
    - Production
        - Sale of Product
        - Hauling of produced fluids such as oil or produced water
        - Inspections
        - compression to move gas through pipeline systems
        - Well monitoring for the life of the well
        - Workover operations
- Well Reclamation.
    - Plugging and abandonment
    - Reclamation of the Pad, roads, pipelines

3.2.1. Methods Used for Estimating Number of Oil and Gas Wells, Surface Disturbance, and Production Volumes

3.2.1.1. Vernal Field Office Reasonable Foreseeable Development

The Vernal Resource Management Plan included a Reasonably Foreseeable Development Scenario (RFD) for oil and gas development in the Mineral Potential Report Appendix A. The 2015 Greater Sage Grouse RMP Amendment's Final Environmental Impact Statement Appendix R included a second RFD. The RFDs are based on historic data but also considered projected economic trends and advances in technology. As a planning and analysis tool, the RFDs predict new development as well as continued production from existing fields for the anticipated life of the field. The BLM recognizes that there will be a greater degree of predictive uncertainty associated with estimates of new discoveries. The BLM prepared the RFDs in compliance with Washington Office Instruction Memorandum 2004-89, (October 28, 2008). A summary of the RFDs is included below:

- Parcels 1511, 1514, 1520, 7667, 7668, 7673, 7674 are within the Vernal RMP's Monument Butte-Red Wash RFD area. This RFD identified the area to have moderate to high potential for development with 3,100 gas wells and 1,799 oil wells projected.

- Parcels 1542, 1605, 7716, and 7719 are within the Vernal RMP's East Tavaputs RFD area. This RFD identified the area to have moderate to high potential for development with 75 oil wells, 350 gas wells and 50 coal bed methane wells projected.

To estimate the Lease Sale parcel-specific foreseeable development for the purposes of NEPA analysis, the BLM considered the RMP RFDs. The BLM also considered more recent data from BLM experience, existing well production, new permitting, geologic studies, and economic studies and projections. Acreages were calculated by using 1.5 acres/well (1 acre for the pad and 0.5 for the associated road) for horizontally drilled wells and 5 acres/well (3 acres for the pad and 2 acres for the road) for vertically drilled wells. The BLM gathered the more recent information from BLM experts, industry professionals,

the Energy Policy and Conservation Act (EPCA) Oil and Gas Inventory Report, the Utah Division of Oil, Gas, and Mining, and the Utah Geological Survey. Table 5 shows the assumptions used to estimate future development.

Table 5: Assumptions of Well Bores and Acreages to Develop a Parcel: VFO

Parcel	Number of Well Bores to Develop the Parcel	Anticipated mode of Drilling	Surface Disturbance Acreage*
1511	16	Horizontal	24
1514	16	Horizontal	24
1520	16	Horizontal	24
1542	1	Vertical	5
1605	16	Vertical	80
7667	9	Horizontal	13.5
7668	16	Horizontal	24
7673	8	Horizontal	12
7674	8	Horizontal	12
7716	12	Vertical	60
7719	12	Vertical	60
Total	130		338.5

* All acreages contained in the EA analysis were calculated using geographic information system (GIS) data sets for resources and the parcels, which may differ slightly from the acreages contained in legal description in Appendix B. Difference in total acres between the parcels and acres analyzed in the EA can vary slightly due to geoprocessing operations where slivers of area are created when two or more data sets intersect. Any inaccuracies are negligible and do not change the overall impact analysis conclusions presented in this EA.

For the purpose of this analysis, it is assumed the Proposed Action would result in 130 well bores on the 11 parcels in the VFO. Total surface disturbance is estimated to be 338.5 acres, but the disturbance may occur off-parcel in the case of horizontal development. Table 6 shows production estimates for each well type (horizontal and vertical) and Table 7 shows estimated total production per parcel.

Table 6: Total Lease Sale Production Estimates Per Well: VFO

Well Type	**Gas (mcf)**	**Oil (bbls)**	**Water (bbls)**	**Water required to drill (bbls)**
Horizontal Gas	6,000,000	175,000	420,000	150,000-500,000
Vertical Gas	3,000,000	3,000	34,000	40,000-150,000

Note: bbl = barrels; mcf = thousand cubic feet.

Table 7: Total Production Estimates by Parcel: VFO

Parcel	Number of Wells†	Total Gas (mcf)	Total Oil (bbls)	Total Water‡ (bbls)
1511	16	96,000,000	2,800,000	6,720,000
1514	16	96,000,000	2,800,000	6,720,000
1520	16	96,000,000	2,800,000	6,720,000
1542	1	6,000,000	175,000	420,000
1605	16	48,000,000	48,000	544,000

Parcel	Number of Wells†	Total Gas (mcf)	Total Oil (bbls)	Total Water‡ (bbls)
7667	9	54,000,000	1,575,000	3,780,000
7668	16	96,000,000	2,800,000	6,720,000
7673	8	48,000,000	1,400,000	3,360,000
7674	8	48,000,000	1,400,000	3,360,000
7716	12	36,000,000	36,000	408,000
7719	12	36,000,000	36,000	408,000
Totals	130	660,000,0000	15,870,0000	39,160,000

Note: bbl = barrels; mcf = thousand cubic feet.

† In cases where the methods used for estimating the number of wells per nominated lease parcel resulted in a fractional value of less than one well per nominated lease parcel (because of low anticipated drilling rate), the fractional value was adjusted upward to the next whole number to represent a rational outcome of the number of potential wells that could be drilled and developed on the nominated lease parcel, as well as to provide meaningful inputs to the oil, gas, and produced water production projections.

‡Produced water amounts were estimated by using a ratio of 1:1 for water produced during oil production and 80 bbl:1,000 mcf for water produced from natural gas extraction.

Existing Well Bores on the Parcels

The parcel shown in Table 8 already has existing wells on it that may be capable of production. If leased, the successful lessee would be responsible for operations on these wells.

Table 8: Existing Wells per Parcel: VFO

Parcel	Existing Wells
1514	QT Federal 34-1, Federal 1-27, Federal 26-1, Raging Bull Unit 1

3.2.1.2. Richfield Field Office RFD

The Richfield FO evaluated the oil and gas well development potential for 4,807.38 acres within the Richfield Management Area, specifically along the Sevier Frontal Zone Play. The assessment utilizes historical drilling data, geologic analysis, and decline curve analysis to estimate potential future development.

The Richfield RMP included an RFD Scenario for oil and gas development in the Mineral Potential Report Appendix 12. A summary of the RFDs is included below:

- Parcels 1597, 7717, and 7718 are within the Richfield RMP's RFD area. This RFD identified the area to have low potential for development with one total oil wells projected.

Methodology

- The 4,807.38-acre study represents .44% of RFD Area 4 (BLM, 2008), resulting in one potential well locations.
- Based on the RFO RMP.
- Given regional production characteristics, each well is estimated to yield 596,000 barrels of oil and 3.375 million barrels of water over its productive life.

- As observed in the Covenant Oil Field and other area fields, minimal to no gas production is expected.

Table 9: Total Lease Sale Production Estimates: RFO

Well Type	Number of Wells	Oil Production per well (bbl)	Water Production per well (bbl)	Water required to drill (bbl)
Vertical	1	596,000	3,375,000	3,658

Table 9. Summary of estimated oil and water production for one potential wells in the Richfield RMP area, based on a P50 Estimated Ultimate Recovery (EUR) of 596,000 barrels of oil and 3.375 million barrels of water per well.

Expected Surface Disturbance

Based on the Richfield RMP's projections for Area 4 (Sevier Frontal Zone Play):

- Each well pad will disturb approximately 4 acres.
- Each well pad will require approximately 2 miles of new road construction, further contributing to surface impacts.
- Total disturbance for one well is anticipated to be 12 acres (Table 10)
- Multiple wells are anticipated to be drilled from single pads, which may reduce the overall disturbance footprint.

Table 10 Assumptions of Well Bores and Acreages to Develop a Parcel: RFO

Number of Wells	Well Pad Disturbance/Well (ac.)	Road Disturbance/Well (2 mi. @ 4 ac./mi = 8 ac/well)	Total Disturbance (ac.)	Pipeline Disturbance (ac.)
1	4	8	12	n/a

Conclusion

Based on historical data, geologic assessment, and decline curve analysis, the Richfield RMP area is expected to support the development of one oil well. This well will collectively contribute to regional energy production while adhering to federal land use planning guidelines. Continued monitoring of drilling success rates and production data will be necessary to refine future projections.

3.3. RELEVANT PAST, PRESENT, AND REASONABLY FORESEEABLE FUTURE ACTIONS

This section outlines past, present, and reasonably foreseeable future actions and environmental trends in the vicinity of the nominated lease parcels that have a relationship to potential resource effects associated with the alternatives. This section appears prior to the impacts analysis because it is intended to provide broad context for those analyses and the activities occurring and trends influencing the environment in the area.

The parcels are located within ten Hydrologic Unit Code (HUC) 10 watersheds that are nested within three HUC6 subbasins (**Error! Reference source not found.Error! Reference source not found.**). HUC10s provide an effective means of defining reasonably foreseeable future actions areas because they encompass areas of similar environmental conditions.

In recent decades, the influences on the landscape in the vicinity of the nominated lease parcels include the following:

- Oil and gas development and reclamation:

Table 11 HUC10 watersheds encompassing proposed parcels

HUC10 Number	Subbasin Name	Watershed Name	Acres	Parcels
1405000705	Lower White River	Dripping Rock Creek-White River	240,525	7667
1405000707	Lower White River	Asphalt Wash-White River	121,848	1520, 7673, 7674
1405000709	Lower White River	Bitter Creek	153,680	7673
1405000710	Lower White River	Coyote Wash	150,308	1511, 1514, 7667, 7668
1406000601	Willow Creek	Main Canyon	76,478	1542
1406000602	Willow Creek	East Willow Creek-Willow Creek	214,653	7716, 7719
1406000603	Willow Creek	Hill Creek	192,415	7716
1406000604	Willow Creek	Agency Draw-Willow Creek	126,974	1542, 7716, 7719
1603000306	Middle Sevier River	Willow Creek-Sevier River	156,762	1597,7717, 7718
1603000501	Lower Sevier River	Ivie Creek	103,684	1597,7717, 7718

As of April 8, 2025, there are 3,096 drilled or drilling oil and gas or service wells, 2,269 plugged and abandoned well locations that may be at various levels of reclamation, and 95 proposed well locations within these ten HUC 10 watersheds, as shown in Table 12.

Table 12: Existing Well and APD Status by Watershed

Watershed Name	Proposed Locations[1]	Plugged and Abandoned	Drilled or Drilling Locations[2]
Dripping Rock Creek-White River	0	1165	997
Asphalt Wash-White River	42	230	393
Bitter Creek	1	127	93
Coyote Wash	35	355	969
Main Canyon	0	38	35
East Willow Creek-Willow Creek	2	44	19

Watershed Name	Proposed Locations[1]	Plugged and Abandoned	Drilled or Drilling Locations[2]
Hill Creek	0	81	94
Agency Draw-Willow Creek	14	214	494
Willow Creek-Sevier River	1	12	2
Ivie Creek	0	2	0
Grand Total	95	2,269	3,096

In 1 Includes New and approved APDs
2 Includes Active and Inactive Service wells, producing wells, spudded or actively drilling wells, temporarily abandoned wells, shut-in wells, and drilling operation suspended wells

- These watersheds overlap the 2008 VFO RMP's Monument Butte-Red Wash, East Tavaputs Plateau (BLM, 2008), and Richfield Area 4 Reasonably Foreseeable Development (BLM, 2008) areas which predicted 1,799 oil wells and 3,100 gas wells (Monument Butte-Red Wash); 75 oil well, 350 gas wells, and 50 coal-bed methane wells (East Tavaputs Plateau); and 360 oil and gas wells (Richfield Area 4) drilled over 15 years (BLM, 2008).

- Other minerals – within the HUC 10 watersheds that encompass the parcels, as of April 8, 2025, there are 24 authorized mineral material case records covering 13,543 acres, 40 pending and interim mineral material case records covering 16,874 acres, and 183 closed mineral material case records covering 114,705 acres (Table 13).

Table 13: Mineral Material Case Records by Watershed

Watershed Name	Number of Active Case Records	Active Case Records Acres	Number of Pending & Interim Case Records	Pending & Interim Case Acres	Number of Closed Case Records	Closed Case Acres
Dripping Rock Creek-White River	4	2,090	2	447	50	40,483
Asphalt Wash-White River	3	438	12	7,908	38	23,074
Bitter Creek	0	0	3	1,138	7	5,703
Coyote Wash	14	2,317	7	3,389	16	4,857
Main Canyon	0	0	0	0	0	0
East Willow Creek-Willow Creek	0	0	0	0	0	0
Hill Creek	0	0	2	368	10	5,657
Agency Draw-Willow Creek	2	8,688	11	3,229	36	30,637
Willow Creek-Sevier River	1	10	2	93	26	4,294
Ivie Creek	0	0	1	302	0	0
Grand Total	24	13,543	40	16,874	183	114,705

- Livestock grazing: Within the encompassing HUC 10 watersheds there are 68 allotments. Nominated lease parcels fall within 19 of these allotments. Eight allotments are within the RFO and 11 allotments are within the VFO. AIB-17 contains a more detailed analysis on the 19 allotments that contain nominated parcels.
- In 2023, the BLM offered 18 parcels for lease in the RFO, just north of the proposed action in Sanpete county. Eleven of those parcels failed to sell at auction. These 11 parcels will be re-offered in the 2025 Quarter 2 lease sale. (DOI-BLM-UT-0000-2025-0002-DNA)
- There are no proposed vegetation treatment areas that overlap or are within 10 miles of the proposed parcels.
- The Bonanza Power plant is located immediately west of parcel 1511.
- The Bonanza Gilsonite mine is located approximately 4 miles south of parcel 1514 along state highway 45. The mine is located entirely on private property.
- There are numerous electrical transmission lines that run close, adjacent to, or through many of the proposed lease parcels.

Current ongoing global climate change is caused, in large part, by the atmospheric buildup of 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 Industrial Revolution (1760-1840) has substantially increased atmospheric concentrations of these compounds compared to background levels. Several types of activities contribute to the phenomenon of climate change, including emissions of GHGs from fossil fuels used as a primary energy source, large wildfires, changes to the natural carbon cycle, and changes to radiative forces and reflectivity (albedo). Between 1850 and 2019, cumulative anthropogenic CO2 emissions emitted to the atmosphere were approximately 2,400 ± 240 Gigatonnes of CO2 (GtCO2). About 43% of these emissions have remained in the atmosphere, while the rest was removed from the atmosphere and stored in natural terrestrial ecosystems (plants and soils – 29%) and in the oceans (28%).

Multi-model climate projections under a high emissions scenario (SSP5-8.5) indicate that Utah could warm as much as 4 °C above current levels by 2074. Under a lower emissions scenario (SSP2-4.5), warming is projected to increase about 3 °C relative to the 1981-2010 mean (Alder & Hostetler, 2013). Increases in average temperatures would be accompanied by increases in heat wave intensity and decreases in cold wave intensity. Under these conditions, precipitation would more likely fall as rain instead of snow, reducing water storage in the snowpack.

Uintah and Sanpete Counties, where the nominated lease parcels are located, have been experiencing intermittent drought conditions for at least the past 24 years, with the most notable drought periods (severe, extreme, and exceptional drought) in the following timeframes: 2002-2005, 2012-2014, 2018-2019, and 2021-2023. Droughts such as those experienced in Uintah and Sanpete Counties are a natural part of Utah's climate. However, these droughts are expected to become more intense with climate change. Higher temperatures will amplify the effects of naturally occurring dry spells by increasing the rate of loss of soil moisture. Additionally, higher spring temperature can cause early melting of the snowpack, decreasing water availability during the already dry summer months. The projected increase in the intensity of naturally occurring droughts will increase the occurrence and severity of wildfires.

Further discussion about climate change science and predicted impacts can be found in the 2023 *BLM Specialist Report on Annual Greenhouse Gas Emissions and Climate Trends* (BLM, 2024) (Annual GHG

Report). An emissions discussion detailing a quantitative analysis of GHGs related to the potential develop of the lease parcels can be found in Section 3.6.2.

3.4. NO ACTION ALTERNATIVE IMPACTS FOR ALL ISSUES

Under the No Action Alternative, the BLM would not offer for lease the 14 nominated lease parcels and the existing conditions and trends related to each issue would continue. Potential impacts associated with future potential development of the nominated lease parcels would not occur under this alternative, current land and resource uses would continue, and the federal mineral acreage would remain open to future oil and gas leasing unless land use plan amendments are completed to close these areas to leasing. No natural gas or crude oil from the nominated lease parcels would be produced, and no royalties would accrue to federal or state treasuries. Selection of the No Action Alternative would forgo new oil and gas development opportunities on approximately 19,823.72 acres of federal minerals in the VFO and RFO. Reducing total oil and gas development opportunities in the area is likely to incrementally reduce local and regional employment and revenue opportunities related to the oil and gas and service support industries over time. This is because the oil and gas sector of the economy relies on both ongoing operational activities (development of existing leases) and new development opportunities (acquisition and development of new leases) to continue to provide local and regional jobs and revenue on a sustained basis. In the 5.5 million-acres within the boundary of the VFO, there are approximately 1.9 million acres of federal mineral estate that are open to oil and gas leasing. Of these lands open to leasing, 1,168,221 acres are already leased (which represents 62% of the federal mineral estate open to oil and gas leasing) across 1274 total leases. Of the 5.4 million-acres within the boundary of the RFO, there are approximately 1.7 million acres of federal mineral estate that are open to oil and gas leasing. Of these lands open for leasing, 101,490 acres are already leased (which represents 6% of the federal mineral estate open to oil and gas leasing) across 78 total leases.

3.5. ISSUES ANALYZED IN BRIEF (AIB)

Following internal and external scoping, 24 issues were identified, considered, and eliminated from detailed analysis by members of the IDT in review of the Proposed Action. Each of these issues is outlined below with a concise discussion regarding the degree of the impact in the context of the affected area for each issue. Stipulations HQ-TES-1 (compliance with the ESA), HQ-CR-1 (compliance with the NHPA), and Lease Notice HQ-MLA-1 (compliance with the MLA), as well as standard terms and conditions as described in the lease form, would apply to all nominated lease parcels.

For the purposes of this analysis, short-term effects are those that cease after well construction and completion (30–60 days) or cease after interim reclamation (2–5 years). Long-term effects are considered to be those associated with operation and production activities over the life of the well (for example, noise) or that otherwise extend beyond the short-term time period (for example, surface disturbance subject to final reclamation). As such, some long-term effects would cease immediately upon the end of operations, whereas other long-term effects would remain until successful landscape reclamation and remediation is accomplished. Note that the time frame for successful reclamation would vary by vegetation type and other factors such as the amount and timing of annual precipitation (see AIB-9 for more information). No long-term effects are expected to persist after successful final reclamation.

AIB-1 Threatened, Endangered, and Proposed Species

How would future potential development of the nominated lease parcels affect federally listed and proposed species or their habitats?

The BLM analyzed the nominated lease parcels individually for the presence of federally listed species in coordination with the USFWS and identified twelve species whose USFWS-published range maps (also referred to as areas of influence [AOI]) intersect with one or more nominated parcels. Each identified species is discussed separately in the following subsection. In accordance with lease stipulation HQ-TES-1, which applies to all the nominated lease parcels, the BLM would not approve any ground-disturbing activity that may affect listed species or critical habitat until it completes its obligations under the applicable requirements of the ESA.

The BLM may also require modifications to or disapprove proposed activities that are likely to jeopardize the continued existence of any proposed or listed threatened or endangered species or that may result in the destruction or adverse modification of designated or proposed critical habitat (see Appendix B – Stipulations and Notices).

Additionally, since the BLM may potentially identify currently or future listed species within the parcels, lease notice T&E-05 (Listed Plant Species) applies to all lease parcels. Section 4.1 further discusses how the Proposed Action complies with the threatened and endangered species management guidelines outlined in the Vernal and Richfield RMPs, as well as the consultation requirements of ESA Section 7.

By applying the identified threatened and endangered (T&E) lease notices, which the BLM developed through formal ESA Section 7 consultation with the USFWS during the creation of the applicable land use plans, potential impacts from mineral development on the nominated lease parcels and adjacent lands would be mitigated.

As discussed below, the implementation of these lease stipulations and notices, as well as the requirements outlined in the applicable land use plan, would adequately reduce potential impacts to listed or candidate T&E species during the leasing stage. At the lease development stage, the BLM would conduct site-specific ESA Section 7 consultation with the USFWS as necessary, taking into account infrastructure siting, habitat suitability determinations, survey results, and any additional site-specific considerations or avoidance measures.

Aquatic Animal Species

Listed Fish of the Upper Colorado River Drainage Basin (Colorado pikeminnow [*Ptychocheilus lucius*], razorback sucker [*Xyrauchen texanus*], bonytail chub [*Gila elegans*], humpback chub [*Gila cypha*]):

All four of the listed fish of the Upper Colorado River Basin utilize the White River, which intersects Parcel 1520. Fisheries biologists have documented Razorback sucker and Colorado pikeminnow more frequently in the White River than the chubs, but all species have been documented in recent years. These fish utilize the White River due to its connectivity to the mainstem Green River, natural hydrograph, complex instream habitat (e.g., pools, backwaters, side channels, riffles), and suitable food base. Surface-disturbing activities that affect sediment supply, alter the hydrology, or impact water quality or quantity could indirectly impact the fish and their habitat. A spill of hydrocarbons could result in direct impacts to the species.

Parcel 1520 also contains designated critical habitat for Colorado pikeminnow and razorback sucker. Critical habitat extends from the centerline of the White River to the boundary of the 100-year floodplain.

Parcels 7673, 7674, 1520, 1511, 1514, 7668, 7667, 1542, 1605, 7716, and 7719 are all within the Upper Colorado Basin Watershed. The FWS considers water depletions from any portion of the Upper Colorado River drainage basin above Lake Powell to be detrimental to the critical habitat of the four resident listed fish species of the Upper Colorado River Basin, and therefore the BLM must evaluate effects using the

criteria described in the Upper Colorado River Endangered Fish Recovery Program. At this leasing stage, it would be too speculative for the BLM to identify the potential source and status of permitted water sources used in the lease development. However, to account for the potential that water from a non-historic source within the Upper Colorado River drainage is used during the extraction process, the BLM includes lease stipulations and applies lease notices to the parcels within the Basin. Lease notice T&E-03 informs potential lessees that all development activities will be subject the Threatened and Endangered Species Act, which includes habitat monitoring, managing water production to ensure riparian habitat quality, directional drilling where possible, conducting watershed analysis for leases, not drilling in 100-year floodplains, and utilizing technologies such as closed-loop drilling. These requirements would provide sufficient protections such that more detailed analysis is not warranted.

Lease Notices:

- T&E-03 Threatened and Endangered Fish of the Colorado Basin: Parcels 7673, 7674, 1520, 1511, 1514, 7668, 7667, 1542, 1605, 7716, and 7719.

Terrestrial Vertebrate Species

Mexican spotted owl (*Strix occidentalis lucida*)

Parcels 1520, 1605, 7673, 7674, 7716, and 7719 intersect the USFWS AOI for the Mexican spotted owl and fall partially within the 1997 Willey-Spotskey Mexican Spotted Owl Habitat Model. (Willey & Spotskey).

The modeled habitat within 0.5 mile of Parcel 1605 is a small, isolated area that does not provide suitable canyon habitat. Therefore, there is no suitable habitat for Mexican Spotted Owl in the vicinity of Parcel 1605.

The BLM and USFWS biologists have previously evaluated habitat within and adjacent to Parcels 1520, 7673, and 7674 and these parcels were determined to be unsuitable to poor habitat. Consequently, these parcels do not provide suitable breeding habitat for Mexican Spotted Owl.

Similarly, the modeled habitat (Willey & Spotskey) that intersects Parcels 7716 and 7719 consists of small, isolated areas that do not provide suitable habitat. However, unlike the other parcels, 7716 and 7719 are located within 0.5 mile of potential canyon habitat on lands held in trust for the Ute Tribe, which, to the BLM's knowledge, have not been evaluated for habitat suitability.

Given that there is no suitable habitat within these parcels, there would be no direct loss of suitable habitat. However, there may be indirect impacts on the suitable habitat within 0.5 mile of Parcels 7716 and 7719. To date, the BLM has not identified any resident Mexican spotted owls in the vicinity of these parcels. Additionally, the implementation of the Lease Notice T&E-06-Mexican Spotted Owl, which includes habitat assessments, surveys, timing restrictions, and monitoring would further reduce impacts to potential habitat for the species. Therefore, a detailed analysis of the impacts to the Mexican spotted owl is not warranted.

Lease Notices:

- T&E-06: Mexican Spotted Owl: Parcels 7716 and 7719

Yellow-billed cuckoo (*Coccyzus americanus*)

Parcels 1514, 1520, 1605, 7668, and 7673 intersect the USFWS AOI for yellow-billed cuckoo. Among these, parcels 1514, 1605, 7668, and 7673 are outside the 0.5 mile range of riparian forest habitat; therefore, potential future activities on those parcels would not impact the species.

Parcel 1520 intersects riparian forest ecosystems along the White River that may provide suitable breeding habitat for the yellow-billed cuckoo. The portions of Parcel 1520 that provide breeding habitat are subject to a NSO Stipulation (associated with the management of the White River Special Recreation Management Area), meaning there would be no direct loss of suitable habitat from future lease development activities. However, approximately 312 acres of riparian habitat along the White River, including suitable riparian forest, are within 0.5- miles of the portions of Parcel 1520 that do not have this NSO Stipulation. These areas of suitable habitat could be indirectly impacted by potential future development of the parcel, particularly due to increased noise.

Implementation of the applicable stipulation and notice would reduce impacts to potential habitat for the species. Therefore, a detailed analysis of the impacts to the yellow-billed cuckoo is not warranted.

Lease Stipulation

- UT-S-47: No Surface Occupancy – White River SRMA: Parcel 1520

Lease Notices:

- T&E-31: Yellow-billed cuckoo: Parcel 1520

Black-footed ferret (*Mustela nigripes*)

Parcels 1511, 1514, 7667, and 7668 are located entirely within the Black-footed Ferret Primary Management Zone (PMZ), which is a sub-component of the larger Management Area. Based on the assumptions in Section 3.2.1, future potential development is projected to result in 85.5 acres of surface disturbance within the PMZ. Additionally, these four parcels overlap mapped white-tailed prairie dog colonies, which serve as suitable habitat for the black-footed ferret.

Table 14:Estimated disturbance to white-tailed prairie dog colonies & black-footed ferret habitat

Parcel Number	Prairie dog colony acres in parcel	Percent of parcel covered by prairie dog colony	Estimated percentage of prairie dog colony disturbed in parcel	Estimated acres of prairie dog colony disturbed in parcel
1511	869	54.70%	0.83%	7.18
1514	120	12.50%	0.31%	0.38
7667	1484	83.61%	0.64%	9.44
7668	219	21.10%	0.49%	1.07
Total	2691	50.22%	0.80%	21.4

Using the disturbance assumptions in Section 3.2.1 and assuming random placement of disturbance relative to the mapped white-tailed prairie dog colonies, development of the nominated lease parcels would impact 21.4 acres of suitable habitat for the black-footed ferret. This represents 0.08% of the

mapped white-tailed prairie dog colonies within the Management Area and 0.2% of the mapped colonies within the PMZ.

The implementation of the associated stipulation and notice would further reduce impacts to potential habitat for the species. Therefore, a detailed analysis of the impacts to the black-footed ferret is not warranted.

Lease Stipulations

- UT-S-299: Controlled Surface Use/Timing Limitations – Black-Footed Ferret – Primary Management Zone Area: Parcels 1511, 1514, 7667, 7668

Lease Notices:

- T&E-02: Black-Footed Ferret: Parcels 1511, 1514, 7667, 7668

Utah prairie dog (*Cynomys parvidens*)

Parcels 1597, 7717, and 7718 are located within the USFWS AOI for the Utah prairie dog. AOIs typically encompass larger areas than simply where the species is known to exist to account for direct and indirect effects to the species and their habitat, in this case, occurring within ten miles of a historic Utah prairie dog colony. All three of the parcels have modeled suitable habitat (Ikeda, 2010).

Table 15. Acres of Utah Prairie Dog Modeled Habitat by Parcel.

Parcel	Acres	Acres Modeled Habitat	Percent Modeled Habitat	Stipulations and Notices
1597	1105	42	3.7%	UT-S-221: Controlled Surface Use/Timing Limitations – Utah Prairie Dog T&E-09: Utah Prairie Dog
7717	2278	131	5.7%	UT-S-221: Controlled Surface Use/Timing Limitations – Utah Prairie Dog T&E-09: Utah Prairie Dog
7718	1424	23	1.6%	UT-S-221: Controlled Surface Use/Timing Limitations – Utah Prairie Dog T&E-09: Utah Prairie Dog

Using the disturbance assumptions in Section 3.2.1 and assuming random placement of disturbance relative to areas modeled as habitat for Utah Prairie Dog, development of the nominated lease parcels would impact 1.3 acres of potential habitat (0.6% of modeled habitat within the parcels).

These parcels are outside of any of the three recovery units for the species, no known extant colonies are in the vicinity of the parcels, and there are neither plans nor support for future translocations of the species in the vicinity of the parcels. Given the lack of active or historic Utah prairied dog colonies within a half mile of the parcels and considering that the implementation of the lease stipulations and lease notice on the nominated parcels would further reduce the potential impacts to unidentified colonies into the foreseeable future at the lease development stage, detailed analysis on the impacts to Utah prairie dog is not warranted.

Lease Notices:

- T&E-09: Utah Prairie Dog: Parcels 1597, 7717, and 7718

Lease Stipulations:

- UT-S-221: Controlled Surface Use-Timing limitations - Utah Prairie Dog: Parcels 1597, 7717, and 7718

Insect Species

Monarch butterfly (*Danaus plexippus*)

All nominated parcels have the potential to support the monarch butterfly during a portion of its migration. However, not all areas provide the same habitat value. NatureServe has modeled suitable habitat for the western monarch for both the spring and fall migrations to identify regions of global and local importance to the species (McIntyre, Ceasar, & Young, 2024).

Only Parcel 1520 intersects areas designated as either local or global importance. Within this parcel, there are 277 acres identified as being of global importance, along with an additional 71 acres recognized as locally important during one of the migration seasons. Most of this identified habitat is along the White River and is protected by the NSO stipulation. The remaining modeled habitat within the parcel consists of 28 acres identified as being of local importance during the fall migration.

Using the disturbance assumptions outlined in Section 3.2.1 and assuming random placement of disturbance relative to the modeled areas, there would be an estimated 0.2 acres of disturbance to this habitat.

Given the low expected disturbance relative to the available habitat at the local, regional, and global levels, and considering the implementation of the attached lease notices, a detailed analysis of the impacts on the monarch butterfly is not warranted.

Lease Notices:

- UT-LN-156: Pollinators and Pollinator Habitat- all parcels

- UT-LN-49: Utah Sensitive Species- all parcels

Suckley's bumblebee (*Bombus suckleyi*)

The current USFWS AOI for Suckley's bumblebee covers all of the State of Utah due to the uncertainty with the potential range for the species. Western bumblebee (*Bombus occidentalis*) is the primary host for Suckley's bumblebee. An occupancy model for western bumblebee has been developed (Graves, et al.,

2020). Using post-hoc EPA Level III Ecoregion specific thresholds (0.7 for the Colorado Plateau and 0.16 for the Central Basin and Range), it is possible to identify areas of potential habitat for western bumblebee and by association Suckley's bumblebee. Using these thresholds, all of parcels 1520, 1542, 1597, 1605, 7673, 7674, 7716, 7717, 7718, and 7719 may provide habitat for western bumblebee and Suckley's bumblebee. Based on the disturbance assumptions outlined in Section 3.2.1, the estimated disturbance to potential habitat would be 289 acres. This is less than the 0.01% of the 23,171,795 acres of potential habitat within the state of Utah.

Given the low expected disturbance relative to the available habitat at the local, regional, and global levels, and considering the implementation of the attached lease notices, potential impacts will be minimized and a detailed analysis of the impacts on the Suckley's bumblebee is not warranted.

Lease Notices:

- UT-LN-156: Pollinators and Pollinator Habitat- all parcels
- UT-LN-49: Utah Sensitive Species - all parcels

Plant Species

Shrubby reed-mustard (*Hesperidanthus suffrutescens*)

Parcels 1605, 7716, and 7719 intersect the USFWS AOI for shrubby reed-mustard and modeled habitat for the species. Based on the disturbance assumptions outlined in Section 3.2.1 and assuming a random distribution of disturbance relative to the modeled areas, the estimated disturbance to potential habitat would be 37.6 acres (see Table 16).

Table 16: Shrubby-reed mustard modeled habitat acres and disturbance

Parcel	Acres modeled habitat	Estimated acres modeled habitat disturbed
1605	1558.2	29.6
7716	537.4	3.4
7719	703.6	4.5
Grand Total	2799.2	37.6

This estimated disturbance represents less than 0.1% of the total 81,706 acres of modeled habitat for the species. No populations of shrubby reed-mustard have been identified within the proposed lease parcels, with the nearest known population located approximately 3 miles north of Parcel 1605.

Furthermore, the implementation of the associated notice would further mitigate impacts on potential habitat for the species. Therefore, a detailed analysis of the impacts on shrubby reed-mustard is not necessary.

Lease Notices:

- T&E-05: Listed Plant Species: All Parcels
- T&E-21: Shrubby Reed-Mustard: Parcels – 1605, 7716, and 7719

Ute-ladies' tresses (*Spiranthes diluvialis*)

Parcels 1511, 1514, 1520, 1597, 7667, 7668, 7673, 7674, 7717, and 7718 intersect the USFWS AOI for Ute ladies'-tresses. The AOI was developed based on a habitat model created by the USFWS. However, the threshold used for classifying habitat is very low (i.e., quite conservative), leading to a significant overestimation of the potential habitat area.

By employing a detrended Modified Soil Adjusted Vegetation Index surface—calculated from the four-band National Agricultural Imagery Program data—it becomes possible to identify areas that qualify as statistical outliers (those exceeding 2 standard deviations) after excluding areas of open water. This approach helps to remove areas that are clearly unsuitable as habitat (including shrublands). Nevertheless, it still overestimates potential habitat because it includes not only wetlands, which are suitable for Ute ladies'-tresses, but also regions of higher vegetative productivity, such as moister pinyon-juniper woodlands and Gambel's oak woodlands.

This remote sensing-based habitat evaluation concludes that only Parcels 1520, 1597, 7674, 7717, and 7718 may contain potential habitat for the species. Within the parcels that are not subject to a NSO Stipulation, there are approximately 9.7 acres that could provide suitable habitat. Based on the disturbance assumptions outlined in Section 3.2.1 and assuming a random distribution of disturbance relative to the modeled areas, the estimated disturbance to potential habitat would be less than 0.01 acres.

Given the minimal expected disturbance relative to the available habitat at local, regional, and global scales, along with the implementation of the attached lease notice and stipulation, a detailed analysis of the impacts on Ute ladies'-tresses is unnecessary.

Lease Stipulation:

- UT-S-314: Controlled Surface Use/Timing Limitation – Ute Ladies'-Tresses (*Spiranthes diluvialis*): Parcels- 1597, 7717, 7718

Lease Notice:

- T&E-05: Listed Plant Species: All Parcels
- Ute-ladies Tresses Notice: Parcels-1520, 1597, 7674, 7717, 7718

AIB-2 Utah BLM Sensitive Species

How would future potential development of the nominated lease parcels affect BLM sensitive species or their habitats?

BLM sensitive species have been identified as those species that require additional conservation to prevent decline of populations to the point where they may be considered for listing under the Endangered Species Act. The BLM has several lease stipulations and lease notices that protect sensitive species statewide (see Appendix B). As detailed below, certain nominated lease parcels have been identified as having occurrence, or potential occurrence, of several species of plants or animals that may require modification of surface use plans at the APD stage to avoid disruptive or harmful activities.

The parcels in Uintah County contain habitats of salt desert shrub, pinyon/juniper woodlands and mixed sagebrush shrublands. The parcels in Sanpete County consist of pinyon/juniper woodlands and mixed perennial grasslands. The potential development of nominated parcels would result in a direct disturbance

to 374.5 acres of habitat from the construction of well pads and associated roads. These developments also create habitat fragmentation by intersecting and occupying habitat. Noise and other human disturbances will occur during all phases of development and production as well as reclamation but will be reduced after the original construction phase. Traffic on roads to construct, maintain and service the facilities may cause possible direct mortalities from collisions to wildlife individuals and noise and human activity in the area will cause disturbance continually.

Animal Species

Table 17 identifies the sensitive animal species and their habitat with potential to occur on the nominated lease parcels.

Table 17 Sensitive terrestrial animal species potentially occurring in the nominated lease parcels

COMMON NAME	SCIENTIFIC NAME	STATUS	BACKGROUND AND DOCUMENTATION FOR SPECIES/POTENTIAL HABITAT OCCURRENCE IN PARCELS	LEASE PARCEL ID
Birds				
American Three-toed woodpecker	*Picoides dorsalis*	SPC	Potential to occur in riparian habitat along the White River	1520, 1597, 7717, 7718
Bald Eagle	*Haliaeetus leucocephalus*	SPC	Bald eagles can live in forests, grasslands, marshes, deserts and along riparian areas. Suitable bald eagle winter roost and nesting habitat occurs along the White River.	1520
Burrowing owl	*Athene cunicularia*	SPC	This species prefers open areas within deserts, grasslands, and sagebrush steppe communities. Habitat consists of well-drained, level to gently sloping areas characterized by sparse vegetation and bare ground such as moderately or heavily grazed pasture. Suitable habitat occurs within all lease parcels. Per GIS review of BLM, UDWR, and white-tailed prairie dog (WTPD) modeled habitat data, some parcels contain delineated WTPD colonies or high probability of WTPD presence. In Utah, prairie dog burrows are the main source of nest sites for burrowing owls.	1511, 7668, 7667, 1514, 1520, 7674, 7673, 7716, 1605, 7719, 1542, 1597, 7717, 7718 1597, 7717, 7718
Ferruginous hawk	*Buteo regalis*	SS	Suitable foraging habitat occurs in all the lease parcels. Per GIS review, documented ferruginous hawk nest sites are located in or within 0.5 mile of parcels 1511, 1514, 7668, 7667. Ferruginous	1511, 7668, 7667, 1514, 1520, 7674, 7673, 7716, 1605, 7719, 1542, 1597,

COMMON NAME	SCIENTIFIC NAME	STATUS	BACKGROUND AND DOCUMENTATION FOR SPECIES/POTENTIAL HABITAT OCCURRENCE IN PARCELS	LEASE PARCEL ID
			hawks are distributed throughout most of Utah. Breeding ferruginous hawks rely on grassland or shrub steppe terrain and in many parts of Utah Juniper trees are the primary nesting substrate in Utah, but they will also nest on the ground or on power line structures.	7717, 7718, 1597, 7717, 7718
Golden eagle	*Aquila chrysaetos*	SS	Inhabits a wide range of habitats. In Utah, the bird is often found in cliff and high desert scrub habitats. Nests in cliffs or trees at a height of 10-100 or more feet. There is a known nest in parcel 1511 and suitable nesting and foraging habitat is found within all lease parcels and per GIS data of district files there are nests within .5 miles of parcels 1511. 511, 1514, 1520, 7674.	1511, 7668, 7667, 1514, 1520, 7674, 7673, 7716, 1605, 7719, 1542, 1597, 7717, 7718, 1597, 7717, 7718
Grasshopper Sparrow	*Ammaodramus savannarum*	SS	Potential habitat for grasshopper sparrow is present in all lease parcels.	1511, 7668, 7667, 1514, 1520, 7674, 7673, 7716, 1605, 7719, 1542
Lewis' woodpecker	*Melanerpes lewis*	SS	This species occurs in open pine woodlands, and other areas with scattered trees and snags. It has potential to occur in one lease parcel along the White River.	1520
Short-eared owl	*Asio flammeus*	SS	The short-eared owl is usually found in grasslands, shrublands, and other open habitats. Per GIS review of USGS GAP data, suitable habitat is within all parcels.	1511, 7668, 7667, 1514, 1520, 7674, 7673, 7716, 1605, 7719, 1542
Mammals				

COMMON NAME	SCIENTIFIC NAME	STATUS	BACKGROUND AND DOCUMENTATION FOR SPECIES/POTENTIAL HABITAT OCCURRENCE IN PARCELS	LEASE PARCEL ID
Big free-tailed bat	*Nyctinomops macrotis*	SPC	Per GIS review of USGS GAP data, big free-tailed bat habitat is present in all parcels. Big free-tailed bats are found primarily in rocky and woodland habitats, where roosting occurs in caves, mines, old buildings, and rock crevices. They eat insects, primarily moths.	1511, 7668, 7667, 1514, 1520, 7674, 7673, 7716, 1605, 7719, 1542
Fringed Myotis	*Myotis thysanodes*	SPC	Per GIS review of USGS GAP data, fringed myotis habitat is present in all parcels. Fringed myotis are found primarily in desert, grassland, and woodland habitats, and roost in caves, mines, rock crevices, buildings, and other protected sites. The species is managed under the Bat Conservation Plan. They are insectivorous, with beetles a common prey item.	1511, 7668, 7667, 1514, 1520, 7674, 7673, 7716, 1605, 7719, 1542
Spotted Bat	*Euderma maculatum*	SPC	Per GIS review of USGS GAP data, spotted bat habitat is present in all parcels. Spotted bats may be found in a variety of habitats, ranging from deserts to forested mountains; they roost and hibernate in caves and rock crevices. Spotted bats eat insects, primarily moths, which are usually captured in fligh	1511, 7668, 7667, 1514, 1520, 7674, 7673, 7716, 1605, 7719, 1542
Townsend's big-eared bat	*Corynorhinus townsendii*	SPC	Per GIS review of USGS GAP data, Townsend's big-eared bat habitat is present in all parcels. Townsend's big-eared bat can occur in many types of habitat, but the species is often found near forested areas. Caves, mines, and buildings are used for day roosting and winter hibernation. Townsend's big-eared bats eat flying insects, particularly moths, and individuals are often seen foraging near trees.	1511, 7668, 7667, 1514, 1520, 7674, 7673, 7716, 1605, 7719, 1542
White-tailed prairie dog	*Cynomys leucurus*	SPC	Suitable habitat occurs within all lease parcels. Per GIS review of BLM, UDWR, and white-tailed prairie dog (WTPD) modeled habitat data, all parcels contain delineated WTPD colonies or high probability of WTPD presence. Parcels listed are only those within the Coyote Basin Black-footed	1511, 7668, 7667, 1514, 1520, 7674, 7673, 7716, 1605, 7719, 1542

COMMON NAME	SCIENTIFIC NAME	STATUS	BACKGROUND AND DOCUMENTATION FOR SPECIES/POTENTIAL HABITAT OCCURRENCE IN PARCELS	LEASE PARCEL ID
			Ferret PMZ. The species mainly occurs in the eastern part of the state, including the Uintah Basin and the northern portion of the Colorado Plateau. White-tailed prairie dog colonies help provide habitat for burrowing owls and other wildlife species.	
Fish				
Bluehead sucker	*Pantosteus discobolus*	CAS	White River is habitat for this species for all life stages and fish are known to be resident in it	1520
Flannelmouth sucker	*Catostomus latipinnis*	CAS	White River is habitat for this species for all life stages and fish are known to be resident in it	1520
Roundtail chub	*Gila robusta*	CAS	White River is habitat for this species for all life stages and fish are known to be resident in it	1520
Reptiles				
Smooth Greensnake	*Opheodrys vernalis*	SPC	Suitable habitat is present within one lease parcel. The species is associated with riparian and wetland habitats, including the White River corridor.	1520
Insects				
Western bumblebee	*Bombus occidentalis*	SS	Potential habitat for the species exists in Parcels 1520, 1542, 1597, 1605, 7673, 7674, 7716, 7717, 7718, and 7719. See Suckley's bumblebee (*Bombus suckleyi*) above for discussion	1520, 1542, 1597, 1605, 7673, 7674, 7716, 7717, 7718, and 7719.

The following lease stipulations and notices apply to the nominated lease parcels to mitigate potential impacts to sensitive terrestrial animal species as detailed below. No detailed analysis is needed as the notices and stipulations give adequate protections.

Lease Notices:

- UT-LN-45: Migratory Bird (Statewide): Parcels 1520. 1597, 7717, 7718
- UT-LN-107 Statewide (Formerly T&E-01): Parcels 1511, 7668, 7667, 1514, 1520, 7674, 7673, 7716, 1605, 7719, 1542
- UT-LN-49: Utah Sensitive Species (Statewide): Parcels All Parcels
- UT-LN-156: Pollinators and Pollinator Habitat- All Parcels
- UT-LN-44 Raptors: Parcels 1597, 7717, 7718
- UT-LN-45: Parcels 1597, 7717, 7718

Stipulations:

- UT-S-261: Timing Stipulation- Raptor Buffers (Vernal): Parcels 1511, 7668, 7667, 1514, 1520, 7674, 7673, 7716, 1605, 7719, 1542
- UT-S-278: Controlled Surface Use – Bald Eagle Winter Roost (Vernal): Parcel 1520
- UT-S-276: Controlled Surface Use/Timing Limitations – Bald Eagle: Parcels 1597, 7717, 7718

Plant Species

Within the nominated lease parcels, no known populations of BLM-sensitive plant species exist. Based on a desktop review, five sensitive species were identified as potentially having habitat within the nominated lease parcels (see Table 18Table 18: Plant Species with Potential to Occur within Nominated Lease Parcels).

The desktop review involved intersecting the General Soil Map of the United States (STATSGO2) soil units (NRCS, 2014) with known plant locations. To ensure all potential habitats were identified, additional STATSGO2 soil units that share soil components with the intersected soil units were also included. Finally, for species that are closely associated with specific geological formations, areas identified using STATSGO2 were refined to those that intersect with the required geological formations.

This identified area can be considered the outer potential bounds of the species' range. However, a comprehensive assessment of suitable habitat—that is, habitats containing the necessary biotic and abiotic components to support the species—has not yet been completed for the majority of BLM-sensitive plant species.

Table 18: Plant Species with Potential to Occur within Nominated Lease Parcels

COMMON NAME	SCIENTIFIC NAME	BACKGROUND AND DOCUMENTATION FOR SPECIES/POTENTIAL HABITAT OCCURRENCE IN PARCELS
Barneby's cat's-eye	*Oreocarya barnebyi*	Parcels 1542, 1605, 7673, 7674, 7716, and 7719 intersect STATSGO2 soils associated with Barneby's cat's-eye and are found on the Green River Formation. No populations have been identified within the identified parcels.
White River beardtongue	*Penstemon albifluvis*	Parcels 1542, 1605, 7673, 7674, 7716, and 7719 intersect STATSGO2 soils associated with White River beardtongue and are found on the Green River Formation. Habitat has been also been modeled (unpublished BLM and USFWS models) within the same parcels, except for 1605 and 7716. No populations have been identified within the identified parcels and the parcels are outside of the established Conservation Areas.
Graham's beardtongue	*Penstemon grahamii*	Parcels 1542, 1605, 7673, 7674, 7716, and 7719 intersect STATSGO2 soils associated with Graham's beardtongue and are found on the Green River Formation. Habitat has been also been modeled (unpublished BLM and USFWS models) within the same parcels. No populations have been identified within the identified parcels and the parcels are outside of the established Conservation Areas.
Sterile yucca	*Yucca sterilis*	All parcels within Uinta Basin have the potential to support sterile yucca. No populations have been identified within the parcels
Ward's beardtongue	*Penstemon wardii*	Parcels 1597, 7717, and 7718 intersect STATSGO2 soils associated with Barneby's cat's-eye. No populations have been identified within the identified parcels

Implementation of the below lease notices and Section 6 of the standard terms and conditions of the lease would help minimize potential impacts to the species because XXXX.

Lease Notices:

- UT-LN-49: Utah Sensitive Species: All Parcels
- UT-LN-51: Special Status Plants Not Federally Listed: All Parcels

AIB-3 Migratory Birds

How would future potential development of the nominated lease parcels affect migratory birds in Bird Conservation Regions 9 and 16?

The parcels in Uintah County contain habitats of salt desert shrub, pinyon/juniper woodlands and mixed sagebrush shrublands. The potential development of nominated parcels would result in a direct disturbance to 374.5 acres of habitat from the construction of well pads and associated roads. This may cause direct loss of nesting and brood rearing habitat. These developments also create habitat fragmentation by intersecting and occupying habitat. The parcels in Sanpete County consist of pinyon/juniper woodlands and mixed perennial grasslands. Most of the parcels are located in Bird Conservation Region (BCR) 16 in Uintah County. The Sanpete parcels mostly occur in BCR 9. The BLM uses Integrated Bird Monitoring in Bird Conservation Regions (IMBCR). The BLM works with the Bird Conservatory of the Rockies which conducts the surveys in BCR 16, and the Intermountain Bird Observatory in Boise conducts the surveys in BCR 9. IMBCR has stratifications that allow for population, trend, and distribution of birds. The collected data can be used for analysis at the Conservation Region all the way down the Field Office level. The BLM has conducted surveys every year since 2017. There are two survey locations near the Sanpete parcels (UT-BCR-R14 and UT-BCR R12), and there is a survey grid located in between many of the parcels in Uintah County (UT-BCR VE6). The BLM also uses the Raptor Inventory Nest Survey protocol to locate and monitor raptor nests. The BLM addresses the known raptor nests in the Sensitive Species Section AIB 2 because they are golden eagles. There are no known nests located near the Sanpete parcels as the closest golden eagle nest is 2.85 miles away. If the BLM finds additional nests during the APD review process, effects will be addressed in the NEPA process at that time.

The Migratory Bird Treaty Act (MBTA) protects migratory birds by not allowing the take; of migratory birds, which includes not harming them or their nests. The BLM Instructional Memorandum No. 2008-050 requires the BLM to address the potential effects of ground-disturbing activities on migratory bird populations and their habitat and implement best management practices to avoid or minimize the possibility of impacts. These include the BLM conducting surveys for nests, applying timing limitations during nesting seasons, and conducting monitoring post-project implementation.

The BLM would include the Lease Notices UT-LN-44 for Raptors on all parcels which applies appropriate seasonal and spatial buffers shall be placed on all known raptor nests and Lease Notice UT-LN-45 for Migratory Birds which gives notice that surveys for nesting migratory birds may be required during migratory bird breeding season whenever surface disturbances and/or occupancy is proposed.

Lease Notices:

- UT-LN-44: All Parcels
- UT-LN-45: All Parcels

AIB-4 Mule Deer

How would future potential development of nominated lease parcels impact areas of habitat connectivity for mule deer?

The Utah Division of Wildlife Resources (UDWR) has identified many but not all mule deer migratory corridors in Utah. Nominated parcels 7716, 7719, 1542 and 1605 are completely within identified migration corridors. Mule deer use these routes to travel between summer and winter ranges. They may spend a lot of time in transitional areas. Most of the identified corridors are within crucial winter range. The BLM is in the process of using UDWRs migration data to identify Areas of Habitat Connectivity (AHC) as per Instruction Memorandum (IM) 2023-005 that provides guidance for initial mapping and inventory for Areas of Habitat Connectivity. These areas will be used in planning and other analysis needs. These migration routes lead into crucial mule deer winter range. Winter is the most stressful time

for mule deer and the need to conserve energy during this time for survival. Disturbance during migration and occupancy of winter ranges by mule deer, can result in adverse effects such as habitat loss and destruction, as well as habitat fragmentation caused by road construction can pose additional impacts to mule deer and pronghorn (Lutz et.al., 2011). The UDWR submitted scoping comments that identified parcels 1520, 1542, 1605, 7716, and 7719 as containing mule deer year-long and winter habitat. Parcels 1520, 1542, 1605, 7716, and 7719 were also identified to all include crucial winter range for mule deer. Stipulation UT-S-230, Crucial Deer and Elk Winter Range, would prohibit surface disturbing activities between December 1 and April 30. This would prevent construction, drilling and completion operations from occurring during this seasonal period and would reduce impacts to big game from oil and gas development during the most critical seasons; this timing stipulation generally does not apply to production operations. If any of proposed leases are sold and development is proposed on the lease, BLM would again consult with UDWR during the site-specific analysis to minimize future impacts. Additional mitigation may be identified and required based on future site-specific conditions.

Stipulation:

- UT-S-230 Vernal: Parcels 7716, 7719, 1520, 1542, 1605

AIB-5 Cultural Resources

How would future potential development of the nominated lease parcels affect cultural resources?

The BLM conducted a literature review for the nominated lease parcels using survey and site information from BLM Utah's cultural resources database (CURES), Utah Division of State History Sego database, J. Willard Marriott Library of the University of Utah online archaeological record collection (UDAM), and RFO and VFO to identify currently known sites within the lease parcels. These data sources contain information on all the recorded cultural resource sites and cultural resource surveys conducted within and adjacent to the nominated lease parcels. See Chapter 4 for the NHPA Section 106 process that is used to help inform, but is separate from, the NEPA analysis of impacts to cultural resources.

To broadly summarize the results of the literature review, within the 14 lease parcels 180 cultural resource surveys have been completed covering up to 48% of the parcels. For the three RFO parcels, 23 archaeological sites have been documented within the parcels, of which none are eligible nor evaluated for listing on the National Register of Historic Places (NRHP). For the 11 VFO parcels, 39 archaeological sites have been documented within the parcels, of which 10 are eligible and three are unevaluated for listing on the NRHP. In total, there are 62 documented archaeological sites located within the lease parcels, of which 10 are eligible and three are unevaluated for the NRHP. One hundred eighteen archaeological sites have been documented within 0.5 mile of all 14 proposed lease parcels.

BLM Archaeologists at the RFO, VFO, and Utah State Office reviewed this data against the Lease Sale parcel locations and their respective applicable stipulations and lease notices to determine if oil and gas development could occur without resulting in significant impacts to cultural resources. This review included an analysis of potential adverse effects to historic properties, per 36 CFR 800.5.

The Cultural Resource Stipulation (HQ-CR-1), as required by BLM Handbook H-3120-1, applies to all parcels on BLM-managed lands. The stipulation reads as follows:

> This lease may be found to contain historic properties and/or resources protected under the National Historic Preservation Act, American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, E.O. 13007, or other statutes and executive orders. The BLM would not approve any ground disturbing activities that may affect any such properties or

resources until it completes its obligations under applicable requirements of the NHPA and other authorities. The BLM may require modification to exploration or development proposals to protect such properties or disapprove any activity that is likely to result in adverse effects that cannot be successfully avoided, minimized or mitigated.

Based on the currently known cultural resources within the 14 parcels, current cultural resource survey coverage within the parcels, and the previous oil and gas development history of the area, the BLM anticipates encountering similar site types and density across all the parcels should future development necessitate additional cultural resource survey and identification. Site types within the parcels predominantly include prehistoric lithic scatters, historic camp sites, and historic artifact scatters. Additionally, based on the individual size of the parcels, the application of the cultural resources protection stipulation, and the existing disturbance from previous development within each parcel, the BLM anticipates that potential development can occur within the parcels without adverse impacts to cultural resources and without an adverse effect to historic properties. As a result, further detailed analysis of this issues is not required at this time. The NHPA Section 106 review process is ongoing (see Chapter 4) and will conclude before BLM makes a final decision for the Lease Sale.

For future oil and gas developments related to this Lease Sale, the BLM would not approve any ground disturbing activities until it completes its obligations to consider cultural resources and historic properties under the NEPA, the NHPA, and other authorities specific to those future developments. This includes the Native American Graves Protection and Repatriation Act (NAGPRA), which may require the development of a Plan of Action for potential inadvertent discoveries, as defined by 43 CFR Subtitle A § 10.2. New analysis of impacts to cultural resources and potential adverse effects to historic properties would be conducted during the review stage of any future site-specific development plans through new NEPA and NHPA Section 106 review processes. Future site-specific inventory and analysis may identify and document currently unknown and unrecorded cultural resources.

Stipulation:

- HQ-CR-1 Cultural Resource Protection: All Parcels

AIB-6 Paleontological Resources

How would future potential development of the nominated lease parcels affect known or unknown paleontological resources?

Paleontological resources are defined by the Paleontological Resources Preservation Act of 2009 (PRPA) as the fossilized remains, traces, or imprints of organisms preserved in or on the earth's crust that are of paleontological interest and that provide information about the history of life on earth (16 United States Code [U.S.C.] 470aaa[1][c]). The PRPA and the DOI regulations (43 CFR § 49.1(a) and 49.30(b)) implementing PRPA direct the BLM to "preserve, manage, and protect paleontological resources" on Federal land using scientific principles and expertise. The Potential Fossil Yield Classification (PFYC) system is a tool used to assess resource impacts and mitigation needs by providing estimates of the potential for paleontological resources within a geologic unit (BLM PIM 2022-009) which allows the 5.5-million-acre BLM VFO and 2.2-million-acre BLM RFO to predict the likelihood of encountering paleontological resources. The PFYC system is based on numeric classes of 1–5 and unknown (U). A geologic unit identified as PFYC 1 has very low likelihood of containing paleontological resources, whereas a geological unit identified as PFYC 5 is a geologic unit that has a very high likelihood to contain and predictably produce scientifically significant paleontological resources. Within areas identified as PFYC 4, paleontological resource management concerns are moderate to high, as the probability of affecting scientifically significant paleontological resources is generally high. A class U

assignment indicates that there is not enough information available for a formal class assignment. Until additional information is available and a provisional or formal assignment made, these units should be considered to have paleontological potential. Within areas identified as PFYC 2 or 3, paleontological resource management concern is generally low to moderate because the likelihood of encountering scientifically significant fossils is relatively low to moderate. Areas of moderate to very high and unknown PFYC class (3-5, U) should be assessed prior to authorizing land use action (BLM PIM 2022-009).

Based on a review of 1:100,000 scale published geological maps, the 14 nominated parcels intersect 12 mapped geological units that were deposited from approximately 66 million years ago during the late Cretaceous to the recent (Table 19Table 19). These geological units include the North Horn, Flagstaff, Green River, Duchesne River, and Unita Formations, as well as piedmont and stream alluvium, colluvium and terrace deposits. The Potential Fossil Yield Classification (PFYC) system is used to assess resource effects and mitigation needs by providing estimates of the potential for paleontological resources within a geologic unit (BLM PIM 2022-009). The geologic units within the 14 nominated lease parcels range in PFYC from 2-5 and U with the majority (66%) of the acreage classified as PFYC 4 or 5, 15% as PFYC 3, 2 % as PFYC U, and 16% as PFYC 2 (Table 20). Areas of moderate to very high and unknown PFYC class (3-5, U) should be assessed prior to authorizing land use action (BLM PIM 2022-009).

Although systematic paleontological resource surveys have not been conducted for the entirety of the nominated lease parcels, according to confidential paleontological locality data managed by the Utah Geological Survey (UGS), approximately 7,766 localities within the Unita Basin occur within the Uinta, Duchesne River, or Green River Formation and 187 localities occur within the North Horn or Flagstaff Formations within 50-miles of the three nominated parcels west of the Uinta Basin. Based on these UGS managed data, there are 51 known paleontological localities within the nominated lease parcels. Additionally, the nominated lease parcels have exposures of geologic units with paleontological potential.

Table 19 Summary Geologic Units and PFYC Designations of the Nominated Lease Parcels

Mapped Geologic Unit	PFYC Class	Parcel number: acres of PFYC class (percent of total parcel acreage)	Total Acres of Geologic Unit
Stream alluvium and mixed alluvium and eolian deposits	Class 2	1511: 1,136 (71%), 1514: 384 (40%), 1520: 185 (19%), 1605: 131 (5%), 7667: 743 (42%), 7668: 504 (48%), 7674: 66 (11%), 7716: 39 (2%), 7719: 35 (1%)	3,223
Alluvium and colluvium, piedmont alluvium, and stream terrace deposits	Class U	1520: 6 (1%), 1597: 91 (8%), 7667: 116 (7%), 7717: 109 (5%)	322
Coalesced alluvial fan deposits	Class 3	1597: 4 (<1%), 7717: 162 (7%)	166
Duchesne Formation, Brennan Basin Member	Class 5	1511: 47 (3%), 7668: 464 (45%)	511
Uinta Formation, Members A, B, and C	Class 5	1511: 406 (26%), 1514: 573 (60%), 1520: 808 (81%), 7667: 909 (51%), 7668: 72 (7%), 7673: 606 (100%), 7674: 533 (89%)	3,907

Green River Formation, Parachute Creek Member	Class 4	1542: 40 (100%), 1605: 2,413 (95%), 7716: 2,199 (98%), 7719: 2,400 (99%)	7,051
Flagstaff Formation (or Limestone)	Class 3	1597: 959 (87%), 7717: 956 (42%), 7718: 897 (63%)	2,811
North Horn Formation	Class 5	1597: 53 (5%), 7,717: 1,040 (46%), 7718: 530 (37%)	1,623

Notes All acreages contained in the EA analysis were calculated using geographic information system (GIS) data sets for resources and the parcels, which may differ slightly from the acreages contained in the legal descriptions. Difference in total acres between the parcels and acres analyzed in the EA can vary slightly due to geoprocessing operations where slivers of area are created when two or more data sets intersect. Any inaccuracies are negligible and do not change the overall impact analysis conclusions presented in this EA. There are no geologic units designated as PFYC 1 within the nominated parcels.

Table 20 Acreage within the 14 Nominated Lease Parcels by Potential Fossil Yield Classification Value

Parcel	**2**	**3**	4	5	**U**	**Total**
1511	1,136	0	0	453	0	1,589
1514	384	0	0	573	0	957
1520	185	0	0	808	6	999
1542	0	0	40	0	0	40
1597	0	962	0	53	91	1,106
1605	131	0	2,413	0	0	2,544
7667	743	0	0	909	116	1,768
7668	504	0	0	536	0	1,040
7673	0	0	0	606	0	606
7674	66	0	0	533	0	599
7716	35	0	2,400	0	0	2,435
7717	39	0	2,199	0	0	2,238
7718	0	1,118	0	1,040	109	2,267
7719	0	897	0	530	0	1,427
Total	3,223 (16%)	2,977 (15%)	7,052 (36%)	6,041 (31%)	322 (2%)	19,615

Notes All acreages contained in the EA analysis were calculated using geographic information system (GIS) data sets for resources and the parcels, which may differ slightly from the acreages contained in legal description here and. Difference in total acres between the parcels and acres analyzed in the EA can vary slightly due to geoprocessing operations where slivers of area are created when two or more data sets intersect. Any inaccuracies are negligible and do not change the overall impact analysis conclusions presented in this EA. There are no geologic units designated as PFYC 1 within the nominated parcels.

Potential development of all nominated lease parcels would result in up to 374.5 acres of surface disturbance all of which could occur within areas of low to high or unknown potential for paleontological resources. Effects could result in the immediate physical loss of fossils and their contextual data. Ground disturbance could also subject fossils to long-term damage or destruction from erosion and create improved access to the public and increased visibility, potentially resulting in unauthorized collection or vandalism. Ground disturbance can also reveal scientifically significant fossils that would otherwise remain buried and unavailable for scientific study. Such fossils can be collected properly and curated into the museum collection of a qualified repository, making them available for scientific study and education.

Under the action alternatives, Alternative B would have 4,534 fewer acres of PFYC 3, 4, 5, or U, 1,666 fewer acres of PFYC 2, 38 fewer paleontological localities, and 121.5 fewer acres of potential ground disturbance than Alternative A.

Effects to paleontological resources would be mitigated under all actional alternatives, and future development of the nominated lease parcels would be analyzed further through separate NEPA processes, as directed by regulations and current policy including FLPMA. For these 14 nominated lease parcels in particular, the BLM applied Lease Notice UT-LN-72 (High Potential Paleontological Resources) which states that there is high potential for paleontological resources and specifies that surveys will be required and modifications to the Surface Use Plan of Operations may be required in order to protect paleontological resources from surface disturbing activities in accordance with Section 6 of the lease terms and 43 CFR 3101.12. In addition, monitoring may be required during surface disturbing activities to identify and avoid destruction of currently unknown paleontological resources. Thus, for all 14 nominated parcels, if an APD is filed, specific clearances would be conducted and incorporated into that future NEPA and APD approval process at the development stage. Additional mitigation measures such as BMPs, standard operating procedures (SOPs), and site-specific mitigation may be applied at the APD stage as COAs. These would include, for example, if during operations within the nominated lease parcels paleontological resources are discovered they would be protected pursuant to the standard discovery requirements, where the lessee must cease any operations that would result in the destruction of such specimens and contact the BLM Authorized Officer. Scientifically significant paleontological resources that may be discovered through surveys or monitoring would be collected by a qualified paleontologist and curated at an appropriate repository (43 CFR Part 49). Additionally, the BLM applied stipulations to many of the nominated parcels that would limit or eliminate surface disturbance in particular areas including UT-S-195 and UT-S-207 for Greater Sage-Grouse Leks, UT-S-123 for Riparian, Floodplains, and Public Water Reserves, US-S-96, UT-S-99, UT-S-100 for Fragile Soils/Slopes, (see Appendix B.1) and these would also provide protection for geologic exposures along drainages and on slopes that may have paleontological potential. With consideration of these protections, potential effects on paleontological resources of scientific interest would be avoided or mitigated.

The relevant past, present, and reasonably foreseeable future actions scenario described in Section 3.3 provides a quantitative overview of acres influenced by these actions. The risk of impacts on paleontological resources from past, present, and reasonably foreseeable actions would depend on the locations of disturbance relative to PFYC class. When the potential development of these lease parcels is combined with these other actions, the combined effects to paleontological resources are anticipated to be minimal due to the requirements for resource assessments and mitigation combined with the low percent of total acreage that could be impacted by ground disturbing activities or increases in human use of areas.

Lease Notices:

- UT-LN-72 High Potential Paleontological Resources: All Parcels

AIB-7 Native American Concerns

How would future potential development of the nominated lease parcels affect Native American Concerns?

As discussed in further detail in Section 4.2, the BLM provided project information and an invitation to consult on resources of concern to potentially affected Tribes on February 24, 2025. To-date, no Tribes have requested government-to-government consultation for this Lease Sale or identified any specific areas or resources of concern. Data available to the BLM does not indicate any documented Traditional Cultural Properties or Sacred Sites located within or proximal to the nominated lease parcels; however,

resources and locations of concern to Native American Tribes may be present. Further information regarding the potential for additional resources of concern for Tribes may be obtained through on-going outreach, coordination, or consultation. Additional opportunities to engage with Tribes regarding areas or resources of concern remain available throughout the leasing process and in subsequent NEPA and NHPA reviews that would be required if the nominated parcels are leased and development is proposed. This issue is not analyzed further because no specific areas or resources of concern have been identified by Tribes.

AIB-8 Vegetation Communities and Animal Habitat

How would future potential development of the nominated lease parcels affect terrestrial vegetation communities and the animals that use them as habitat?

Potential development of the nominated lease parcels could result in new surface disturbances and the potential loss of vegetation over approximately 375 acres of the total 19,824 acres, based on the RFDs described in Section 3.2.1. Any activities that involve surface disturbances or direct impacts to resources would need to be authorized as lease operations through future NEPA analyses, conducted on a case-by-case basis during the APD stage. Reclamation provisions and procedures, including re-vegetation with an appropriate seed mix based on ecological site, elevation, and topography, will be included in the APD analysis.

Terrestrial upland vegetation within the nominated lease parcels is dominated by globally and regionally common native vegetation communities including Southern Rocky Mountain two-needle pinyon – one-seed juniper woodland, Great Basin & Intermountain tall sagebrush shrubland & steppe, Intermountain singleleaf pinyon – Utah juniper – western juniper woodland Great Basin saltbush scrub, Great Basin & Intermountain dwarf sagebrush shrubland & steppe, and Intermountain Basin cliff scree & badland sparse vegetation. Estimates of native vegetation types (National Vegetation Classification Macro-Groups) represented within the parcels are presented in Table 21 (LANDFIRE, 2016).

Table 21: National Vegetation Classification (NVC) Macro-Group Acres[1] within Parcels

	Total Acres in parcels	Estimated Total Disturbance
Southern Rocky Mountain Two-needle Pinyon - One-seed Juniper Woodland	5,429	128
Great Basin & Intermountain Tall Sagebrush Shrubland & Steppe	3,520	80
Intermountain Singleleaf Pinyon - Utah Juniper - Western Juniper Woodland	2,800	22
Great Basin Saltbush Scrub	2,618.6	52
Western North American Cool Semi-Desert Ruderal Scrub & Grassland	1,826.9	25
Great Basin & Intermountain Dwarf Sagebrush Shrubland & Steppe	892.4	20
Great Basin & Intermountain Dry Shrubland & Grassland	844.1	16
Intermountain Basins Cliff Scree & Badland Sparse Vegetation	775.3	14
Southern Rocky Mountain Montane Shrubland	326.7	9
Southern Rocky Mountain Lower Montane Forest	186.6	2
Cool Interior Chaparral	58.9	0.4
Western North American Temperate Cliff Scree & Rock Vegetation	56.1	1
Southwest Riparian Forest	29.9	1
Central Rocky Mountain Montane-Foothill Grassland & Shrubland	16.2	0.1
Rocky Mountain & Vancouverian Subalpine-High Montane Mesic Meadow	14.8	0.2

Warm & Cool Desert Alkali-Saline Wetland	11.6	0.1
Western North American Montane-Subalpine Wet Shrubland & Wet Meadow	10.5	0.1
Rocky Mountain Subalpine-High Montane Conifer Forest	8.9	0.2
Great Basin & Intermountain Xeric-Riparian Scrub	1.6	>0.1
Arid West Interior Freshwater Emergent Marsh	1.3	>0.1

[1]Landfire Products are developed from remote sensed data and the classification is best suited for large-scale planning and data should be considered as representative of the habitat present but not exact.

The potential impacts to various vegetation communities are highly dependent on the siting of facilities during the APD stage. Based on the analysis assumptions in Section 3.2, the median percentage of disturbance to vegetation communities at the watershed level would be less than 0.1% assuming random disturbance distribution.

Animal community composition is correlated with the composition and structure of vegetation communities. Therefore, impacts associated with future development are expected to align with trends observed in vegetation communities. Various wildlife species inhabit the impacted vegetation communities, including rodents (e.g., mice, voles, kangaroo rats), jackrabbits, foxes, coyotes, and reptiles such as snakes and lizards. A wide variety of insect species from numerous orders, including pollinators, are also present in this ecotype. All wildlife species play roles in various food webs as either predators or prey, and direct habitat loss could decrease the prey base for raptors, which rely on rabbits, mice, and prairie dogs. Additionally, a decline in insect diversity and abundance may reduce the prey base for bats and lead to a decrease in pollinators for plant communities.

The potential impacts of future development on the nominated lease parcels' vegetation and associated animal communities will occur within the broader context of cumulative effects (see Section 3.3) This includes energy and mineral development and the conversion of native vegetation communities to agriculture or rural development. Other factors include grazing across all land ownership types, existing transmission powerlines, existing interstate transmission pipelines, paved and unpaved roads, and community trends related to global climate change.

All habitats for animals will have possible future developments involving site and road construction which would cause disturbances to habitats. Also, depending on placements of infrastructure habitat fragmentation are likely to occur. Modifications to surface use plans may be required by BLM covered by Lease Notices and Stipulations.

Parcels 1520 and 7673 completely consist of yearlong crucial Rocky Mountain bighorn habitat. Lease Notice UT-LN-20 applies.

The following parcels fall within yearlong bison habitat: 1542, 1605, 7719,7716. The Vernal Field Office does not have notices or stipulations for bison.

All of the Sanpete County Parcels (1597, 7717, and 7718) fall within crucial winter habitat for mule deer and elk. Stipulation UT-S-233 applies.

Parcels 1542, 7719, 1605 and 7716 consist of deer and elk winter crucial habitat. Stipulation UT-S-230 applies.

Parcels 7667,7668, 1514 and 1511 fall within yearlong crucial habitat for pronghorn. Lease Notice UT-LN-13 applies.

Stipulations:

- UT-S-230 Crucial Deer and Elk Winter Range: Parcels 1542, 7719, 1605 and 7716
- UT-S-233 Crucial Mule Deer and Elk Winter Habitat: Parcels 1597. 7717, and 7718

Lease Notices:

- UT-LN-13 Pronghorn Winter Habitat: Parcels 7667, 7668, 1514, and 1511
- UT-LN-20 Rocky Mountain/Desert Bighorn Sheep Crucial Lambing and Rutting Habitat: Parcels 1520 and 7673

AIB-9 Invasive Species (Noxious Weeds)

How would future potential development of the nominated lease parcels affect the introduction and/or spread of invasive species and noxious weeds?

There are currently various populations of noxious weeds in the larger overall area of the lease parcels both within the RFO and VFO. Noxious and invasive weeds present in the general area are primarily associated with existing areas of development and disturbance. These species are present along roads, ditches, well locations, and other disturbance areas near the parcels. Known noxious species occurring in some of these areas are: Musk Thistle (Carduus nutans), Houndstongue (Cynoglossum officinale), Scotch Thistle (Onopordum acanthium), Hoary Cress (Cardaria draba). Other non-desired species in this area are Russian thistle, Halogeton, and cheatgrass. Existing roads, wildlife and livestock grazing throughout the general area are a common source of weeds, therefore, elimination of weedy species from the general area is unlikely. The extent of infestation and persistence of weeds would be dependent on monitoring and treatment in accordance with the site-specific implementation level actions.

Anticipated total surface disturbance for the Proposed Action is approximately 36 acres collectively across all parcels within the RFO and anywhere from 5 to 80 acres depending on the parcel within the VFO. The proposed surface disturbance would remove native herbaceous and woody shrub vegetation, primarily from the desert shrub community. Some surface disturbance would be temporary in overall nature (areas used for initial staging would be interim reclaimed), taking potentially a minimum of three growing years to establish vegetation once reclamation begins. Removal of topsoil and native vegetation would result in a localized loss of individual plants and a chemical and spatial niche for invasive and noxious weed species to proliferate. New ground disturbance that exposes underlying soils creates the ideal seed bed for invasive and non-native weeds species to germinate. Uncleaned construction equipment and vehicles entering the project area are potential vectors for introducing invasive weeds not currently present.

Reasonably foreseeable effects to the resources, when added to effects from other actions in and near the project area and the local watersheds, would include short-term and long-term effects from removal of existing herbaceous and shrubland vegetation that creates niches for invasive species. This removal is expected to increase with the current level of oil and gas development, and the recent filing pattern of Applications for Permits to Drill and right-of-way applications within the VFO in previous years. Industry practices that minimize weed transport from construction equipment such as power washing and appropriate staging (avoiding weed infestation areas) and proper spraying (both timing and herbicide selection) may lessen the density of new weed colonization within the construction area and aid in reclamation efforts. Additionally, LN-52 – Noxious Weeds, is attached to all parcels in the sale (See Appendix B for more information). Seed mixes that maximize management of weed emergence are important for returning the site's sustainability and production.

Prior to any potential development of the lease parcel, the lessee or applicant would be required to contact BLM before any seeding and weed management activities occur to document the activities and coordinate potential site visits by the BLM. Weed management would be in adherence to the local field office invasive species management plan and/or integrated pest management plan. The well pads, roads, access corridors and any other long-term exposed surface would be treated through either chemical or mechanical means to control weeds. It is mandatory that a Pesticide Use Permit be obtained for applying herbicides on public lands managed by BLM.

Lease Notice:

- UT-LN-52 Noxious Weeds: All parcels

AIB-10 Water Resources (Groundwater and Surface water)

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

Groundwater Resources- Quantity/Needs

Water is necessary during the drilling, completion, production, and reclamation phases of development to varying degrees. Sources obtained from aquifers and surface water could result in the drawing down of the water table and reduction of available water resources for wildlife, vegetation, springs, streams, or public consumption. High volume long-term withdrawal could potentially affect local groundwater flow patterns and create changes in quality and quantity of the remaining groundwater. Sustained drawdown could also dewater existing nearby wells if there is sufficient connectivity. The quantity and quality of water used, produced, and disposed of, or re-used, varies enormously depending on local geology, financial constraints, and regulations (American Geosciences Institute, 2018). The U.S. Geological Survey (USGS) estimates that water use per well can range from 1.5 million gallons to about 16 million gallons throughout the be productive life of the well (USGS, 2023); however, much of this water is often recycled from other nearby operations depending on local conditions.

Locally the water use for drilling, completion and production phases of development has been estimated for the VFO and RFO parcels with the amounts (bbls water) presented in tables 5, 6, and 7, in Section 3.2.1. The amounts of depletion from these sources are based on several factors such as re-injection, re-use, disposal, evaporation, or circulation based on types of open or closed loop drilling systems. The Utah Division of Water Rights manages the water rights necessary for each phase for this area (Area 49 Uintah Basin VFO Parcels and Areas 63 and 66 for RFO parcels). The BLM presents and analyzes water sources for protection of beneficial uses of other water users, overall aquifer sources, and well interference at the APD stage for site-specific impacts.

The Utah Geological Survey produced a Survey Note regarding water use and production within the Uintah Basin, where the VFO parcels are located (Volume 50, No 2). The study contains an evaluation of the thickness, structure, porosity, permeability, water quality, and temperature of all aquifer/reservoir units in the basin from the Eocene-age Green River Formation through the Jurassic-age Glen Canyon Group. Large volumes of produced saline water are typically disposed of by several techniques. About 11 percent of produced water is hauled from the well site to specially designed, lined storage ponds where it evaporates; evaporation rates are often increased by huge water sprayers (about 8 percent of the water evaporates from these ponds, allowing continued delivery of new water annually). Extensive drilling for gas in tight sandstones in the eastern part of the basin (e.g., pending enhanced oil recovery (EOR) programs), called waterflooding recovery (injecting oil-bearing sandstone reservoirs with water to push remaining oil towards producing wells to increase recovery), creates a need for water. Waterflooding projects use 18 percent of the total produced water, but this accounts for only 50 percent of the need, so the shortage is made up with freshwater supplies. Thus, excess compatible produced water from gas wells could increasingly be transported to oil fields undergoing EOR. Finally, about 60 percent of the produced water in the Uintah Basin is injected via wells into porous rock at a sufficient depth as to not cause contamination of shallow freshwater aquifers (Utah Geological Survey, 2018). The amount of water used depends on the rock formation, the operator, whether the well is vertical or horizontal, and the number of portions (or stages) of the well that are fractured. (USGS, 2019) Figure 2 shows the stratigraphic column from the surface down through the Upper Triassic-Lower Jurassic-age Nugget Sandstone in the Uinta Basin showing major oil- and gas-producing reservoirs, seals, water disposal zones, and shallow

groundwater aquifers. Modified from Hintze and Kowallis (2009), Geologic History of Utah.

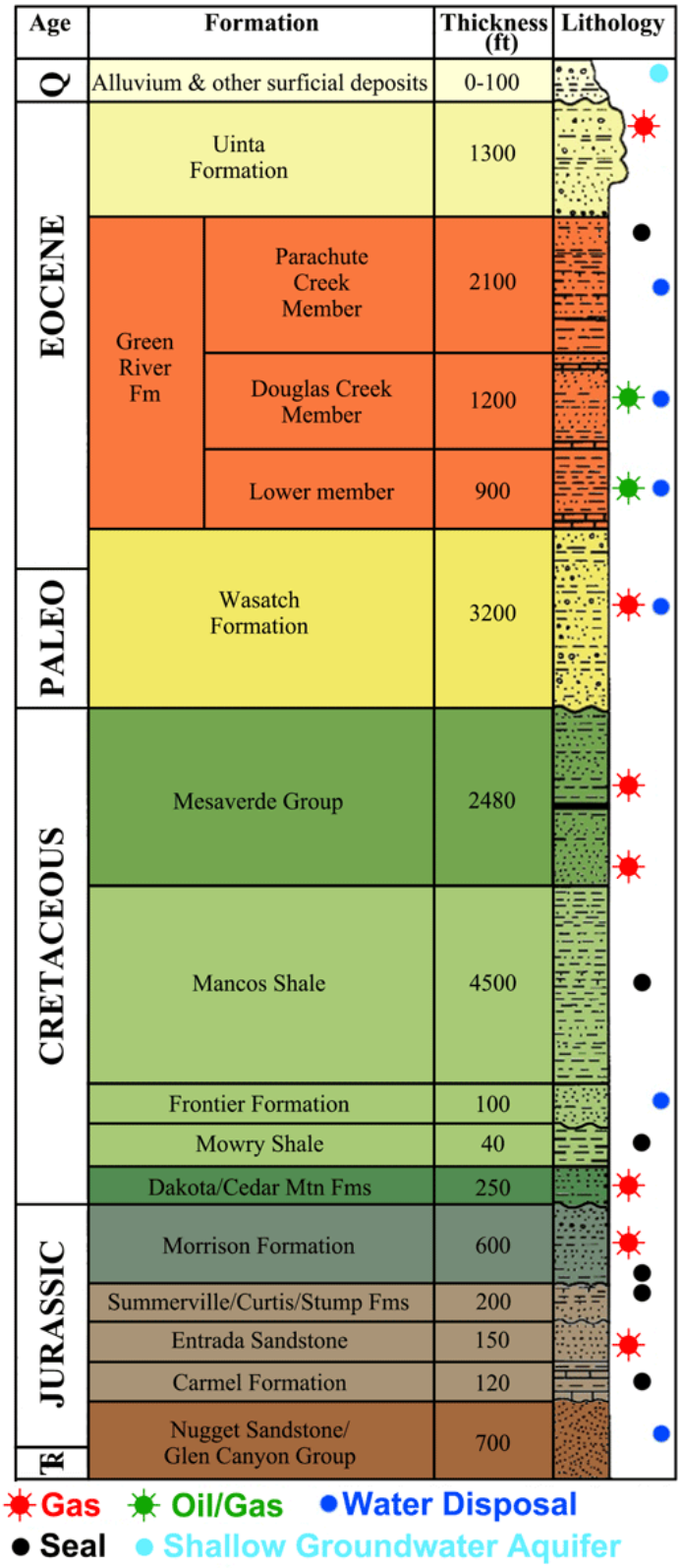

Figure 1 Stratigraphic column Utah Geological Survey, 2018.

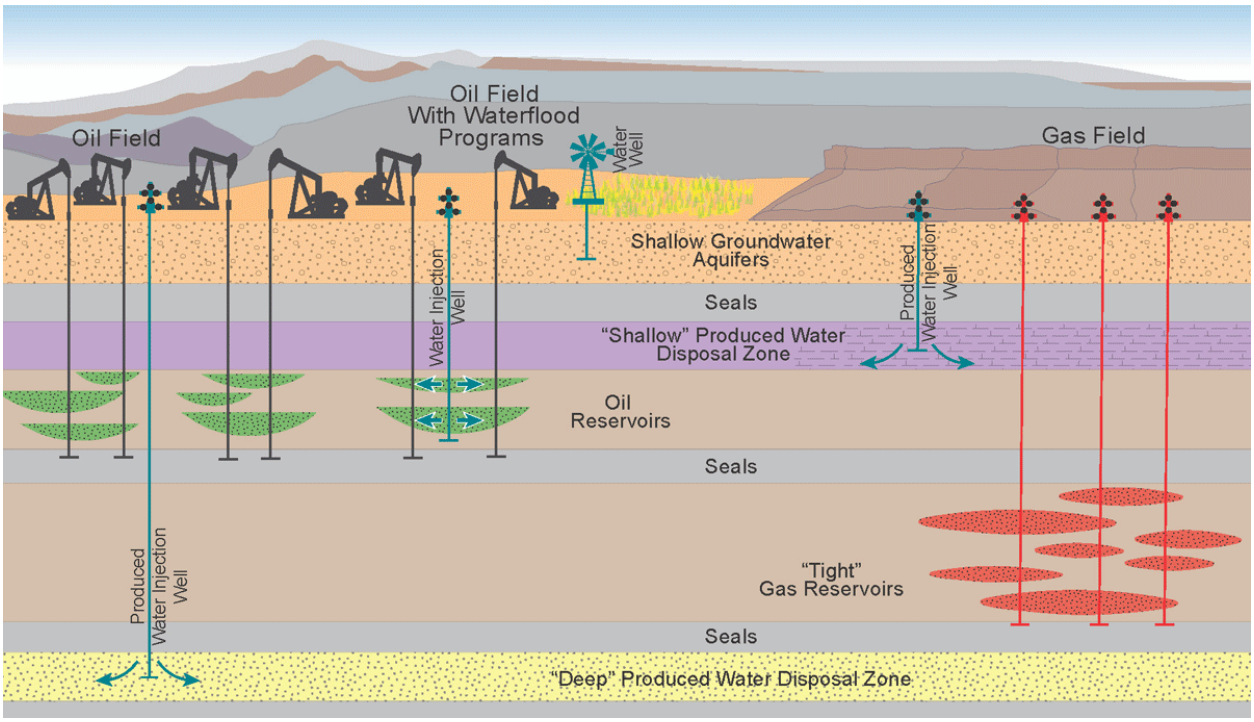

Figure 2 Utah Geologic Survey, 2018. Schematic diagram showing oil and gas wells and hypothetical zones to dispose of the produced water (actual zones presented in Figure 2). Utah Geologic Survey, 2018. Schematic diagram showing oil and gas wells and hypothetical zones to dispose of the produced water (actual zones presented in Figure 2).

The source, volume of water, and transportation methods involved is identified in the surface use plan per 43 CFR Subpart 3171. 43 CFR Subpart 3171 requires the submission of a drilling plan and surface use management plan where the source and transportation of project water is identified. The site-specific SOPs, BMPs, COAs, and lease stipulations attached to each parcel would minimize impacts from the Proposed Action to groundwater resources because surface disturbing activities would occur outside of areas where surface water is present (which influences groundwater), refer to UT-S-123 in Appendix B for further details. Potential site-specific impacts relating to future authorizations would be reviewed and possibly analyzed in detail when an APD is received.

Assuming 130 wells would be developed under the lease sale RFD, based on an average of 3 million gallons per well completion job, total water needs is estimated to be approximately 390 million gallons or 1392 acre-feet. The overall depletion amount would be based on percentages of water re-used or reinjected at various stages of development.

Groundwater Quality

The BLM has reviewed the lease parcels for proximity of Sole Source Aquifers or Public Drinking Water Source Protection Zones as designated and delineated by the U.S. Environmental Protection Agency (EPA) and State of Utah Division of Drinking Water. Lease parcels that have been identified to fall within these protection zones have a lease notice and or stipulation attached. Refer to UT-LN-56 in Appendix B for further details. No parcels within this Lease Sale are within delineated groundwater source protection zones or sole source aquifers. The BLM also reviewed the parcels for potential water right conflicts for potential water quality degradation or quantity impairment. Per State of Utah Anti-Degradation policy

(UAC R317-2-3) water quality must continue to be acceptable to meet the beneficial uses of the water right under all conditions.

BLM Utah reviews for groundwater quality protection for oil and gas leasing, exploration and development are outlined in Instruction Memorandum (IM) No. UT 2010-055: Protection of Ground Water Associated with Oil and Gas Leasing, Exploration and Development- Utah BLM. The purpose of this IM is to clarify the process for the protection or isolation of usable ground water zones (< 10,000 mg/L as defined in 43 CFR 3172) associated with oil and gas exploration and development activities. The downhole intervals of formations containing usable water would be fully cased and cemented to prevent comingling of water. Well casings would be pressure tested to ensure long-term integrity throughout the life of the well. The appropriate selection of casing materials and cementing schedule is required and reviewed by the BLM for the prevention of intermixing or water quality degradation of identified usable water formations. Prior to approving an APD, the BLM would conduct hydrologic and engineering reviews on all proposed down-hole activities, including hydraulic fracturing (if proposed) to ensure that usable water zones will be protected or isolated by the casing and cementing plan. All appropriate regulatory and mitigation measures would be included in any approved APD, and all potential impacts would be identified and addressed during the site-specific NEPA process.

Surface Water Quantity

Surface water demands from similar activities within the basin require water for the use of dust suppression along routes which are typically obtained from municipal sources or through a temporary change application on valid existing water rights. Surface water sources typically include rivers, streams, or canals that are in proximity to potential development areas. The VFO parcels are within the Upper Colorado River Basin. Since 2000, the Colorado River Basin (Basin) has been experiencing a historic, extended drought that has impacted regional water supply and other resources, such as hydropower, recreation, and ecologic services. During this time, the Basin has experienced its lowest 16-year period of inflow in over 100 years of record keeping, and reservoir storage in the Colorado River system has declined from nearly full to about half of capacity. The RFO parcels are within the Sevier Lake portion of the Great Basin. The Sevier River Basin is unique as it is Utah's largest river basin, and its entire drainage area is contained within the state. The Sevier River is one of the most utilized rivers in the nation. The Sevier River Basin was closed to new appropriations in 1949 and managed per recommendations and details found in the Sevier River Basin Water Plan (1999). Any new water uses from all phases of development would be derived from current valid and existing water rights within the basin.

The Utah Division of Water Rights (UDWR) is the regulatory agency responsible for the approval of water rights and water right applications to support sustainable yield for each basin to protect existing water beneficial uses. Water sources used for drilling, production, and reclamation would be from state permitted sources with valid water rights as managed by Utah water appropriation policy per each water basin. Water supply necessary for drilling, production and reclamation would likely originate from local sources and cause additional demand and depletion from effected water basins. Valid permits and supporting water rights for these activities, if necessary, that involve these beneficial uses are verified and analyzed for potential impacts prior to approval at the APD stage.

Surface Water Quality

The BLM has reviewed the lease parcels for proximity to surface waters. All of the VFO parcels are within the Zone 4 surface drinking water area, which is an area upstream from a public water supply intake to the extent of the watershed boundary above the Green River Intake per Utah Division of Drinking Water Source Protection rules. The site-specific SOPs, BMPs, COAs, and lease stipulations attached to each parcel would minimize impacts from the Proposed Action to surface water resources

because surface disturbing activities would occur outside of riparian and wetland areas where surface water is present, refer to UT-LN-56 in Appendix B for further details about the required approval process and drinking water source protection plans. Other development activity with potential impact on surface water such as stream crossings and culvert installations would be designed per BLM standards with existing SOPs and BMPs to minimize amounts of erosion, sedimentation, and stormwater runoff to the maximum extent possible. Surface water resources would not be impacted to the degree that requires detailed analysis in the EA.

The VFO nominated lease parcels are located in the Green River and White River DEQ water quality assessment units. The beneficial uses of this unit are Class 1C = Domestic/Drinking Water Source, Class 2A = Frequent Primary Contact Recreation (e.g. swimming), Class 3B = Warm Water Fishery/Aquatic Life, Use Class 4 = Agriculture (crop irrigation, stock watering). This unit is listed as impaired Total Maximum Daily Load (TMDL) required for E. coli in Class 1C and 2A.

The RFO-nominated lease parcels are located in the Middle Sevier River and Ivie Creek watersheds (Table 11). The water quality classifications to support designated beneficial uses are 2B=Secondary Contact Recreation, 3B = Warm Water Fishery/Aquatic Life , 4 = Agriculture (crop irrigation, stock watering) uses. There is currently insufficient data to make an impairment determination for Lower Sevier and Ivie Creek is currently meeting all beneficial use designations. The proposed leasing action would not make a quantifiable impact to surface waters supporting any of these designated beneficial uses within the watersheds.

While the State has not completed a TMDL or identified the sources of this surface water contamination for these assessment units, E. coli contamination may be from fecal matter or may be natural in the environment. Surface water is limited in the analysis area outside of the Green and White Rivers and not present within the parcels with the exception of ephemeral flow following storm events. The site-specific SOPs, BMPs, COAs, and lease stipulations attached to each parcel would minimize impacts from the Proposed Action to surface water resources because surface disturbing activities would occur outside of riparian and wetland areas where surface water is present. Surface water resources would not be impacted to the degree that requires detailed analysis in the EA.

While there are no specific BLM Utah water quality specific notices or stipulations, the buffers on surface occupancy in riparian areas and floodplains, UT-LN-53 and UT-LN-128 as well as those associated with sensitive soils and steep slopes, UT-S-96, UT-S-99, and UT-S-100 will result in protection of surface water quality by minimizing sediment inputs and other water quality contaminants within the VFO parcels. UT-LN-56 Drinking Water Source Protection Zone will be applied to all the VFO parcels due to them being located in Zone 4 of a surface protection zone. The Utah Division of Water Quality requires a construction storm water permit if the development activities (industrial or construction) result in a discharge of a reportable quantity release or that contribute pollutants to a violation of a water quality standard. All activities that may contribute to degradation of water quality is subject to State of Utah water quality anti-degradation laws and reviews.

Stipulations:

- UT-S-96 NSO – Fragile Soils/Slopes Greater Than 40%: Parcels 1511, 1514, 1520, 1542, 1605, 7667, 7668, 7673, 7674, 7716, and 7719

- UT-S-99 CSU – Fragile Soils/Slopes: Parcels 1511, 1514, 1520, 1542, 1605, 7667, 7668, 7673, 7674, 7716, and 7719

- UT-S-100 CSU - Fragile Soils/Slopes (21%-40%): Parcels 1511, 1514, 1520, 1542, 1605, 7667, 7668, 7673, 7674, 7716, and 7719

- UT-S-123 NSO - Riparian, Floodplains, and Public Water Reserves: Parcels 1511, 1514, 1520, 1542, 1605, 7667, 7668, 7673, 7674, 7716, and 7719

Lease Notices:

- UT-LN-53 - Riparian Areas: All parcels

- UT-LN-56 - Drinking Water Source Protection Zone: (Parcels within surface protection water zone 4) 1511, 1514,1520, 1542, 1605,7667,7668,7673,7674,7716,7719

- UT-LN-128 - Floodplain Management: All parcels

AIB-11 Sensitive Soils

How would future potential development of the nominated lease parcels affect sensitive soils?

Soil movement disrupts the existing structure of the soil horizons to the depth of disturbance. Soil forming processes are halted, and compaction of underlying horizons and loss or degradation of soil microbes may occur. These issues are compounded when fragile and/or sensitive soils are present. Fragile soils are soil types that are easily damaged by use or disturbance and/or are those that are difficult to reclaim to pre-disturbance condition. Additionally, sensitive soils may include those that have components that can be characterizd as susceptible to compaction or other mechanical damage and/or are highly erodible when disturbed. Surface disturbance of fragile and/or sensitive soils occurring on increased slope profiles has the potential to affect soil stability and may lead to accelerated soil erosion and potential sedimentation to proximal water bodies during saturated and runoff conditions within the soil profile.

Soils can be rated based on their susceptibility to degradation. Fragile soils are those that are most vulnerable to degradation. In other words, they can be easily degraded and have a low resistance to degradation processes. They tend to be highly susceptible to erosion and can have a low capacity to recover after degradation has occurred (low resilience). Fragile soils are generally characterized by a low content of organic matter, low aggregate stability, and weak soil structure. They are generally located on sloping ground, have sparse plant cover, and tend to be in arid or semiarid regions. The index can be used for conservation and watershed planning to assist in identifying soils and areas highly vulnerable to degradation.

Depending on inherent soil characteristics and the climate, soils can vary from highly resistant, or stable, to vulnerable and extremely sensitive to degradation. Under stress, fragile soils can degrade to a new altered state, which may be less favorable or unfavorable for plant growth and less capable of performing soil functions. To assess the fragility of the soil, indicators of vulnerability to degradation processes are used. They include organic matter, soil structure, rooting depth, vegetative cover, slope, and aridity. The table below is a summary of soil data retrieved from the NRCS Web Soil Survey. The total acres and percent of the area of interest as related to the fragile soil index parameters (total lease parcel acreage) is presented. Within the lease parcels there are fragile soils, soils that are on slopes greater than 40%, and soils that are not suitable for road construction. Stipulations and notices to protect soil resources are presented in AIB section 10.

Table 22 Soil Map Units (NRCS Web Soil Survey 2025)

Map unit symbol	Map unit name	Rating Fragile Soil Index	Acres in AOI	Percent of AOI
ASE2	Atepic shaly clay loam, 10 to 30 percent slopes, eroded	Not rated	78.3	0.40%
AV	Atepic-Badland association	Not rated	1,013.40	5.20%
BRD2	Borvant cobbly loam, 8 to 25 percent slopes, eroded	Not rated	4	0.00%
BUD2	Borvant-Lodar complex, 8 to 25 percent slopes, eroded	Not rated	574.1	2.90%
FOD	Fontreen cobbly loam, 4 to 20 percent slopes	Moderately fragile	82.7	0.40%
FRG2	Fontreen very cobbly loam, 40 to 70 percent slopes, eroded	Not rated	955.4	4.90%
FSD2	Fontreen-Borvant complex, 4 to 25 percent slopes, eroded	Not rated	8.5	0.00%
KEG	Kitchell gravelly loam, 25 to 65 percent slopes	Moderately fragile	254.2	1.30%
LSG	Lodar-Fontreen complex, 40 to 70 percent slopes	Not rated	1,060.00	5.40%
LTG	Lodar-Rock outcrop complex, 40 to 70 percent slopes	Not rated	176.5	0.90%
LYG2	Lodar-Amtoft-Fontreen complex, 40 to 70 percent slopes	Fragile	8.5	0.00%
RO	Rock land	Not rated	312.9	1.60%
TT	Torrifluvents and Torriorthents, stony	Not rated	15.3	0.10%
WAC	Wales loam, 2 to 8 percent slopes	Not rated	252.8	1.30%
Subtotals for Soil Survey Area (RFO Parcels (UT627)			**4,796.50**	**24.40%**
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
8	Badland-Denco complex, 4 to 25 percent slopes	Not rated	1,059.10	5.40%
12	Badland-Rock outcrop complex, 1 to 100 percent slopes	Not rated	390.9	2.00%
13	Badland-Tipperary association, 1 to 8 percent slopes	Not rated	462.9	2.40%
14	Badland-Walknolls-Rock outcrop complex, 50 to 90 percent slopes	Not rated	372.3	1.90%
21	Bigpack loam, 1 to 8 percent slopes	Not rated	588.3	3.00%
36	Cadrina extremely stony loam-Rock outcrop complex, 25 to 50 percent slopes	Highly fragile	270.9	1.40%
38	Cadrina-Casmos-Rock outcrop complex, 2 to 40 percent slopes	Not rated	36.5	0.20%
78	Gilston sandy loam, 2 to 8 percent slopes	Not rated	3.6	0.00%
79	Gilston-Chalkcliff association, 2 to 25 percent slopes	Not rated	0.8	0.00%
80	Gilston-Muff-Cadrina, cool complex, 1 to 25 percent slopes	Not rated	267.8	1.40%
81	Gompers very channery silt loam, 4 to 25 percent slopes	Not rated	52.9	0.30%
82	Gompers very channery silt loam, 25 to 50 percent slopes	Not rated	2,333.70	11.90%
84	Gompers-Pherson association, 4 to 25 percent slopes	Not rated	3,376.90	17.20%
90	Green River-Fluvaquents complex, 0 to 2 percent slopes	Not rated	121.4	0.60%
95	Hanksville silty clay loam, 2 to 25 percent slopes	Not rated	38.7	0.20%
120	Jenrid sandy loam, 0 to 2 percent slopes	Not rated	17	0.10%
206	Shotnick sandy loam, 2 to 4 percent slopes	Not rated	120.1	0.60%
213	Solirec-Abracon-Begay complex, 2 to 15 percent slopes	Not rated	1,503.80	7.70%
221	Stygee clay loam, 0 to 1 percent slopes	Not rated	143.4	0.70%
228	Tabyago-Cedarknoll association, 2 to 8 percent slopes	Not rated	695.5	3.50%
241	Turzo complex, 2 to 4 percent slopes	Not rated	1,793.30	9.10%
249	Uffens loam, 3 to 8 percent slopes	Not rated	72.8	0.40%
257	Walknolls extremely channery sandy loam-Gilston association, 2 to 50 percent slopes	Not rated	861.5	4.40%
262	Walknolls-Gilston association, 2 to 25 percent slopes	Not rated	19.1	0.10%
263	Walknolls-Mikim association, 2 to 50 percent slopes	Not rated	19.3	0.10%
266	Walknolls-Uendal association, 2 to 25 percent slopes	Not rated	112.3	0.60%
285	Water	Not rated	42	0.20%
Subtotals for Soil Survey Area (VFO Parcels UT647)			**14,776.60**	**75.30%**
Totals for Area of Interest			**19,619.10**	**100**
ummary by Rating Value				
Rating	Acres in AOI	Percent of AOI		
Moderately fragile	337	1.70%		
Highly fragile	270.9	1.40%		
Fragile	8.5	0.00%		
Null or Not Rated	19,002.50	96.90%		
Totals for Area of In	**19,619.10**	**100.00%**		

AIB-12 Riparian Areas, Wetlands, and Floodplains

How would future potential development of the nominated lease parcels affect riparian areas, wetlands, and floodplains?

The BLM reviewed the lease parcels for proximity to riparian areas, wetlands, and floodplains. Through resource knowledge and/or GIS analysis of the National Wetlands Inventory (NWI) layer, the BLM identified intermittent drainages and mapped wetland habitats within all lease parcels. The BLM identified emergent wetlands as identified by the NWI in parcels 1520, 1511, 1514, 7668, and 7667. All parcels contain intermittent drainages and associated riparian areas. Extensive riparian wetland habitats and designated 100-year floodplains occur in parcels 1520 and 1511. Floodplains (as defined in EO 11988) are associated with perennial lentic and lotic systems as well as intermittent/ephemeral streams which are present on all parcels.

The BLM Lease Notice UT-LN-128 would notifying potential lessees that water resources might be present to all parcels to inform potential lessees of the requirements of EO 11988: UT- Federal Flood Risk Management Standard.

The BLM may apply BMPs, SOPs, and site-specific mitigation at the APD stage as COAs. Protective measures for riparian and wetland areas and floodplains would include a NSO stipulation within active flood plains, wetlands, public water reserves, or 100 meters of riparian areas (UT-S-123), or avoidance of disruptive activity within 100-year floodplains (UT-LN-128) or a combination of all of these.

Applying these protective measures (stipulations and lease notices) at the time of leasing would inform the lessee of the resource. The BLM needs no further analysis at this stage; however, the BLM may apply additional mitigation measures and buffers at the APD stage, as necessary to protect these areas. The BLM would conduct additional site-specific NEPA analysis at that time.

Stipulations:

- UT-S-123 NSO - Riparian, Floodplains, and Public Water Reserves: Parcels 1511, 1514, 1520, 1542, 1605, 7667, 7668, 7673, 7674, 7716, and 7719

Lease Notices:

- UT-LN-53 - Riparian Areas: All parcels
- UT-LN-128 - Floodplain Management: All parcels

AIB-13 Recreation

How would future potential development of the nominated lease parcels affect recreation opportunities and activities?

Recreational opportunities and activities within the nominated lease parcels consist mainly of operation of Off Highway Vehicles (OHVs), camping, equestrian riding, hunting, target shooting, and wildlife viewing. There are no designated Special Recreation Management Areas or developed recreation sites located within the parcels. Parcel 1520 does overlap with portions of the 20-mile section of the White

River between Bonanza Bridge and the Enron Boat Ramps which allow for canoeing, rafting, and limited kayaking on the river.

Per the Surface Operating Standards and Guideline for Oil and Gas Exploration and Development - The Gold Book (BLM, 2007), temporary or longer-term impacts from the Proposed Action, such as road upgrades, increased vehicle traffic, construction, noise, dust, and/or surface disturbances, would be localized and would not substantially impact recreational access and dispersed recreation opportunities within the parcels as alternative travel routes and other public lands would still be available for dispersed recreational opportunities in the vicinity.

AIB-14 Visual Resources

How would future potential development of the nominated lease parcels affect the visual landscape?

Lease parcels 1597, 7717, 7718, 7674 and 7673 are located entirely within a Visual Resource Management (VRM) Class 4 management area. Lease parcels 1605, 7716, 7719, 1542, 7668 and 7667 are located entirely within a VRM Class 3 management area. Portions of lease parcels 1514 and 1511 are in both VRM Class 3 and 4 management areas. Lease parcel 1520 is in VRM class 4 and 2 management areas, with most of the parcel within VRM Class 2. The management goals and objectives for VRM Class 2 is to retain the existing character of the landscape with low change to the landscape. Management goals and objectives for a VRM Class 3 management area allow for a moderate degree of change or visual contrast with the surrounding characteristic landscape. Management goals and objectives for a VRM Class 4 management area allow for a high degree of change or visual contrast with the surrounding characteristic landscape.

Lease parcels 7668 and 1514 are adjacent to previously developed gas fields of the Uintah Basin where the landscape is generally flat and uniform in form, line, texture, and color. Parcels 7668, 7667, 1514, 1511, 7674, 1542, 7719, 1605, 7716, 7717 and 1597 are already crisscrossed with linear disturbances such as roads, well pads, and/or pipelines. The presence of existing linear disturbances within or adjacent to the parcels would reduce the level of visual contrast with any new surface disturbances associated with lease development. Furthermore, the broken, undulating nature of the terrain within these parcels prevents the creation of any long, straight-line linear disturbances as demonstrated by the existing routes. Construction of well pads would create straight lines and shapes that contrasts with the landscape, but the broken terrain provides a high degree of topographic and vegetative screening of new disturbances beyond a short distance.

The majority of lease parcel 1520 is within VRM Class 2 though the parcel is also within a NSO area and timing limit/controlled surface use area (stipulation number UT-S-120 & UT-S-159) which would restrict the construction of facilities and infrastructure that would impact the visual resources. For these reasons, potential changes or visible contrast with the form, line, texture, and color of the characteristic landscape are likely to be low with the RFD for lease parcels and would meet the prescribed objectives of the VRM Classes that they reside in. Site-specific mitigation practices may be required to minimize visual impacts, such as properly chosen paint color and low-profile equipment that allows long term facilities to blend in with the natural landscape. However, these would be decided at the time an APD is provided.

AIB-15 Soundscapes

How would noise associated with future potential development of the nominated lease parcels affect the local soundscape?

The EPA has identified a 24-hour exposure level of 70 A-weighted decibels (dBA) as the level of environmental noise to prevent any measurable hearing loss over a person's lifetime. Likewise, levels of 55 decibels outdoors and 45 decibels indoors are identified as preventing activity interference and annoyance. The levels are not single event, or "peak" levels. Instead, they represent averages of acoustic energy over periods of time such as 8 hours or 24 hours, and over long periods of time such as years. The 55 dBA threshold is generally recognized as a level below which no public health or safety risks to the general population would be anticipated to occur.

In rural areas, ambient sound levels are typically 30 to 40 dBA (EPA, 1974). As a basis for comparison, the sound level of a normal conversation between two people standing 5 feet apart is 60 dBA. Highway traffic noise typically ranges from 70 to 80 dBA at a distance of 50 feet from the highway (USDOT, 2003). Typical noise levels associated with oil and gas activity are presented in Table 23

Table 23 Noise Levels Associated with Oil and Gas Activity

Noise Source	Sound Level at 50 Feet (dBA)
Well drilling	83
Pump jack operation	82
Produced water injection facilities	71
Gas compressor facilities	89

Source: (BLM, 2003)

Note: Sound levels are based on highest measured sound levels and are normalized to a distance of 50 feet from the source.

It is estimated that noise levels could be approximately 83 dBA during the drilling phase. The Inverse Square Law, which states that noise decreases by 6 dBA with every doubling of distance from the source, is often used to estimate noise impacts from a specific source. As such, if the noise level is 83 dBA at 50 feet from drilling operations, then the noise level would be 77 dBA at 100 feet and 71 dBA at 200 feet. At approximately 1250 feet (0.24 miles) from the drilling, sound levels will drop below the EPA threshold of 55 dBA. However, the actual noise levels experienced by the receptor will depend on the distance between the receptor and the equipment, vegetation (e.g. trees), meteorological conditions (e.g. wind speed and directions, temperature, humidity), the type of equipment used, etc., so sound levels could vary slightly.

A review of other noise sources within a quarter mile of the lease parcels shows that common noise sources within this rural area are expected to be from livestock, oil and gas development activities, vehicular traffic, and wildlife. Parcels 7717 and 7718 are about 1.5 miles from Highway 50 and Parcel 7363 is one mile from Highway 28. The BLM expects potential development of the nominated lease parcels to generate noise above ambient levels for the area during drilling and completion of the well. Noise impacts during these phases of development would be short-term. As discussed, development, drilling, including spudding and completion, is estimated to take 30-60 days.

One can also use the deviation from natural background sound levels to identify reductions in listening area and alerting distance for wildlife. Reduction in listening area quantifies the loss of hearing ability to animals resulting from an increase in ambient noise level. Under natural ambient conditions, a sound is audible within a certain area around an animal. If the ambient level is increased due to a noise event, the

area in which the sound is audible decreases. Table 24 shows the relationship between increased sound level and listening area reduction. Wildlife are impacted by their failure to hear natural sounds that would have been audible in the absence of artificial noise (e.g., a mouse misses the footfall of a coyote). Reductions in listening area and alerting distance capture these types of impacts.

Table 24 Reduction in Listening Area due to Increase from Background Sound Levels

Increase from Background	3 dBA	6 dBA	10 dBA	20 dBA
Reduction in Listening Area	50%	75%	90%	99%
Reduction in Alerting Distance	30%	50%	70%	90%

Source: (NPS, 2010)

Overall, increases to the ambient sound levels where parcels are located would occur from well construction and well production operations. In addition, during final abandonment of the well and reclamation, there would be temporarily increased noise levels associated with operation of earth-moving construction equipment. Oil and gas development has been ongoing in the Uinta Basin for decades, therefore the potential development of lease parcels in the Uinta Basin will not substantially change the soundscape in this region. Lease parcels in Sanpete County would have a localized effect within 0.24 miles of well pads and the soundscape where people frequent would not experience a substantial change as they are farther than a mile from the lease parcels.

AIB-16 Dark Night Skies

How would future potential development of the nominated lease parcels impact the quality of night skies on public lands?

Dark night skies contribute to the remote experience that many people seek when they visit remote public lands. Light pollution diminishes the aesthetic and values of the night sky by making it difficult to see fainter stars or other faint celestial objects (BLM, Night Sky and Dark Environments: Best Management Practices for Artificial Light at Night on BLM-Managed lands, Tech Note 457, 2023). Optimal night skies are free of scattered light or skyglow, which is generated by anthropogenic light from development, transportation, or industrial operations. The scattering of artificial light in the atmosphere increases night sky luminance and erodes the visual appearance of stars and planets.

The Bortle Dark-Sky Scale is a nine-level numeric scale that measures the night sky and star brightness (naked-eye and stellar limiting magnitude) of a particular location. It quantifies the observability of celestial objects (significant naturally occurring physical entities, associations or structures which current science has demonstrated to exist in outer space) and the interference caused by artificial light pollution and skyglow (wide scale illumination of the sky or parts of the sky at night). The most common cause of skyglow is man-made lights that give off light pollution. John E. Bortle created the scale and published it in the February 2001 edition of Sky & Telescope magazine to help amateur astronomers compare the darkness of observing sites. The scale ranges from class 1, the darkest skies available on Earth, through class 9, inner-city skies (Bortle, 2001).

Bortle scale classes are correlated with a sky quality meter (SQM) rating that is derived from an instrument used to measure the luminance of the night sky. It is used, typically by amateur astronomers, to quantify the skyglow aspect of light pollution and uses units of "magnitudes per square arcsecond" favored by astronomers. Scientists, in the process of creating the SQM, devised a scale between the numbers of 16.00-22.00. At the lowest number—16.00—the sky is the brightest. Customarily, this class would transpire in urbanized areas. Meanwhile, a number of 22.00 represents the least luminance—in

other words, the least light pollution and the very darkest night sky. Typically, this reading would generally materialize in remote, uninhabited areas.

SQM values for any point on Earth can be determined from http://www.lightpollutionmap.info. This global map of artificial night sky radiance is produced by the Light Pollution Science and Technology Institute (ISTIL) using both satellite imagery and SQM readings, as described in the paper "The New World Atlas of Artificial Night Sky Brightness" (Falchi, et al., 2016). The majority of lease parcels in both Uintah and Sanpete counties occur in areas of Bortle Class 1 skies, where the Milky Way and stars are brilliant enough to cast shadows with many deep sky objects being visible with the naked eye. Lease parcels 1511, 1514, 1520, 7667, and 7668 occur near pockets of Bortle Class 2 skies, where the background sky has a slightly gray shade due to atmospheric scattering or distant airglow on the horizon and where some deep sky objects are visible with the naked eye. Leases parcels in Sanpete County occur adjacent to areas of Bortle Class 3 skies, where some evidence of light pollution is evident and clouds appear fainty illuminated near the horizon.

Potential impacts to night skies associated with development of the leases would include flaring and temporary lighting during nighttime construction activities. Light pollution impacts would include lighting at facilities as well as oil and gas developments as needed for safety and security that would contribute to sky glow and adversely affect night skies. Impacts on night skies would last for the duration of the leases, if developed, and would begin during construction and would last through operations, maintenance, and decommissioning until the reclamation process is completed. These effects would be temporary and transient in nature and would vary based on conditions such as cloud cover, weather (precipitation events), and wind speed or direction. For example, most artificial lighting would occur during the drilling, completion, and potential flaring of a well. Lighting from the other phases of development and production would occur from vehicle traffic or safety lighting. While these impacts would be temporary, they would also be considered long-term as the lighting impacts would remain in effect for more than 2 years. Further detailed analysis of the potential impacts to night skies would be analyzed as appropriate when oil and gas development plans and APDs are submitted.

Impacts related to light pollution of night skies would be mitigated and minimized through development of a lighting plan at the APD stage, including the planning principles and the identification of BMPs, as detailed in *Night Sky and Dark Environments: Best Management Practices for Artificial Light at Night on BLM-Managed Lands* (BLM 2023).

Specific BMPs include having a lighting plan prepared by a qualified lighting designer, selecting luminaires certified to minimize light pollution, identifying light-sensitive receptors, conducting a baseline study of existing light pollution and night sky conditions, and establishing a lighting and light pollution monitoring program. Additionally, mitigation measures for impacts to night skies associated with oil and gas development such as flaring would include using enclosed flare systems for gas flaring and similar operations to shield light, noise, and heat release. This would result in no visible flame protruding above the structures and could include shaded or directional lighting on structures and shrouded gas flare stacks. The application of BMPs and design features would mitigate, limit, and prevent impacts on night skies associated with future development of any of the leases.

AIB-17 Livestock Grazing

How would surface disturbance associated with future potential development of the nominated lease parcels affect livestock grazing

The parcels are located within eight allotments within the RFO and 11 allotments in the VFO (Table 25 and Table 26).

Table 25: Richfield Field Office Allotments

Allotment name	Number of authorization(s)	Kind of Livestock	Season of Use	Total BLM AUMs Permitted and Suspended
Hayes Canyon	1	Cattle	4/01- 5/31 10/01 – 10/31	300 permitted 251 suspended
Little Valley	1	Cattle Sheep	5/01 – 8/30 12/01 – 2/28 5/01 – 6/30	798 permitted 1145 suspended
Lone Cedar	1	Cattle Sheep	12/01 – 6/30 12/01 – 6/30	1050 permitted 260 suspended
Red Canyon	1	Cattle	5/01 – 8/31	702 permitted 893 suspended
River	1	Cattle	11/01 – 6/15	28 permitted 19 suspended
Rock Canyon	1	Cattle Sheep	5/01 – 8/31 12/01 – 6/01	780 permitted 420 suspended
South Valley	1	Cattle Sheep	12/01 -3/31 12/01 – 4/30	849 permitted 0 suspended
Swedes Canyon	1	Sheep	10/16 – 3/31	428 permitted 0 suspended

Table 26: Vernal Field Office Allotments

Allotment name	Number of authorization(s)	Kind of Livestock	Season of Use	Total BLM AUMs Permitted and Suspended
Bonanza	1	Sheep	12/05 – 5/05	1939 permitted 707 suspended
Coyote Wash	1	Sheep	11/01 – 5/20	7762 permitted 1779 suspended
Hells Hole	1	Sheep	12/01 – 4/30	3554 permitted 0 suspended
Horse Point	1	Cattle	11/16 – 4/30	380 permitted 46 suspended
Oil Shale	1	Sheep	11/15 – 4/15	1137 permitted 0 suspended
Olsen AMP	1	Sheep	11/01 – 6/15	9268 permitted 1425 suspended
Raven Ridge	1	Sheep	12/01 – 5/05	1112 permitted 326 suspended
Southam Canyon	1	Sheep	11/01 – 4/01	1315 permitted 0 suspended
Sunday School Canyon	1	Cattle	11/01 – 4/30	2843 permitted 551 suspended

Allotment name	Number of authorization(s)	Kind of Livestock	Season of Use	Total BLM AUMs Permitted and Suspended
Ute	-	-	-	-
White River Bottoms	1	Cattle	6/01 – 10/15	480 permitted 85 suspended

A Reasonably Foreseeable Development Scenario for both the Richfield and Vernal offices is reflected in Section 3.2.1 which highlights each parcels estimated area of surface disturbance by parcel within each allotment. A percentage of acreage potentially impacted by parcel is also found within Table 27.

Table 27: Grazing allotment by Parcel

Allotment	Parcel number with surface disturbance acres	Estimated area of surface disturbance acres	Total parcel acres	Total allotment acres	Percent of total parcel acreage of grazing allotment
Bonanza	1511, 7667, 7668	24, 13.5, 24	5362	112953	4.7
Coyote Wash	1511, 1514, 1520, 7667, 7668	24, 24, 24, 13.5, 24	6400	539940	1.2
Hayes Canyon	1301, 1311, 1325, 1334, 7373, 7379, 7383	36*	10514	53910	19.5
Hells Hole	1520	24	1038	27034	3.8
Horse Point	1605, 7716, 7719	80, 60, 60	6978	114047	6.1
Little Valley	1301, 1308, 7373, 7379, 7383	36*	9134	44896	20.3
Lone Cedar	1308, 1311, 1597, 7717, 7718	36*	6541	82117	8.0
Oil Shale	1605	80	2542	41341	6.1
Olsen Amp	7673, 7674	12, 12	1204	267975	0.4
Raven Ridge	7667	13.5	1778	10985	16.2
Red Canyon	1283, 7361	36*	6582	32653	20.2
River	7363	36*	11	2565	0.4
Rock Canyon	1283, 7361	36*	4088	21360	19.1
South Valley	7718	36*	3689	41579	8.9
Southam Canyon	1520	24	1038	13520	7.7
Sunday School Canyon	1542	5	40	51554	0.1
Swedes Canyon	1334	36*	486	2932	16.6
Ute	1605, 7716	80, 60	6978	23043	30.3
White River Bottoms	1520	24	1038	2529	41.0

* 36 acres is the estimated disturbance for the collective sum of all parcels within the Richfield Field Office using 3 anticipated wells and associated roads.

Should development be proposed within lease parcels, additional, site specific NEPA analysis would be completed to assess the potential impacts to livestock grazing within the project area when an APD is submitted.

Under the Proposed Action for the Lease Sale, livestock grazing would continue. However, should oil and gas development occur on the lease, loss of forage and possible reductions of permitted AUMs could occur in affected allotments due to soil and vegetation disturbance and development activity. Livestock movement patterns could be altered and access to range improvements could be hindered by new roads, oil well pads, and human presence and activity. Increased traffic may lead to an increase in vehicle-livestock collisions, and increased livestock mortality. Potential impacts to specific allotments, pastures, and range improvements would be analyzed with additional site-specific NEPA review at the APD stage. Any mitigation measures and design features protecting range improvements would be identified at the development stage. This issue is not analyzed further because no specific concerns were identified during the internal and external scoping period The estimated area of surface disturbance noted in table 27 compared to the total BLM allotment acres suggest that during the APD analysis the lose of AUMs may be minimal.

AIB-18 Fluid Minerals

How would future potential development of the nominated lease parcels impact mineral resources and energy production?

Oil and gas exploration could lead to an increased understanding of the geologic setting, as subsurface data obtained through lease operations may become public record. This information promotes an understanding of mineral resources as well as geologic interpretation. While conflicts could arise between oil and gas operations and other mineral operations, these could generally be mitigated under 43 CFR 3101.1-2 and under standard lease terms (Sec. 6) where siting and design of facilities may be adjusted to protect other resources.

Depending on the success of oil and gas drilling, natural gas and/or oil would be extracted and delivered to market. The RFDs are documented in section 3.2.1. The Proposed Action would not exceed the level of activity predicted in the RFDs.

Any oil and gas development can be managed to avoid or work within the potential development of other mineral resources. Mining claims and Mineral Materials permits were checked on April 24, 2025. No active placer claims, or Mineral Material sites were found within the nominated lease parcels.

If the lease parcels are developed, wells within the parcels may be completed using hydraulic fracturing techniques. Additional information is provided in Appendix E. “FracFocus,” is a database available to the public online at http://fracfocus.org. Public groups have expressed concerns that:

- Spills during the management of hydraulic fracturing fluids and chemicals or produced water that result in large volumes or high concentrations of chemicals reaching groundwater resources.
- Injection of hydraulic fracturing fluids into wells with inadequate mechanical integrity, allowing gases or liquids to move to groundwater resources; and,
- Discharge of inadequately treated hydraulic fracturing wastewater to surface water resources.

Before operators or service companies perform hydraulic fracturing treatment, a series of tests are preformed to ensure well, casing, and well equipment is in proper order and will safely withstand the application of the fracture treatment pressures and flow rates. Operators must comply with 43 CFR Subpart 3172 and 43 CFR Subpart 3177. If fracking should occur in an area where there is no vertical separation between the hydraulically fractured rock formation and the bottom of the potential underground drinking water source, fracking fluid may be introduced into the source.

The majority of flow back water (water originally injected from the surface) from hydraulic fracturing in Utah is recycled and used in future hydraulic fracturing completions. Therefore, the underground injection of hydraulic fracturing flow back in Utah is very limited and presents little potential for inducing seismic activity. In fact, there has been no reported induced seismicity in Utah attributable to water injected into Class II water disposal wells. Oil and gas wells produce a great amount of wastewater (water originating from the producing formation.) Most of this water has high salt brine content and must be disposed of in an environmentally safe manner. In Utah, a majority (95%) of this produced water is pumped into Class II injection wells. In certain parts of the country, water injection has caused some induced seismicity in the form of small earthquakes. Two major factors play a role in induced seismicity from water injection. First, the amount of water being injected. Secondly, the local geology of the water injection site. In Utah, the volumes are lower than those states experiencing induced seismicity. Also, the geology is different than those states experiencing induced seismicity. The injection zones are stratigraphically thousands of feet above the basement rock that may contain large unknown faults. Therefore, at this time it appears that induced seismicity from water injection is not a problem in the oil fields of Utah. (Personal communication from John Rogers, Utah Division of Oil, Gas and Mining (UDOGM), March 27, 2018).

In conclusion, there would be no negative affects to fluid mineral resources.

AIB-19 Socioeconomics

How would future potential development of the nominated lease parcels affect social and economic conditions?

The study area includes Uintah and Sanpete Counties in the State of Utah, which encompass 3,891,100 acres. Because socioeconomic (SE) data are typically available at the county level, county boundaries are used to define the SE study area. The BLM obtained data from the U.S. Department of Labor, the Bureau of Labor Statistics, local area unemployment statistics, the U.S. Department of Commerce, and the Census Bureau, as compiled by the Headwaters Economics Socioeconomic Profiles Tool developed for the BLM (Headwaters Economics, 2025).

Of the total study area, 2,196,966 acres or 56.5 percent of the total are federally owned lands, and the BLM manages 1,476,627 of those acres. Private ownership consists of 651,065 acres within the study area, 55,417 are Tribal lands, and 716,275 are owned by state, county, city, or other non-federal agencies. The total population in the study area was 66,865 in 2022, representing an increase of 39.2 percent from 2000 to 2022. The largest contributor to this change in total population was natural change (i.e., the excess of births over deaths in the two counties). The number of employed workers in the study area in 2022 was 34,236. In 2023, the average annual unemployment rate was 3.1 percent. In 2022, 81.8 percent of workers aged 16 and over within the study area worked in their county of residence. Per capita income in the study area in 2022 was $41,738.

In 2022, the total number of families living in poverty, as defined by the U.S. Census Bureau, was 8.4 percent of the population. Out of all persons living within the study area in 2022, 17.8 percent self-

identified as being a member of a minority group. Of those, 3.5 percent of the total population self-identified as American Indians. The total number of housing units was 24,217 of which 85.4 percent were occupied, and 5.7 percent were seasonal, recreational, or occasionally occupied properties. Of those living within the study area aged 25 or older, 19.7 percent had earned a bachelor's degree or higher in 2022. In 2022, there were approximately 9,191 total jobs in non-services industries in the study area. In the same year, there were approximately 18,562 jobs in services related industries, and approximately 6,475 jobs in the government sector. This total includes federal, state, county, and local government jobs. In 2022, the industries employing the largest numbers of employees in the study area were: government (primarily state, county, and local government), retail trade, and construction.

Within the study area, the average annual wage for all reported jobs was $50,674 in 2023. The highest paying industries, on average, were mining, financial activities, and professional and business services. Non-labor income—which includes dividends, interest payments, rent, age-related transfer payments, hardship-related payments, and other transfer payments—can be important in local economies. Where non-labor income is a relatively high percentage of all income, it is likely that there are a higher number of retirees and/or families receiving assistance, in comparison to other regions. In 2022, total non-labor income within the study area represented 39.1 per cent of all income. The highest category of non-labor income was dividends, interest, and rent, at 15.0 per cent of total county income. In fiscal year 2024 the Department of Interior, through the Payments In Lieu of Taxes (PILT) program, paid the two counties $5,620,047 (DOI, 2024).

The only impact of issuing new oil and gas leases on quantifiable market socioeconomic values within the analysis area would be generation of revenue from the Lease Sale, as the State of Utah retains approximately 49 percent of the proceeds. Revenues generated by mineral lease payments totaled $93.7 million to the State of Utah for in fiscal year 2024 (DOI, 2024). Subsequent oil and gas exploration, development, and production could affect the local economy in terms of additional jobs, income, and tax revenues. Subsequent oil and gas exploration and development activities could include road and drill pad construction, which could be contracted to local contractors. Wells would typically be drilled over a period of time and not concurrently. Local businesses may realize increased revenue from the purchase of supplies, meals, lodging, etc. Local trucking and delivery companies may also benefit economically by transporting supplies, building materials, and oil products.

Oil production from federal lands is subject to a 16.67 percent royalty payment to the federal government. Approximately 49 percent of that amount is provided to the state government, which then provides a portion to the county. Fiscal impacts could result from bonus bids (the amount paid at time of auction), annual rent fees (for 10 years regardless of activity on a leased parcel), and royalties (if and when production occurs). These may provide income to the county government for schools and other expenditures. The Proposed Action would not be expected to induce substantial growth or concentration of population, displace many people, cause a substantial reduction in employment, reduce wage and salary earnings, cause a substantial net increase in county expenditures, or create a substantial demand for public services. With a reduction in output from the oil and gas sector, opposite effects would be expected to occur. These could include reductions in employment, especially in the oil and gas sector, less pressure on housing and community services, and lower mineral lease payments to the state and county. Increased activity in oil and gas development and operations could have an impact on the demand for community services as well as having some effect on available housing and demand for goods and services within the affected county.

Under the Proposed Action, BLM would offer fourteen parcels for lease, totaling 19,824 acres. In the 3.89 million-acres within the boundaries of the two counties, there are approximately 2.6 million acres of federal mineral estate that are open to oil and gas leasing. Of these acres, 841,160 acres are authorized

leased (33% of the federal mineral estate open to oil and gas leasing) across 1,028 total leases. Total oil and gas employment in the two counties totaled 1,447 employees in 2023 (BLS, 2024). Given the number of employees relative to the acreage currently under lease, impacts (even if the fourteen parcels were eventually developed), would be very minor relative to the current level of activity in the county.

Expansion of the oil and gas industry may be perceived as having a negative effect on quality-of-life considerations for people who value undeveloped landscapes, opportunities for isolation, and activities such as wildlife viewing, other forms of recreation, or rangeland management. The total landscape-level surface disturbance associated with reasonably foreseeable environmental trends and planned actions would include activities that generate increased human activity, traffic, noise, dust, odor, light pollution, and visual effects. These activities have the potential to affect quality of life of any existing nearby residences or facilities, depending on the intensity of development activities and proximity of structures to a given parcel. While the majority of these impacts to any significantly proximal residences or facilities would be short term and cease during operations (e.g., increased human activity, traffic, noise, dust, and odor during drilling and completion phases), residences may continue to experience long-term visual or other impacts that have potential to affect quality of life if they are located in areas in which oil and gas development is not currently nearby or visible.

AIB-20 Human Health and Safety

How would potential development of the nominated lease parcels contribute risks to human health and safety concerns?

Within Uintah County, which encompasses the VFO nominated parcels, there are currently 7,776 existing active well bores of all well types across all land jurisdictions ((UDOGM, 2024)). Within Sanpete County, which encompasses the RFO nominated parcels, there are currently three existing active well bores of all well types across all land jurisdictions (UDOGM, 2024). This level of development has resulted in the following public health and safety–related risks: occasional fire starts; spills of hazardous materials, hydrocarbons, produced water, or hydraulic fracturing fluid (see Appendix E) and corresponding potential contamination of air, soil, or water; exposure to naturally occurring radioactive material (NORM) in drill cuttings or produced water (see Appendix E); traffic congestion and collisions from commercial vehicles and heavy use, especially along Highway 40; infrequent industrial accidents; presence of hydrogen sulfide (H_2S); or increased levels of fugitive dust (PM_{10} and $PM_{2.5}$), other criteria air pollutants (CAPs), volatile organic compounds (VOCs), and hazardous air pollutants (HAPs). See the air quality analysis in Section 3.6.1 (Air Quality) for projected levels of CAPs and HAPs, their effects on air quality, and the air quality notices and stipulations that may impact human health and safety.

HAPs are known or suspected to cause cancer or other serious health effects, such as compromises to immune and reproductive systems, birth defects, developmental disorders, or adverse environmental effects resulting from either chronic (long-term) and/or acute (short-term) exposure, and/or adverse environmental effects. Breathing ground-level ozone (O_3) can trigger a variety of health problems, including coughing and sore or scratchy throat; difficulty breathing deeply and vigorously and pain when taking deep breaths; inflammation and damage to the airways; increased susceptibility to lung infections; aggravation of lung diseases such as asthma, emphysema, and chronic bronchitis; and an increase in the frequency of asthma attacks. Some of these effects have been found even in healthy people, but effects are more serious in people with lung diseases such as asthma. Particulate matter, also known as particle pollution or PM, is a complex mixture of extremely small particles and liquid droplets. Smaller particles (PM2.5 or smaller) are associated with more negative health effects, including respiratory and cardiovascular problems, because they can become more deeply embedded in the lungs and may even get into the bloodstream.

The following sources provide additional information on air pollution health effects from the six criteria air pollutants and HAPs:

- Ozone (EPA, 2023a)
- Particulates (EPA, 2023b)
- Nitrogen dioxide (EPA, 2023c)
- Carbon monoxide (EPA, 2023d)
- Lead (EPA, 2023)
- Sulfur dioxide (EPA, 2023f)
- Hazardous air pollutants (HAP) (EPA, 2023g)

The air quality analysis in Section 3.6.1 estimates the risk of cancer from Hazardous Air Pollutants (HAPs) and the risk of other health impacts based on exposure to CAPs. In addition to HAP and Criteria Air Pollutants (CAP) levels, economic or social indicators can also influence the general health risks of a population, such as poverty status, educational attainment, or language proficiency. Headwaters Economics data for populations at risk (i.e., more likely to experience adverse health outcomes due to demographic or socioeconomic factors) show that most of the indicators for populations at risk are lower for Utah compared with the nation as a whole (Headwaters Economics, 2025) . Compared with Utah, several of the indicators for populations at risk in the combined counties in the VFO planning area (Daggett, Duchesne, and Uintah Counties) are similar to state levels. However, certain indicators are noticeably higher in the combined counties than those of Utah as a whole: these include indicators such as percent of population without a high school diploma, percent of population in "deep poverty" (earning less than half of the federal poverty level), percent of families below poverty, percent of households receiving food stamps, percent of housing that are mobile homes, and percent of population without health insurance (Headwaters Economics, 2025).

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

Potential development on the nominated lease parcels within Uintah County is estimated to be 130 new wells. This is a 1.5% increase to the 7,776 existing active wells in the county. Potential development on the nominated lease parcels within Sanpete County is estimated to be one to three new wells. When added to the 3 existing active wells in the county, this would double the number of wells, however, 6 wells across the entire county is one well per 169,733 acres. There are no residences within 500 feet of any of the proposed lease parcels. When authorizing development, federal and state laws, regulations, and policy are applied to reduce effects or respond to incidents. These include the following:

- Federal, state, county, and municipal fire managers shall coordinate fire response and mitigation.

- Developers who install and operate oil and gas wells, facilities, and pipelines are responsible for complying with the applicable laws and regulations governing hazardous materials and for following all hazardous spill response plans and stipulations. The Utah Division of Oil, Gas and Mining requires similar spill response measures after release of hydrocarbons, produced water, or hydraulic fracturing fluids.

- All well pads, vehicles, and other workplaces must comply with worker safety laws as stipulated by the Occupational Safety and Health Administration (OSHA).

- Vehicular traffic and pipelines are regulated according to safety laws as stipulated by the Department of Transportation.

43 CFR 3176 provides the requirements and standards for conducting oil and gas operations in an environment known to or expected to contain H_2S. Compliance with this Order will protect public health and safety and those personnel essential to maintaining control of the well.

Hazardous materials are not known to exist on any lease parcel. Hazardous materials associated with oil and gas operations, if not handled properly, have the potential to be spilled at the lease/drill site and would be handled during that stage of development. Such materials could include methanol, diesel fuel, unrefined petroleum, produced water, and acid. Spills during operation would be contained, reported, and cleaned up by the operator as written in the Spill Prevention, Control, and Countermeasure (SPCC) rule for wells.

See AIB-10 for further information regarding potential surface and groundwater effects and relevant regulations, stipulations, and lease notices offering protections to groundwater and surface water quality. While there are no water quality specific notices or stipulations, the buffers on surface occupancy in riparian areas and floodplains, UT-S-123 as well as those associated with sensitive soils and steep slopes, UT-S-96, UT-S-99, and UT-S-100 would result in protection of water quality by minimizing sediment inputs and other water quality contaminants. Risks from hazardous or solid wastes would be mitigated by BMPs, SOPs, and site-specific COAs.

AIB-21 Wild and Scenic Rivers (WSR)

How would future potential development of the nominated lease parcels affect the portion of the White River identified as eligible as a wild and scenic river?

Lease parcel 1520 straddles the White River Segment A, located between the Colorado state line and its confluence with Asphalt Wash, that was determined in the 2008 Vernal RMP to be eligible but not suitable for designation under the Wild and Scenic Rivers Act of 1968. The BLM River study tentatively classified the White River Segment A as Scenic and identified free-flowing, water quality, and Recreational, Scenic (Geologic), Fish, Wildlife/Habitat, and Historic outstanding remarkable values (ORVs); however, the 2008 BLM determination of non-suitability provides no requirement to further protect eligible ORVs in the White River Segment A corridor.

Lease parcel 1520 has numerous NSO and CSU stipulations attached for the White River corridor, fragile slopes over 40%, riparian, floodplains, and public water reserves, and CSU stipulations for VRM Class II resources and fragile slopes between 20% and 40% (for stipulation information, see Appendix B). Lease stipulation UT-S-120 would apply an NSO stipulation for up to 0.25 miles along either side of the White River, per the river corridor width defined in the Wild and Scenic Rivers Act of 1968 (P.L. 90-541).NSO stipulations would prevent new surface disturbing developments and direct impacts to identified ORVs within the White River corridor. CSU stipulations would impose restrictions on development activity

more than .25 miles from the river, thereby reducing the severity of potential indirect impacts to the eligible river corridor but not removing all potential impacts entirely.

Potential mineral exploration and development activities in parcel 1520 may result in the construction or improvement of access roads, increased traffic, use of heavy machinery, and presence of workers on the landscape further than .25 miles from the White River. However, the area around parcel 1520 possesses a high degree of topographic relief and screening due to steep slopes and canyons. Any potential mineral activities in parcel 1520 are not expected to produce impacts to identified ORVs within the White River Segment A corridor.

Stipulations:

- UT-S-47 NSO – White River SRMA: Parcel 1520
- UT-S-87 NSO – White River BLM Natural Area: Parcel 1520
- UT-S-96 NSO – Fragile Soils/Slopes Greater than 40%: Parcel 1520
- UT-S-100 CSU – Fragile Soils/Slopes (21%-40%): Parcel 1520
- UT-S-120 NSO – White River Corridor: Parcel 1520
- UT-S-123 NSO – Riparian, Floodplains, And Public Water Reserves: Parcel 1520
- UT-S-157 NSO/CSU/Timing Limitation – Visual Resources: Parcel 1520
- UT-S-159 CSU – Visual Resources – VRM II: Parcel 1520

AIB-22 Wilderness Characteristics

How would future potential development of the nominated lease parcels affect lands with wilderness characteristics (LWC) or BLM Natural Areas?

Lease parcel 1520 is located within the White River and Duck Rock LWC units. Parcels 7673 and 7674 are both located within the Archy Bench A LWC unit. The 2008 Vernal RMP Record of Decision provides for multiple-use management in these LWC units, without prioritizing protection of wilderness characteristics above other uses.

The issuance of leases allows for mineral exploration and development activities to occur. Such mineral development in leased areas intersecting LWCs could cause indirect or direct impacts to wilderness characteristics, such as size, naturalness, solitude, and recreational opportunities in LWC areas. The presence of new oil and gas infrastructure on relatively undisturbed public lands would change the character of such areas. Depending on topography, vegetation removal, grading, and the development of well pads could reduce the apparent naturalness and scenic qualities in LWC areas and reduce the quality of solitude or primitive recreational experiences. Additionally, mineral exploration and development would result in the construction or improvement of access roads, increased traffic, use of heavy machinery, and presence of workers on the landscape, all of which would produce increased levels of noise, alter the viewshed, depreciate apparent naturalness, and reduce opportunities for solitude and primitive recreation. The use of hazardous materials in mineral development sites could also harm vegetation, water resources, and wildlife in LWCs, further altering the naturalness of such lands.

The degree of the intensity of such impacts to wilderness characteristics would be influenced by the location of surface-disturbing activities, existing vehicle access to the lease, the size of the drill pad area and any associated temporary or permanent disturbance, surrounding landforms and topography, vegetation type, season of development, and reclamation processes and their duration. Areas with more terrain variation and elevation differences will offer more topographic screening of the sights and sounds of lease development. Flatter, more open areas will allow sights and sounds to be more noticeable at a greater distance from the well pad or access road. Likewise, larger vegetation, such as trees and large shrubs can help to visually screen or absorb the sounds of development more effectively.

The areas around parcels 1520, 7673, and 7674 possess a high degree of topographic and auditory screening due to steep ridges, deep washes, and generally broken terrain. Potential impacts from mineral activities such as visual or audible disturbances or increased vehicle traffic would be temporary and localized to the construction area and access routes, occurring during the construction, drilling, and interim reclamation phase (30-60 days). Following this period of intense activity, removal of equipment and interim reclamation of the well pad would be expected to mitigate some impacts to wilderness characteristics, with the exception of apparent naturalness within the vicinity of new developments.

Per BLM Manual 6310, wilderness inventory boundaries are created by rights-of-way and constructed or improved roads (BLM 2021). Construction or improvements of vehicle access routes to leases could potentially split or bisect a LWC unit by creating a new wilderness inventory boundary. This may result in a portion of the unit that no longer meets size criteria for LWCs thus producing a long-term loss of LWC acreage.

Parcels 1520, 7673, and 7674 have NSO stipulations for riparian, floodplains, and public water reserves and CSU stipulations for fragile slopes or slopes between 20% and 40% (for stipulation information, see Appendix B). This would limit development in those LWC areas overlapping leases that meet such criteria. NSO and CSU stipulations would impose mitigations on development activity, thereby reducing the severity of development impacts but not removing all impacts to LWCs entirely. The 2008 Vernal RMP does not provide any management restrictions or protective status to the LWC units that overlap with the above lease parcels; multiple use actions are not limited within the lease parcels. Furthermore, due to the combination of rugged topography and lease stipulations listed below, impacts to existing lands with wilderness characteristics will be sufficiently mitigated and are expected to be temporary, localized, and minimal. Further detailed analysis is not warranted.

Stipulations:

- UT-S-96 NSO – Fragile Soils/Slopes Greater than 40%: Parcels 1520, 7673, and 7674
- UT-S-99 CSU – Fragile Soils/Slopes: Parcels 1520, 7673, and 7674
- UT-S-100 CSU – Fragile Soils/Slopes (21%-40%): Parcels 1520, 7673, and 7674
- UT-S-123 NSO – Riparian, Floodplains, and Public Water Reserves: Parcels 1520, 7673, and 7674

AIB-23 Wilderness Study Areas (WSA)

How would future potential development of the nominated lease parcels affect lands Wilderness Study Areas?

Parcel 1542 is adjacent to the northern boundary of the Winter Ridge WSA along the Winter Canyon Road. The environment within parcel 1542 and the northern portion of the Winter Ridge WSA consists of an undulating landscape of washes and sandy, tree-covered ridges that branch out in many different directions. Aerial imagery and GIS data show regular and persistent changes in vegetation, slope, and aspect within the WSA. This terrain creates a high degree of both visual and auditory screening within a short distance in any direction due to topography and vegetation. A previous 2023 Q4 lease sale viewshed analysis of lease parcels adjacent to lease parcel 1542 demonstrated that, except for a few hundred acres, the Winter Ridge WSA would be topographically screened from 150-foot-tall structures north and east of the Winter Canyon Road (see Figure 3 below). Parcel 1542 also has CSU stipulations for fragile slopes or slopes between 21% and 40% and NSO stipulations for slopes greater than 40% (for stipulation information, see Appendix B). CSU and NSO stipulations would impose mitigations on development activity, thereby reducing the magnitude or intensity of development impacts but may not mitigate all impacts entirely.

Due to the presence of excellent topographic screening and CSU/NSO stipulations, potential indirect impacts to wilderness characteristics within the Winter Ridge WSA from mineral activities in lease parcel 1542 are expected to be minimal, temporary, and only noticeable in small, isolated areas near the northern boundary of the WSA.

None of the other proposed lease parcels are immediately adjacent to a WSA.

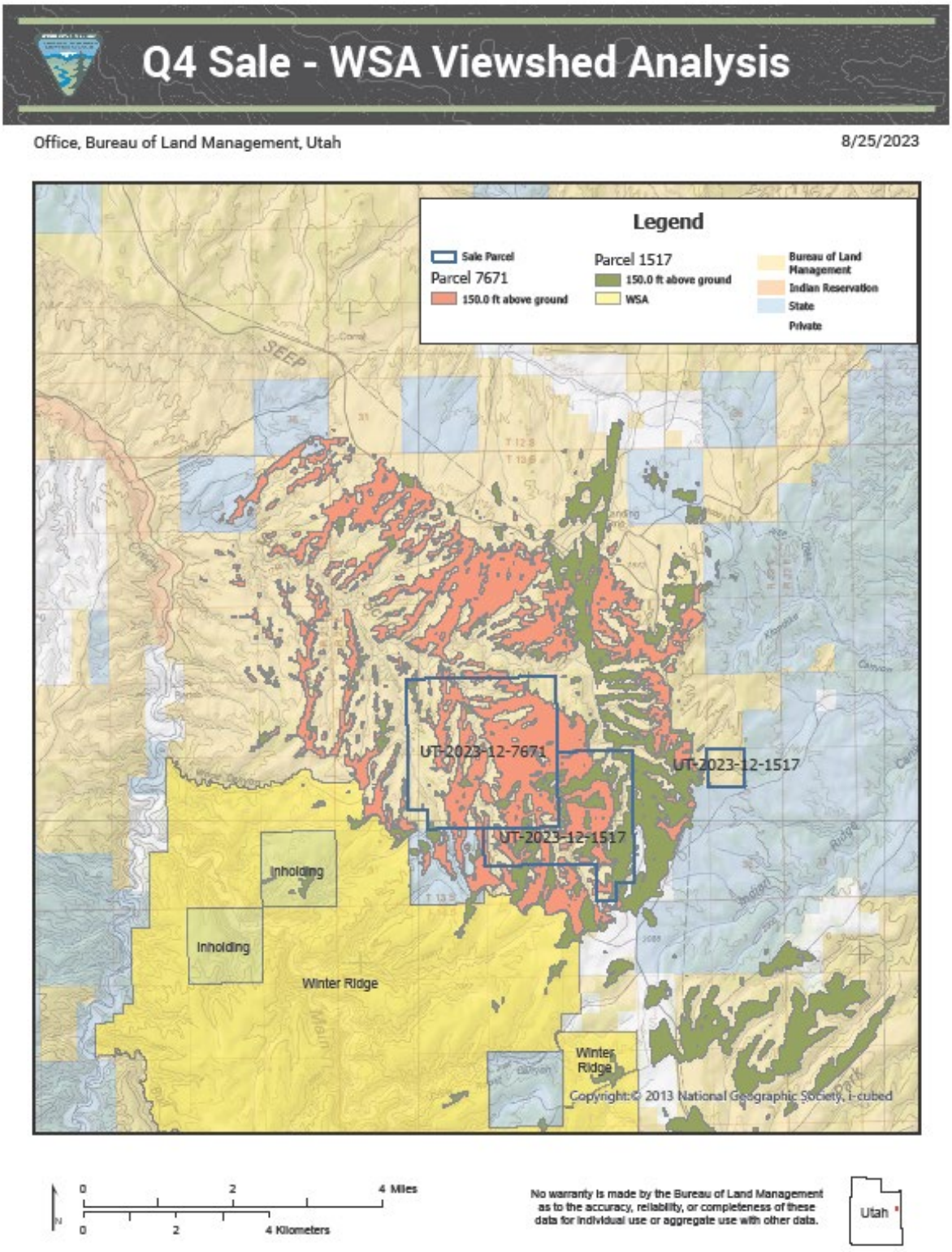

Figure 3 2023 Quarter 4 WSA Viewshed Analysis

4Stipulations:

- UT-S-96 No Surface Occupancy – Fragile Soils/Slopes Greater than 40%: Parcel 1542
- UT-S-99 Controlled Surface Use – Fragile Soils/Slopes: Parcel 1542
- UT-S-100 Controlled Surface Use – Fragile Soils/Slopes (21%-40%): Parcel 1542Woodland and Forest Resources

AIB-24 Woodland and Forest Resources

How would potential oil and gas leasing and future development activities affect woodland and forest vegetation communities within the nominated lease parcels?

Woodland and forest resources within the nominated lease parcels were identified using LANDFIRE Existing Vegetation Type (EVT) Version 2023 data. Of the 14 lease parcels analyzed, 12 contain acreages of mapped woodland or forest communities, totaling approximately 7,400 acres. The most extensive types include pinyon-juniper woodland, mixed conifer forest, spruce-fir forest, mountain mahogany woodland, and juniper savanna. Parcel 1520 also includes riparian-associated woodlands along the White River.

These woodland and forest systems contribute to soil stabilization, watershed function, ecological connectivity, wildlife habitat, and scenic quality throughout the Lease Sale area. Parcel-level woodland acreage totals and vegetation types are summarized in Table 29: Woodland Acreage by Parcel

The Proposed Action (Alternative A) and Alternative B (Greater Sage-Grouse Alternative) would offer parcels for competitive leasing but do not authorize surface disturbance. Any vegetation removal associated with future oil and gas development would require additional NEPA analysis at the Application for Permit to Drill (APD) stage (Section 2.2). As such, this analysis considers only potential indirect effects based on the Reasonably Foreseeable Development (RFD) scenario described in Section 3.2.1.

Approximately 374.5 acres of surface disturbance are projected under the RFD across 133 well bores. While exact locations are unknown, some portion of this disturbance would likely occur within woodland or forest vegetation. Notably, the parcels with the highest mapped woodland acreages—1605 (1,101 acres), 7716 (1,705 acres), 7717 (1,500 acres), 7718 (1,220 acres), and 7719 (1,062 acres)—also have among the highest projected surface disturbance (e.g., 80 acres in Parcel 1605, and 60 acres each in Parcels 7716 and 7719). Impacts in these areas could include localized vegetation loss, habitat fragmentation, altered fire regimes, and increased vulnerability to invasive species—especially in pinyon-juniper and mixed conifer ecosystems.

To mitigate these risks, the BLM applies lease stipulations and lease notices that constrain or prohibit development in sensitive areas. Relevant stipulations that would reduce or avoid potential woodland impacts include:

Table 28

Stipulation	Description	Parcels Applied To
UT-S-123	No Surface Occupancy – Riparian, Floodplains, Public Water Reserves	1514, 1520, 1542, 1605, 7667, 7668, 7673, 7674, 7716, 7719
UT-S-99	Controlled Surface Use – Fragile Soils/Slopes	1514, 1520, 1542, 1605, 7667, 7668, 7673, 7674, 7716, 7719

Stipulation	Description	Parcels Applied To
UT-S-100	Controlled Surface Use – Slopes 21-40%	1514, 1520, 1542, 1605, 7667, 7668, 7673, 7674, 7716, 7719

Not all lease parcels with mapped woodland vegetation include protective lease stipulations. In such cases, resource protection would rely on:

- Standard lease terms (Section 6 of Form 3100-11), which authorize BLM to impose COAs at the APD stage.
- Site-specific NEPA review to identify and mitigate potential impacts.
- BMPs and reclamation requirements applied during project design and approval.

Reclamation and restoration standards would also apply at the APD stage, including site-specific seeding or planting prescriptions based on ecological site potential, elevation, and soil characteristics.

Impacts are speculative, localized, and avoidable through project design and existing procedural safeguards. Effects would be fully evaluated at the APD stage.

Table 29: Woodland Acreage by Parcel

Parcel	Woodland or Forest Type	GIS Acres
1520	Colorado Plateau Pinyon-Juniper Woodland	47
1520	Interior West Ruderal Riparian Forest	14
1520	Rocky Mountain Lower Montane-Foothill Riparian Woodland	26
	Rocky Mountain Subalpine-Montane Riparian Woodland	1
1542	Colorado Plateau Pinyon-Juniper Woodland	25
1597	Colorado Plateau Pinyon-Juniper Woodland	93
	Great Basin Pinyon-Juniper Woodland	224
	Inter-Mountain Basins Curl-leaf Mountain Mahogany Woodland	52
	Inter-Mountain Basins Juniper Savanna	24
	Rocky Mountain Gambel Oak-Mixed Montane Shrubland	4
1605	Colorado Plateau Pinyon-Juniper Woodland	1,100
	Rocky Mountain Gambel Oak-Mixed Montane Shrubland	1
7673	Colorado Plateau Pinyon-Juniper Shrubland	1
	Colorado Plateau Pinyon-Juniper Woodland	101
7674	Colorado Plateau Pinyon-Juniper Woodland	224
7716	Colorado Plateau Pinyon-Juniper Woodland	1,699
	Southern Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest and Woodland	6
7717	Colorado Plateau Pinyon-Juniper Woodland	452
	Great Basin Pinyon-Juniper Woodland	936
	Inter-Mountain Basins Curl-leaf Mountain Mahogany Woodland	53
	Inter-Mountain Basins Juniper Savanna	35

Parcel	Woodland or Forest Type	GIS Acres
	Southern Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest and Woodland	20
	Southern Rocky Mountain Mesic Montane Mixed Conifer Forest and Woodland	3
7718	Colorado Plateau Pinyon-Juniper Woodland	165
	Great Basin Pinyon-Juniper Woodland	746
	Inter-Mountain Basins Curl-leaf Mountain Mahogany Woodland	149
	Inter-Mountain Basins Juniper Savanna	24
	Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland	7
	Southern Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest and Woodland	117
	Southern Rocky Mountain Mesic Montane Mixed Conifer Forest and Woodland	11
7719	Colorado Plateau Pinyon-Juniper Woodland	1,062

Stipulations:

- UT-S-99 CSU – Fragile Soils/Slopes: Parcels 1514, 1520, 1542, 1605, 7667, 7668, 7673, 7674, 7716, and 7719
- UT-S-100: CSU – Fragile Soils/Slopes (21%–40%): Parcels 1514, 1520, 1542, 1605, 7667, 7668, 7673, 7674, 7716, and 7719
- UT-S-123: NSO – Riparian Zones, Floodplains, and Public Water Reserves: Parcels 1514, 1520, 1542, 1605, 7667, 7668, 7673, 7674, 7716, and 7719

3.6. ISSUES ANALYZED IN DETAIL

Consistent with 43 CFR § 3120.32, § 3120.41, and the guidelines set forth in the BLM NEPA Handbook H-1790-1 (BLM, 2008b), the BLM identified site-specific resource concerns and lease stipulations for proposed parcels through a preliminary review process conducted prior to a public scoping period. The following resources/issues are analyzed in detail in this EA using input from internal and external scoping. Issues were retained for detailed analysis if that analysis is necessary to make a reasoned choice between alternatives; to determine significance; if there is disagreement about the best way to use a resource; or if there is conflict between resource impacts or uses.

3.6.1. Issue 1: Air Quality

What quantities and types of air pollutants would be produced from potential development of the nominated lease parcels? How would air pollutant emissions affect air quality and air quality related values?

Air quality is determined by the quantity and chemistry of atmospheric pollutants in consideration of meteorological factors (i.e., weather patterns) and topography, both of which influence the dispersion and concentration of those pollutants. The presence of air pollutants is due to several different and widespread sources of emissions. The impact analysis area for air quality is the airsheds in which the lease parcels are located, including Uintah and Sanpete Counties. The BLM identified this spatial scope of analysis based on the regional nature of air pollution and to facilitate analysis using the best available air quality data, which are generally provided at the county level. For the purposes of this analysis, the BLM considers short-term effects to air quality are those that cease after well construction and completion (30–60 days);

long-term effects are considered those associated with well operations and production and would cease after operations/production are concluded (typically 20-30 years).

Affected Environment

The BLM Utah 2024 Air Monitoring Report (AMR) (BLM, 2024) discusses past, present, and foreseeable emissions and air quality data for Utah. The BLM incorporates by reference information from the AMR to help describe the air quality affected environment in the impact analysis area. The EPA has primary responsibility for regulating air quality, including six nationally regulated criteria air pollutants (CAPs): carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM_{10} & $PM_{2.5}$), sulfur dioxide (SO_2) and lead. Volatile organic compounds (VOCs) are also regulated by the EPA as sunlight causes it to react with NO_2 to form O_3. The National Emissions Inventory (NEI) (EPA, 2024) is a comprehensive and detailed estimate of air emissions of criteria pollutants, criteria precursors, and hazardous air pollutants. The NEI is generally released every three years based primarily upon data provided by state, local, and tribal air agencies for sources in their jurisdictions and is supplemented by data developed by the US EPA. The most recent reporting year for the NEI is 2020. County emissions inventories relevant to the analysis area are listed in Table 30: Existing Criteria Air Pollutant Emissions in the Airshed in Tons Per Year (TPY) Table 30. Total emissions include both natural (e.g., wildfires and biogenic) and anthropogenic (e.g., fuel combustion, mobile) sources.

Table 30: Existing Criteria Air Pollutant Emissions in the Airshed in Tons Per Year (TPY)

County	Source	CO	NO_x**	PM_{10}	$PM_{2.5}$	SO_2	VOC
Uintah County	Anthropogenic*	10,773.1	7,932.5	5,977.8	1,234.1	135.1	47,429.0
	Total	13,636.0	8,644.4	6,000.1	1,253.1	137.1	58,108.2
Sanpete County	Anthropogenic*	3,290.6	487.0	5,481.7	791.6	8.0	1,256.3
	Total	5,256.2	824.9	5,575.3	870.9	15.9	8,463.0

Source: The National Emissions Inventory.

* Anthropogenic emissions are considered all emissions omitting wildfires and biogenic sources.

** nitrogen oxide(s)

The EPA has established National Ambient Air Quality Standards (NAAQS) for CAPs (EPA, 2024). The NAAQS are protective of human health and the environment. Compliance with the NAAQS is typically demonstrated through monitoring of ground-level concentrations of atmospheric air pollutants. The EPA designates areas where pollutant concentrations are below the NAAQS as attainment or unclassifiable. Locations where monitored pollutant concentrations are higher than the NAAQS are designated nonattainment, and the EPA considers this air quality as unhealthy. Air pollutant concentrations are reported using design values. A design value is a statistic that describes the air quality status of a given location relative to the level of the NAAQS. Design values are used to designate and classify nonattainment areas, as well as to assess progress towards meeting the NAAQS. Design values that are representative for the airsheds of interest, the BLM has incorporated and listed in Table 31. Based on design values, the EPA has designated portions of Duchesne and Uintah Counties below 6,250 ft. elevation (i.e., Uinta Basin) as nonattainment for O_3. The EPA has classified the Uinta Basin as "moderate" nonattainment area for the 2015 ozone standard. Ozone values have trended down in recent

years, but the region is still prone to high ground-level ozone concentrations during winters with considerable snowfall.

The BLM assumes that counties without reported design values for a particular pollutant have air pollutant concentrations below the NAAQS and good air quality since air monitoring is usually needed only when concentrations exceed 80% of the NAAQS (40 CFR 58.14 management (1)). There are no design values for Sanpete County. The county in closest proximity to Sanpete County with a design value is Carbon County and these values have been listed in Table 31. Carbon County and Sanpete County are in separate airsheds and therefore should not necessarily be considered representative of one another.

Table 31 2021-2023 Criteria Air Pollutant Design Values

Pollutant	County	Averaging Time	Concentration[1]	NAAQS	Percent of NAAQS
O_3	Uintah	8-hour	0.076 ppm	0.070 ppm	108.6%
O_3	Carbon	8-hour	0.063 ppm	0.070 ppm	90.0%
NO_2	Uintah	Annual	5 ppb	53 ppb	9.4%
NO_2	Uintah	1-hour	31 ppb	100 ppb	31.0%
NO_2	Carbon	Annual	2 ppb	53 ppb	3.8%
NO_2	Carbon	1-hour	16 ppb	100 ppb	16.0%
$PM_{2.5}$	Uintah	Annual	6.3 µg/m^3	9 µg/m^3	70.0%
$PM_{2.5}$	Uintah	24-hour	22 µg/m^3	35 µg/m^3	62.9%

Source: The National Emissions Inventory.

[1]Concentrations in parts per million (ppm), parts per billion (ppb), microgram per cubic meter (µg/m^3).

Hazardous air pollutants (HAPs), also known as toxic air pollutants, are known, or suspected, to cause cancer or other serious health effects, or adverse environmental effects. Emissions of HAPs are included as part of the NEI. HAPs emitted by the oil and gas industry include benzene, toluene, ethyl benzene, mixed xylenes, formaldehyde, normal-hexane, acetaldehyde, and methanol. Statewide, these individual pollutants make up 95% of the HAPs emitted from the oil and gas production. The total HAPs emissions for the State of Utah and Uintah and Sanpete Counties are listed in Table 17.

Table 32 Hazardous Air Pollutant Emissions (TPY)

Area	Total Emissions (TPY)	Vegetation and Soils (TPY)	Wildfire (TPY)	Prescribed Fire (TPY)	Oil and Gas Production (TPY)
Sanpete County	1,221.33	936.23	64.38	20.41	1.33
Uintah County	4,814.43	2,410.69	16.35	10.05	2,199.96
State of Utah	83,710.82	39,695.91	26,178.41	798.10	3,496.35

Source: The National Emissions Inventory.

The EPA Air Toxics Screening Assessment is used to evaluate impacts from existing HAP emissions in Utah (EPA, 2023). Air Toxics Screening Assessment results for counties relevant to the analysis area are reported in Table 18. The total cancer risk is within the acceptable range of risk published by the EPA of 100 in 1 million as discussed in the National Contingency Plan, 40 CFR § 300.430 also see (EPA, 1999). Hazard index values less than one indicate it is unlikely that air toxics would cause adverse noncancer health effects over a lifetime of exposure. Potential development on the lease parcels would contribute to HAP emissions and associated carcinogenic and noncancer risks.

Table 33 Total Cancer Risk and Noncancer Respiratory Hazard from Existing HAP Emissions (2019 Reporting Year)

County	Total Cancer Risk/Million	Background Cancer Risk/Million	Oil & Gas Cancer Risk/Million	Total Respiratory Hazard Index
Sanpete	9.91	2.54	0.05	0.09
Uintah	12.75	2.63	1.32	0.13
State of Utah	17.80	2.65	0.06	0.23

Source: EPA's Air Toxics Screening Assessment.

The Clean Air Act (CAA) Prevention of Significant Deterioration (PSD) requirements give more stringent air quality and visibility protection to national parks and wilderness areas that are designated as Class I areas, but a PSD designation does not prevent emission increases. The five national parks in Utah are Federally designated Class I areas, and the rest of the state is designated as Class II. Federal land managers are responsible for defining specific Air Quality Related Values (AQRVs), including visual air quality (haze), and acid (nitrogen and sulfur) deposition, for an area and for establishing the criteria to determine an adverse impact on the AQRVs. Each of the parcels in this Lease Sale are located within PSD Class II areas. Visibility trends based on air monitoring data from four Utah monitoring sites for the clearest, haziest, and most impaired categories is incorporated by reference from the AMR (see Figures 2 through 5 of the AMR). The marked improvement on the most impaired days at Utah Class I areas demonstrates progress toward Regional Haze Rule goals. The National Park Service monitors and

evaluates deposition to determine which parks are most at risk from air pollution and where conditions are declining or improving. Nitrogen deposition conditions in Utah National Parks are fair to poor with no trend for improving or worsening conditions, while sulfur deposition conditions are good with trend data unavailable for most locations (see Table 22 of the AMR).

Air Quality Design Considerations

Leases within Indian Country must comply with permitting requirements in the Federal Implementation Plan (FIP) for Managing Emissions from Oil and Natural Gas Sources on Indian Country Lands Within the Uintah and Ouray Indian Reservation in Utah (EPA, 2022).

The BLM looks to minimize air pollutants via lease stipulations and notices and COAs throughout the leasing and permitting processes. Stipulations and notices (i.e., UT-S-01, UT-LN-96, UT-LN-99, UT-LN-102, and UT-LN-136), including those for non-air quality resources that would have beneficial impacts to air quality are listed in Appendix B. The BLM Parcel List with Stipulations would be applied to leases when issued to notify the operator of what would be required (stipulation) and what could potentially be required (notice) at the APD stage. This informs the potential lessee, at the time of bidding on the parcel, of the range of requirements that the lessee could expect when lease rights are exercised. Examples of additional air quality control measures imposed at the APD stage may include submission of an emissions inventory for the plan of development, air quality modeling, or implementation of mitigation measures and BMPs. The BLM would do this in coordination with the EPA, UDAQ, and other agencies that have jurisdiction on air quality. By applying stipulations and notices, leasing would have little impact on air quality. At the APD stage, COAs could be applied based on site specific environmental analysis for the APD. Also, any future development in nonattainment areas would be subject to the conformity process of the CAA which may require additional mitigation or offsets.

Impacts of the Proposed Action (Alternative A)

There are four general phases of post-lease development that would generate air pollutant emissions: 1) well development (well site construction, well drilling, and well completion), 2) well production operations (extraction, separation, gathering), 3) mid-stream (refining, processing, storage, and transport/distribution), and 3) end-use (combustion or other uses) of the fuels produced. While well development and production operations emissions (phases 1 and 2) occur on-lease and the BLM has program authority over these activities, mid-stream and end-use emissions (phases 3 and 4) typically occur off-lease where the BLM has no program authority. During well development, there could be emissions from earth-moving equipment, vehicle traffic, drilling, and completion activities. NO_2, SO_2, and CO would be emitted from vehicle tailpipes. Fugitive dust concentrations would increase with additional vehicle traffic on unpaved roads and from wind erosion in areas of soil disturbance. Drill rig and fracturing engine operations would result mainly in NO_2 and CO emissions, with lesser amounts of SO_2. These temporary emissions would be short-term during the drilling and completion phases, which is expected to last between 30 to 60 days. During well production and operations there could be continuous emissions from separators, condensate storage tanks, flares or combustors, and daily tailpipe and fugitive dust emissions from operations traffic. During the operational phase of a well, NO_2, CO, VOC, and HAP emissions would result from the long-term use of storage tanks, pumps, separators, and other equipment. Additionally, dust (PM_{10} and $PM_{2.5}$) would be produced due to wind erosion on well pads and roads, and by vehicles servicing the wellsite infrastructure. Single well emission estimates for well development and production operations are based on typical development and production operations scenarios identified for each field office in the AMR (BLM, 2024). The single well emissions and assumptions for analysis from this Lease Sale are input into the BLM Lease Sale Emissions Tool to provide the maximum year and average year emissions over the anticipated production life of lease parcels (approximately 30 years), see Table 34. More emissions detail is provided in Appendix G. Actual development of individual lease

parcels may result in higher or lower emissions for various reasons including differences with geologic formations, proximity to existing support infrastructure, differences in pace of development, different development methods and control technology used by a lessee, and other reasons. A lessee has 10 years to produce in paying quantities on a lease. If production is not established within the 10-year timeframe, the lease would be terminated with no development or emissions occurring.

Table 34 Estimated Annual Emissions Estimates from Well Development and Production Operations of the Lease Parcels for Alternative A (TPY)

Yearly	PM_{10}	$PM_{2.5}$	VOC	NO_X	CO	SO_2	HAPs
Max Emissions	71.7	35.6	1,098.9	402.7	481.7	0.414	122.900
Average Emissions	45.4	23.8	833.8	227.5	343.9	0.115	93.475

Emissions of CAPs would also occur outside the planned area from transport, processing, distribution, and end-use. Generally, crude oil (including condensate from a gas well) from the Uinta Basin is trucked to refineries in Salt Lake City or to the Price River Terminal in Wellington, Utah. Crude oil offloaded at the Price River Terminal is transported via railway to refineries throughout the country which produce a multitude of refined products. Refineries in Utah produce mostly gasoline, diesel fuel, and jet fuel. Products from Utah's refineries are transported via pipeline to markets in Utah, Idaho, Nevada, Wyoming, eastern Washington, and Oregon (EIA, 2022). Regarding natural gas, Utah is crossed by several interstate pipelines that transport natural gas from the Opal Hub in Wyoming, from the Piceance Basin in western Colorado, and from Utah's in-state production to markets in Nevada, Idaho, and Colorado (EIA, 2022).

Since combustion of all petroleum products emit CAPs and HAPs, local ambient concentrations of these pollutants could increase in areas where products from the Uinta Basin (oil and gas) are combusted. This could contribute to an area exceeding either national or local air quality standards. Air quality involves complex physical and chemical transformations at a local/regional level, so impacts would vary considerably depending on background concentrations, meteorology, and other local pollutant sources. If any pollutant concentration is near or above its standard in a particular area, the combustion of oil and gas products could contribute to or exacerbate nonattainment. Potential pollutant concentration change resulting from combustion is therefore often a key driver of public policy to mitigate air quality and public health impacts in such areas. Downstream combustion and end uses are regulated by the EPA or delegated to state agencies. This regulatory process is designed to avoid downstream impacts to regional and local air quality.

At the leasing stage it is not possible to accurately estimate potential air quality impacts by modeling due to the variation in emission control technologies as well as construction, drilling, and production technologies applicable to oil versus gas production and utilized by various operators. Should development on the parcels be proposed, and prior to authorizing specific proposed projects on the subject leases, emission inventories would need to be developed. Nearfield air quality dispersion modeling, which may also be required at that time, includes direct and cumulative impact analysis for demonstrating compliance with the NAAQS, plus analysis of impacts to AQRVs (i.e., deposition, visibility), particularly as they might affect nearby Class I areas (some National Parks and Wilderness areas) and Class II areas of interest.

Studies have demonstrated that oil and gas activity is a primary contributor to wintertime O_3 NAAQS exceedances in the Uinta Basin (Mansfield, 2021). While emissions from an individual well or well pad are too small to have a substantial impact on O_3 concentrations, they contribute with emissions from other regional oil and gas operations to produce a cumulative O_3 impact. These impacts are discussed further in the air quality general setting section. Impacts to AQRVs from existing oil and gas wells and future lease development is projected to be minimal, see air quality general setting section.

The CAA general conformity rule (40 CFR 93 Subpart B) provides Federal agencies a method for determining if the emissions in a nonattainment area, from an action under consideration, will delay an area from attaining the NAAQS. This is done by showing that emissions are either de minimis or conform to a State or Federal Implementation Plan. Some parcels the BLM is offering in this Lease Sale are located within the Uinta Basin O_3 nonattainment area and thus require a general conformity applicability assessment. Appendix F documents the applicability assessment, and it demonstrates that the emissions associated with this Lease Sale are not reasonably foreseeable as defined by the CAA and general conformity is not applicable to this leasing action. Another conformity applicability assessment will be needed at the permitting stage when information is available (location with respect to nonattainment area, non-permitted emissions sources, control technology, emissions offsets, new implementation plans, etc.) to create an emissions inventory based on actual plans for development.

The BLM does not anticipate substantial air resource impacts from leasing as this proposal is an administrative action. Lease development has the potential to contribute to the O_3 problem in the Uinta Basin. At the permitting stage, a precise emissions inventory will be developed and analyzed to ensure emissions are below de minimis levels or conform to state or Federal implementation plans that are in effect at the time. As identified in notice UT-LN-102, additional analysis or mitigation may be required when parcels are developed to ensure no adverse impacts occur.

Impacts of the Greater Sage-Grouse Alternative (Alternative B)

The BLM performed an identical analysis as Alternative A for the greater sage-grouse alternative. The BLM calculated CAP and HAP emissions for all parcels except those identified with greater sage-grouse habitat, namely 1514, 7667, 7668, and 7716 since under this Alternative, these parcels would not be leased. Emissions for every pollutant are less in Alternative B than Alternative A. The single well emissions and assumptions for analysis from this Lease Sale are input into the BLM Lease Sale Emissions Tool to provide the maximum year and average year emissions over the anticipated production life of lease parcels (approximately 30 years), see Table 20. Actual development of individual lease parcels may result in higher or lower emissions for various reasons including differences with geologic formations, proximity to existing support infrastructure, differences in pace of development, different development methods and control technology used by a lessee, and other reasons. A lessee has 10 years to produce in paying quantities on a lease. If production is not established within the 10-year timeframe, the lease would be terminated with no development or emissions occurring.

Table 35 Estimated Annual Emissions Estimates from Well Development and Production Operations of the Lease Parcels for Alternative B (TPY)

Year	PM_{10}	$PM_{2.5}$	VOC	NO_X	CO	SO_2	HAPs
Max Emissions	42.9	21.3	660.7	240.3	289.1	0.261	73.900
Average Emissions	27.3	14.3	501.5	136.8	206.9	0.069	56.226

Impacts of the No Action Alternative

Under the No Action Alternative, the BLM would not offer any of the nominated parcels in this Lease Sale. However, in the absence of a Land Use Plan Amendment closing the lands to leasing, they could be considered for inclusion in future lease sales. No new emissions associated with new Federal oil and gas development for the subject leases would occur under the No Action Alternative in the foreseeable future. Other activities authorized within the project area would continue to occur, such as previously authorized and sold oil and gas leases.

General Setting

The BLM incorporates by reference the projected changes to air quality and AQRVs that are evaluated in the BLM's Regional Air Quality Model (Ramboll, 2023). This modeling study provides a reference for potential changes to the affected environment occurring from existing and foreseeable emissions producing activities, including development of oil and gas leases, coal mining, and other cumulative emissions sources in the region.

Emissions Trends

Past and present actions that have affected and would likely continue to affect air quality in the analysis area include surface disturbance resulting from oil and gas development and associated infrastructure, geophysical exploration, ranching and livestock grazing, range improvements, recreation (including OHV use), authorization of ROWs for utilities and other uses, and road development. These types of actions and activities can reduce air quality through emissions of CAPs (including fugitive dust), and HAPs, as well as contribute to deposition impacts and to a reduction in visibility. Emissions from these activities are included in the inventory contained in Table 20. In the future, emissions from vehicle exhaust, and from residential and commercial activities would likely increase as population and tourist visitation increases in the area.

Estimates of future criteria and hazardous emissions are made in the BLM Regional Air Quality Model (Ramboll, 2023). Emissions estimates are based on the EPA2016v2 modeling platform (Ramboll, 2023), the Western Regional Air Partnership Oil and Gas Working Group emission inventory, and BLM reasonably foreseeable development estimates for oil, gas, and coal production. Sources included coal mining, coal combustion, oil and gas development, other anthropogenic sources (mobile and non-point), and natural emissions (open land fires, biogenic). The effects of these emissions are evaluated in the modeled air quality projections section below. Emissions in the oil and gas sector are provided in Table 20. Oil and gas sector emissions roughly parallel oil and gas production. Development and production estimates associated with these emissions projections for oil, gas, and coal are listed in the AMR (see Appendix D of the AMR). Current federal oil and gas development and production in Utah is below that which was modeled in the BLM Regional Air Quality Model by 10.5 million bbl/yr of oil, 34 billion cf/yr of gas, 98 new spuds per year, and 3,819 total producing wells. Potential development on the lease parcels would not cause existing development to exceed those that were projected in the BLM Regional Air Quality model. The modeled air quality projections fully capture past and present oil and gas development, including potential development on the lease parcels.

Table 36 Modeled Circa 2032 (New Plus Existing Wells) Oil and Gas Emissions in Utah by Mineral Owner

State	Air Pollutant Emissions (TPY)						
	NO_x	VOC	CO	SO_2	$PM_{2.5}$	PM_{10}	HAPs
Federal (excluding Tribal)							
UT	10,113	117,584	9,540	288	489	489	7,227
Non-Federal							
UT	5,449	26,535	5,670	185	267	267	1,985
Tribal							
UT	3,763	30,953	3,651	156	189	189	1,673
Total							
UT	19,325	175,071	18,861	629	944	944	10,885

Modeled Air Quality Projections

Results from the BLM Regional Air Modeling Study show that there are no projected exceedances of the NAAQS for NO_2, SO_2, and CO. Source apportionment analysis shows that exceedances of the $PM_{2.5}$ and PM_{10} standards are due to wildfires, and there are no exceedances due to anthropogenic emissions. Modeled concentrations of O_3 throughout Utah are in the 55-65 ppb range, which is also below the NAAQS. The existing federal oil and gas sources in the BLM Green River District (Carbon, Daggett, Duchesne, Emery, and Uintah counties) contribute up to 3.7 ppb of O_3, while the new federal oil and gas sources in the Green River District contribute up to 2.5 ppb to the O_3 concentrations.

The BLM used the Regional Model Study modeling platform to evaluate the cumulative health effects of specific HAPs originating from oil and gas production (Ramboll, 2023). A photochemical model is used to estimate the cumulative ambient air concentrations of six HAPs (benzene, toluene, ethylbenzene, xylenes, n-hexane, and formaldehyde) resulting from emissions from federal and non-federal oil and gas sources. These six HAPs were selected by BLM for study as they are subject to emissions standards (New Source Performance Standards [NSPS] and National Emissions Standards for Hazardous Air Pollutants [NESHAPs]) regulated for the oil and gas sectors. Cancerous and non-cancerous risk factor results from the HAPs modeling are provided in the AMR (see Tables 29 and 30 of the AMR) and are incorporated by reference here. The health-based inhalation thresholds used in the BLM HAPs modeling study are the

same as those used in EPA's AirToxScreen (EPA, 2022). Total human cancer risk from oil and gas production in Sanpete and Uintah Counties is 0.1 and 29.8 in a million respectively, which is below EPA's 100 in 1 million cumulative thresholds. Chronic noncancer health effects from oil and gas production are also below levels of concern.

Air Quality Related Values

Regional Haze modeling (WRAP/WAQS, 2021) was performed by the EPA and Western Region Air Partnership states to evaluate if reasonable progress is being made toward natural visibility conditions to be achieved by the year 2064. The model uses source apportionment to isolate the contributions of U.S. anthropogenic emissions, along with other sources (e.g., international anthropogenic emissions, fires, and natural sources), to visibility extinction at monitoring sites representing Class I areas in the western U.S. This allows for the estimation of the changes in visibility impairment due to U.S. anthropogenic emissions at Class I areas over time and whether they are trending toward no impairment due to U.S. anthropogenic emissions by 2064. The modeling study shows that the current trendline would reach the no impairment goal before 2064.

The BLM Regional Model Study also evaluated deposition of nitrogen and sulfur. The critical load for deposition is 5 kg/ha/yr, and projected deposition rates for both nitrogen and sulfur are below the critical load value. Cumulative annual nitrogen deposition over the Utah analysis area varies between 0.6 and 4.5 kg N/ha. Deposition values are less than 4 kg N/ha throughout most of Utah, with exceptions of two grid cells in Salt Lake County showing impacts between 4 and 4.5 kg N/ha. Cumulative annual sulfur deposition over Utah varies between 0.01 and 1.1 kg S/ha within Utah, with the maximum deposition occurring near the Carbon-Emery County border.

In summary, the aggregate air quality in the impact analysis area is maintained at current levels or projected to improve. The BLM projects atmospheric concentrations for CAPs to be below the NAAQS or show improvement (i.e., decreasing concentrations). Visibility is generally projected to improve at nearby National Parks and deposition is estimated to remain below critical load criteria. Emissions of HAPs are not anticipated to substantially change the cancer and noncancer respiratory risks in the area of analysis.

3.6.2. Issue 2: Greenhouse Gas and Climate Change

How would potential development of the nominated lease parcels contribute to greenhouse gas (GHG) emissions and climate change?

Future development of lease parcels under consideration could lead to emissions of carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O); the three most common greenhouse gases associated with oil and gas development. These GHG emissions would be emitted from activities occurring on the leased parcels and from the consumption of any fluid minerals produced. However, the BLM cannot reasonably determine at the leasing stage whether, when, and in what manner a lease would be explored or developed. The uncertainty that exists at the time the BLM offers a lease for sale includes crucial factors that would affect actual GHG emissions and associated impacts, including but not limited to the future feasibility of developing the lease, well density, geological conditions, development type (vertical, directional, or horizontal), hydrocarbon characteristics, specific equipment used during construction, drilling, and production, abandonment operations, product transportation, and potential regulatory changes over the 10-year primary lease term. Actual development on a lease is likely to vary from what is analyzed in this EA and will be evaluated through a site-specific NEPA analysis when an operator submits an APD or plan of development to the BLM.

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

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

Affected Environment

The Earth's climate system is very complex as there are many factors that can influence global atmospheric conditions. In general, cumulative GHG concentrations can influence the global climate by increasing the amount of solar energy retained by land, water bodies, and the atmosphere. GHGs can have long atmospheric lifetimes, which allows them to become well mixed and uniformly distributed over the entirety of the Earth's surface no matter their point of origin. A discussion of past, current, and projected future climate change impacts is described in Chapters 4, 8, and 9 of the Annual GHG Report. These chapters describe currently observed climate impacts globally, nationally, and in each State, and present a range of projected impact scenarios depending on future cumulative GHG emission levels.

The incremental contribution to cumulative global GHGs from a single proposed land management action cannot be accurately translated into its potential effect on global climate change or any localized effects in the area specific to the action. Currently, global climate models are unable to forecast local or regional effects on resources resulting from a specific subset of emissions. However, there are general projections regarding potential impacts on natural resources and plant and animal species that may be attributed to climate change resulting from the accumulation of GHG emissions over time. In this EA, the BLM uses GHG emissions as a proxy for impacts and provides context with other proxies such as GHG equivalents.

For the purposes of this EA, the projected emissions from the proposed leasing action can be compared to modeled emissions that have been shown to have definitive or quantifiable contribution to cumulative GHG levels. Table 29 shows the total estimated GHG emissions from fossil fuels at the global, national, and state scales over the last six years. Emissions are shown in megatonnes (Mt) per year of carbon dioxide equivalent (CO_2e). Chapter 3 of the Annual GHG Report contains additional information on GHGs and an explanation of CO_2e. State and national energy-related CO_2 emissions include emissions from fossil fuel use across all sectors (residential, commercial, industrial, transportation, and electricity generation) and are released at the location where the fossil fuels are consumed.

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

Table 37 Global and U.S. Fossil Fuel GHG Emissions 2018 - 2022 (Mt CO2/yr)

Scale	2018	2019	2020	2021	2022
Global	37,832	37,825	35,944	38,082	38,522
U.S.	4,989.8	4,855.9	4,344.9	4,639.1	4,699.4

Scale	2018	2019	2020	2021	2022
Utah	60.0432	60.4254	56.7208	61.2975	N/A

Source: Annual GHG Report, Chap. 5, Table 5-1 (U.S.), Table 5-2 (State), and Appendix Report Table 6 (Global).
Mt (megatonne) = 1 million metric tons
N/A = Not Available

Proposed Action

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

Emissions inventories at the leasing stage are imprecise due to uncertainties including the type of mineral development (oil, gas, or both), scale, and duration of potential development, types of equipment (drill rig engine tier rating, horsepower, fuel type), and the mitigation measures that a future operator may propose in their development plan. Due to these uncertainties, the BLM applies several assumptions to estimate emissions at the leasing stage. The number of estimated well numbers per parcel are based on State data for past lease development combined with per-well drilling, development, and operating emissions data from representative wells in the area. The amount of oil or gas that may be produced if the offered parcels are developed is unknown. For purposes of estimating production and end-use emissions, potential wells are assumed to produce oil and gas in similar amounts as existing nearby wells. While the BLM has no authority to direct or regulate the end-use of the products, for this analysis, the BLM assumes all produced oil or gas will be combusted (such as for domestic heating or energy production). The BLM acknowledges that there may be additional sources of GHG emissions along the distribution, storage, and processing chains (commonly referred to as midstream operations) associated with production from the lease parcels. These sources may include emissions of methane (a more potent GHG than CO_2 in the short term) from pipeline and equipment leaks, storage, and maintenance activities. These sources of emissions are highly speculative at the leasing stage, therefore, the BLM has chosen to assume that mid-stream emissions associated with lease parcels for this analysis would be similar to the national level emissions identified by the Department of Energy's National Energy Technology Laboratory (NETL, 2009) (NETL, 2019). Section 6.5 of the Annual GHG Report includes a more detailed discussion of the methodology for estimating midstream emissions.

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

- Well development emissions occur over a short period and may include emissions from heavy equipment and vehicle exhaust, drill rig engines, completion equipment, pipe venting, and well treatments such as hydraulic fracturing.

- Well production operations, mid-stream, and end-use emissions occur over the entire production life of a well, which is assumed to be 30 years for this analysis based on the productive life of a typical oil/gas field.

- Production operation emissions may result from storage tank breathing and flashing, truck loading, pump engines, heaters and dehydrators, pneumatic instruments or controls, flaring, fugitives, and vehicle exhaust.

- Mid-stream emissions occur from the transport, refining, processing, storage, transmission, and distribution of produced oil and gas. Mid-stream emissions are estimated by multiplying the estimated ultimate recovery (EUR) of produced oil and gas with emissions factors from NETL life cycle analysis of U.S. oil and natural gas. Additional information on emission factors can be found in the Annual GHG Report (Chapter 6, Table 6-8 and 6-10).

- For the purposes of this analysis, end-use emissions are calculated assuming all produced oil and gas is combusted for energy use. End-use emissions are estimated by multiplying the EUR of produced oil and gas with emissions factors for combustion established by the EPA (Tables C-1 and C-2 to Subpart C of 40 CFR § 98). Additional information on emission factors and EUR factors can be found in the Annual GHG Report (Chapter 6).

Table 30 shows the estimated maximum year and average year GHG emissions over the life of the lease for both 100-yr and 20-yr global warming potentials (GWP). Section 3.4 of the Annual GHG Report provides a detailed explanation of GWP.

Table 38 Estimated Direct and Indirect Emissions from Lease Parcels on an Annual and Life of Lease Basis (tonnes)

	CO_2	CH_4	N_2O	CO_2e (100-yr)	CO_2e (20-yr)
Max Year	4,476,690	8,655.50	20.910	4,740,332	5,196,477
Average Year	1,406,747	2,814.04	6.192	1,492,296	1,640,595
Life of Lease	54,863,133	109,747.40	241.476	58,199,528	63,983,216

Source: BLM Lease Sale Emissions Tool

Table 31 lists the estimated direct (well development and production operations) and indirect (mid-stream and end-use) GHG emissions in metric tonnes (t) for the subject leases over the average 30-year production life of the lease. In summary, potential GHG emissions from the Proposed Action could result in GHG emissions of 63,983,216 t CO_2e over the life of the lease. More emissions detail is provided in Appendix G.

Table 39 Estimated Life of Lease Emissions from Well Development, Well Production Operations, Mid-stream, and End-use (tonnes)

Activity	CO_2	CH_4	N_2O	CO_2e (100-yr)	CO_2e (20-yr)
Well Development	159,702	41.23	1.330	161,294	163,467
Production Operations	3,580,147	8,139.60	3.990	3,823,797	4,252,753
Mid-Stream	7,564,316	100,582.37	107.033	10,590,890	15,891,581
End-Use	43,558,968	984.20	129.123	43,623,548	43,675,415
Total (Life of Lease)	54,863,133	109,747.40	241.476	58,199,528	63,983,216

Source: BLM Lease Sale Emissions Tool

GHG emissions vary annually over the production life of a well due to declining production rates over time.

2 shows the estimated GHG emissions profile over the production life of a typical lease including the four phases of lease development processes: well development, well production operations, mid-stream, end-use, and gross (total of well development, well production, mid-stream, and end-use) emissions.

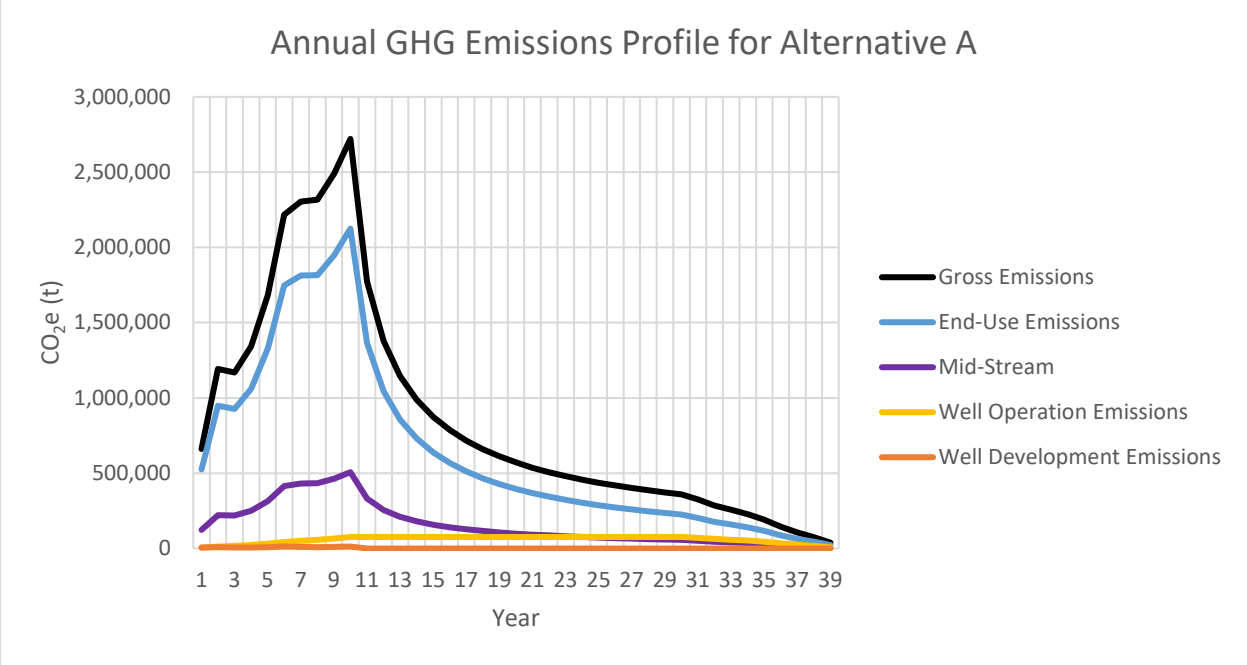

Figure 5 Estimated GHG Emissions Profile over the Duration of a Lease for Alternative A
Source: BLM Lease Sale Emissions Tool

To put the estimated GHG emissions for this Lease Sale in a relatable context, potential emissions that could result from development of the lease parcels for this sale can be compared to other common activities that generate GHG emissions. The EPA GHG equivalency calculator (EPA , 2022) can be used to express the potential average year GHG emissions on a scale relatable to everyday life (https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator). For instance, the projected average annual GHG emissions from potential development of the subject lease are equivalent to 321,615 gasoline-fueled passenger vehicles driven for one year, or the emissions from 1,776,542 homes' electricity use for one year or offset by the carbon sequestration of 406 acres of forest land.

32 compares the estimated annual Lease Sale emissions to existing Federal fossil fuel (oil, gas, and coal) emissions, State, and U.S. total GHG emissions.

Table 40 Comparison of Lease Sale Emissions to Other Sources (Megatonnes)

Reference	Mt CO_2e[1] (Per Year)
Lease Sale Emissions (Maximum Year)	4.740

UT Onshore Federal (Oil & Gas)[2]	12.93
UT Onshore Federal (Oil, Gas and Coal)[2]	28.95
U.S. Onshore Federal (Oil & Gas)[2]	611.55
U.S. Federal-All (Oil &Gas)[2]	1,462.29
U.S. Federal Onshore (Oil, Gas and Coal)[2]	1,046.33
UT Total (all sectors)[3]	76.906
U.S. Total	7,260.36

1 – Mt (megatonne) = 1 million metric tons. Estimates are based on 100-GWP values.
2 – Federal values come from the BLM Specialist Report on Annual Greenhouse Gas Emissions. Tables ES-1 and ES-2 and Figure ES-1. U.S Federal-All includes offshore and onshore oil and gas production.
3 - Total state emissions from all sectors is found in Table 5-2 of the BLM Specialist Report on Annual GHG Emissions

Greater Sage-Grouse Alternative

The BLM performed an identical analysis as Alternative A for the greater sage-grouse alternative. The BLM calculated CAP and HAP emissions for all parcels except those identified with greater sage-grouse habitat, namely 1514, 7667, 7668, and 7716. Emissions for every pollutant are less in Alternative B than Alternative A. The emission estimates calculated for this analysis were generated using the assumptions previously described above in the BLM Lease Sale Emissions Tool and lease development analysis. Emissions are presented for each of the four phases of post-lease development processes described above.

Table 41 shows the estimated maximum year and average year GHG emissions over the life of the lease for both 100-yr and 20-yr global warming potentials (GWP). Section 3.4 of the Annual GHG Report provides a detailed explanation of GWP.

Table 41 Estimated Direct and Indirect Emissions from Lease Parcels on an Annual and Life of Lease Basis (tonnes)

	CO_2	CH_4	N_2O	CO_2e (100-yr)	CO_2e (20-yr)
Max Year	2,570,019	4,944.12	12.055	2,720,644	2,981,199
Average Year	812,603	1,618.36	3.588	861,810	947,097
Life of Lease	31,691,536	63,115.94	139.921	33,610,589	36,936,799

Source: BLM Lease Sale Emissions Tool

Table 42 lists the estimated direct (well development and production operations) and indirect (mid-stream and end-use) GHG emissions in metric tonnes (t) for the subject leases over the average 30-year production life of the lease. In summary, potential GHG emissions from the Proposed Action could result

in GHG emissions of 36,936,799 t CO_2e over the life of the lease. More emissions detail is provided in Appendix G.

Table 42 Estimated Life of Lease Emissions from Well Development, Well Production Operations, Mid-stream, and End-use (tonnes)

Activity	CO_2	CH_4	N_2O	CO_2e (100-yr)	CO_2e (20-yr)
Well Development	96,064	24.80	0.800	97,021	98,328
Production Operations	2,153,472	4,896.00	2.400	2,300,028	2,588,047
Mid-Stream	4,350,372	57,625.66	61.608	6,084,435	9,121,307
End-Use	25,091,628	569.48	75.113	25,129,105	25,159,117
Total (Life of Lease)	31,691,536	63,115.94	139.921	33,610,589	36,936,799

Source: BLM Lease Sale Emissions Tool

GHG emissions vary annually over the production life of a well due to declining production rates over time. Figure 4 shows the estimated GHG emissions profile over the production life of a typical lease including the four phases of lease development processes: well development, well production operations, mid-stream, end-use, and gross (total of well development, well production, mid-stream, and end-use) emissions.

To put the estimated GHG emissions for this Lease Sale in a relatable context, potential emissions that could result from development of the lease parcels for this sale can be compared to other common activities that generate GHG emissions. The EPA GHG equivalency calculator (EPA , 2022) can be used to express the potential average year GHG emissions on a scale relatable to everyday life (https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator). For instance, the projected average annual GHG emissions from potential development of the subject lease are equivalent to 185,735 gasoline-fueled passenger vehicles driven for one year, or the emissions from 1,025,964 homes' electricity use for one year or offset by the carbon sequestration of 234 acres of forest land.

35 compares the estimated annual Lease Sale emissions to existing Federal fossil fuel (oil, gas, and coal) emissions, State, and U.S. total GHG emissions.

Table 43 Comparison of Lease Sale Emissions to Other Sources (Megatonnes)

Reference	Mt CO_2e[1] (Per Year)
Lease Sale Emissions (Maximum Year)	2.721
UT Onshore Federal (Oil & Gas)[2]	12.93
UT Onshore Federal (Oil, Gas and Coal)[2]	28.95

Reference	Mt CO_2e[1] (Per Year)
U.S. Onshore Federal (Oil & Gas)[2]	611.55
U.S. Federal-All (Oil &Gas)[2]	1,462.29
U.S. Federal Onshore (Oil, Gas and Coal)[2]	1,046.33
UT Total (all sectors)[3]	76.906
U.S. Total	7,260.36

1 – Mt (megatonne) = 1 million metric tons. Estimates are based on 100-GWP values.
2 – Federal values come from the BLM Specialist Report on Annual Greenhouse Gas Emissions. Tables ES-1 and ES-2 and Figure ES-1. U.S Federal-All includes offshore and onshore oil and gas production.
3 - Total state emissions from all sectors is found in Table 5-2 of the BLM Specialist Report on Annual GHG Emissions

1.2.3 No Action Alternative

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

The BLM does not have a model to estimate energy market substitutions at a spatial resolution needed for this onshore production scenario. Reductions in oil and natural gas produced from Federal leases may be partially offset by non-Federal production (state and private) in the United States (in which case the indirect GHG emissions would be similar), or overseas, in which case the GHG emissions would likely be higher, to the extent environmental protection requirements for production are less vigorous, and the produced energy would need to be physically transported into the United States. There may also be substitution of other energy resources to meet energy demand. These substitution patterns will be different for oil and gas because oil is primarily used for transportation, while natural gas is primarily used for electricity production and manufacturing, and to a lesser degree by residential and commercial users (AEO, 2023). Coal and renewable energy sources are stronger substitutes for natural gas in electricity generation. The effect of substitution between different fuel sources on indirect GHG emissions depends on the replacement energy source. For example, coal is a relatively more carbon intense fuel than natural gas, and hydroelectricity is the least carbon intense energy source (see Table 10-3 of the Annual GHG Report (BLM, 2024). In the transportation sector, alternatives to oil are likely to be less carbon intensive.

Finally, substitution across energy sources or oil and gas production from other locations may not fully meet the energy needs that would otherwise have been realized through production from these leases. Price effects may lower the market equilibrium quantity demanded for some fuel sources. This would lead to a reduction in indirect GHG emissions. These three effects are likely to occur in some

combination under the No Action Alternative, but the relative contribution of each is unknown. Regardless, GHG emissions under the No Action Alternative are not expected to be zero.

1.2.4 General Setting

The analysis of GHGs contained in this EA includes estimated emissions from the lease as described above. An assessment of GHG emissions from other BLM fossil fuel authorizations, including coal leasing and oil and gas leasing and development, is included in the Annual GHG Report in Chapter 7. The Annual GHG Report includes estimates of reasonably foreseeable GHG emissions related to BLM lease sales anticipated during the fiscal year, as well as the best estimate of emissions from ongoing production, and development of parcels sold in previous lease sales. It is, therefore, an estimate of cumulative GHG emissions from the BLM fossil fuel leasing program based on actual production and statistical trends as they are presently known.

The methodologies used in the Annual GHG Report provide estimates of foreseeable short-term and projected long-term GHG emissions from activities across the BLM's oil and gas program. The foreseeable short-term methodology includes a trends analysis of (1) leased federal lands that are held-by-production[4], (2) approved applications for permit to drill (APDs), and (3) leased lands from competitive lease sales projected to occur over the next annual reporting cycle (12 months). The data is used to provide a 30-year life of lease projection of potential emissions from all Federal oil and gas activities and potential lease actions over the next 12 months. The projected long-term methodology uses oil and gas production forecasts from the Energy Information Administration (EIA) to estimate GHG emissions out to 2050 that could occur from past, present, and future development of Federal fluid minerals. For both methodologies, the emissions are calculated using life-cycle-assessment data and emission factors. These analyses are the basis for projecting GHG emissions from lease parcels that are likely to go into production during the analysis period of the Annual GHG Report and represent both a hard look at GHG emissions from oil and gas leasing and the best available estimate of reasonably foreseeable cumulative emissions related to any one lease sale or set of quarterly lease sales that could occur annually across the entire federal onshore mineral estate.

Table 36 presents the summation of the 30-year life-of-project emissions estimates for both the short and long-term as previously described for each state where federal mineral actions have been authorized. The differences between the short- and long-term emissions estimates can be thought of as an approximation of additional leasing that could occur on federal lands and does not take into consideration additional policies, technological advancements in production or end-use efficiency standards, or an accelerated economy-wide transition away from fossil fuel derived energy production.

A detailed explanation of the short-term and long-term emissions estimate methodologies are provided in sections 6.6 and 6.7 of the Annual GHG Report.

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

Table 44 GHG Emissions from Past, Present, and Reasonably Foreseeable Federal Onshore Lease Development (Megatonnes CO2e)

State	Existing Wells (Report Year)	Existing Wells (Projected)	Approved APDs	New Leasing	Short-Term Foreseeable Totals	Long-Term Projected Totals
AL	0.57	8.52	0.00	0.18	8.70	16.62
AK	1.27	18.90	20.82	43.96	83.67	36.10
AZ	0.00	0.00	0.00	0.00	0.00	0.00
AR	0.60	9.52	0.24	0.24	9.99	17.56
CA	5.10	70.48	4.75	2.17	77.41	140.49
CO	44.72	387.63	16.46	16.29	420.39	1,293.28
ID	0.00	0.00	0.00	0.29	0.30	0.00
IL	0.01	0.10	0.00	0.02	0.12	0.21
IN	0.00	0.00	0.00	0.02	0.02	0.00
KS	0.23	3.43	0.00	0.22	3.65	6.70
KY	0.01	0.07	0.00	0.03	0.10	0.22
LA	5.20	64.56	31.84	14.98	111.38	151.44
MD	0.00	0.00	0.00	0.00	0.00	0.00
MI	0.06	1.17	0.00	0.29	1.46	1.74
MS	0.11	1.50	0.38	0.38	2.25	3.06
MT	2.02	20.63	1.53	5.41	27.57	56.36
NE	0.01	0.21	0.00	0.03	0.24	0.39
NV	0.13	0.99	0.03	0.10	1.12	3.53
NM	399.96	2,844.84	729.98	113.24	3,688.06	11,218.30
NY	0.00	0.01	0.00	0.00	0.01	0.01
ND	33.50	280.74	29.58	6.63	316.95	933.79
OH	0.24	2.29	0.00	2.65	4.94	7.04
OK	1.34	13.21	1.42	1.18	15.81	38.41
OR	0.00	0.00	0.00	0.12	0.12	0.00
PA	0.00	0.05	0.00	0.67	0.72	0.11
SD	0.10	1.61	0.11	0.11	1.82	2.70
TN	0.00	0.00	0.00	0.00	0.00	0.00
TX	3.20	35.25	15.07	1.31	51.62	93.23
UT	12.93	161.65	14.42	29.97	206.04	369.79
VA	0.01	0.13	0.00	0.03	0.16	0.25
WV	0.00	0.06	0.00	0.59	0.64	0.12
WY	100.22	892.55	100.35	253.66	1,246.56	2,872.25

State	Existing Wells (Report Year)	Existing Wells (Projected)	Approved APDs	New Leasing	Short-Term Foreseeable Totals	Long-Term Projected Totals
Total Onshore Federal	612	4,820	967	495	6,282	17,264

Source: BLM Annual GHG Report, Appendix Report Tables Temp Table 5

As detailed in the 2023 Annual GHG Report, which the BLM has incorporated by reference, the BLM also looked at other tools to inform its analysis, including the Model for the Assessment of Greenhouse Gas Induced Climate Change (MAGICC) (see Section 9.0 of the Annual GHG Report). BLM conducted MAGICC runs evaluating potential contributions to global climate and related values for two cumulative GHG projection scenarios. These two scenarios were chosen because they reflect the lower total global projected GHG emissions and will therefore reflect the greatest emissions contribution by the BLM relative to global emissions levels resulting in a conservative contribution analysis. Of the two Intergovernmental Panel on Climate Change (IPCC) scenarios chosen, the most optimistic evaluates global CO_2 emissions cut to net zero around 2050. This scenario keeps global warming to around 1.5 degrees Celsius above pre-industrial temperatures. The second "middle of the road" scenario leaves global CO_2 emissions around current levels before starting to fall by 2050 but does not reach net-zero by 2100. In this scenario, temperatures rise 2.7 degrees C by the end of the century. The MAGICC model results show that regardless of the global climate projection scenario and the pathway that federal fossil fuels emissions follow, federal BLM minerals emissions are predicted to have minimal impacts to future global climate through the end of the century. Because the projected federal mineral CO_2 emissions constitute a larger portion of the global levels in the most optimistic scenario, the modeled impacts are generally higher than those of the "middle of the road" scenario.

The maximum BLM fossil fuel (oil, gas and coal) contribution to global temperature increases under these two scenarios is 0.015 °C and 0.013 °C, respectively.

Recent short-term energy outlook reports (STEO) published by the EIA (https://www.eia.gov/outlooks/steo/data) (BLM, USFS, 2015) predict that the world's oil and gas supply and consumption will increase over the next 18-24 months. The STEO projections are useful for providing context for the cumulative discussion as the global forecast models used for the STEO are not dependent on whether the BLM issues onshore leases but are based on foreseeable short-term global supply and demand and include oil and gas development /operations on existing U.S. onshore leases. Recent STEOs includes the following projections for the next two years:

- U.S. liquid fuels consumption is projected to increase to 20.55 million barrels per day (b/d) in 2025 up from 20.30 million b/d in 2024.
- U.S. crude oil production is expected to average 13.59 million b/d in 2025 and rise to 13.73 million b/d in 2026.
- U.S natural gas consumption is expected to average 90.74 Bcf/d in 2025, decreasing slightly to 90.24 Bcf/d in 2026.
- U.S. LNG exports are expected to increase from 12 billion cubic feet/day (Bcf/d) in 2024 to 14Bcf/d in 2025.

- U.S. Coal production is expected to total 478 million short tons (MMst) in 2025 and 476 MMst in 2026.

- Generation from renewable sources is forecast to increase from 1,057.25 billion kW/h in 2025 to 1,142.70 billion kW/h in 2025.

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

The EIA 2023 Annual Energy Outlook (https://www.eia.gov/outlooks/aeo/) projects energy consumption increases through 2050 as population and economic growth outweighs efficiency gains. As a result, U.S. production of natural gas and petroleum and liquids will rise amid growing demand for exports and industrial uses. U.S. natural gas production increases by 15% from 2022 to 2050. However, renewable energy will be the fastest-growing U.S. energy source through 2050. As electricity generation shifts to using more renewable sources, domestic natural gas consumption for electricity generation is expected to decrease by 2050 relative to 2022. As a result, energy-related CO_2 emissions are expected to fall 25% to 38% below 2005 level, depending on economic growth factors. Further discussion of past, present and projected global and state GHG emissions can be found in Chapter 5 of the Annual GHG Report.

Carbon budgets are an estimate of the amount of additional GHGs that could be emitted into the atmosphere over time to reach carbon neutrality while still limiting global temperatures to no more than 1.5 °C or 2.0 °C above preindustrial levels (see Section 9.1 of the Annual GHG Report

(BLM, 2024). At present, no national or Federal agency carbon budgets have been established, primarily due to the lack of consensus on how to allocate the global budget to each nation, and as such the global budgets that limit warming to 1.5 ºC or 2.0 ºC are not useful for BLM decision making, particularly at the leasing stage, as it is unclear what portion of the budget applies to emissions occurring in the United States.

Stakeholders and members of the public have requested that the BLM consider comparing the estimated Federal oil and gas emissions in the context of global carbon budgets. In the interest of public disclosure, Table 9-1 in the Annual GHG Report provides an estimate of the potential emissions associated with Federal fossil fuel authorizations in relation to IPCC carbon budgets. Total Federal fossil fuel authorizations including coal, natural gas and oil represents approximately 1.95% of the remaining global carbon budget of 275 $GtCO_2$ needed to limit global warming to 1.5 °C.

1.3 Emission Control Measures Considered in the Analysis

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

The EPA is the Federal agency charged with regulation of air pollutants and establishing standards for protection of human health and the environment. The EPA has issued regulations that will reduce GHG emissions from any development related to the proposed leasing action. These regulations include the New Source Performance Standard for Crude Oil and Natural Gas Facilities (40 CFR 60, OOOOa), Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After December 6, 2022 (40 CFR 60, OOOOb) and Waste Emissions Charge for Petroleum and Natural Gas Systems (40 CFR 99). These regulations impose emission limits, equipment design standards, and monitoring requirements on oil and gas facilities and a waste emissions charge on methane emissions that exceed 25,000 metric tonnes of CO_2e for applicable petroleum and natural gas facilities currently required to report under the Greenhouse Gas Reporting Rule. In December of 2023, the EPA released a separate rule under the Clean Air Act (CAA) to reduce methane and other harmful air pollutants from new and existing oil and gas operations nationwide, which includes the Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced after December 6, 2022, 40 C.F.R. § 60, Subpart OOOOb; and Emissions Guidelines for Greenhouse Gas Emissions from Existing Crude Oil and Natural Gas Facilities, Subpart OOOOc. These regulations impose emission limits, equipment design standards, and monitoring requirements on oil and gas facilities and a waste emissions charge on CH_4 emissions that exceed 25,000 metric tonnes of CO_2e for applicable petroleum and natural gas facilities currently required to report under the GHG Reporting Rule. A detailed discussion of existing regulations and Executive Orders that apply to BLM management of federal lands as well as current Federal and state regulations that apply to oil and gas development and production can be found in Chapter 2 of the Annual GHG Report. Section 2.5 of the Annual GHG Report, Executive Orders (EOs), has not been incorporated by reference as the EOs discussed therein have been rescinded as of January 20, 2025.

The EPA recently finalized a FIP that covers existing, new, and modified oil and gas emissions sources for the Uintah and Ouray Reservation and surrounding Indian Country. The purpose of the FIP is threefold: (1) improve air quality in the Uinta Basin by controlling sources that contribute to O_3 formation, (2) make Indian Country air permitting regulations consistent with State of Utah regulations in other parts of the Uinta Basin, and (3) provide streamlined O&G (oil and gas) authorizations while ensuring emissions reductions. Details concerning the FIP are incorporated by reference in the AMR (BLM, 2024) and include emissions control devices (e.g., combustors, closed loop systems), leak detection and repair, and equipment maintenance.

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

3.6.3. Issue 3: Greater Sage-grouse

How would future potential development of the nominated lease parcels affect greater sage-grouse and its habitat in the Deadman's Bench/Book Cliffs portion of the Uintah population area?

Greater sage-grouse (GRSG) is a BLM-UT sensitive species (managed under BLM Manual 6840). The BLM must ensure that actions authorized, funded, or carried out do not contribute to the need to list any of these species under the Endangered Species Act (ESA). Four of the parcels nominated for leasing (1514, 7667, 7668, 7716) are within the GRSG General Habitat Management Area (GHMA) in the Deadman Bench and Book Cliffs portion of the Uintah Population Area. The larger Uintah Population Area comprises approximately 1,558,300 total surface acres (557,400 total BLM surface acres). The scope for the analysis area for GRSG is contained within the Deadman Bench and Bookcliffs GHMA, that is intersected by the four lease parcels, which is a subset of the GHMA and the Priority Habitat Management Area (PHMA) in the larger Uintah Population Area and totals approximately 133,987 total surface acres of GHMA. The scope for analysis was chosen based on the GHMA and PHMA areas identified in the 2015 GRSG ARMPA (BLM 2015), which states, *within the Uintah Population Area, there are seven areas with separate habitat and distinct populations*. The analysis area for GRSG is contained within the Deadman Bench/Book Cliffs portion of the Uintah Biologically Significant Unit (BSU).

1. Affected Environment

GRSG and their habitat have been an important issue for the BLM and partner agencies across the west. GRSG currently occupy about one-half of their historic range (Schroeder, 2004). On October 2, 2015, the U.S. Fish and Wildlife Service (USFWS) published its finding that listing of the GRSG under the Endangered Species Act of 1973 was not warranted. The finding was based in part on the conservation strategies through range-wide planning efforts which led the USFWS to conclude that "the primary threats to greater sage-grouse have been ameliorated by conservation efforts implemented by Federal, State, and private landowners." 80 FR 59858 (proposed October 10, 2015)

The parcels located within GHMA occupy low elevation Wyoming big sagebrush with pinyon-juniper habitat at 5,200-7,800 feet in elevation. Wyoming big sagebrush is more dominant in Deadman's Bench (parcels 1514, 7667, and 7668). The nearest occupied lek is more than 15 miles north of the nearest parcel (parcel 7668). This area is dry, low elevation Wyoming big sagebrush with a degraded understory. The area has extensive oil development and associated infrastructure.

The Book Cliffs portion overlapping parcel 7716 is characterized by predominantly pinyon-juniper habitat with Wyoming big sagebrush in the interspaces. The nearest known occupied lek to parcel 7716 is more than 22 miles away in West Tavaputs. The status of other leks are unknown on tribal lands within the area. There is substantial oil and gas development to the southwest of parcel 7716.

Three parcels (1514, 7667, and 7668) are wholly contained within GHMA while the remaining parcel (7716) is only partially contained within GHMA for a total of 3,978.52 acres. The primary habitat values based on modeled seasonal habitats includes some nesting but mostly winter and summer habitat. Refer to Table 37 for acres of GHMA, seasonal habitat values, and proximity of parcels to leks.

Table 45 Acres of GHMA, Seasonal Habitat Values and Leks associated with the Lease Parcels

Parcel #	Pop. Area	Parcel Size (Acres)	Amount of Parcel in GHMA % (Acres)	Distance to Nearest Occupied Lek (Miles)	Nesting Habitat (Acres)	Winter H abitat (Acres)	Summer Habitat (Acres)
1514	Uintah	960	100% (960)	20.34	0	0	0
7667	Uintah	1,773.47	100% (1,773.47)	17.38	0	1,670.81	1,091.32
7668	Uintah	1,040.14	100% (1,040.14)	16.05	0	370.26	0
7716	Uintah	2,249.33	9.11% (204.91)	22.59	0	202.16	120.29

Anthropogenic disturbances in the area both within and within proximity to parcels 1514, 7668, and 7716 are moderate to high due to existing infrastructure for oil and gas. Parcel 7667 is relatively intact with low existing infrastructure for oil and gas. Other land uses include grazing, agriculture, dispersed recreation, and hunting. Disturbances associated with two-lane highways, distribution power lines, oil and gas pipelines, and a transmission line exist within the analysis area.

Prioritization Review

In accordance with the 2015 GRSG ARMPA and BLM policy, the BLM reviewed the priority of leasing parcels within GRSG habitat and prior oil and gas leasing and development. The BLM completed an in-depth review of all parcels within GHMA (Refer to Appendix H).

For GRSG prioritization considerations, the BLM determined that the four parcels (1514, 7667, 7668, and 7716) were determined to have a higher priority for leasing because they were presently associated with fewer biological component(s), and more than one fluid mineral component. All proposed parcels within this Lease Sale are eligible for leasing with the applicable Management Actions, stipulations, and notices in conformance with the ARMPA. Application of stipulations have been confirmed by the Utah State Office Leasing Team.

This prioritization process helped to inform which proposed parcels should be carried forward for analysis in the NEPA document and was prepared in connection with the leasing decision for the Lease Sale. In the Decision Record, the Authorized Officer will determine whether all, some, or none of the proposed parcels, will be offered during the Lease Sale based on this prioritization analysis and any other appropriate factors.

Please see a complete discussion of the recommended parcel prioritization documentation in Appendix H of this document and refer to maps in Appendix A. No parcels were identified for deferral.

2. Environmental Effects

IMPACTS OF THE PROPOSED ACTION

Under the Proposed Action, the potential parcels were reviewed, and the appropriate leasing stipulations were identified based on the RMP decisions. The management for fluid mineral leasing within the 2015 GRSG ARMPA identifies all, or parts of the parcels as follows:

Parcels 1514, 7667, 7668, and 7716 Lease Notices:

- UT-LN-131: Greater Sage-Grouse – Net Conservation Gain
- UT-LN-132: Greater Sage-Grouse – Required Design Features
- UT-LN-133: Greater Sage-Grouse - Buffer

Parcels 7668 Lease Stipulations:

- UT-S-195 No Surface Occupancy – Greater Sage-grouse Leks
- UT-S-205 Timing Limitation – Greater Sage-grouse Brood Rearing and Nesting
- UT-S-206 Controlled Surface Use – Greater Sage-Grouse (Noise Reduction)
- UT-S-207 Controlled Surface Use – Greater Sage-grouse (Structures)

Issuing leases would not produce any effect on GRSG; however, future ground disturbing activities associated with development could have effects. Under the Proposed Action, fourteen parcels would be offered for sale of which four are within GHMA which is approximately 20.1% (3,978.52 acres) of the total available lease parcel acreage. Any potential effects to GRSG from the sale of lease parcels would occur at such time that any issued leases are developed and not at the leasing stage itself. If leased, drilling of wells on a lease would not be permitted until the BLM approves an APD. Any APD received would be subject to site-specific NEPA review. Refer to maps in Appendix H (Prioritization) for further detail. The Proposed Action would offer 3,978.52 acres of GHMA for oil and gas leasing. It is reasonably foreseeable that the leased minerals would be developed.

The ROD prepared for the 2015 ARMPA (DOI-BLM-UT-9100-2013-EIS) implemented greater sage-grouse management goals and objectives, including amending leasing categories for managing the mineral estate. The Proposed Action is in conformance with the mineral decisions of the Utah Greater Sage Grouse ROD/ARMPA (BLM, 2015). Leasing actions are specifically provided for in those planning decisions (Management Actions for Minerals Resources). Because the lease parcels are within GHMA, the parcels would be offered with lease notices.

Based on the RFDs described in Section 3.2, it is expected that well pad, road construction, and associated production and maintenance operations could occur on lease parcels, which could lead to direct and indirect impacts to greater sage-grouse and their habitat within GHMA. Refer to Table 5 in Section 3.2, which identifies assumptions by parcel based on the RMP RFDs. Within GHMA, based on the RMP RFDs, a total of 53 well bores and 121.5 acres of disturbance (roughly 3% of the total GHMA within the parcels) are anticipated. The effects of oil and gas development and its related infrastructure on GRSG have been thoroughly addressed in land use plan amendments. Impacts from oil and gas development based on the RFDs would increase the number of pads or wells developed and would be most pronounced in winter and summer habitat within the GHMA. Influences of oil and gas development on GRSG can include direct mortality from impact with infrastructure or vehicles, short term impacts associated with direct habitat loss and behavioral avoidance, and long-term impacts on grouse behavior and demographics. Oil and gas development can contribute to declines in lek persistence and male attendance, yearling and adult hen survival, and nest initiation rates miles from the source of disturbance. Oil and gas wells elicit strong avoidance response in yearling age classes, nesting/brooding hens, and wintering birds (GRSG FEIS, 2015).

The BLM has the authority under standard terms and conditions to attach COAs at the site-specific level to minimize adverse effects on resource values at the time operations are proposed. Examples of potential mitigation measures include design modifications to avoid or minimize effects to sensitive habitats; limiting the number of well pads under simultaneous construction; seasonal restrictions; limiting the number of proposed roads; reclaiming old and/or unnecessary roads; minimizing truck traffic; noise-buffering measures; pre-development surveys; or use of special construction techniques to minimize surface disturbance to sensitive areas within GHMA.

Alternative B IMPACTS OF THE GREATER SAGE-GROUSE HABITAT AVOIDANCE ALTERNATIVE

For GRSG, Alternative B would be essentially the same as the No Action Alternative with respect to impacts to GRSG and its habitat. The BLM would not offer the entirety of the four parcels (1514, 7667, 7668, and 7716) that overlap GHMA (6,022.94 acres); therefore, no new foreseeable oil and gas development would occur on the subject leases or off-parcel on adjacent BLM lands within GHMA. As discussed under the Proposed Action, impacts from development of nearby leases could still occur as permitted on surrounding federal, state, and private lands, resulting in impacts to GRSG in GHMA. Those impacts would just not be increased by BLM action under this Lease Sale. Eight non-sage-grouse parcels (parcel 1511, 1520, 1542, 1597, 1605, 7673, 7674, and 7719) totaling approximately 13,800.78 acres would be offered which would not result in direct or indirect effects to GRSG habitat.

Alternative C- No Action Alternative

Under the No Action Alternative, the BLM would not offer any of the nominated parcels (14 parcels) in this Lease Sale. However, in the absence of a Land Use Plan Amendment closing lands to leasing, they could be considered for inclusion in future lease sales. No new impacts to GHMA associated with new Federal oil and gas development for the subject leases would occur under the No Action Alternative in the foreseeable future.

3. Mitigation Measures and Residual Effects

There are no mitigation measures for GRSG in addition to the stipulations and notices already applied to the lease parcels.

4. General Setting

The Proposed Action would incrementally add to the overall leased acres in the Uintah populations in GHMA.. Future development of one or more of these parcels would contribute to the overall impact of habitat fragmentation and disturbance to vegetative communities within GRSG GHMA. In the GHMA that overlaps with the parcels in Deadman Bench and Book Cliffs, there are approximately 133,987 acres of GHMA. Of this, approximately 111,421 acres (83%) is currently under Federal lease. The addition of the proposed leases and associated acreages would create additional rights, if sold and issued. Impacts beyond those analyzed in the GRSG ARMPA FEIS (BLM 2015) are not expected. The RFDs described potential for multiple wells and acreages of disturbance for each parcel as described in Section 3.2.1. Due to the uncertainties from a lease development standpoint, it is difficult to predict exactly what impacts may occur. However, impacts from development, such as the anticipated noise, permanent and temporary facilities, and traffic, would be similar to those discussed in the Vernal Field Office RMP (BLM, 2008) and the 2015 ARPMA (BLM, 2015). Overall impacts would further be examined at the APD level with consideration of site-specific location information and along with development of COAs to reduce the impacts to greater sage-grouse GHMA as needed.

The No Action Alternative would not result in overall impacts associated with this Lease Sale. Past and present actions that have affected and would likely continue to affect GRSG and GHMA in the analysis area include surface disturbance resulting from ongoing oil and gas development and associated infrastructure, geophysical exploration, ranching and livestock grazing, range improvements, recreation (including OHV use), authorization of ROWs for utilities and other uses, and road development. Overall impacts associated with Alternative B would be similar to the No Action Alternative.

CHAPTER 4. CONSULTATION AND COORDINATION

4.1. ENDANGERED SPECIES ACT CONSULTATION

The effects of oil and gas leasing development on T&E species were analyzed through Section 7 consultation as follows:

- Vernal RMP: 2008 (including the 2018 re-initiation to add the geographic area for yellow-billed cuckoo in the Vernal Field Office).

- Richfield RMP: 2008 (including the 2018 re-initiation to add the geographic area for the Colorado River Fish Species, 2020 re-initiation to add the geographic area for yellow-billed cuckoo and Jone's cycladenia, and the 2023 re-initation to add the geographic area for Ute ladies'-tresses).

During the consultations, Lease Notices to inform the potential lessees of the potential that T&E species may be affected by oil and gas activities were developed and have been attached to parcels as appropriate. The lease action is in compliance with T&E species management outlined in accordance with the requirements under the FLPMA and the NEPA.

While Federal regulations and policies require the BLM to make its public land and resources available on the basis of multiple use principles, it is BLM policy to conserve special status species and their habitats, and to ensure that actions authorized by the BLM do not contribute to the need for the species to become listed as T&E by the USFWS.

For lease sales conducted within the range of listed species covered by the referenced consultation actions, the BLM regularly coordinates with the USFWS to assure agreement that the Proposed Action does not exceed the impacts analyzed in the existing consultations.

- April 7, 2025 – The BLM provided the USFWS with the list of nominated parcels, geospatial data, and list of species potentially impacted by the Lease Sale nominated parcels.

- April 29, 2025 – The USFWS agreed with the BLM's identification of species potentially found within each nominated parcel and confirmed that with the application of the appropriate stipulations and notices the Proposed Action would not exceed the impacts analyzed for any listed species.

When or if APDs are submitted to develop these parcels, further evaluation and Section 7 consultation with the USFWS will occur as necessary.

4.2. TRIBAL CONSULTATION

Tribal consultation for leasing actions is done on a government-to-government basis. On February 24, 2025, the BLM provided project information and an invitation to consult on resources of concern to

potentially affected Tribes for the Lease Sale as provided for by the NEPA, the NHPA, the American Indian Religious Freedom Act (AIRFA), and Executive Order 13007. The BLM contacted the Confederated Tribes of the Goshute Reservation; Eastern Shoshone Tribe of the Wind River Reservation; Hopi Tribe of Arizona; Moapa Band of Paiute Indians of the Moapa River Indian Reservation, Nevada; Navajo Nation; Northwestern Band of the Shoshone Nation; Paiute Indian Tribe of Utah and the five constituent Bands (Cedar, Indian Peaks, Kanosh, Koosharem, and Shivwits Bands); Pueblo of Jemez, New Mexico; Pueblo of Laguna, New Mexico; Pueblo of Santa Clara, New Mexico; Pueblo of Zia, New Mexico; Santo Domingo Pueblo; Southern Ute Indian Tribe of the Southern Ute Reservation; Ute Indian Tribe of the Uintah and Ouray Reservation; Ute Mountain Ute Tribe including the White Mesa Ute Community; and the Zuni Tribe of the Zuni Reservation, New Mexico.

On February 26, 2025, the Pueblo of Laguna, New Mexico, responded to the BLM's February 24, 2025, letter. The Tribe thanked the BLM for the notice and shared that they will review and reply to the invitation to consult. To date, the BLM has not received additional correspondence from the Pueblo of Laguna.

On March 7, 2025, the Southern Ute Indian Tribe of the Southern Ute Reservation responded to the BLM's February 24, 2025, letter. In their response, the Tribe deferred NHPA consultation to the Ute Indian Tribe, Tribal Historic Preservation Office.

As of April 9, 2025, the BLM has not received any other correspondence from Tribes regarding the Lease Sale. The BLM will remain available to engage with Tribes and respond to any consultation requests until the Lease Sale date. If the nominated parcels are leased, future potential development would be subject to additional Tribal consultation NEPA, NHPA, AIRFA, and Executive Order 13007 as directed by regulation and current policy.

4.3. NATIONAL HISTORIC PRESERVATION ACT CONSULTATION

The BLM prepared a literature review and analysis of cultural resources for the parcels nominated for the Lease Sale as part of its reasonable and good faith effort to identify historic properties and any potential adverse effects this undertaking may have on historic properties, as required by the National Historic Preservation Act of 1966, 54 U.S.C 306108 (commonly referred to as Section 106).

The Advisory Council for Historic Preservation's (ACHP) document titled Meeting the "Reasonable and Good Faith" Identification Standards in Section 106 Review, from https://www.achp.gov/sites/default/files/guidance/2018-05/reasonable_good_faith_identification.pdf outlines the steps to determine when a reasonable and good faith identification effort has been met. The ACHP states:

- Prior to beginning the identification stage in the Section 106 process, the regulations (at 36 CFR 800.4) require the federal agency to do the following:

- Determine and document the APE [Area of Potential Effect] in order to define where the agency will look for historic properties that may be directly or indirectly affected by the undertaking;

- Review existing information on known and potential historic properties within the APE, so the agency will have current data on what can be expected, or may be encountered, within the APE;

- Seek information from others who may have knowledge of historic properties in the area. This includes the State Historic Preservation Officer/Tribal Historic Preservation Officer and as

appropriate, Indian tribes or Native Hawaiian organizations who may have concerns about historic properties of religious and cultural significance to them within the APE.

Following these initial steps, the regulations (36 CFR 800.4(b)(1)) set out several factors the agency must consider in determining what is a "reasonable and good faith effort" to identify historic properties:

Take into account past planning, research, and studies; the magnitude and nature of the undertaking and the degree of federal involvement; the nature and extent of potential effects on historic properties; and the likely nature and location of historic properties within the APE. The Secretary of the Interior's standards and guidelines for identification provide guidance on this subject. The agency official should also consider other applicable professional, state, tribal, and local laws, standards, and guidelines. The regulations note that a reasonable and good faith effort may consist of or include 'background research, consultation, oral history interviews, sample field investigation, and field survey.'

For lease sales, BLM's identification efforts include: (1) completing a comprehensive "literature review," which is a review and analysis of available pertinent cultural resource records and information for each parcel and the surrounding areas that are included in the undertaking APE; and (2) proactively seeking information from others who may have knowledge of historic properties in the area.

As part of the Section 106 process, the BLM provided project information and an invitation to consult on resources of concern to potentially affected Tribes via certified letter sent February 24, 2025:

Confederated Tribes of the Goshute Reservation; Eastern Shoshone Tribe of the Wind River Reservation; Hopi Tribe of Arizona; Moapa Band of Paiute Indians of the Moapa River Indian Reservation, Nevada; Navajo Nation; Northwestern Band of the Shoshone Nation; Paiute Indian Tribe of Utah and the five constituent Bands (Cedar, Indian Peaks, Kanosh, Koosharem, and Shivwits Bands); Pueblo of Jemez, New Mexico; Pueblo of Laguna, New Mexico; Pueblo of Santa Clara, New Mexico; Pueblo of Zia, New Mexico; Santo Domingo Pueblo; Southern Ute Indian Tribe of the Southern Ute Reservation; Ute Indian Tribe of the Uintah and Ouray Reservation; Ute Mountain Ute Tribe including the White Mesa Ute Community; and the Zuni Tribe of the Zuni Reservation, New Mexico.

The BLM Utah State Office also sent invitations to potential Section 106 consulting parties on February 24, 2025. Invitations were sent to Utah Rock Art Research Association (URARA), Utah Trust Lands Administration (UTLA), Utah Public Lands Policy Coordination Office (PLPCO), Utah Professional Archaeological Council (UPAC), The Church of Jesus Christ of Latter-day Saints Church History (LDS Church History), Sanpete County, and Uintah County.

In March 2025, URARA and PLPCO both requested and were granted consulting party status. To date, the BLM has not received any other requests for consulting party status.

On April 21, 2025, the BLM provided URARA and PLPCO the draft Section 106 literature review report for their review and comment.

Per regulations 36 CFR 800.2(c)(1) and 36 CFR 800.2(c)(2)(i)(A), the BLM consulted with both the Utah SHPO and Ute Indian Tribe of the Uintah & Ouray Reservation (Ute Indian Tribe) Tribal Historic Preservation Office (THPO) to fulfill its responsibilities for the Section 106 process. The location of the parcels determined whether the BLM consulted with Utah SHPO or the Ute Indian Tribe THPO. For the three parcels within the RFO, the BLM consulted with the Utah SHPO, per 36 CFR 800.2(c)(1). On [ongoing], the BLM sought concurrence regarding the finding of effect to historic properties for the three parcels within RFO for the Lease Sale. On [ongoing], BLM received [ongoing] from SHPO.

The 11 nominated lease parcels for the Lease Sale located within the VFO lie within the exterior boundary of the Ute Indian Tribe of the Uintah & Ouray Reservation. The Ute Indian Tribe entered into an agreement with the National Park Service and the U.S. Department of the Interior to establish a THPO on September 22, 2021, and thereby assumed the functions of a SHPO overseeing Section 106 responsibilities and undertakings that lie within the exterior boundary of their reservation. Per 36 CFR 800.2(c)(2)(i)(A), an Agency consults with the THPO "in lieu of the SHPO regarding undertakings occurring on or affecting historic properties on tribal lands." On [ongoing], BLM sought concurrence regarding its finding of effect to historic properties for the 11 parcels within VFO with the Ute Indian Tribe THPO.

CHAPTER 5. LIST OF PREPARERS

Table 36 contains a list of individuals that contributed to preparation of this EA.

Table 46 List of EA Preparers

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Alan Bass	Rangeland Resources, Weeds	BLM UTSO
Dave Cook	Wildlife Biologist	BLM UTSO
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Christine Fletcher	Greater Sage-Grouse Coordinator	BLM UTSO
Jared Reese	Wildlife Biologist (Greater Sage-grouse)	BLM UTSO
Bill Stevens	Economist	BLM MbFO
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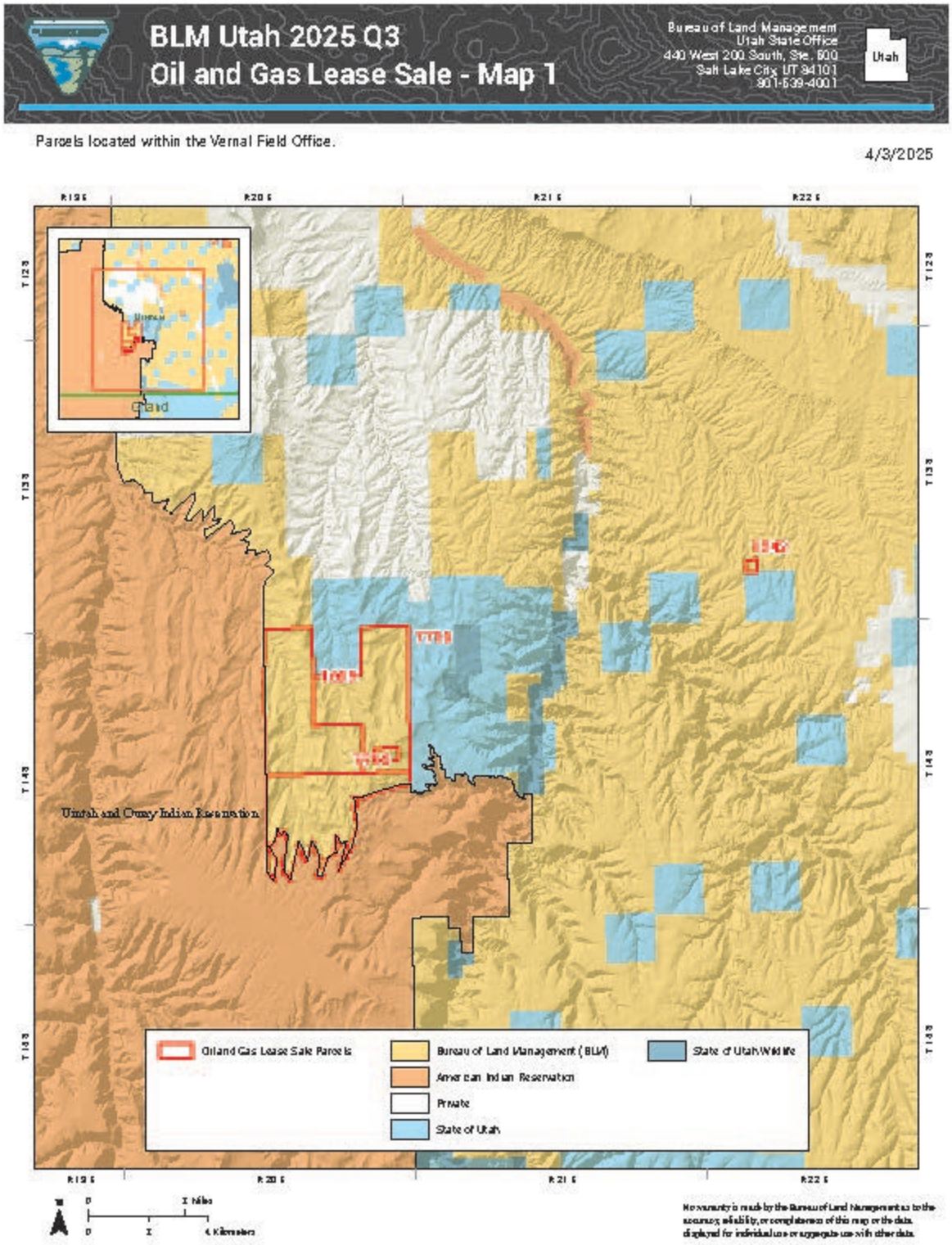
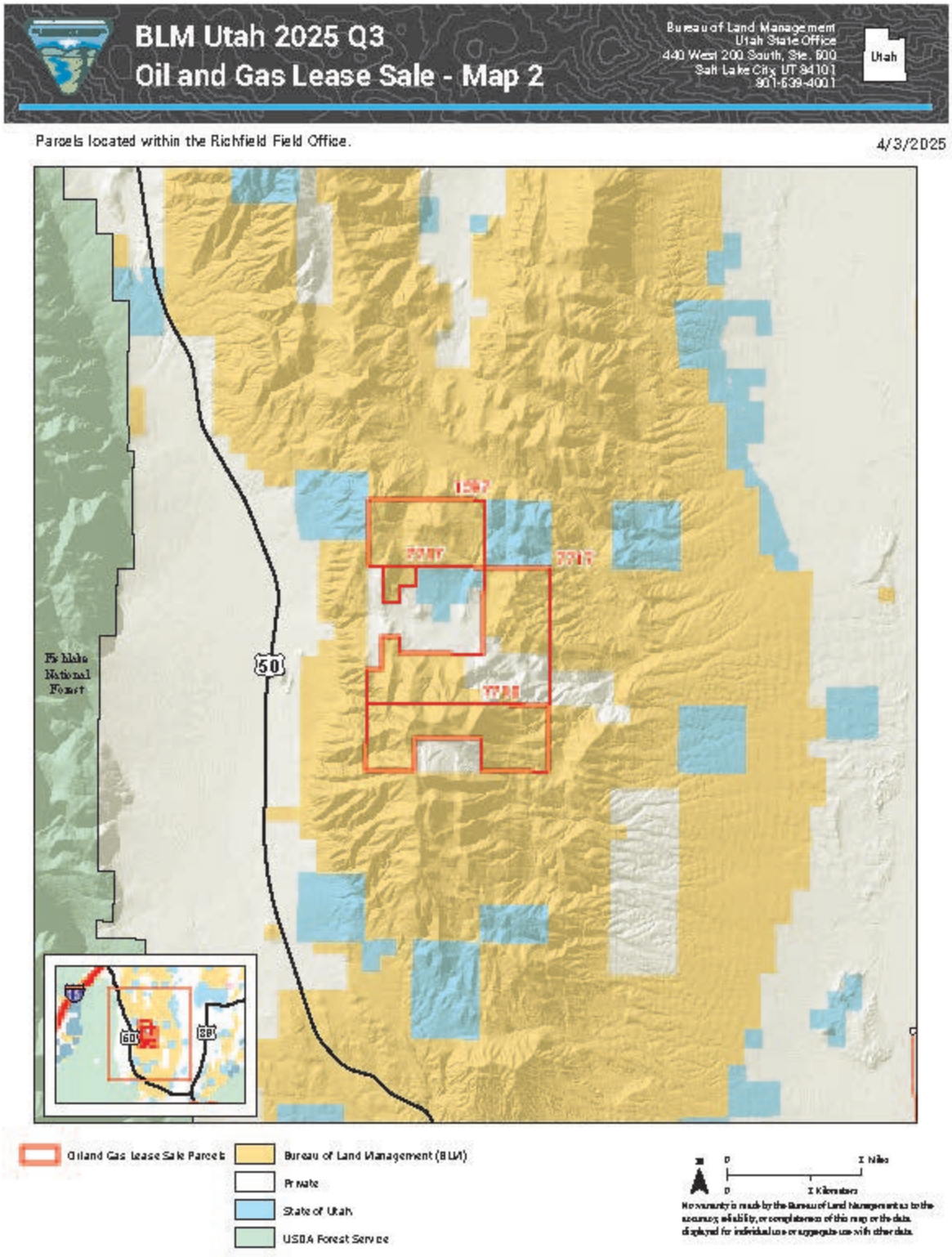
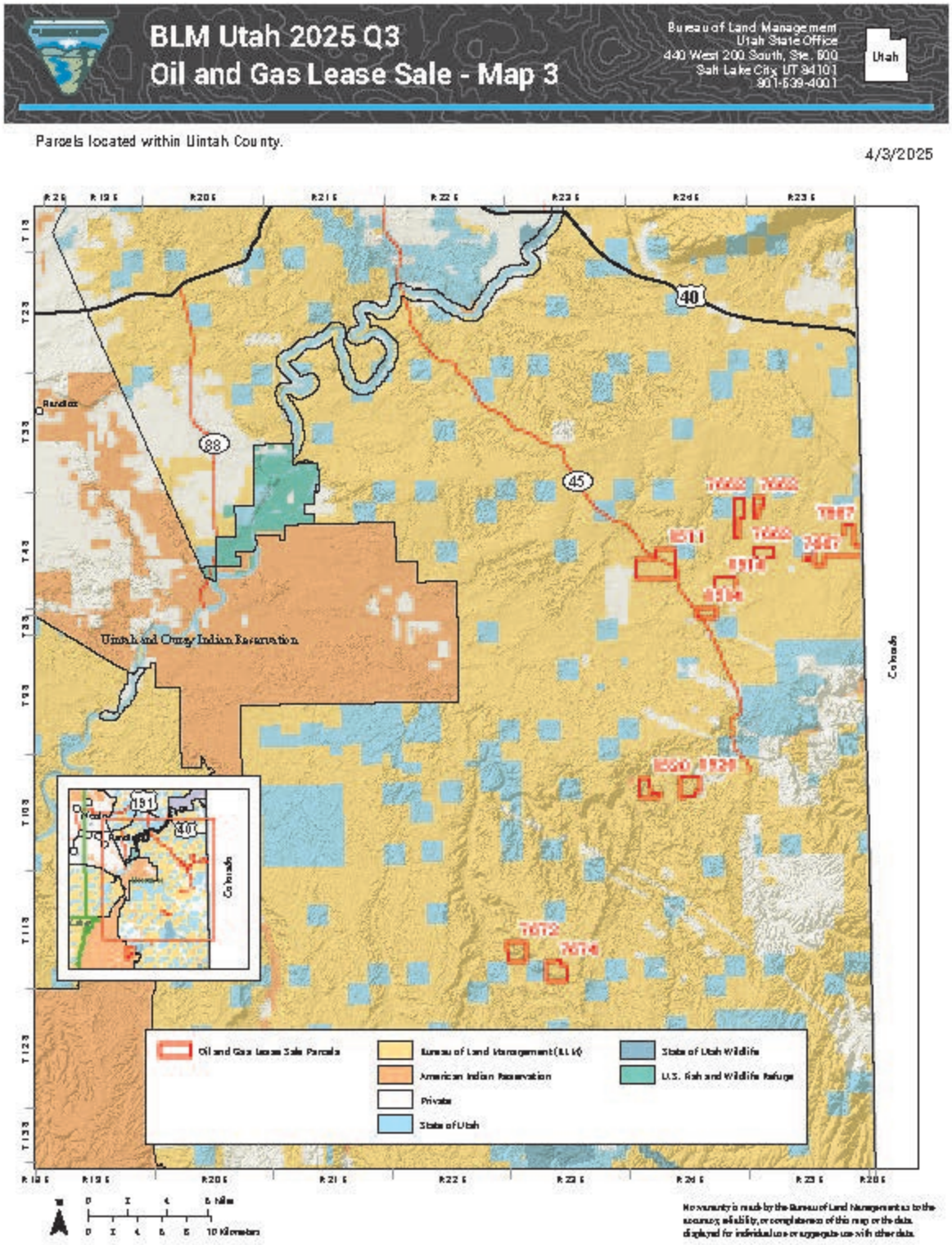
APPENDIX A. FIGURES/MAPS


BLM Utah 2025 Q3
Oil and Gas Lease Sale - Map 1
Bureau of Land Management
Utah State Office
440 West 200 South, Ste. 500
Salt Lake City, UT 84101
801-539-4001
Utah
Parcels located within the Vernal Field Office.
4/3/2025
Uintah and Ouray Indian Reservation
Oil and Gas Lease Sale Parcels
Bureau of Land Management (BLM)
American Indian Reservation
Private
State of Utah
State of Utah Wildlife
No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of this map or the data displayed for individual use or aggregate use with other data.


BLM Utah 2025 Q3
Oil and Gas Lease Sale - Map 2
Bureau of Land Management
Utah State Office
440 West 200 South, Ste. 500
Salt Lake City, UT 84101
801-539-4001
Utah
Parcels located within the Richfield Field Office.
4/3/2025
Fishlake National Forest
50
Oil and Gas Lease Sale Parcels
Bureau of Land Management (BLM)
Private
State of Utah
USDA Forest Service
0
1 Miles
0
1 Kilometers
No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of this map or the data displayed for individual use or aggregate use with other data.


BLM Utah 2025 Q3
Oil and Gas Lease Sale - Map 3
Bureau of Land Management
Utah State Office
440 West 200 South, Ste. 500
Salt Lake City, UT 84101
801-539-4001
Utah
Parcels located within Uintah County.
4/3/2025
Uintah and Ouray Indian Reservation
Colorado
Oil and Gas Lease Sale Parcels
Bureau of Land Management (BLM)
American Indian Reservation
Private
State of Utah
State of Utah Wildlife
U.S. Fish and Wildlife Refuge
No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of this map or the data displayed for individual use or aggregate use with other data.

APPENDIX B. STIPULATIONS AND NOTICES

Lease stipulations and notices applied to each parcel are listed in B.1. For descriptions of each stipulation and notice, see section B.2.In addition to the parcel specific Stipulations and Notices listed below, the stipulations and notices presented in this table would be applied to **ALL** parcels:

Stipulations	Notices
HQ-CR-1 Cultural Resources Protection (Handbook H-3120-1)	HQ-MLA-1 Notice to Lessee (MLA)
HQ-TES-1 Threatened & Endangered Species Act (Handbook H-3120-1)	

B.1 LEASE STIPULATIONS AND NOTICES BY PARCEL

1597

UT-2025-09-1597
UT, Bureau of Land Management, PD
T. 19 S., R. 1 1/2 W., Salt Lake
Sec. 34 LOTS 1 thru 4;
Sec. 34 E1/2;
Sec. 35 ALL.
Sanpete County
1105.43 Acres
16.67% Royalty Rate
EOI# UT00019480

Stipulations	Notices
UT-S-01 Air Quality	T&E-05 Listed Plant Species
UT-S-102 Controlled Surface Use – Fragile Soils/Slopes 30 Percent or Greater	T&E-09 Utah Prairie Dog
UT-S-221 Controlled Surface Use-Timing Limitations – Utah Prairie Dog	UT-LN-44 Raptors
UT-S-233 Crucial Mule Deer Elk Winter Habitat	UT-LN-45 Migratory Birds
UT-S-276 Controlled Surface Use/Timing Limitations – Bald Eagle	UT-LN-49 Utah Sensitive Species
UT-S-314 Controlled Surface Use/Timing Limitation – Ute Ladies'-Tresses	UT-LN-51 Special Status Plants Not Federally Listed
UT-S-233 Crucial Mule Deer Elk Winter Habitat	UT-LN-52 Noxious Weeds

UT-S-276 Controlled Surface Use/Timing Limitations – Bald Eagle	UT-LN-53 Riparian Areas
UT-S-314 Controlled Surface Use/Timing Limitation – Ute Ladies'-Tresses	UT-LN-72 High Potential Paleontological Resources
	UT-LN-96 Air Quality Mitigation Measures
	UT-LN-99 Regional Ozone Formation Controls
	UT-LN-102 Air Quality Analysis
	UT-LN-128 Floodplain Management
	UT-LN-156 Pollinators and Pollinator Habitat
	UT-LN-22 Ute-ladies Tresses Notice

7717

UT-2025-09-7717 Split Estate
UT, Bureau of Land Management, PD
T. 20 S., R. 1 1/2 W., Salt Lake
Sec. 1 LOTS 1 thru 4;
Sec. 1 S1/2NE1/4, S1/2NW1/4, S1/2;
Sec. 3 LOTS 1, 2;
Sec. 3 SW1/4NE1/4;
Sec. 10 LOTS 3, 4;
Sec. 10 NW1/4NE1/4, S1/2NE1/4, SE1/4;
Sec. 11 S1/2NE1/4, S1/2NW1/4, S1/2;
Sec. 12 ALL.
Sanpete County
2278.15 Acres
16.67% Royalty Rate
EOI# UT00019481

Stipulations	**Notices**
UT-S-01 Air Quality	T&E-05 Listed Plant Species
UT-S-102 Controlled Surface Use – Fragile Soils/Slopes 30 Percent or Greater	T&E-09 Utah Prairie Dog
UT-S-221 Controlled Surface Use-Timing Limitations – Utah Prairie Dog	UT-LN-44 Raptors
UT-S-233 Crucial Mule Deer Elk Winter Habitat	UT-LN-45 Migratory Birds
UT-S-276 Controlled Surface Use/Timing Limitations – Bald Eagle	UT-LN-49 Utah Sensitive Species

UT-S-314 Controlled Surface Use/Timing Limitation – Ute Ladies'-Tresses	UT-LN-51 Special Status Plants Not Federally Listed
	UT-LN-52 Noxious Weeds
	UT-LN-53 Riparian Areas
	UT-LN-72 High Potential Paleontological Resources
	UT-LN-96 Air Quality Mitigation Measures
	UT-LN-99 Regional Ozone Formation Controls
	UT-LN-102 Air Quality Analysis
	UT-LN-128 Floodplain Management
	UT-LN-156 Pollinators and Pollinator Habitat
	UT-LN-22 Ute-ladies Tresses Notice

7718

UT-2025-09-7718
UT, Bureau of Land Management, PD
T. 20 S., R. 1 1/2 W., Salt Lake
Sec. 13 ALL;
Sec. 14 N1/2;
Sec. 15 LOTS 1 thru 4;
Sec. 15 E1/2.
Sanpete County
1423.8 Acres
16.67% Royalty Rate
EOI# UT00019482

Stipulations	**Notices**
UT-S-01 Air Quality	T&E-05 Listed Plant Species
UT-S-102 Controlled Surface Use – Fragile Soils/Slopes 30 Percent or Greater	T&E-09 Utah Prairie Dog
UT-S-221 Controlled Surface Use-Timing Limitations – Utah Prairie Dog	UT-LN-44 Raptors
UT-S-233 Crucial Mule Deer Elk Winter Habitat	UT-LN-45 Migratory Birds
UT-S-276 Controlled Surface Use/Timing Limitations – Bald Eagle	UT-LN-49 Utah Sensitive Species
UT-S-314 Controlled Surface Use/Timing Limitation – Ute Ladies'-Tresses	UT-LN-51 Special Status Plants Not Federally Listed
	UT-LN-52 Noxious Weeds

	UT-LN-53 Riparian Areas
	UT-LN-72 High Potential Paleontological Resources
	UT-LN-96 Air Quality Mitigation Measures
	UT-LN-99 Regional Ozone Formation Controls
	UT-LN-102 Air Quality Analysis
	UT-LN-128 Floodplain Management
	UT-LN-156 Pollinators and Pollinator Habitat
	UT-LN-22 Ute-ladies Tresses Notice

1511

UT-2025-09-1511
UT, Vernal Field Office, Bureau of Land Management, PD
T. 8 S., R. 24 E., Salt Lake
Sec. 17 S1/2;
Sec. 19 ALL;
Sec. 20 ALL.
Uintah County
1589.32 Acres
16.67% Royalty Rate
EOI# UT00018377

Stipulations	**Notices**
UT-S-01 Air Quality	T&E-02 Black-Footed Ferret
UT-S-96 No Surface Occupancy – Fragile Soils/Slopes Greater than 40%	T&E-03 Threatened and Endangered Fish of the Colorado Basin
UT-S-99 Controlled Surface Use – Fragile Soils/Slopes	T&E-05 Listed Plant Species
UT-S-100 Controlled Surface Use – Fragile Soils/Slopes (21%-40%)	UT-LN-13 Pronghorn Winter Habitat
UT-S-123 No Surface Occupancy – Riparian, Floodplains, And Public Water Reserves	UT-LN-44 Raptors
UT-S-157 No Surface Occupancy/Controlled Surface Use /Timing Limitation – Visual Resources	UT-LN-45 Migratory Birds
UT-S-261 Timing Stipulation- Raptor Buffers	UT-LN-49 Utah Sensitive Species

UT-S-299 Controlled Surface Use/Timing Limitations – Black-Footed Ferrett – Primary Management Zone Area	UT-LN-51 Special Status Plants Not Federally Listed
	UT-LN-52 Noxious Weeds
	UT-LN-53 Riparian Areas
	UT-LN-56 Drinking Water Source Protection Zone
	UT-LN-72 High Potential Paleontological Resources
	UT-LN-83 Site ROW
	UT-LN-96 Air Quality Mitigation Measures
	UT-LN-99 Regional Ozone Formation Controls
	UT-LN-102 Air Quality Analysis
	UT-LN-107 Statewide (Formerly T&E-01)
	UT-LN-115 Light and Sound
	UT-LN-128 Floodplain Management
	UT-LN-156 Pollinators and Pollinator Habitat

1514

UT-2025-09-1514
UT, Vernal Field Office, Bureau of Land Management, PD
T. 8 S., R. 24 E., Salt Lake
Sec. 26 E1/2, NW1/4, NW1/4SW1/4;
Sec. 27 S1/2SE1/4, NE1/4SE1/4;
Sec. 34 S1/2.
Uintah County
960 Acres
16.67% Royalty Rate
EOI# UT00018377

Stipulations	**Notices**
UT-S-01 Air Quality	T&E-02 Black-Footed Ferret
UT-S-96 No Surface Occupancy – Fragile Soils/Slopes Greater than 40%	T&E-03 Threatened and Endangered Fish of the Colorado Basin
UT-S-99 Controlled Surface Use – Fragile Soils/Slopes	T&E-05 Listed Plant Species
UT-S-100 Controlled Surface Use – Fragile Soils/Slopes (21%-40%)	UT-LN-13 Pronghorn Winter Habitat
UT-S-123 No Surface Occupancy – Riparian, Floodplains, And Public Water Reserves	UT-LN-44 Raptors
UT-S-157 No Surface Occupancy/Controlled Surface Use/Timing Limitation – Visual Resources	UT-LN-45 Migratory Birds

UT-S-261 Timing Stipulation- Raptor Buffers	UT-LN-49 Utah Sensitive Species
UT-S-299 Controlled Surface Use/Timing Limitations – Black-Footed Ferrett – Primary Management Zone Area	UT-LN-51 Special Status Plants Not Federally Listed
	UT-LN-52 Noxious Weeds
	UT-LN-53 Riparian Areas
	UT-LN-56 Drinking Water Source Protection Zone
	UT-LN-72 High Potential Paleontological Resources
	UT-LN-83 Site ROW (from Memo to the Field)
	UT-LN-96 Air Quality Mitigation Measures
	UT-LN-99 Regional Ozone Formation Controls
	UT-LN-102 Air Quality Analysis
	UT-LN-107 Statewide (Formerly T&E-01)
	UT-LN-115 Light and Sound
	UT-LN-128 Floodplain Management
	UT-LN-131 Greater Sage-Grouse – Net Conservation Gain
	UT-LN-132 Greater Sage-Grouse – Required Design Features
	UT-LN-133 Greater Sage-Grouse - Buffer
	UT-LN-156 Pollinators and Pollinator Habitat

1520

UT-2025-09-1520
UT, Vernal Field Office, Bureau of Land Management, PD
T. 10 S., R. 24 E., Salt Lake
Sec. 16 ALL;
Sec. 18 LOTS 1 thru 4;
Sec. 18 E1/2NW1/4, E1/2SW1/4, S1/2SE1/4.
Uintah County
1038.4 Acres
16.67% Royalty Rate
EOI# UT00018368

Stipulations	**Notices**
UT-S-01 Air Quality	T&E-03 Threatened and Endangered Fish of the Colorado Basin
UT-S-96 No Surface Occupancy – Fragile Soils/Slopes Greater than 40%	T&E-05 Listed Plant Species

UT-S-47 No Surface Occupancy – White River SRMA	T&E-31 Yellow-billed cuckoo
UT-S-87 No Surface Occupancy – White River BLM Natural Area	UT-LN-20 Rocky Mountain/Desert Bighorn Sheep Crucial Lambing and Rutting Habitat
UT-S-99 Controlled Surface Use – Fragile Soils/Slopes	UT-LN-44 Raptors
UT-S-100 Controlled Surface Use – Fragile Soils/Slopes (21%-40%)	UT-LN-45 Migratory Birds
UT-S-120 No Surface Occupancy – White River Corridor	UT-LN-49 Utah Sensitive Species
UT-S-123 No Surface Occupancy – Riparian, Floodplains, And Public Water Reserves	UT-LN-50 Habitat Restoration
UT-S-157 No Surface Occupancy/Controlled Surface Use/Timing Limitation – Visual Resources	UT-LN-51 Special Status Plants Not Federally Listed
UT-S-159 Controlled Surface Use – Visual Resources – VRM II	UT-LN-52 Noxious Weeds
UT-S-230 Timing Limitation – Crucial Deer and Elk Winter Range	UT-LN-53 Riparian Areas
UT-S-261 Timing Stipulation- Raptor Buffers	UT-LN-56 Drinking Water Source Protection Zone
UT-S-278 Controlled Surface Use – Bald Eagle Winter Roost	UT-LN-72 High Potential Paleontological Resources
	UT-LN-96 Air Quality Mitigation Measures
	UT-LN-99 Regional Ozone Formation Controls
	UT-LN-102 Air Quality Analysis
	UT-LN-107 Statewide (Formerly T&E-01)
	UT-LN-115 Light and Sound
	UT-LN-128 Floodplain Management
	UT-LN-156 Pollinators and Pollinator Habitat
	UT-LN-22 Ute-ladies Tresses Notice

1542

UT-2025-09-1542
UT, Vernal Field Office, Bureau of Land Management, PD
T. 13 S., R. 22 E., Salt Lake
Sec. 29 SW1/4SW1/4.
Uintah County
40 Acres
16.67% Royalty Rate
EOI# UT00018372

Stipulations	**Notices**

UT-S-01 Air Quality	T&E-03 Threatened and Endangered Fish of the Colorado Basin
UT-S-96 No Surface Occupancy – Fragile Soils/Slopes Greater than 40%	T&E-05 Listed Plant Species
UT-S-99 Controlled Surface Use – Fragile Soils/Slopes	UT-LN-44 Raptors
UT-S-100 Controlled Surface Use – Fragile Soils/Slopes (21%-40%)	UT-LN-45 Migratory Birds
UT-S-123 No Surface Occupancy – Riparian, Floodplains, And Public Water Reserves	UT-LN-49 Utah Sensitive Species
UT-S-157 No Surface Occupancy/Controlled Surface Use/Timing Limitation – Visual Resources	UT-LN-51 Special Status Plants Not Federally Listed
UT-S-230 Timing Limitation – Crucial Deer and Elk Winter Range	UT-LN-52 Noxious Weeds
UT-S-261 Timing Stipulation- Raptor Buffers	UT-LN-53 Riparian Areas
	UT-LN-56 Drinking Water Source Protection Zone
	UT-LN-72 High Potential Paleontological Resources
	UT-LN-83 Site ROW
	UT-LN-96 Air Quality Mitigation Measures
	UT-LN-99 Regional Ozone Formation Controls
	UT-LN-102 Air Quality Analysis
	UT-LN-107 Statewide (Formerly T&E-01)
	UT-LN-115 Light and Sound
	UT-LN-128 Floodplain Management
	UT-LN-156 Pollinators and Pollinator Habitat

1605

UT-2025-09-1605
UT, Bureau of Land Management, PD
T. 14 S., R. 20 E., Salt Lake
Sec. 3 LOTS 1 thru 4;
Sec. 3 N1/2NE1/4, N1/2NW1/4, S1/2;
Sec. 10 ALL;
Sec. 14 ALL;
Sec. 15 ALL.
Uintah County
2560 Acres
16.67% Royalty Rate
EOI# UT00019484

Stipulations	Notices
UT-S-01 Air Quality	T&E-03 Threatened and Endangered Fish of the Colorado Basin
UT-S-96 No Surface Occupancy – Fragile Soils/Slopes Greater than 40%	T&E-05 Listed Plant Species
UT-S-99 Controlled Surface Use – Fragile Soils/Slopes	T&E-21 Shrubby Reed-Mustard
UT-S-100 Controlled Surface Use – Fragile Soils/Slopes (21%-40%)	UT-LN-44 Raptors
UT-S-123 No Surface Occupancy – Riparian, Floodplains, And Public Water Reserves	UT-LN-45 Migratory Birds
UT-S-157 No Surface Occupancy/Controlled Surface Use/Timing Limitation – Visual Resources	UT-LN-49 Utah Sensitive Species
UT-S-230 Timing Limitation – Crucial Deer and Elk Winter Range	UT-LN-51 Special Status Plants Not Federally Listed
UT-S-261 Timing Limitation- Raptor Buffers	UT-LN-52 Noxious Weeds
	UT-LN-53 Riparian Areas
	UT-LN-56 Drinking Water Source Protection Zone
	UT-LN-72 High Potential Paleontological Resources
	UT-LN-83 Site ROW
	UT-LN-96 Air Quality Mitigation Measures
	UT-LN-99 Regional Ozone Formation Controls
	UT-LN-102 Air Quality Analysis
	UT-LN-107 Bald Eagle (Formerly T&E-01)
	UT-LN-115 Light and Sound
	UT-LN-128 Floodplain Management
	UT-LN-156 Pollinators and Pollinator Habitat

7667

UT-2025-09-7667

UT, Vernal Field Office, Bureau of Land Management, PD

T. 8 S., R. 25 E., Salt Lake

Sec. 11 SE1/4;
Sec. 13 LOTS 3,4;
Sec. 13 W1/2SW1/4;
Sec. 14 ALL;
Sec. 15 ALL;
Sec. 21 NW1/4NE1/4;
Sec. 22 NW1/4.

Uintah County
1773.47 Acres
16.67% Royalty Rate
EOI# UT00018378

Stipulations	Notices
UT-S-01 Air Quality	T&E-02 Black-Footed Ferret
UT-S-96 No Surface Occupancy – Fragile Soils/Slopes Greater than 40%	T&E-03 Threatened and Endangered Fish of the Colorado Basin
UT-S-99 Controlled Surface Use – Fragile Soils/Slopes	T&E-05 Listed Plant Species
UT-S-100 Controlled Surface Use – Fragile Soils/Slopes (21%-40%)	UT-LN-13 Pronghorn Winter Habitat
UT-S-123 No Surface Occupancy – Riparian, Floodplains, And Public Water Reserves	UT-LN-44 Raptors
UT-S-157 No Surface Occupancy/Controlled Surface Use/Timing Limitation – Visual Resources	UT-LN-45 Migratory Birds
UT-S-261 Timing Stipulation- Raptor Buffers	UT-LN-49 Utah Sensitive Species
UT-S-299 Controlled Surface Use/Timing Limitations – Black-Footed Ferrett – Primary Management Zone Area	UT-LN-51 Special Status Plants Not Federally Listed
	UT-LN-52 Noxious Weeds
	UT-LN-53 Riparian Areas
	UT-LN-56 Drinking Water Source Protection Zone
	UT-LN-72 High Potential Paleontological Resources
	UT-LN-83 Site ROW
	UT-LN-96 Air Quality Mitigation Measures
	UT-LN-99 Regional Ozone Formation Controls
	UT-LN-102 Air Quality Analysis
	UT-LN-107 Statewide (Formerly T&E-01)
	UT-LN-115 Light and Sound
	UT-LN-131 Greater Sage-Grouse – Net Conservation Gain
	UT-LN-132 Greater Sage-Grouse – Required Design Features
	UT-LN-133 Greater Sage-Grouse - Buffer
	UT-LN-156 Pollinators and Pollinator Habitat

7668

UT-2025-09-7668
UT, Vernal Field Office, Bureau of Land Management, PD

T. 8 S., R. 24 E., Salt Lake
Sec. 1 LOTS 3,4;
Sec. 1 S1/2NW1/4, SW1/4;
Sec. 12 W1/2NW1/4, W1/2SW1/4.
T. 8 S., R. 25 E., Salt Lake
Sec. 6 LOTS 3,4;
Sec. 6 S1/2NW1/4, W1/2SW1/4;
Sec. 18 S1/2.
Uintah County
1040.14 Acres
16.67% Royalty Rate
EOI# UT00018377, UT00018378

Stipulations	**Notices**
UT-S-01 Air Quality	T&E-02 Black-Footed Ferret
UT-S-96 No Surface Occupancy – Fragile Soils/Slopes Greater than 40%	T&E-03 Threatened and Endangered Fish of the Colorado Basin
UT-S-99 Controlled Surface Use – Fragile Soils/Slopes	T&E-05 Listed Plant Species
UT-S-100 Controlled Surface Use – Fragile Soils/Slopes (21%-40%)	UT-LN-13 Pronghorn Winter Habitat
UT-S-123 No Surface Occupancy – Riparian, Floodplains, And Public Water Reserves	UT-LN-44 Raptors
UT-S-157 No Surface Occupancy/Controlled Surface Use/Timing Limitation – Visual Resources	UT-LN-45 Migratory Birds
UT-S-195 Vernal No Surface Occupancy – Greater Sage-grouse Leks	UT-LN-49 Utah Sensitive Species
UT-S-205 (Vernal) Timing Limitation – Greater Sage-grouse Brood Rearing and Nesting	UT-LN-51 Special Status Plants Not Federally Listed
UT-S-206 (Vernal) Controlled Surface Use – Greater Sage-Grouse (Noise Reduction)	UT-LN-52 Noxious Weeds
UT-S-207 (Vernal) Controlled Surface Use – Greater Sage-grouse (Structures)	UT-LN-53 Riparian Areas
UT-S-261 Timing Stipulation- Raptor Buffers (Vernal)	UT-LN-56 Drinking Water Source Protection Zone
UT-S-299 Controlled Surface Use/Timing Limitations – Black-Footed Ferrett – Primary Management Zone Area	UT-LN-72 High Potential Paleontological Resources
	UT-LN-83 Site ROW
	UT-LN-96 Air Quality Mitigation Measures
	UT-LN-99 Regional Ozone Formation Controls
	UT-LN-102 Air Quality Analysis
	UT-LN-107 Statewide (Formerly T&E-01)

	UT-LN-115 Light and Sound
	UT-LN-128 Floodplain Management
	UT-LN-131 Greater Sage-Grouse – Net Conservation Gain
	UT-LN-132 Greater Sage-Grouse – Required Design Features
	UT-LN-133 Greater Sage-Grouse - Buffer
	UT-LN-156 Pollinators and Pollinator Habitat

7673

UT-2025-09-7673
UT, Vernal Field Office, Bureau of Land Management, PD
T. 11 S., R. 23 E., Salt Lake
Sec. 30 ALL.
Uintah County
605.68 Acres
16.67% Royalty Rate
EOI# UT00018369

Stipulations	**Notices**
UT-S-01 Air Quality	T&E-03 Threatened and Endangered Fish of the Colorado Basin
UT-S-96 No Surface Occupancy – Fragile Soils/Slopes Greater than 40%	T&E-05 Listed Plant Species
UT-S-99 Controlled Surface Use – Fragile Soils/Slopes	UT-LN-20 Rocky Mountain/Desert Bighorn Sheep Crucial Lambing and Rutting Habitat
UT-S-100 Controlled Surface Use – Fragile Soils/Slopes (21%-40%)	UT-LN-44 Raptors
UT-S-123 No Surface Occupancy – Riparian, Floodplains, And Public Water Reserves	UT-LN-45 Migratory Birds
UT-S-157 No Surface Occupancy/Controlled Surface Use/Timing Limitation – Visual Resources	UT-LN-49 Utah Sensitive Species
UT-S-261 Timing Stipulation- Raptor Buffers	UT-LN-51 Special Status Plants Not Federally Listed
	UT-LN-52 Noxious Weeds
	UT-LN-53 Riparian Areas
	UT-LN-56 Drinking Water Source Protection Zone
	UT-LN-72 High Potential Paleontological Resources
	UT-LN-83 Site ROW
	UT-LN-96 Air Quality Mitigation Measures

	UT-LN-99 Regional Ozone Formation Controls
	UT-LN-102 Air Quality Analysis
	UT-LN-107 Statewide (Formerly T&E-01)
	UT-LN-128 Floodplain Management
	UT-LN-156 Pollinators and Pollinator Habitat

7674

UT-2025-09-7674
UT, Vernal Field Office, Bureau of Land Management, PD
T. 10 S., R. 23 E., Salt Lake
Sec. 33 NW1/4NE1/4, S1/2NE1/4, W1/2, SE1/4.
Uintah County
600 Acres
16.67% Royalty Rate
EOI# UT00018368

Stipulations	Notices
UT-S-01 Air Quality	T&E-03 Threatened and Endangered Fish of the Colorado Basin
UT-S-96 No Surface Occupancy – Fragile Soils/Slopes Greater than 40%	T&E-05 Listed Plant Species
UT-S-99 Controlled Surface Use – Fragile Soils/Slopes	UT-LN-44 Raptors
UT-S-100 Controlled Surface Use – Fragile Soils/Slopes (21%-40%)	UT-LN-45 Migratory Birds
UT-S-123 No Surface Occupancy – Riparian, Floodplains, And Public Water Reserves	UT-LN-49 Utah Sensitive Species
UT-S-157 No Surface Occupancy/Controlled Surface Use/Timing Limitation – Visual Resources	UT-LN-51 Special Status Plants Not Federally Listed
UT-S-261 Timing Stipulation- Raptor Buffers	UT-LN-52 Noxious Weeds
	UT-LN-53 Riparian Areas
	UT-LN-56 Drinking Water Source Protection Zone
	UT-LN-72 High Potential Paleontological Resources
	UT-LN-83 Site ROW
	UT-LN-96 Air Quality Mitigation Measures
	UT-LN-99 Regional Ozone Formation Controls
	UT-LN-102 Air Quality Analysis
	UT-LN-107 Statewide (Formerly T&E-01)
	UT-LN-115 Light and Sound
	UT-LN-128 Floodplain Management

	UT-LN-156 Pollinators and Pollinator Habitat
	UT-LN-22 Ute-ladies Tresses Notice

7716

UT-2025-09-7716
UT, Bureau of Land Management, PD
T. 14 S., R. 20 E., Salt Lake
Sec. 22 ALL;
Sec. 23 ALL, EXCLUDING PORTION OF THE UINTAH AND OURAY RESERVATION BEING DESIGNATED AS INDIAN TRUST LANDS UNDER UTUT106280796 (LEGACY UTU-09354801);
Sec. 24 ALL, EXCLUDING PORTION OF THE UINTAH AND OURAY RESERVATION BEING DESIGNATED AS INDIAN TRUST LANDS UNDER UTUT106280796 (LEGACY UTU-09354801);
Sec. 26 ALL, EXCLUDING PORTION OF THE UINTAH AND OURAY RESERVATION BEING DESIGNATED AS INDIAN TRUST LANDS UNDER UTUT106280796 (LEGACY UTU-09354801);
Sec. 27 ALL, EXCLUDING PORTION OF THE UINTAH AND OURAY RESERVATION BEING DESIGNATED AS INDIAN TRUST LANDS UNDER UTUT106280796 (LEGACY UTU-09354801);
Sec. 34 ALL, EXCLUDING PORTION OF THE UINTAH AND OURAY RESERVATION BEING DESIGNATED AS INDIAN TRUST LANDS UNDER UTUT106280796 (LEGACY UTU-09354801);
Sec. 35 ALL, EXCLUDING PORTION OF THE UINTAH AND OURAY RESERVATION BEING DESIGNATED AS INDIAN TRUST LANDS UNDER UTUT106280796 (LEGACY UTU-09354801).
Uintah County
2249.33 Acres
16.67% Royalty Rate
EOI# UT00019431

Stipulations	**Notices**
UT-S-01 Air Quality	T&E-03 Threatened and Endangered Fish of the Colorado Basin
UT-S-96 No Surface Occupancy – Fragile Soils/Slopes Greater than 40%	T&E-05 Listed Plant Species
UT-S-99 Controlled Surface Use – Fragile Soils/Slopes	T&E-06 Mexican Spotted Owl
UT-S-100 Controlled Surface Use – Fragile Soils/Slopes (21%-40%)	T&E-21 Shrubby Reed-Mustard
UT-S-123 No Surface Occupancy – Riparian, Floodplains, And Public Water Reserves	UT-LN-44 Raptors

UT-S-157 No Surface Occupancy/Controlled Surface Use/Timing Limitation – Visual Resources	UT-LN-45 Migratory Birds
UT-S-230 Timing Limitation – Crucial Deer and Elk Winter Range	UT-LN-49 Utah Sensitive Species
UT-S-261 Timing Stipulation- Raptor Buffers	UT-LN-51 Special Status Plants Not Federally Listed
	UT-LN-52 Noxious Weeds
	UT-LN-53 Riparian Areas
	UT-LN-56 Drinking Water Source Protection Zone
	UT-LN-72 High Potential Paleontological Resources
	UT-LN-83 Site ROW
	UT-LN-96 Air Quality Mitigation Measures
	UT-LN-99 Regional Ozone Formation Controls
	UT-LN-102 Air Quality Analysis
	UT-LN-107 Statewide (Formerly T&E-01)
	UT-LN-115 Light and Sound
	UT-LN-128 Floodplain Management
	UT-LN-131 Greater Sage-Grouse – Net Conservation Gain
	UT-LN-132 Greater Sage-Grouse – Required Design Features
	UT-LN-133 Greater Sage-Grouse - Buffer
	UT-LN-156 Pollinators and Pollinator Habitat

7719

UT-2025-09-7719	
UT, Bureau of Land Management, PD T. 14 S., R. 20 E., Salt Lake Sec. 1 LOTS 1 thru 4; Sec. 1 S1/2NE1/4, S1/2NW1/4, S1/2; Sec. 11 ALL; Sec. 12 ALL; Sec. 13 ALL. Uintah County 2560 Acres 16.67% Royalty Rate EOI# UT00019483	
Stipulations	**Notices**

UT-S-01 Air Quality	T&E-03 Threatened and Endangered Fish of the Colorado Basin
UT-S-96 No Surface Occupancy – Fragile Soils/Slopes Greater than 40%	T&E-05 Listed Plant Species
UT-S-99 Controlled Surface Use – Fragile Soils/Slopes	T&E-06 Mexican Spotted Owl
UT-S-100 Controlled Surface Use – Fragile Soils/Slopes (21%-40%)	T&E-21 Shrubby Reed-Mustard
UT-S-123 No Surface Occupancy – Riparian, Floodplains, And Public Water Reserves	UT-LN-44 Raptors
UT-S-157 No Surface Occupancy/ Controlled Surface Use/Timing Limitation – Visual Resources	UT-LN-45 Migratory Birds
UT-S-230 Timing Limitation – Crucial Deer and Elk Winter Range	UT-LN-49 Utah Sensitive Species
UT-S-261 Timing Limitation- Raptor Buffers	UT-LN-51 Special Status Plants Not Federally Listed
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	UT-LN-99 Regional Ozone Formation Controls
	UT-LN-102 Air Quality Analysis
	UT-LN-107 Statewide (Formerly T&E-01)
	UT-LN-115 Light and Sound
	UT-LN-128 Floodplain Management
	UT-LN-156 Pollinators and Pollinator Habitat

B.2 DESCRIPTION OF LEASE STIPULATIONS AND NOTICES

Standard Lease Stipulations (from H-3120 – Competitive Leasing Handbook)*

STIPULATION	DESCRIPTION/PURPOSE
HQ-CR-1	**CULTURAL RESOURCE PROTECTION** This lease may be found to contain historic properties and/or resources protected under the National Historic Preservation Act (NHPA), American Indian Religious Freedom

STIPULATION	DESCRIPTION/PURPOSE
	Act, Native American Graves Protection and Repatriation Act, E.O. 13007, or other statutes and executive orders. The BLM will not approve any ground disturbing activities that may affect any such properties or resources until it completes its obligations under applicable requirements of the NHPA and other authorities. The BLM may require modification to exploration or development proposals to protect such properties or disapprove any activity that is likely to result in adverse effects that cannot be successfully avoided, minimized or mitigated.
HQ-TES-1	**THREATENED AND ENDANGERED SPECIES ACT** The lease area may now or hereafter contain plants, animals or their habitats determined to be threatened, endangered, or other special status species. BLM may recommend modifications to exploration and development proposals to further its conservation and management objective to avoid BLM-approved activity that would contribute to a need to list such species or their habitat. 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. BLM will not approve any ground-disturbing activity 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.
HQ-MLA-1	**NOTICE TO LESSEE – MINERAL LEASING ACT SECTION 2(A)(2)(A)** Provisions of the Mineral Leasing Act (MLA) of 1920, as amended by the Federal Coal Leasing Amendments Act of 1976, affect an entity's qualifications to obtain an oil and gas lease. Section 2(a)(2)(A) of the MLA, 30 U.S.C. 201(a)(2)(A), requires that any entity that holds and has held a Federal Coal Lease for 10 years beginning on or after August 4, 1976, and which is not producing coal in commercial quantities from each such lease, cannot qualify for the issuance of any other lease granted under the MLA. Compliance by coal lessees with Section 2(a)(2)(A) is explained in 43 CFR 3472. In accordance with the terms of this oil and gas lease with respect to compliance by the initial lessee with qualifications concerning Federal coal lease holdings, all assignees and transferees are hereby notified that this oil and gas lease is subject to cancellation if: (1) the initial lessee as assignor or as transferor has falsely certified compliance with Section 2(a)(2)(A) because of a denial or disapproval by a State Office of a pending coal action, i.e., arms-length assignment, relinquishment, or logical mining unit, the initial lessee as assignor or as transferor is no longer in compliance with Section 2(a)(2)(A). The assignee or transferee does not qualify as a bona fide purchaser and, thus, has no rights to bona fide purchaser protection in the event of cancellation of this lease due to noncompliance with Section 2(a)(2)(A). Information regarding assignor or transferor compliance with Section 2(a)(2)(A) is contained in the lease case file as well as in other Bureau of Land Management records available through the State Office issuing this lease.

*These stipulations are attached to all leases issued.

Utah Lease Stipulations

STIPULATION	DESCRIPTION/PURPOSE
UT-S-01	**AIR QUALITY** All new stationary and replacement internal combustion gas field engines of less than or equal to 300 design-rated horsepower shall not emit more than 2 grams of NO_x per horsepower-hour. **Exception:** This requirement does not apply to gas field engines of less than or equal to 40 design-rated horsepower. **Modification**: None **Waiver**: None **AND** All new and replacement internal combustion gas field engines of greater than 300 design rated horsepower must not emit more than 1.0 gram of NO_x per horsepower-hour. **Exception**: None **Modification**: None **Waiver**: None
UT-S-47	**NO SURFACE OCCUPANCY – WHITE RIVER SRMA** No surface disturbing activities within line of sight from the centerline of the White River, up to one-half mile on either side of the river, from where the river enters Section 28, T10S R23E to where it leaves Section 18, T10S R23E. **Exception:** An exception will be granted if the disturbance complemented recreational goals and objectives. No exception for oil and gas leasing. **Modification:** None **Waiver**: None
UT-S-87	**NO SURFACE OCCUPANCY – WHITE RIVER BLM NATURAL AREA** No surface occupancy within the White River BLM Natural Area. **Exception:** No exceptions for oil and gas activity. When compatible with the goals and objectives for management of BLM Natural Areas, the following activities could be permitted: • Vegetation and fuel treatments using prescribed fire, mechanical and chemical treatments, and other actions compatible with the Healthy Lands Initiative (HLI); • Construction of wildlife water and livestock facilities, and minimal recreation facilities; • Authorize reasonable access to non-BLM managed lands. **Modification**: None **Waiver**: None
UT-S-96	**NO SURFACE OCCUPANCY – FRAGILE SOILS/SLOPES GREATER THAN 40%** No surface occupancy for slopes greater than 40 percent. **Exception:** If after an environment analysis the authorized officer determines that it would cause undue or unnecessary degradation to pursue other placement alternatives; surface occupancy in the NSO area may be

STIPULATION	DESCRIPTION/PURPOSE
	authorized. Additionally a plan shall be submitted by the operator and approved by BLM prior to construction and maintenance and include: • An erosion control strategy; • GIS modeling; • Proper survey and design by a certified engineer. **Modification:** Modifications also may be granted if a more detailed analysis, i.e. Order I, soil survey conducted by a qualified soil scientist finds that surface disturbance activities could occur on slopes greater than 40% while adequately protecting the area from accelerated erosion. **Waiver**: None
UT-S-99	**CONTROLLED SURFACE USE – FRAGILE SOILS/SLOPES** The surface operating standards for oil and gas exploration and development (Gold Book) shall be used as a guide for surface-disturbing proposals on steep slopes/hillsides. **Exception**: None **Modification**: None **Waiver**: None
UT-S-100	**CONTROLLED SURFACE USE – FRAGILE SOILS/SLOPES (21%-40%)** If surface-disturbing activities cannot be avoided on slopes from 21-40% a plan will be required. The plan will approved by BLM prior to construction and maintenance and include: • An erosion control strategy; • GIS modeling; • Proper survey and design by a certified engineer. **Exception**: None **Modification**: None **Waiver**: None
UT-S-102	**CONTROLLED SURFACE USE – FRAGILE SOILS/SLOPES 30 PERCENT OR GREATER** No surface disturbing proposed projects involving construction on slopes greater than 30. If the action cannot be avoided, rerouted, or relocated than a proposed project will include an erosion control strategy, reclamation and a site plan with a detailed survey and design completed by a certified engineer. This proposed project must be approved by the BLM prior to construction and maintenance. **Exception:** None **Modification:** None **Waiver:** None
UT-S-120	**NO SURFACE OCCUPANCY – WHITE RIVER CORRIDOR**

STIPULATION	DESCRIPTION/PURPOSE
	No surface occupancy with the centerline line of site, up to ½ mile along both sides of the river from where the river enters Township 10 South, Range 24 East, to where the river leaves Section 18, Township 10 South, Range 23 East. **Exception**: Recognized utility corridors are excepted. **Modification**: None **Waiver**: None
UT-S-123	**NO SURFACE OCCUPANCY – RIPARIAN, FLOODPLAINS, AND PUBLIC WATER RESERVES** No new surface-disturbing activities are allowed within active flood plains, wetlands, public water reserves, or 100 meters of riparian areas. Keep construction of new stream crossings to a minimum. **Exception:** An exception could be authorized if: (a) there are no practical alternatives (b) impacts could be fully mitigated, or (c) the action is designed to enhance the riparian resources. **Modification**: None **Waiver**: None
UT-S-157	**NO SURFACE OCCUPANCY/CONTROLLED SURFACE USE/TIMING LIMITATION – VISUAL RESOURCES** Visual resource management activities will comply with BLM Handbook 8410-1. Within VRM Class I areas, very limited management activity will be allowed, with the objective of preserving the existing character of the landscape, allowing for natural ecological changes. The level of change to the landscape should be very low and shall not attract attention. Within VRM Class II areas, surface-disturbing activities will retain the existing character of the landscape. The level of change to the landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any change to the landscape shall repeat the basic elements of form, line, color and texture found in the predominant natural features of the characteristic landscape. Within VRM Class III areas, surface disturbing activities will partially retain the existing character of the landscape. The allowable level of change will be moderate, may attract attention, but should not dominate the view of the casual observer. Landscape changes should repeat the basic elements of form, line, color and texture found in the predominant natural features of the characteristic landscape. Within VRM Class IV areas, surface disturbing activities are allowed to dominate the view and the major focus of viewer attention. Major modifications to the existing character of the landscape are allowed. But every attempt should be made to minimize and mitigate the impacts. **Exception:** Exempted are recognized utility corridors.

STIPULATION	DESCRIPTION/PURPOSE
	Modification: None **Waiver:** None
UT-S-159	**CONTROLLED SURFACE USE – VISUAL RESOURCES - VRM II** Within VRM II areas, surface-disturbing activities will retain the existing character of the landscape. The level of change to the landscape should be low. Management activities may be seen, but should not attract attention of the casual observer. Any change to the landscape must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape. **Exception**: Exempted are recognized utility corridors. **Modification**: None **Waiver**: None
UT-S-195	**NO SURFACE OCCUPANCY – GREATER SAGE-GROUSE LEKS** No surface-disturbing activities within 1/4 mile of active Greater Sage-Grouse leks year-round found outside of Priority Habitat Management Areas (PHMA). **Exception:** None **Modification:** None **Waiver:** None
UT-S-205	**TIMING LIMITATION – GREATER SAGE-GROUSE BROOD REARING AND NESTING** No surface-disturbing activities within 2 miles of active Greater Sage-Grouse leks found outside of Priority Habitat Management Areas (PHMA) within brood rearing and nesting habitat from March 1 - June 15. **Exception:** None **Modification:** None **Waiver:** None
UT-S-206	**CONTROLLED SURFACE USE – GREATER SAGE-GROUSE (NOISE REDUCTION)** Within ½ mile of known active Greater Sage-Grouse leks found outside of Priority Habitat Management Areas (PHMA) use the best available technology such as installation of multi-cylinder pumps, hospital sound reducing mufflers, and placement of exhaust systems to reduce noise. **Exception: None** **Modification: None** **Waiver: None**

STIPULATION	DESCRIPTION/PURPOSE
UT-S-207	**CONTROLLED SURFACE USE – GREATER SAGE-GROUSE (STRUCTURES)** No permanent facilities or structures would be allowed within 2 miles of Greater Sage-Grouse leks found outside of Priority Habitat Management Areas (PHMA) when possible. **Exception:** None **Modification:** None **Waiver:** None
UT-S-221	**CONTROLLED SURFACE USE/TIMING LIMITATIONS – UTAH PRAIRIE DOG** The Lessee/Operator is given notice that lands in this lease may contain historic and/or occupied Utah prairie dog habitat, a threatened species under the Endangered Species Act (ESA). Avoidance or use restrictions may be placed on portions of the lease. Application of appropriate measures will depend on whether the action is temporary or permanent, and whether it occurs when prairie dogs are active or hibernating. A temporary action is completed prior to the following active season leaving no permanent structures and resulting in no permanent habitat loss. A permanent action continues for more than one activity/hibernation season and/or causes a loss of Utah prairie dog habitat or displaces prairie dogs through disturbances (e.g., creation of a permanent structure). The following avoidance and minimization measures have been designed to ensure activities carried out on the lease are in compliance with the ESA. Integration of, and adherence to, these measures will facilitate review and analysis of any submitted permits under the authority of this lease. Following these measures could reduce the scope of ESA Section 7 consultation at the permit stage. Current avoidance and minimization measures include the following: 1. Surveys will be required prior to operations unless species occupancy and distribution information is complete and available. All surveys must be conducted by qualified individual(s). 2. Lease activities will required monitoring throughout the duration of the project. To ensure desired results are being achieved, minimization measures will be evaluated and, if necessary, Section 7 consultation reinitiated. 3. Where technically and economically feasible, use directional drilling or multiple wells from the same pad to reduce surface disturbance and eliminate drilling in prairie dog habitat. 4. Surface occupancy or other surface disturbing activity will be avoided within 0.5 mile of active prairie dog colonies.

STIPULATION	DESCRIPTION/PURPOSE
	5. Permanent surface disturbance or facilities will be avoided within 0.5 mile of potentially suitable, unoccupied prairie dog habitat, identified and mapped by Utah Division of Wildlife Resources since 1976. 6. The lessee/operator should consider if fencing infrastructure on well pad, e.g., drill pads, tank batteries, and compressors, would be needed to protect equipment from burrowing activities. In addition, the operator should consider if future surface disturbing activities would be required at the site. 7. Within occupied habitat, set a 25 mph speed limit on operator-created and maintained roads. 8. Limit disturbances to and within suitable habitat by staying on designated routes. 9. Limit new access routes created by the project. Additional measures to avoid or minimize effects to the species may be developed and implemented in consultation with USFWS between the lease sale stage and lease development stage to ensure continued compliance with the ESA. **Exception**: None **Modification**: None **Waiver**: None
UT-S-230	**TIMING LIMITATION – CRUCIAL DEER AND ELK WINTER RANGE** No surface disturbing activities in deer and elk crucial winter range from December 1 - April 30. Exception: This restriction would not apply if and/or elk are not present, or if it is determined through analysis and coordination with UDWR that impacts could be mitigated. Factors to be considered would include snow depth, temperature, snow crusting, location of disturbance, forage quantity and quality, animal condition, and expected duration of disturbance. Modification: The stipulation could be modified based on findings of collaborative monitoring and analysis. For example, the winter range configuration and time frames could be changed if current animal use patterns are determined to be inconsistent with the dates and boundaries established. Waiver: This stipulation could be waived if it is determined through collaborative monitoring and analysis that the area is not crucial winter range or that timing restrictions are unnecessary.

STIPULATION	DESCRIPTION/PURPOSE
UT-S-233	**TIMING LIMITATION – CRUCIAL MULE DEER AND ELK WINTER HABITAT** Restrict surface disturbing activities in crucial mule deer and elk habitats from **December 15 to April 15** to protect winter habitats. **Exception**: This stipulation does not apply to the maintenance and operation of existing and ongoing facilities. An exception may be granted by the Field Manager if the operator submits a plan that demonstrates that impacts from the proposed action can be adequately mitigated or it is determined the habitat is not being used during the winter period for any given year. **Modification**: The Field Manager may modify the boundaries of the stipulation area if (1) a portion of the area is not being used as crucial winter range by deer/elk, (2) habitat outside of stipulation boundaries is being used as crucial winter range and needs to be protected, or (3) the migration patterns have changed causing a difference in the season of use. **Waiver**: A waiver may be granted if the winter range habitat is unsuitable or unoccupied during winter months by deer/elk and there is no reasonable likelihood of future winter range use.
UT-S-261	**TIMING LIMITATION – RAPTOR BUFFERS** Raptor management will be guided by the use of "Best Management Practices for Raptors and Their Associated Habitats in Utah" (Utah BLM, 2006, Appendix A), utilizing seasonal and spatial buffers, as well as mitigation, to maintain and enhance raptor nesting and foraging habitat, while allowing other resource uses. **Exception**: None **Modification**: Criteria that would need to be met, prior to implementing modifications to the spatial and seasonal buffers in the "*Raptor BMPs",* would include the following: 1. Completion of a site-specific assessment by a wildlife biologist or other qualified individual. See example (Attachment 1 of the Raptor BMPs in Appendix A) 2. Written documentation by the BLM Field Office Wildlife Biologist, identifying the proposed modification and affirming that implementation of the proposed modification(s) would not affect nest success or the suitability of the site for future nesting. Modification of the *"*BMPs*"* would not be recommended if it is determined that adverse impacts to nesting raptors would occur or that the suitability of the site for future nesting would be compromised. 3. Development of a monitoring and mitigation strategy by a BLM biologist, or other raptor biologist. Impacts of authorized activities would be documented to determine if the modifications were implemented as described in the environmental documentation or Conditions of Approval, and were adequate to protect the nest site. Should adverse impacts be identified during monitoring of an activity,

STIPULATION	DESCRIPTION/PURPOSE
	BLM would follow an appropriate course of action, which may include cessation or modification of activities that would avoid, minimize or mitigate the impact, or, with the approval of UDWR and the USFWS, BLM could allow the activity to continue while requiring monitoring to determine the full impact of the activity on the affected raptor nest. A monitoring report would be completed and forwarded to UDWR for incorporation into the Natural Heritage Program (NHP) raptor database. **Waiver**: None
UT-S-276	**CONTROLLED SURFACE USE/TIMING LIMITATIONS – BALD EAGLE** The Lessee/Operator is given notice that the lands in this parcel contains nesting/winter roost habitat for the bald eagle, a federally listed species. Avoidance or use restrictions may be placed on portions of the lease. Application of appropriate measures will depend on whether the action is temporary or permanent, and whether it occurs within or outside the bald eagle breeding or roosting season. A temporary action is completed prior to the following breeding or roosting season, leaving no permanent structures and resulting in no permanent habitat loss. A permanent action continues for more than one breeding or roosting season and/or causes a loss of eagle habitat or displaces eagles through disturbances (e.g., creation of a permanent structure). The following avoidance and minimization measures have been designed to ensure activities carried out on the lease are in compliance with the Endangered Species Act (ESA). Integration of, and adherence to, these measures will facilitate review and analysis of any submitted permits under the authority of this lease. Following these measures could reduce the scope of ESA Section 7 consultation at the permit stage. Current avoidance and minimization measures include the following: 1. Surveys will be required prior to operations, unless species occupancy and distribution information is complete and available. All surveys must be conducted by qualified individual(s), and be conducted according to protocol. 2. Lease activities will require monitoring throughout the duration of the project. To ensure desired results are being achieved, minimization measures will be evaluated and, if necessary, Section 7 consultation reinitiated. 3. Water production will be managed to ensure maintenance or enhancement of riparian habitat. 4. Temporary activities within 1.0 mile of nest sites will not occur during the breeding season of January 1 to August 31, unless the area has been surveyed according to protocol and determined to be unoccupied. 5. Temporary activities within 0.5 miles of winter roost areas, e.g., cottonwood galleries, will not occur during the winter roost season of

STIPULATION	DESCRIPTION/PURPOSE
	November 1 to March 31, unless the area has been surveyed according to protocol and determined to be unoccupied. 6. No permanent infrastructure will be placed within 1.0 mile of nest sites. 7. No permanent infrastructure will be placed within 0.5 miles of winter roost areas. 8. Remove big game carrion from within 100 feet from lease roadways occurring within bald eagle foraging range. 9. Avoid loss or disturbance to large cottonwood gallery riparian habitats. 10. Where technically and economically feasible, use directional drilling or multiple wells from the same pad to reduce surface disturbance and eliminate drilling in suitable habitat. Utilize directional drilling to avoid direct impacts to large cottonwood gallery riparian habitats. Ensure that such directional drilling does not intercept or degrade alluvial aquifers. 11. All areas of surface disturbance within riparian areas and/or adjacent uplands should be re-vegetated with native species. Additional measures may also be employed to avoid or minimize effects to the species between the lease sale stage and lease development stage. These additional measures will be developed and implemented in consultation with the U.S. Fish and Wildlife Service to ensure continued compliance with the ESA. **Exception**: None **Modification**: None **Waiver**: None
UT-S-278	**CONTROLLED SURFACE USE – BALD EAGLE WINTER ROOST** Protect and restore cottonwood bottoms for bald eagle winter habitat along the Green and White Rivers, at Pelican Lake, and at the Cliff Creek Bald Eagle roost site, as well as any new roost sites discovered in the future. **Exception**: None **Modification**: None **Waiver**: None
UT-S-299	**CONTROLLED SURFACE USE/TIMING LIMITATIONS – BLACK-FOOTED FERRET – PRIMARY MANAGEMENT ZONE AREA** BLM will manage the black-footed ferrets and the black-footed ferret primary management zone (PMZ) consistent with the Black-footed Ferret Reintroduction Plan Amendment (UT-080-1999-02) and those portions of the Cooperative Plan for the Reintroduction and Management of Black-footed Ferret in Coyote Basin, Uintah County, Utah that are consistent with this plan amendment. New power lines constructed through the PMZ will be raptor proof.

STIPULATION	DESCRIPTION/PURPOSE
	Management activities within the PMZ will be conducted with the objective of maintaining at least 10,000 acres of prairie dog colonies. According to the US Fish and Wildlife Service (USFWS) and the Utah Division of Wildlife Resources (UDWR), a minimum of 8,000 acres is acceptable as long as the ferret habitat rating (the number of ferret families the habitat can support) does not fall below 50% of the 1989 levels. Whenever possible, such activities will avoid prairie dog habitat. Otherwise, activities will be designed to impact the smallest area possible and/or those areas with the lowest prairie dog densities. The creation of additional prairie dog habitat (e.g. burning vegetation and drilling new holes, etc.) will be required only if the disturbance or development reduces the prairie dog acreage below the 8,000 acre threshold. The period between breeding and emergence of young is a period of "sensitivity" for ferrets. This period extends from March 1 to July 15. The period between birth and emergence of young is a period of "critical" importance for successful ferret productivity. This period extends from May 1 to July 15. Activities involving the development or construction of temporary or permanent surface disturbances will be prohibited within 1/8 mile boundaries of known home ranges of female ferrets during the "critical" period from May 1 thru July15. The home ranges will be determined from data obtained from radio collard animals. Previously existing or permitted operations which may occur within these boundaries will continue normal operations; however, no new surface disturbances will be initiated at these sites during the "critical" period. If a ferret is discovered at a commercial facility (e.g. Gilsonite mine, well pad, power plant), it will then be decided by the USFWS and UDWR, if removal of the ferret was necessary and, if so, removal will be initiated within 48 hours. If the targeted animal(s) cannot be captured within 72 hours of the commencement of trapping activities, such activities will cease and be replaced by a monitoring program to ascertain the status of the animal(s). Further attempts to remove the subject animal(s) will be based on this monitoring. If ferrets are discovered at the site of a proposed commercial operation, then mitigation in the form of: delay of activities, movement of ferret(s), offsite prairie dog habitat development, redesign of activities, or any combination of the above will be required. The course of events chosen will be determined cooperatively by the operator, UDWR, the USFWS, and land management agencies. **Exception**: Retrofitting of existing poles and towers to raptor proof standards will not be required. Maintenance or construction of previously existing or permitted operations can continue. Ephemeral surface disturbance (disturbance in prairie dog habitat for less than six months, after which it again becomes or can be made suitable for prairie dog use), such as

STIPULATION	DESCRIPTION/PURPOSE
	prescribed fire or herbicide treatment, may be conducted within 1/8 mile of the boundary of the home range of a female from March 1 to May 1. In general, the disturbance should be completed before the critical period begins. The USFWS, UDWR, and the land management agencies will determine if this exemption applies. Normal travel and surveying activities will not be restricted. **Modification**: None **Waiver**: None
UT-S-314	**CONTROLLED SURFACE USE/TIMING LIMITATIONS – UTE LADIES'-TRESSES (*SPIRANTHES DILUVIALIS*)** In order to minimize effects to the federally threatened Ute ladies'-tresses, the Bureau of Land Management (BLM) in coordination with the U.S. Fish and Wildlife Service (Service), developed the following avoidance and minimization measures. Integration of and adherence to these measures will help ensure the activities carried out during oil and gas development (including but not limited to drilling, production, and maintenance) are in compliance with the Endangered Species Act (ESA). Ute ladies'-tresses habitat is provided some protection under Executive Orders 11990 (wetland protection) and 11988 (floodplain management), as well as section 404 of the Clean Water Act. For the purposes of this document, the follow terms are so defined: • *Potential habitat* is defined as areas that satisfy the broad criteria of the species habitat description; usually determined by preliminary, in-house assessment. • *Suitable habitat* is defined as areas which contain or exhibit the specific components or constituents necessary for plant persistence; determined by field inspection and/or surveys; may or may not contain Ute Ladies'-tresses; habitat descriptions can be found in Federal Register Notice and species recovery plan links at <http://www.fws.gov/endangered/wildlife.html>. • *Occupied habitat* is defined as areas currently or historically known to support Ute Ladies'-tresses; synonymous with "known habitat." Although plants, habitat, or populations may be afforded some protection under these regulatory mechanisms, the following conservation measures should be included in the Plan of Development: 1. Pre-project habitat assessments will be completed across 100% of the project disturbance area, including areas where hydrology might be affected by project activities, within potential habitat prior to any ground disturbing activities to determine if suitable Ute ladies'-tresses habitat is present. 2. Within suitable habitat site inventories will be conducted to determine occupancy. Inventories:

STIPULATION	DESCRIPTION/PURPOSE
	a. Must be conducted by qualified individual(s) and according to BLM and Service accepted survey protocols, b. Will be conducted in suitable and occupied habitat for all areas proposed for surface disturbance or areas that could experience direct or indirect changes in hydrology from project activities, c. Will be conducted prior to initiation of project activities and within the same growing season, at a time when the plant can be detected, and during appropriate flowering periods (usually August 1st and August 31st in the Uintah Basin; however, surveyors should verify that the plant is flowering by contacting a BLM or FWS botanist or demonstrating that the nearest known population is in flower), d. Will occur within 300' from the centerline of the proposed right-of-way for surface pipelines or roads; and within 300' from the perimeter of disturbance for the proposed well pad including the well pad, e. Will include, but not be limited to, plant species lists, habitat characteristics, source of hydrology, and estimated hydroperiod, and f. Will be valid until August 1st the following year. 3. Design project infrastructure to minimize direct or indirect impacts to suitable habitat both within and downstream of the project area: a. Alteration and disturbance of hydrology will not be permitted, b. Reduce well pad size to the minimum needed, without compromising safety, c. Limit new access routes created by the project, d. Roads and utilities should share common right-of-ways where possible, e. Reduce width of right-of-ways and minimize the depth of excavation needed for the road bed, f. Construction and right-of-way management measures should avoid soil compaction that would impact Ute ladies'-tresses habitat, g. Off-site impacts or indirect impacts should be avoided or minimized (i.e. install berms or catchment ditches to prevent spilled materials from reaching occupied or suitable habitat through either surface or groundwater), h. Place signing to limit off-road travel in sensitive areas, i. Stay on designated routes and other cleared/approved areas, and j. All disturbed areas will be re-vegetated with species approved by FWS and BLM botanists. 4. Within occupied habitat project infrastructure will be designed to avoid direct disturbance and minimize indirect impacts to populations and to individual plants:

STIPULATION	DESCRIPTION/PURPOSE
	a. Follow the above (3.) recommendations for project design within suitable habitats, b. Buffers of 300' minimum between right of way (roads and surface pipelines) or surface disturbance (well pads) and plants and populations will be incorporated, c. Surface pipelines will be laid such that a 300' buffer exists between the edge of the right of way and the plants, using stabilizing and anchoring techniques when the pipeline crosses habitat to ensure the pipelines don't move towards the population, d. Before and during construction, areas for avoidance should be visually identifiable in the field, e.g., flagging, temporary fencing, rebar, etc., e. Where technically and economically feasible, use directional drilling or multiple wells from the same pad, f. Designs will avoid altering site hydrology and concentrating water flows or sediments into occupied habitat, g. Place produced oil, water, or condensate tanks in centralized locations, away from occupied habitat, with berms and catchment ditches to avoid or minimize the potential for materials to reach occupied or suitable habitat, and h. Minimize the disturbed area of producing well locations through interim and final reclamation. Reclaim well pads following drilling to the smallest area possible. 5. Occupied Ute ladies'-tresses habitats within 300' of the edge of the surface pipelines' right-of-ways, 300' of the edge of the roads' right-of-ways, and 300' from the edge of the well pad shall be monitored for a period of three years after ground disturbing activities. Monitoring will include annual plant surveys to determine plant and habitat impacts relative to project facilities. Habitat impacts include monitoring any changes in hydrology due to project related activities. Annual reports shall be provided to the BLM and the Service. To ensure desired results are being achieved, minimization measures will be evaluated and may be changed after a thorough review of the monitoring results and annual reports during annual meetings between the BLM and the Service. 6. Re-initiation of section 7 consultation with the Service will be sought immediately if any loss of plants or occupied habitat for the Ute ladies'-tresses is anticipated as a result of project activities. Additional site-specific measures may also be employed to avoid or minimize effects to the species. These additional measures will be developed and implemented in consultation with the U.S. Fish and Wildlife Service to ensure continued compliance with the ESA. **Exception**: None

STIPULATION	DESCRIPTION/PURPOSE
	Modification: None **Waiver**: None

Table 47 Utah Lease Notices

NOTICE	DESCRIPTION/PURPOSE
UT-LN-13	**PRONGHORN WINTER HABITAT** The lessee/operator is given notice that lands in this lease have been identified as containing crucial pronghorn winter habitat. Surface use or otherwise disruptive activity may be restricted for up to 60 days during pronghorn fawning season, as determined by BLM, including exploration, drilling and other development activities. Modifications may be required in the Surface Use Plan of Operations including seasonal timing restrictions to protect the species and its habitat.
UT-LN-20	**ROCKY MOUNTAIN/DESERT BIGHORN SHEEP CRUCIAL LAMBING AND RUTTING HABITAT** The Lessee/Operator is given notice that the lands in this parcel contains habitat for bighorn sheep. Modifications to the surface use plan may be required in order to protect habitat from surface disturbing activities. Surface use or otherwise disruptive activity may be restricted for up to 60 days during pronghorn fawning season, as determined by BLM. These modifications may include such measures as timing restrictions to avoid surface use during the crucial lambing and rutting seasons. Measure may also include avoidance of certain areas such as water sources and talus slopes.
UT-LN-44	**RAPTORS** Appropriate seasonal and spatial buffers shall be placed on all known raptor nests in accordance with Utah Field Office Guidelines for Raptor Protection from Human and Land use Disturbances (USFWS 2002) and Best Management Practices for Raptors and their Associated Habitats in Utah (BLM 2006). All construction related activities will not occur within these buffers if pre-construction monitoring indicates the nests are active, unless a site-specific evaluation for active nests is completed prior to construction and if a BLM wildlife biologist, in consultation with USFWS and UDWR, recommends that activities may be permitted within the buffer. The BLM will coordinate with the USFWS and UDWR and have a recommendation within 3-5 days of notification. Any construction activities authorized within a protective (spatial and seasonal) buffer for raptors will require an on-site monitor. Any indication that activities are adversely affecting the raptor and/or it's young the on-site monitor will suspend activities and contact the BLM AO immediately. Construction may occur within the buffers of inactive nests. Construction activities may commence once monitoring of the active nest site determines that fledglings have left the nest and are no longer

	dependent on the nest site. Modifications to the Surface Use Plan of Operations may be required in accordance with Section 6 of the lease terms and 43 CFR 3101.1-2.
UT-LN-45	**MIGRATORY BIRD** The lessee/operator is given notice that surveys for nesting migratory birds may be required during migratory bird breeding season whenever surface disturbances and/or occupancy is proposed in association with fluid mineral exploration and development within priority habitats. Surveys should focus on identified priority bird species in Utah. Field surveys will be conducted as determined by the AO of the Bureau of Land Management. Based on the result of the field survey, the AO will determine appropriate buffers and timing limitations.
UT-LN-49	**UTAH SENSITIVE SPECIES** The lessee/operator is given notice that no surface use or otherwise disruptive activity would be allowed that would result in direct disturbance to populations or individual special status plant and animal species, including those listed on the BLM sensitive species list and the Utah sensitive species list. The lessee/operator is also given notice that lands in this parcel have been identified as containing potential habitat for species on the Utah Sensitive Species List. Modifications to the Surface Use Plan of Operations may be required in order to protect these resources from surface disturbing activities in accordance with Section 6 of the lease terms, Endangered Species Act, Migratory Bird Treaty Act and 43 CFR 3101.1-2.
UT-LN-50	**HABITAT RESTORATION** The lessee/operator is given notice that lands in this lease have an existing habitat restoration project present. Modifications to the Surface Use Plan of Operations may be required or other appropriate mitigation as deemed necessary by the BLM Authorized Officer.
UT-LN-51	**SPECIAL STATUS PLANTS: NOT FEDERALLY LISTED** The lessee/operator is given notice that lands in this lease have been identified as containing special status plants, not federally listed, and their habitats. Modifications to the Surface Use Plan of Operations may be required in order to protect the special status plants and/or habitat from surface disturbing activities in accordance with Section 6 of the lease terms, Endangered Species Act, and 43 CFR 3101.1-2.
UT-LN-52	**NOXIOUS WEEDS** The lessee/operator is given notice that lands in this lease have been identified as containing or is near areas containing noxious weeds. Best management practices to prevent or control noxious weeds may be required for operations on the lease. Modifications to the Surface Use Plan of Operations may be required in accordance with section 6 of the lease terms and 43CFR3101.1-2.

UT-LN-53	**RIPARIAN AREAS** The lessee/operator is given notice that this lease has been identified as containing riparian areas. No surface use or otherwise disruptive activity allowed within 100 meters of riparian areas unless it can be shown that (1) there is no practicable alternative; (2) that all long-term impacts are fully mitigated; or (3) that the construction is an enhancement to the riparian areas. Modifications to the Surface Use Plan of Operations may be required in accordance with section 6 of the lease terms and 43 CFR 3101.1-2.
UT-LN-56	**DRINKING WATER SOURCE PROTECTION ZONE** This lease (or a portion thereof) is within a public Drinking Water Source Protection zone. Before application for a permit to drill (APD) submittal or any proposed surface-disturbing activity, the lessee/operator must contact the public water system manager to determine any zoning ordinances, best management or pollution prevention measures, or physical controls that may be required within the protection zones. Drinking Water Source Protection plans are developed by the public water systems under the requirements of R309-600. Drinking Water Source Protection for Ground-Water Sources. (Utah Administrative Code). There may also be county ordinances in place to protect the source protection zones, as required by Section 19-4-113 of the Utah Code. Incorporated cities and towns may also protect their drinking water sources using Section 10-8-15 of the Utah Code. This part of the Code gives cities and towns the extraterritorial authority to enact ordinances to protect a source of drinking water ... "For 15 miles above the point from which it is taken and for a distance of 300 feet on each side of such stream..." Class I cities (greater than 100,000 population) are granted authority to protect their entire watersheds. Some public water sources qualify for monitoring waivers which reduce their monitoring requirements for pesticides and volatile organic chemicals (VOCs). Exploration, drilling, and production activities within Source Protection zone 3 could jeopardize these waivers, thus requiring increased monitoring. Contact the public water system to determine what effect your activities may have on their monitoring waivers. Please be aware of other State rules to protect surface and ground water: the Utah Division of Water Quality Rules R317 Water Quality Rules; and Rules of the Utah Division of Oil, Gas and Mining, Utah Oil and Gas Conservation Rules R649. At the time of development, drilling operators will additionally conform to the operational regulations in Onshore Oil & Gas Order No. 2 (which requires the protection and isolation of all usable quality waters, ≤ 10,000 mg/L Total Dissolved Solids), Onshore Oil and Gas Order No. 7 (which prescribes measures required for the handling of produced water to insure the protection of surface and ground water sources) and the Surface Operating Standards and Guidelines for Oil and Gas Development, The Gold Book, Fourth Edition-Revised 2007 (which provides information and requirements for conducting environmentally responsible oil and gas operations). Additional mitigation measures may be necessary to prevent adverse impacts from oil and gas exploration and development activities. Mitigation measures may include submitting an erosion control plan with best management

	practices (BMPs) that address rigorous interim reclamation which might include surface roughening, vegetative buffer strips, etc.; and sediment control through the use of sediment logs, silt fences, erosion control blankets, outlet/inlet protection of water control features such as culverts or diversion ditches, sediment traps, run on/run off pad design features. If project activities are close to sensitive areas or water sources a semi or closed-loop drilling system should be required.
UT-LN-72	**HIGH POTENTIAL PALEONTOLOGICAL RESOURCES** The lessee/operator is given notice that lands in this lease have been identified as having high potential for paleontological resources. Surveys will be required and modifications to the Surface Use Plan of Operations may be required in order to protect paleontological resources from surface disturbing activities in accordance with Section 6 of the lease terms and 43 CFR 3101.12. In addition, monitoring may be required during surface disturbing activities.
UT-LN-83	**SITE ROW** The lessee/operator is given notice that lands in this lease have an existing site ROW present. Modifications to the Surface Use Plan of Operations may be required or other appropriate mitigation as deemed necessary by the BLM Authorized Officer in order to protect the valid existing rights.
UT-LN-96	**AIR QUALITY MITIGATION MEASURES** The lessee is given notice that the Bureau of Land Management (BLM) in coordination with the U.S. Environmental Protection Agency and the Utah Department of Air Quality, among others, has developed the following air quality mitigation measures that may be applied to any development proposed on this lease. Integration of and adherence to these measures may help minimize adverse local or regional air quality impacts from oil and gas development (including but not limited to construction, drilling, and production) on regional ozone formation. • All internal combustion equipment would be kept in good working order. • Water or other approved dust suppressants would be used at construction sites and along roads, as determined appropriate by the AO. • Open burning of garbage or refuse would not occur at well sites or other facilities. • Drill rigs would be equipped with Tier II or better diesel engines. • Vent emissions from stock tanks and natural gas TEG dehydrators would be controlled by routing the emissions to a flare or similar control device which would reduce emissions by 95% or greater. • Low bleed or no bleed pneumatics would be installed on separator dump valves and other controllers. • During completion, flaring would be limited as much as possible. Production equipment and gathering lines would be installed as soon as possible.

	• Well site telemetry would be utilized as feasible for production operations. • Stationary internal combustion engine would comply with the following standards: 2g NOx/bhp-hr for engines <300HP; and 1g NOx/bhp-hr for engines >300HP. Additional site-specific measures may also be employed to avoid or minimize effects to local or regional air quality. These additional measures will be developed and implemented in coordination with the U.S. Environmental Protection Agency, the Utah Department of Air Quality, and other agencies with expertise or jurisdiction as appropriate based on the size of the project and magnitude of emissions.
UT-LN-99	**REGIONAL OZONE FORMATION CONTROLS** To mitigate any potential impact oil and gas development emissions may have on regional ozone formation, the following Best Management Practices (BMPs) would be required for any development projects: • Tier II or better drilling rig engines • Stationary internal combustion engine standard of 2g NOx/bhp-hr for engines <300HP and 1g NOx/bhp-hr for engines >300HP • Low bleed or no bleed pneumatic pump valves • Dehydrator VOC emission controls to +95% efficiency Tank VOC emission controls to +95% efficiency.
UT-LN-102	**AIR QUALITY ANALYSIS** The lessee/operator is given notice that prior to project-specific approval, additional air quality analyses may be required to comply with the National Environmental Policy Act, Federal Land Policy Management Act, and/or other applicable laws and regulations. Analyses may include dispersion modeling and/or photochemical modeling for deposition and visibility impacts analysis, control equipment determinations, and/or emission inventory development. These analyses may result in the imposition of additional project-specific air quality control measures.
UT-LN-107	**BALD EAGLE** The Lessee/Operator is given notice that the lands in this parcel contains nesting/winter roost habitat for the bald eagle. The bald eagle was de-listed in 2007; however, it is still afforded protection under the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c, 1940). Therefore, avoidance or use restrictions may be placed on portions of the lease. Application of appropriate measures will depend on whether the action is temporary or permanent, and whether it occurs within or outside the bald eagle breeding or roosting season. A <u>temporary</u> action is completed prior to the following breeding or roosting season leaving no permanent structures and resulting in no permanent habitat loss. A <u>permanent</u> action continues for more than one breeding or roosting season and/or causes a loss of eagle habitat or displaces eagles through disturbances, i.e. creation of a permanent structure. The following avoidance and minimization measures have been designed to ensure activities carried out on the lease will not lead to the need to consider listing the eagle as

	threatened or endangered. Integration of, and adherence to the following measures will facilitate review and analysis of any submitted permits under the authority of this lease. Current avoidance and minimization measures include the following: 1. Surveys will be required prior to operations unless species occupancy and distribution information is complete and available. All Surveys must be conducted by qualified individual(s), and be conducted according to protocol. 2. Lease activities will require monitoring throughout the duration of the project. To ensure desired results are being achieved, minimization measures will be evaluated. 3. Water production will be managed to ensure maintenance or enhancement of riparian habitat. 4. Temporary activities within 1.0 mile of nest sites will not occur during the breeding season of January 1 to August 31, unless the area has been surveyed according to protocol and determined to be unoccupied. 5. Temporary activities within 0.5 miles of winter roost areas, e.g., cottonwood galleries, will not occur during the winter roost season of November 1 to March 31, unless the area has been surveyed according to protocol and determined to be unoccupied. 6. No permanent infrastructure will be placed within 1.0 mile of nest sites. 7. No permanent infrastructure will be placed within 0.5 miles of winter roost areas. 8. Remove big game carrion from within 100 feet of lease roadways occurring within bald eagle foraging range. 9. Avoid loss or disturbance to large cottonwood gallery riparian habitats. 10. Where technically and economically feasible, use directional drilling or multiple wells from the same pad to reduce surface disturbance and eliminate drilling in suitable habitat Utilize directional drilling to avoid direct impacts to large cottonwood gallery riparian habitats. Ensure that such directional drilling does not intercept or degrade alluvial aquifers. 11. All areas of surface disturbance within riparian areas and/or adjacent uplands should be re-vegetated with native species. Additional measures may also be employed to avoid or minimize effects to the species between the lease sale stage and lease development stage. These additional measures will be developed and implemented in coordination with the U.S. Fish and Wildlife Service.
UT-LN-115	**LIGHT AND SOUND** In accordance with the Vernal RMP Decision MIN-5, the BLM will seek to minimize light and sound pollution within the project area using the best available technology such as installation of multi-cylinder pumps, hospital sound reducing mufflers, and placement of exhaust systems to direct noise away from noise sensitive areas (e.g., sensitive habitat, campgrounds, river corridors, and Dinosaur National Monument). Light pollution will be

	mitigated by using methods such as limiting height of light poles, timing of lighting operations (meaning limiting lighting to times of darkness associated with drilling and work over or maintenance operations), limiting wattage intensity, and constructing light shields. If a determination is made that natural barriers or view sheds will meet these mitigation objectives, the above requirements may not apply.
UT-LN-128	**FLOODPLAIN MANAGEMENT** The lessee/operator is given notice that, in accordance with Executive Order 11988, to avoid adverse impact to floodplains: 1) facilities should be located outside the 100-year floodplain, or 2) would be minimized or mitigated by modification of surface use plans within floodplains present within the lease.
UT-LN-131	**GREATER SAGE-GROUSE– NET CONSERVATION GAIN** In Priority and General Habitat Management Areas (PHMA and GHMA) all actions that result in habitat loss and degradation will require mitigation that provides a net conservation gain to the Greater Sage-Grouse (GRSG). Mitigation must account for any uncertainty associated with the effectiveness of the mitigation and will be achieved through avoiding, minimizing and compensating for impacts. Mitigation will be conducted according to the mitigation framework found in Appendix F in the 2015 Utah Approved Management Plan Amendment.
UT-LN-132	**GREATER SAGE-GROUSE – REQUIRED DESIGN FEATURES** Apply the Required Design Features (RDF)* in Appendix C of the 2015 Utah Approved Management Plan Amendment when developing a lease in Priority and General Habitat Management Areas (PHMA and GHMA). *RDFs may not be required if it is demonstrated through the NEPA analysis that the RDF associated project/activity is: • Documented to not be applicable to the site-specific conditions of the project/activity (e.g. due to site limitations or engineering considerations). Economic considerations, such as increased costs, do not necessarily require that an RDF be varied or rendered inapplicable; • An alternative RDF, state-implemented conservation measure, or plan-level protection is determined to provide equal or better protection for GRSG or its habitat; • Provide no additional protection to GRSG or its habitat.
UT-LN-133	**GREATER SAGE-GROUSE - BUFFER** In Priority and General Habitat Management Areas (PHMA and GHMA), the BLM will apply the lek buffer-distances identified in the USGS Report Conservation Buffer Distance Estimates for Greater Sage-Grouse – A Review (Open File Report 2014-1239) in accordance with Appendix B, Applying Lek-Buffer Distances, consistent with valid and existing rights and applicable law in authorizing management actions.

UT-LN-156	**POLLINATORS AND POLLINATOR HABITAT** In order to protect pollinators and pollinator habitat, in accordance with BLM policy outlined in Instruction Memorandum No. 2016-013, Managing for Pollinators on Public Lands, and Pollinator-Friendly Best Management Practices for Federal Lands (2015), the following avoidance, minimization, and mitigation measures would apply to this parcel: 1. Give a preference for placing well pads in previously disturbed areas, dry areas that do not support forbs, or areas dominated by nonnative grasses. 2. Utilize existing well pads where feasible. 3. Avoid disturbance to native milkweed patches within Monarch migration routes to protect Monarch butterfly habitat. 4. Avoid disturbance of riparian and meadow sites, as well as small depressed areas that may function as water catchments and host nectar-producing species, to protect Monarch butterfly habitat and nectaring sites. 5. Minimize the use of pesticides that negatively impact pollinators. 6. During revegetation treatments: a. Use minimum till drills where feasible. b. Include pollinator-friendly site-appropriate native plant seeds or seedlings in seed mixes. c. Where possible, increase the cover and diversity of essential habitat components for native pollinators by: ▪ Using site-appropriate milkweed seeds or seedlings within Monarch migration routes through priority sage-grouse habitat. ▪ Using seed mixes with annual and short-lived perennial native forbs that will bloom the first year and provide forage for pollinators. ▪ Using seed mixes with a variety of native forb species to ensure different colored and shaped flowers to provide nectar and pollen throughout the growing season for a variety of pollinators. ▪ Seeding forbs in separate rows from grasses to avoid competition during establishment. Avoiding seeding non-native forbs and grasses that establish early and out compete slower-growing natives.

Table 48 Utah Threatened and Endangered Species Notices

NOTICE	DESCRIPTION/PURPOSE
T&E-02	**BLACK-FOOTED FERRET** The Lessee/Operator is given notice that the lands in this lease may contain occupied black-footed ferret habitat, an endangered species under the Endangered Species Act classified as an experimental, nonessential population in the state of Utah. Avoidance

NOTICE	DESCRIPTION/PURPOSE
	and minimization measures that should be followed are included within the *Cooperative Plan for the Reintroduction and Management of Black-Footed Ferrets in Coyote Basin, Uintah County, Utah* published by the Utah Division of Wildlife Resources in September, 1996. These measures may be updated based on the best available scientific data as it becomes available.
T&E-03	**ENDANGERED FISH OF THE UPPER COLORADO RIVER DRAINAGE BASIN** The Lessee/Operator is given notice that the lands in this parcel contain Critical Habitat for the Colorado River fish (bonytail, humpback chub, Colorado pike minnow, and razorback sucker) listed as endangered under the Endangered Species Act, or these parcels have watersheds that are tributary to designated habitat. Critical habitat was designated for the four endangered Colorado River fishes on March 21, 1994(59 FR 13374-13400). Designated critical habitat for all the endangered fishes includes those portions of the 100-year floodplain that contain primary constituent elements necessary for survival of the species. Avoidance or use restrictions may be placed on portions of the lease. The following avoidance and minimization measures have been designed to ensure activities carried out on the lease are in compliance with the Endangered Species Act. Integration of and adherence to these measures will facilitate review and analysis of any submitted permits under the authority of this lease. Following these measures could reduce the scope of Endangered Species Act, Section 7 consultation at the permit stage. Current avoidance and minimization measures include the following: 1. Surveys will be required prior to operations unless species occupancy and distribution information are complete and available. All surveys must be conducted by qualified individual(s). 2. Lease activities will require monitoring throughout the duration of the project. To ensure desired results are being achieved, minimization measures will be evaluated and, if necessary, Section 7 consultation reinitiated. 3. Water production will be managed to ensure maintenance or enhancement of riparian habitat. 4. Avoid loss or disturbance of riparian habitats. 5. Where technically and economically feasible, use directional drilling or multiple wells from the same pad to reduce surface disturbance and eliminate drilling in suitable riparian habitat. Ensure that such directional drilling does not intercept or degrade alluvial aquifers. 6. Conduct watershed analysis for leases in designated critical habitat and overlapping major tributaries in order to determine toxicity risk from permanent facilities. 7. Implement Appendix B (Hydrologic Considerations for Pipeline Crossing Stream Channels, Technical Note 423). 8. Drilling will not occur within 100-year floodplains of rivers or tributaries to rivers that contain listed fish species or critical habitat. 9. In areas adjacent to 100-year flood plains, particularly in systems prone to flash floods, analyze the risk for flash floods to impact facilities, and use closed loop drilling, and pipeline burial or suspension according to Appendix B (Hydrologic Considerations for Pipeline Crossing Stream Channels, Technical Note 423, to minimize the potential for equipment damage and resulting leaks or spills.

NOTICE	DESCRIPTION/PURPOSE
	Water depletions from *any* portion of the Upper Colorado River drainage basin above Lake Powell are considered to adversely affect or adversely modify the critical habitat of the four resident endangered fish species and must be evaluated with regard to the criteria described in the Upper Colorado River Endangered Fish Recovery Program. Formal consultation with USFWS is required for all depletions. All depletion amounts must be reported to BLM. Additional measures to avoid or minimize effects to the species may be developed and implemented in consultation with the U.S. Fish and Wildlife Service between the lease sale stage and lease development stage to ensure continued compliance with the Endangered Species Act (ESA).
T&E-05	**LISTED PLANT SPECIES** The Lessee/Operator is given notice that the lands in this parcel contain suitable habitat for federally listed plant species under the Endangered Species Act. The following avoidance and minimization measures have been developed to facilitate review and analysis of any submitted permits under the authority of this lease. 1) Site inventories: a) Must be conducted to determine habitat suitability, b) Are required in known or potential habitat for all areas proposed for surface disturbance prior to initiation of project activities, at a time when the plant can be detected, and during appropriate flowering periods, c) Documentation should include, but not be limited to individual plant locations and suitable habitat distributions, and d) All surveys must be conducted by qualified individuals. 2) Lease activities will require monitoring throughout the duration of the project. To ensure desired results are being achieved, minimization measures will be evaluated and, if necessary, Section 7 consultation reinitiated. 3) Project activities must be designed to avoid direct disturbance to populations and to individual plants: a) Designs will avoid concentrating water flows or sediments into plant occupied habitat. b) Construction will occur down slope of plants and populations where feasible; if well pads and roads must be sited upslope, buffers of 300 feet minimum between surface disturbances and plants and populations will be incorporated. c) Where populations occur within 300 ft. of well pads, establish a buffer or fence the individuals or groups of individuals during and post-construction. d) Areas for avoidance will be visually identifiable in the field (e.g., flagging, temporary fencing, rebar, etc.) e) For surface pipelines, use a 10-foot buffer from any plant locations: i) If on a slope, use stabilizing construction techniques to ensure the pipelines don't move towards the population. 4) For riparian/wetland-associated species (e.g., Ute ladies-tresses) avoid loss or disturbance of riparian habitats. 5) Ensure that water extraction or disposal practices do not result in change of hydrologic regime. 6) Limit disturbances to and within suitable habitat by staying on designated routes. 7) Limit new access routes created by the project.

NOTICE	DESCRIPTION/PURPOSE
	8) Place signing to limit ATV travel in sensitive areas. 9) Implement dust abatement practices near occupied plant habitat. 10) All disturbed areas will be re-vegetated with native species comprised of species indigenous to the area. 11) Post construction monitoring for invasive species will be required. 12) Where technically and economically feasible, use directional drilling or multiple wells from the same pad to reduce surface disturbance and eliminate drilling in plant habitat. Ensure that such directional drilling does not intercept or degrade alluvial aquifers. 13) Lease activities will require monitoring throughout the duration of the project. To ensure desired results are being achieved, minimization measures will be evaluated and, if necessary, Section 7 consultation reinitiated. Additional measures to avoid or minimize effects to the species may be developed and implemented in consultation with the U.S. Fish and Wildlife Service between the lease sale stage and lease development stage to ensure continued compliance with the Endangered Species Act.
T&E-06	**MEXICAN SPOTTED OWL** The Lessee/Operator is given notice that the lands in this parcel contain suitable habitat for Mexican spotted owl, a federally listed species. The Lessee/Operator is given notice that the lands in this lease contain Designated Critical Habitat for the Mexican spotted owl, a federally listed species. Critical habitat was designated for the Mexican spotted owl on August 31, 2004 (69 FR 53181-53298). Avoidance or use restrictions may be placed on portions of the lease. Application of appropriate measures will depend whether the action is temporary or permanent, and whether it occurs within or outside the owl nesting season. A temporary action is completed prior to the following breeding season leaving no permanent structures and resulting in no permanent habitat loss. A permanent action continues for more than one breeding season and/or causes a loss of owl habitat or displaces owls through disturbances, i.e. creation of a permanent structure. The following avoidance and minimization measures have been designed to ensure activities carried out on the lease are in compliance with the Endangered Species Act. Integration of, and adherence to these measures, will facilitate review and analysis of any submitted permits under the authority of this lease. Following these measures could reduce the scope of Endangered Species Act, Section 7 consultation at the permit stage. Current avoidance and minimization measures include the following: 1. Surveys will be required prior to operations unless species occupancy and distribution information is complete and available. All Surveys must be conducted by qualified individual(s). 2. Assess habitat suitability for both nesting and foraging using accepted habitat models in conjunction with field reviews. Apply the conservation measures below if project activities occur within 0.5 mile of suitable owl habitat. Determine potential effects of actions to owls and their habitat. a. Document type of activity, acreage and location of direct habitat impacts, type and extent of indirect impacts relative to location of suitable owl habitat. b. Document if action is temporary or permanent.

NOTICE	DESCRIPTION/PURPOSE
	3. Lease activities will require monitoring throughout the duration of the project. To ensure desired results are being achieved, minimization measures will be evaluated and, if necessary, Section 7 consultation reinitiated. 4. Water production will be managed to ensure maintenance or enhancement of riparian habitat. 5. Where technically and economically feasible, use directional drilling or multiple wells from the same pad to reduce surface disturbance and eliminate drilling in canyon habitat suitable for Mexican spotted owl nesting. 6. For all temporary actions that may impact owls or suitable habitat: a. If the action occurs entirely outside of the owl breeding season (March 1 – August 31), and leaves no permanent structure or permanent habitat disturbance, action can proceed without an occupancy survey. b. If action will occur during a breeding season, survey for owls prior to commencing activity. If owls are found, activity must be delayed until outside of the breeding season. c. Rehabilitate access routes created by the project through such means as raking out scars, re-vegetation, gating access points, etc. 7. For all permanent actions that may impact owls or suitable habitat: a. Survey two consecutive years for owls according to accepted protocol prior to commencing activities. b. If owls are found, no actions will occur within 0.5 mile of identified nest site. If nest site is unknown, no activity will occur within the designated Protected Activity Center (PAC). c. Avoid drilling and permanent structures within 0.5 mi of suitable habitat unless surveyed and not occupied. d. Reduce noise emissions (e.g., use hospital-grade mufflers) to 45 dBA at 0.5 mile from suitable habitat, including canyon rims. Placement of permanent noise-generating facilities should be determined by a noise analysis to ensure noise does not encroach upon a 0.5 mile buffer for suitable habitat, including canyon rims. e. Limit disturbances to and within suitable habitat by staying on approved routes. f. Limit new access routes created by the project. Additional measures to avoid or minimize effects to the species may be developed and implemented in consultation with the U.S. Fish and Wildlife Service between the lease sale stage and lease development stage to ensure continued compliance with the Endangered Species Act.
T&E-09	**UTAH PRAIRIE DOG** The lessee/operator is given notice that lands in this lease may contain historic and/or occupied Utah prairie dog habitat, a threatened species under the Endangered Species Act. Avoidance or use restrictions may be placed on portions of the lease. Application of appropriate measures will depend whether the action is temporary or permanent, and whether it occurs when prairie dogs are active or hibernating. A temporary action is completed prior to the following active season leaving no permanent structures and resulting in no permanent habitat loss. A permanent action continues for more than one activity/hibernation season and/or causes a loss of Utah prairie dog habitat or displaces

NOTICE	DESCRIPTION/PURPOSE
	prairie dogs through disturbances, i.e. creation of a permanent structure. The following avoidance and minimization measures have been designed to ensure activities carried out on the lease are in compliance with the Endangered Species Act. Integration of, and adherence to these measures will facilitate review and analysis of any submitted permits under the authority of this lease. Following these measures could reduce the scope of Endangered Species Act, Section 7 consultation at the permit stage. Current avoidance and minimization measures include the following: 1. Surveys will be required prior to operations unless species occupancy and distribution information is complete and available. All Surveys must be conducted by qualified individual(s). 2. Lease activities will require monitoring throughout the duration of the project. To ensure desired results are being achieved, minimization measures will be evaluated and, if necessary, Section 7 consultation reinitiated. 3. Where technically and economically feasible, use directional drilling or multiple wells from the same pad to reduce surface disturbance and eliminate drilling in prairie dog habitat. 4. Surface occupancy or other surface disturbing activity will be avoided within 0.5 mile of active prairie dog colonies. 5. Permanent surface disturbance or facilities will be avoided within 0.5 mile of potentially suitable, unoccupied prairie dog habitat, identified and mapped by Utah Division of Wildlife Resources since 1976. 6. The lessee/operator should consider if fencing infrastructure on well pad, e.g., drill pads, tank batteries, and compressors, would be needed to protect equipment from burrowing activities. In addition, the operator should consider if future surface disturbing activities would be required at the site. 7. Within occupied habitat, set a 25 mph speed limit on operator-created and maintained roads. 8. Limit disturbances to and within suitable habitat by staying on designated routes. 9. Limit new access routes created by the project. Additional measures to avoid or minimize effects to the species may be developed and implemented in consultation with the U.S. Fish and Wildlife Service between the lease sale stage and lease development stage to ensure continued compliance with the ESA.
T&E-21	**SHRUBBY REED - MUSTARD (*SCHOENOCRAMBE SUFFRUTESCENS)*** The Lessee/Operator is given notice that the lands in this parcel contain suitable habitat for shrubby reed-mustard under the Endangered Species Act. The following avoidance and minimization measures have been developed to facilitate review and analysis of any submitted permits under the authority of this lease. In order to minimize effects to the federally endangered shrubby reed-mustard, the Bureau of Land Management (BLM) in coordination with the U.S. Fish and Wildlife Service (Service) developed the following avoidance and minimization measures. Integration of and adherence to these measures will help ensure the activities carried out during oil and gas development (including but not limited to drilling, production, and maintenance) are in compliance with the Endangered Species Act (ESA). For the purposes of this document, the following terms are so defined: Potential

NOTICE	DESCRIPTION/PURPOSE
	habitat is defined as areas which satisfy the broad criteria of the species habitat description; usually determined by preliminary, in-house assessment. Suitable habitat is defined as areas which contain or exhibit the specific components or constituents necessary for plant persistence; determined by field inspection and/or surveys; may or may not contain shrubby reed-mustard; habitat descriptions can be found in the Federal Register 52(193):37416-37420 and in the U.S. Fish and Wildlife Service's 1994 Utah Reed-Mustards Recovery Plan (http://www.fws.gov/endangered/wildlife.html). Occupied habitat is defined as areas currently or historically known to support shrubby reed-mustard; synonymous with "known habitat." The following avoidance and minimization measures should be included in the Plan of Development: 1. Pre-project habitat assessments will be completed across 100% of the project disturbance area within potential habitat prior to any ground disturbing activities to determine if suitable shrubby reed-mustard habitat is present. 2. Within suitable habitat, site inventories will be conducted to determine occupancy. Inventories: a. Must be conducted by qualified individual(s) and according to BLM and Service accepted survey protocols, b. Will be conducted in suitable and occupied habitat for all areas proposed for surface disturbance prior to initiation of project activities and within the same growing season, at a time when the plant can be detected (April 15th to August 1st, unless extended by the BLM), c. Will occur within 300 feet from the edge of the proposed right-of-way for surface pipelines or roads; and within 300 feet from the perimeter of disturbance for the proposed well pad including the well pad, d. Will include, but not be limited to, plant species lists and habitat characteristics, and e. Will be valid until April 15th the following year. 3. Design project infrastructure to minimize impacts within suitable habitat: a. Reduce well pad size to the minimum needed, without compromising safety, b. Limit new access routes created by the project, c. Roads and utilities should share common right-of-ways where possible, d. Reduce the width of right-of-ways and minimize the depth of excavation needed for the road bed; where feasible, use the natural ground surface for the road within habitat, e. Place signing to limit off-road travel in sensitive areas, and f. Stay on designated routes and other cleared/approved areas. 4. Within occupied habitat, project infrastructure will be designed to avoid direct disturbance and minimize indirect impacts to populations and to individual plants: a. Follow the above (3.) recommendations for project design within suitable habitats, b. Construction of roads will occur such that the edge of the right of way is at least 300' from any plant, c. Roads will be graveled within occupied habitat; the operator is encouraged to apply water for dust abatement to such areas from April 15th to May 30th

NOTICE	DESCRIPTION/PURPOSE
	(flowering period); dust abatement applications will be comprised of water only, d. The edge of the well pad should be located at least 300 feet away from plants, e. Surface pipelines will be laid such that a 300-foot buffer exists between the edge of the right of way and the plants, use stabilizing and anchoring techniques when the pipeline crosses the white shale strata to ensure the pipelines don't move towards the population, f. Construction activities will not occur from April 15th through May 30th within occupied habitat, g. Before and during construction, areas for avoidance should be visually identifiable in the field, e.g., flagging, temporary fencing, rebar, etc., h. Where technically and economically feasible, use directional drilling or multiple wells from the same pad, i. Designs will avoid concentrating water flows or sediments into occupied habitat, j. Place produced oil, water, or condensate tanks in centralized locations, away from occupied habitat, and k. Minimize the disturbed area of producing well locations through interim and final reclamation. Reclaim well pads following drilling to the smallest area possible. 5. Occupied shrubby reed-mustard habitats within 300 feet of the edge of the surface pipeline right of ways, 300 feet of the edge of the road right of ways, and 300 feet from the edge of well pads shall be monitored for a period of three years after ground disturbing activities. Monitoring will include annual plant surveys to determine plant and habitat impacts relative to project facilities. Annual reports shall be provided to the BLM and the Service. To ensure desired results are being achieved, minimization measures will be evaluated and may be changed after a thorough review of the monitoring results and annual reports during annual meetings between the BLM and the Service. 6. Re-initiation of section 7 consultation with the Service will be sought immediately if any loss of plants or occupied habitat for the shrubby reed-mustard is anticipated as a result of project activities. Additional site-specific measures may also be employed to avoid or minimize effects to the species. These additional measures will be developed and implemented in consultation with the U.S. Fish and Wildlife Service to ensure continued compliance with the ESA.
T&E-31	**WESTERN YELLOW-BILLED CUCKOO** The Lessee/Operator is given notice that the lands in or adjacent to this parcel contain potentially suitable habitat that falls within the range for western yellow-billed cuckoo, a federally listed species. Avoidance or use restrictions may be placed on portions of the lease. Application of appropriate measures will depend upon whether the action is temporary or permanent, and whether it occurs within or outside the breeding and nesting season. A temporary action is completed prior to the following breeding season leaving no permanent structures and resulting in no permanent habitat loss. A permanent action could continue for more than one breeding season and/or cause a loss of habitat or displace western yellow-billed cuckoos through disturbances. The

NOTICE	DESCRIPTION/PURPOSE
	following avoidance and minimization measures have been designed to ensure activities carried out on the lease are in compliance with the Endangered Species Act. Integration of, and adherence to, these measures will facilitate review and analysis of any submitted permits under the authority of this lease. Following these measures could reduce the scope of Endangered Species Act, Section 7 consultation at the permit stage. Avoidance and minimization measures include the following: 1. Habitat suitability within, and within a 0.5-mile buffer, of the proposed project analysis area will be identified prior to lease development to identify potential survey needs. 2. If suitable or proposed critical habitat is present, protocol Breeding Season Surveys will be required within, and within 0.5-mile buffer, of the proposed project analysis area prior to operations unless species occupancy and distribution information is complete and available. All Surveys must be conducted by permitted individual(s), and be conducted according to protocol. 3. For all temporary actions that may impact cuckoo or suitable habitat: a. If action occurs entirely outside of the cuckoo breeding season (June 1 – Aug 31), and leaves no structure or habitat disturbance, action can proceed without a presence/absence survey. b. If action is proposed between June 1 and August 31, presence/absence surveys for cuckoo will be conducted prior to commencing activity. If cuckoo are detected, activity should be delayed until September 1. The cuckoo survey protocol requires four surveys across the breeding season to conclude absence, thus the survey cannot conclude absence of cuckoos until mid-August. c. Eliminate access routes created by the project through such means as raking out scars, revegetation, gating access points, etc. 4. For all permanent actions that may impact cuckoo or suitable habitat: a. Habitat suitability within and within a 0.5-mile buffer of the proposed project analysis area will be identified prior to lease development to identify potential survey needs. b. Protocol level surveys by permitted individuals will be conducted within, or within a 0.5-mile buffer, of the proposed project analysis area prior to commencing activities. c. Avoid drilling and permanent structures within 0.5 miles of suitable or proposed critical habitat unless absence is determined according to protocol level surveys conducted by permitted individual(s). d. During construction and operation phases of the project, ensure noise levels at the edge of suitable habitat do not exceed baseline conditions. Placement of permanent noise-generating facilities should be determined by a noise analysis.

NOTICE	DESCRIPTION/PURPOSE
	5. Temporary or permanent actions will require monitoring throughout the duration of the project to ensure that western yellow-billed cuckoo or its habitat is not affected in a manner or to an extent not previous considered. Avoidance and minimization measures will be evaluated throughout the duration of the project. 6. Water produced as a by-product of drilling or pumping will be managed to ensure maintenance or enhancement of riparian habitat. 7. Where technically and economically feasible, use directional drilling or multiple wells from the same pad to reduce surface disturbance and eliminate drilling in suitable habitat. Ensure that such directional drilling does not intercept or degrade alluvial aquifers. 8. Ensure that water extraction or disposal practices do not result in change of hydrologic regime that would result in loss or degradation of riparian habitat. 9. Re-vegetate with native species, where possible, all areas of surface disturbance within riparian areas and/or adjacent uplands. Additional measures to avoid or minimize effects to the species may be developed and implemented in consultation with the U.S. Fish and Wildlife Service between the lease sale stage and lease development stage to ensure continued compliance with the ESA.

APPENDIX C. COMMENTS AND BLM RESPONSES

The BLM evaluated all comments received and parsed them into substantive or non-substantive comments according to the guidance in the BLM's NEPA Handbook (H-1790-1; page 66). Example substantive comments contained in Table 50 are representative of topics raised, and single responses are provided for similarly stated topics. Due to their length, the BLM has summarized or excerpted comments below.

The majority of the comments expressed opinions or preferences and are outside the scope of the EA. The BLM will only respond to substantive comments. The comments, in their entirety, are on ePlanning.

As detailed in Table 49 the BLM assigned unique codes for all individuals, entities, and organizations who submitted comments during the Comment Period. The BLM evaluated all comments received and parsed them into substantive or non-substantive comments according to BLM's NEPA Handbook (H-1790-1; page 66). The agency then identified resource/topic areas for each of the substantive comments. The commenter codes and resource/topic areas are used in Table 5044 for responding to all substantive comments. Substantive comments contained in Table 50. Comment summary and BLM response. are representative of topics raised, and single responses are provided for similarly stated comments.

Substantive comments 1) question, with reasonable basis, the accuracy of the information in the analysis; 2) question, with reasonable basis, the adequacy of, methodology for, or assumptions used for the analysis; 3) present new information relevant to the analysis; 4) present reasonable alternatives other than those analyzed; or 5) cause changes or revisions in one or more of the alternatives.

Non-substantive comments generally 1) expressed opposition to or support for the proposed action or alternatives or agreed or disagreed with BLM policy or resource decisions without reasoning, justification, or supporting data; 2) did not pertain to the project area or the project; or 3) took the form of vague or open-ended questions and did not warrant a specific response. Similarly, comments that merely cited other comments or sources without providing reasoning or additional explanation were considered non-substantive.

The BLM received the following non-substantive comments during the comment period on the EA:

- TBD

While the BLM does not provide specific responses to each of these comments because they do not meet the criteria for being substantive, the agency thanks these commenters for their feedback. The BLM received XX comments, XX of which contained substantive comments.

Table 49. Public submissions with assigned commentor codes and resource/topic areas.

Organization	Commenter Code	Resource/Topic Area

Table 50. Comment summary and BLM response.

Comment number	Resource/Topic	Summarized Comment*	Addressed in the EA, Section:	Comment Response

APPENDIX D. LEASING PREFERENCE RATING FOR NOMINATED LEASE PARCELS

BACKGROUND

The following states have a permanent injunction on implementation on any stop or pause on quarterly sales: Louisiana, Alabama, Alaska, Arkansas, Georgia, Mississippi, Missouri, Montana, Nebraska, Oklahoma, Texas, Utah, and West Virginia.

Upon the conclusion of the 30-day Public Scoping period, the BLM completed the parcel preference review process. In accordance with regulation, the BLM has evaluated the nominated lease parcels against five criteria to determine each parcel's leasing preference. All the parcels nominated are rated as low preference based on one or more criteria. The regulation states that if there are no high-preference parcels available for the sale, the office will select one or more low-preference parcels that present the least number of conflicts based on the criteria listed. Given the BLM's ability to mitigate resource impacts through the attachment of stipulations and lease notices at the leasing stage and coupled with site-specific analysis and pre-disturbance biological surveys at the lease development stage, impacts to resources are expected to be avoided, minimized, and reduced, such that any reasonably foreseeable impacts can be effectively addressed.

Lease Parcel Preference Criteria

1. Proximity to existing oil and gas development, giving preference to lands upon which a prudent operator would seek to expand existing operations;
2. The presence of important fish and wildlife habitats or connectivity areas, giving preference to lands that would not impair the proper functioning of such habitats or corridors;
3. The presence of historic properties, sacred sites, or other high value cultural resources, giving preference to lands that do not contribute to the cultural significance of such resources;
4. The presence of recreation and other important uses or resources, giving preference to lands that do not contribute to the value of such uses or resources; and
5. Potential for development, giving preference to lands with high potential for development.

Table 51. Criteria for leasing related to IM-2023-007 for BLM's Utah Lease Sale

PARCEL NUMBER	CRITERIA FOR LEASING RELATED TO DOI'S REPORT ON THE FEDERAL OIL AND GAS LEASING PROGRAM					PREFERENCE FOR LEASING	
	O&G Proximity	Plant and Wildlife Habitat[5]	Cultural Resources	Recreation[6] (Other Resources)	Development Potential[7]	High	Low
1511	High	Black-Footed Ferret Priority Management Zone (White Tailed Prairie Dog Colony Mapped): Low	High (low conflict)	High	High		XX
1514	High	Greater Sage-grouse (GHMA) Black-Footed Ferret Priority Management Zone (White Tailed Prairie Dog Colony Mapped), Low:	High (low conflict)	High	High		XX
1516	High	Greater Sage-grouse (GHMA), Low	High (low conflict)	High	High		XX
1517	High	Greater Sage-grouse (GHMA), Low	High (low conflict)	Low (VRI Class 2)	High		XX
1520	High	White River native fishes Suitable Yellow-billed cuckoo habitat: Low	High (low conflict)	Low (LWC, WSR, VRM Class 2)	High		XX
7667	High	Greater Sage-grouse (GHMA) Black-Footed Ferret Priority Management Zone (White Tailed Prairie Dog Colony Mapped), Low:	High (low conflict)	High	High		XX
7668	High	Greater Sage-grouse (GHMA) Black-Footed Ferret Priority Management Zone (White Tailed Prairie Dog Colony Mapped), Low:	High (low conflict)	High	High		XX
7669	High	Greater Sage-grouse (GHMA), Low	High (low conflict)	High	High		XX
7670	High	Greater Sage-grouse (GHMA), Low	High (low conflict)	High	High		XX

[5] Low Determinations were made if the parcel(s) is within important habitat or connectivity areas. If the preference value for leasing is High if the nominated parcel(s) is NOT within important habitat or connectivity area and there is not a high potential for conflict with important habitats.

[6] Low Determinations were made if parcel(s) contains competing uses of the Federal lands that will be curtailed due to the lease issuance. If the preference value is High because the nominated parcel(s) does NOT contain incompatible uses.

[7] Low Determinations were made if the parcel(s) because of Low or Very Low potential for development based on the BLM Reasonably Foreseeable Development (RFD) scenario where the RFD contains projections of the number of possible oil and gas wells that could be drilled and produced within each of the development potential areas specified as Very High, High, Moderate, Low, and Very Low development potential. Any nominated parcel that falls within Very High or High in the RFD will have a preference value of HIGH for this criterion.

PARCEL NUMBER	CRITERIA FOR LEASING RELATED TO DOI'S REPORT ON THE FEDERAL OIL AND GAS LEASING PROGRAM					PREFERENCE FOR LEASING	
7671	High	Graham's and White River Beardtounge Conservation Area (NE Quarter)Low	High (low conflict)	Low (VRI Class 2)	High		XX
7672	High	Greater Sage-grouse (GHMA), Low	High (low conflict)	High	High		XX
7673	High	Low	High (low conflict)	Low (LWC)	High		XX
7674	High	Low	High (low conflict)	Low (LWC, WSR, RMA)	High		XX

APPENDIX E. SUMMARY OF THE TYPICAL PHASES OF OIL AND GAS DEVELOPMENT

INTRODUCTION

There are three phases of oil and gas lease development, including Well Development, Production and Operation, and Well Reclamation. Well Development includes the construction of the well pad, access road and associated pipelines, along with the actual drilling of the well. Production and Operation. The production phase begins when the well starts producing in saleable quantities. This phase also includes all the maintenance and monitoring actions conducted during the productive lifetime of the well. The well abandonment and reclamation phase occurs after the productive life of the well has concluded. Well abandonment and reclamation involve plugging wells and reclaiming the surface according to BLM guidelines and requirements.

Well Development

During construction activity, the area is cleared of vegetation and the pad is constructed. Clearing of the proposed well pad and access road are typically limited to the smallest area possible to provide safe and efficient work areas for all phases of construction. All clearing activities are accomplished by cutting, mowing, and/or grading vegetation, as necessary. Cut vegetation may be mulched and spread on site or hauled to a commercial waste disposal facility. Guidelines and best practices can be found in the BLM publication "Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development" (BLM, 2007), commonly referred to as "the Gold Book."

Next, heavy equipment, including but not limited to, bulldozers, graders, front-end loaders, and/or track hoes are used to construct the pad, along with other features, as needed for development. Other features may include, but are not limited to, an access road, reserve pit, pipeline, and/or fracturing pond. Cut and fills may be required to level the pad or road surfaces. Reserve pits[8], if authorized, are lined using an impermeable liner or other lining mechanism (i.e., bentonite or clay) to prevent fluids from leaching into the soil. Access roads may have cattle guards, gates, drainage control, or pull-outs installed, among a host of other features that may be necessary based on the site-specific situation. Long-term surface disturbances such as pads and roads are typically surfaced with a layer of crushed rock. Areas not needed for long-term development are reclaimed by recontouring the surface and re-establishing vegetation.

Throughout the drilling operation phase, equipment is moved on site and used to install the drill rig and other associated infrastructure. At this stage, the well is drilled and completed. Well completion includes setting the casing to depth, cementing the casing,[9] and perforating the casing in target zones. If a well is

[8] A conventional reserve pit is a lined earthen pit excavated adjacent to a well pad and is commonly used for the disposal of drilling muds and fluids in gas or oil fields (USFWS 2009).

[9] According to BLM regulations from 43 CFR 3160: 43 CFR 3170: Subpart 3172, casing and cementing programs are conducted to protect and/or isolate all usable water zones, lost circulation zones, abnormally pressured zones, and any prospectively valuable deposits of minerals. The casing setting depth is calculated to position the casing seat opposite a competent formation which will contain the maximum pressure to which it will be exposed during normal drilling operations. Determination of casing setting depth is based on all relevant factors, including presence/absence of hydrocarbons; fracture gradients; usable water zones; formation pressures; lost circulation zones; other minerals; or other unusual characteristics. Any isolating medium other than cement shall receive approval prior to use. The deepest casing may not be cemented and may remain open hole depending on the type of formation it is located in.

going to be drilled directionally,[10] horizontally,[11] or vertically[12] this phase may be followed by hydraulic fracturing which involves pumping fracturing fluid into a formation at a calculated, predetermined rate and pressure to generate fractures or cracks in the target formation.

A pipeline, if needed, is laid within a right-of-way that is first cleared of vegetation. A backhoe, or similar piece of equipment, digs a trench to a depth at least 36 inches below ground surface. After the trench is dug, the pipeline is assembled by welding pieces of pipe together to fit the contour of the pipeline's path. Once inspected, the pipe can be lowered into the trench and covered with stockpiled subsoil originally removed from the trench. Each pipeline undergoes hydrostatic testing prior to natural gas being pumped through the pipeline. This ensures the pipeline is strong enough and absent any leaks. Table 5246 includes some of the common wastes (hazardous and nonhazardous) that are produced during construction.

In many cases, small diameter (less than 6 inches) surface gathering lines are used for local collection and transportation of products. In these cases, the pipeline can be laid directly on the surface to avoid disturbing vegetation and the associated risk of weed infiltration. These pipelines are commonly made of steel, high-density polyethylene (HDPE), or Thermoplastic Polyurethane (TPU) / Nitrile Rubber (NBR) lay-flat hose.

Production, Operations

When construction of the well-pad is complete, the drilling rig and associated equipment are moved on site and erected. Usually, a conventional rotary drill rig is used. The drill rig must be capable of withstanding all the anticipated conditions that may be encountered while drilling. Wells may be drilled directionally, horizontally, or vertically based on the target formation. The depth of the well is entirely dependent on the target formation depth and may be several hundred feet deep to over 20,000 feet deep.

When a conventional reserve pit system is used, drilling fluid or mud is circulated through the drill pipe to the bottom of the hole, through the bit, up the bore of the well, and finally to the surface. When drilling mud emerges from the hole, it enters the reserve pit where it remains until all fluids are evaporated and the solids can be buried. Drilling and completing a well can often require 1,000-4,000 bbls of water. The source and method of transport of the water is analyzed when the APD is evaluated.

A closed-loop system operates in a similar fashion except that when the drilling mud emerges from the hole, it passes through equipment used to screen and remove drill cuttings (rock chips) and sand-sized solids rather than going into a pit. When the solids have been removed, the drilling mud is placed into holding tanks, and from the tank, used again.

In either situation the drilling mud is maintained at a specific weight and viscosity to cool the bit, seal off any porous zones (thereby protecting aquifers and preventing damage to producing zone productivity), control subsurface pressure, lubricate the drill string, clean the bottom of the hole, and bring the drill

[10] Vertical drilling is the process of drilling a well from the surface vertically to a subsurface location where the target oil or gas reservoir is located (U.S. Department of Energy 2015).

[11] Horizontal drilling is the process of drilling a well from the surface to a subsurface location just above the target oil or gas reservoir called the "kickoff point," then deviating the well bore from the vertical plane around a curve to intersect the reservoir at the "entry point" with a near-horizontal inclination and remaining within the reservoir until the desired bottom hole location is reached (North Dakota Department of Mineral Resources 2008).

[12] Directional drilling is the process of controlling the direction and deviation of drilling a well from the surface to a subsurface location without disturbing the land directly above the target oil or gas reservoir (U.S. Department of Energy 2015).

cuttings to the surface. Water-based or oil-based muds can be used. This choice is dependent on the site-specific conditions.

Once a well has been drilled, completion operations begin. Well completion involves setting casing to depth and perforating the casing in target zones.

Wells are often treated during completion to improve the recovery of hydrocarbons by increasing the rate and volume of hydrocarbons moving from the natural oil and gas reservoir into the wellbore. These processes are known as well-stimulation treatments, which create new fluid passageways in the producing formation or remove blockages within existing passageways. They include fracturing, acidizing, and other mechanical and chemical treatments often used in combination. The results from different treatments are additive and complement each other.

Hydraulic Fracturing

Hydraulic Fracturing Overview

Hydraulic fracturing is a technique used to enhance oil and gas production by increasing permeability in geological formations. This allows oil and gas to flow more easily into the wellbore. The process can help overcome natural challenges, such as low permeability or blockage due to damage near the wellbore that affects fluid flow (Groundwater Protection Council, 2017). While hydraulic fracturing has been utilized for oil and gas recovery since the early 1900s, advancements in technology have made it more common today, especially alongside horizontal drilling.

The Hydraulic Fracturing Process

The hydraulic fracturing process involves high-pressure pumps that inject a fracturing fluid into the formation at a specific rate and pressure. This generates fractures or cracks in the target area. For shale developments, fracturing fluids are primarily water-based and mixed with additives that facilitate the transport of proppants into the fractures. Proppants, which can include materials like sand or walnut hulls, help keep the fractures open once the pumping stops. After initiating the fracture, additional fluids are pumped to extend the fracture and carry proppants deeper into the formation, maintaining the necessary downhole pressure as the fracture expands.

Composition of Fracturing Fluids

The fracturing fluid typically consists of over 99% water and sand, with less than 1% being various chemical additives that adjust the properties of the mixture. Since large volumes of water are needed for hydraulic fracturing, the specific amount can vary based on the area being treated. In some cases, water is recycled, or produced water is used instead.

Currently, water-based fracturing fluids with friction-reducing additives, often referred to as "slick water," are predominantly used in shale gas plays (Groundwater Protection Council, 2017). The number of chemical additives used can vary based on the specific conditions of the well, with typical treatments utilizing low concentrations of three to twelve different chemicals. Each additive serves a specific purpose, such as preventing bacterial growth or protecting the well casing from corrosion. Since these fluids are tailored to meet the unique needs of different formations, there is no universal formula for the types and volumes of additives. Additionally, service companies have developed various compounds with similar functions adaptable to different well environments, with even small changes in concentration potentially affecting performance (Groundwater Protection Council, 2017).

Pre-Fracturing Preparations

Before any hydraulic fracturing treatment, operators and service companies conduct a series of tests to ensure that the well's casing, cement, and fracturing equipment are in proper working order and can safely withstand the pressures and flow rates involved in the treatment.

Fracturing Stages in Horizontal Wells

Hydraulic fracturing in horizontal shale gas wells is usually done in stages. The lateral lengths of these horizontal wells can range from 1,000 to over 5,000 feet. Depending on the length, treatment may involve isolating smaller sections of the lateral for fracturing, with each isolated section referred to as a "stage." Stages are treated sequentially, starting from the farthest end of the wellbore and moving toward the surface until the entire lateral has been stimulated. During drilling, the Bureau of Land Management (BLM) is present to oversee critical processes such as casing and cementing the surface casing, which helps protect groundwater. Before hydraulic fracturing occurs, all surface casings and some deeper zones must be cemented from the bottom of the cased hole to the surface. The cemented well is then pressure-tested for leaks, and sometimes a cement bond log is performed to ensure proper adhesion to the casing and formation. If the fracturing operation is classified as "non-routine" for that area, the BLM will always be present during the process, especially if any abnormal conditions arise during drilling or well completion.

Naturally Occurring Radioactive Material (NORM)

Some soils and geological formations contain low levels of naturally occurring radioactive material (NORM). This material emits low levels of radiation, which is something everyone is exposed to daily. In the context of oil and natural gas production, NORM typically consists of small amounts of uranium and thorium found within the rock. As these elements decay, they produce Radium-226 and Radium-228, which can be brought to the surface in drill cuttings and produced water. Additionally, Radon-222, a gas produced from radium decay, can also accompany shale gas. When NORM is extracted, it may remain in the rock pieces of drill cuttings or in solution with produced water and may occasionally form scales or sludges. The radiation emitted is weak and cannot penetrate dense materials like steel pipes and tanks. According to the EPA, Utah has very low levels of NORM associated with oil and gas production waste (EPA, 2023).

Production Operations

Production equipment used during the life of the well may include a three-phase separator-dehydrator, flowlines, a meter run, tanks for condensate, produced oil and water, and heater treater. A pumpjack may be required if the back pressure of the well is too high. Production facilities are arranged to facilitate safety and maximize reclamation opportunities. All permanent aboveground structures not subject to safety considerations are painted a standard BLM environmental color or as landowner specified.

Workovers may be performed multiple times over the life of the well. Because oil and gas production usually decline over the years, operators perform workover operations, which involve cleaning, repairing, and maintaining the well for the purposes of increasing or restoring production.

Reclamation and Abandonment

Well abandonment (whether dry hole or depleted producer) and reclamation of location, access road, and other facilities requires BLM approval. After approval, wellbores are plugged with cement as necessary to prevent fluid or pressure mitigation and to protect and isolate mineral and water resources. Wellheads are

removed, and both the surface casing and the production casing are cut off below ground in compliance with federal and state regulations. (BLM, 2007) The well pad, reserve pit and access are reclaimed according to BLM guidelines. This may include backfilling the pit, recontouring the surface to blend with natural surroundings and redistributing topsoil. All surfaces are then reseeded per BLM and state requirements specified in the Application for Permit to Drill (APD) approval.

Common Wastes

Table 52 includes some of the common wastes (hazardous and nonhazardous) that are produced during oil and gas development.

Table 52. Common Wastes Produced during Oil and Gas Development

Phase	Waste	
Well Development Construction, Well Drilling and Completion (including hydraulic fracturing)	Domestic wastes (e.g., food scraps, paper, etc.)	
	Excess construction materials	Woody debris
	Used lubricating oils	Paints
	Solvents	Sewage
	Drilling muds, including additives (i.e., chromate and barite) and cuttings; Well drilling, completion, workover, and stimulation fluids (i.e., oil derivatives such as polycyclic aromatic hydrocarbons (PAHs), spilled chemicals, suspended and dissolved solids, phenols, cadmium, chromium, copper, lead, mercury, nickel)	
	Equipment, power unit and transport maintenance wastes (i.e., batteries; used filters, lubricants, oil, tires, hoses, hydraulic fluids; paints; solvents)	
	Fuel and chemical storage drums and containers	
	Cementing wastes	Drilling rig wash
	Production testing wastes	Excess drilling chemicals
	Excess construction materials	Processed water
	Scrap metal	Contaminated soil including hazardous and non-hazardous materials (potential)
	Sewage	Domestic wastes
Production & Operations	Power unit and transport maintenance wastes (i.e., batteries; used filters, lubricants, filters, tires, hoses, coolants, antifreeze; paints; solvents, used parts)	
	Discharged produced water	
	Production chemicals	
	Workover wastes (e.g., brines)	
Well Reclamation Including abandonment,	Construction materials	
	Decommissioned equipment	
	Contaminated soil (potential)	

Phase	**Waste**
recontouring, and re-seeding	Equipment or wastes that could contain hazardous and nonhazardous materials

LITERATURE CITED IN APPENDIX E

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APPENDIX F. GENERAL CONFORMITY APPLICABILITY

The Clean Air Act's (CAA) General Conformity Rule mandates that the BLM evaluate reasonably foreseeable emissions that result from its actions in a nonattainment area to determine if they conform with the applicable regulatory agency implementation plans (40 CFR 93.153). The rule takes into account air pollution emissions associated with actions that are federally funded, licensed, permitted, or approved, and ensures emissions do not contribute to air quality degradation, thus preventing the achievement of state and federal air quality goals. In short, general conformity refers to the process of evaluating plans, programs, and projects to determine and demonstrate they meet the requirements of the CAA and an applicable implementation plan.

The General Conformity Rule divides the air conformity process into two distinct areas, applicability and determination. Federal agencies must initially assess if an action is subject to the Conformity Rule (Applicability Analysis) and then if the action conforms to an applicable implementation plan (Conformity Determination). Guidance from Information Bulletin 2014-084 (BLM, 2014) was used to perform an applicability analysis in order to determine if a conformity determination is needed for this Lease Sale.

The general conformity rules are not applicable to this Lease Sale because: 1) leasing does not directly authorize pollutant emitting activities, and no direct emissions would result, 2) indirect emissions are not reasonably foreseeable as defined in 40 CFR 93.152 as it is unknown what design features or mitigation measures an operator will use, and 3) it is unknown what emissions sources would be included in an air quality permit and not subject to a general conformity review. The BLM has evaluated the proposed Lease Sale in accordance with the provisions of 40 CFR Part 93, Subpart B. Based on a review of 40 CFR 93.153(c), BLM has determined that the requirement to perform a full conformity determination is not required for the Proposed Action for the following reasons:

- Under 40 CFR 93.153(c)(2), a conformity determination is not required for actions "which would result in no emissions increase or an increase in emissions that is clearly de minimis," such as the "granting of leases." Leasing does not authorize emissions generating activities, and therefore does not directly result in an emissions increase. Additionally, 40 CFR 93.153(c)(3) lists Initial Outer Continental Shelf leasing as not having reasonably foreseeable emissions and onshore leasing is similar where lease sales "are made on a broad scale and are followed by exploration and development plans on a project level." At the leasing stage the BLM does not have a development plan for lease parcels and has determined that indirect emissions are not reasonably foreseeable until the project level.

- A conformity determination also is not required "where the emissions (direct or indirect) are not reasonably foreseeable." 40 CFR 93.153(c)(3). As defined in the CAA, "Reasonably foreseeable emissions are projected future direct and indirect emissions that are identified at the time the conformity determination is made; the location of such emissions is known and the emissions are quantifiable as described and documented by the Federal agency based on its own information and after reviewing any information presented to the Federal agency." 40 CFR 93.152 While this EA provides information for the factors that should be considered to determine a reasonable *estimate* of foreseeable emissions for the proposed lease parcels and overall for the region for purposes of NEPA indirect and cumulative impacts analysis, it does not have specific information about whether or how the specific parcel under consideration will be developed during the initial 10 year lease period, such that a more precise emissions inventory could be reasonably estimated and compared to the thresholds provided in 40 CFR 93.153(b).

- Furthermore, 40 CFR 93.153(d) provides, "[notwithstanding the other requirements of this subpart, a conformity determination is not required for:

    - The portion of an action that includes major or minor new or modified stationary sources that require a permit under the new source review program (Section 110(a)(2)(c) and Section 173 of the [CAA]) or the prevention of significant deterioration program (title I, part C of the [CAA])." 40 CFR 93.153(d)(1). It is uncertain at this time, but highly likely, that several project design features, for example equipment sets, such as storage vessels, truck loading, wellsite stationary engines, VOC control devices, dehydration units, and other equipment will require at least a minor new source review (permit) prior to constructing such facilities to implement any subsequent development proposals. Emissions from such permitted facilities would not be subject to the general conformity analysis provisions. Potential sources that would be permitted, and not subject to general conformity provisions, are identified in Utah Administrative Code R307-504-511 or the Federal Implementation Plan for the Indian Country Minor New Source Review Program for the Oil and Natural Gas Industry (80 FR 51991).

For all of these reasons, a conformity determination is not required for the sale of the leases under consideration.

APPENDIX G. EMISSIONS TABLES

This appendix provides the per well emissions factors (GHG's and non-GHG's) by phase (well development and production operations) and the total emissions calculated for each alternative on an annual basis. An emissions factor is a value that relates the quantity of a pollutant released into the atmosphere with an activity that generates the pollutant. They are typically expressed in units of eight or mass (e.g. pounds, kilograms, tons) per activity (e.g. duration of equipment operation, construction of an oil or gas well). Emissions factors are the basis for developing emissions inventories that are used for air quality management decisions. The BLM uses emissions inventories to evaluate the change to county-level emissions, comparison between NEPA alternatives, and as inputs for air quality models if modeling is warranted. Over time emissions factors may change due to new emissions regulations, development of control technologies, or data and information improvements for emissions.

Air pollutant emissions from oil and gas activities occur during construction and operations of a well. Construction related emissions occur from the use of heavy machinery during pad construction, drilling, testing and completion, venting and flaring, interim reclamation, and vehicles. Construction emissions are typically a onetime occurrence. Operation related emissions occur from well workovers, pump engines, heaters, tanks, truck loading, fugitive leaks, pneumatics, dehydrators, compressor engines, reclamation, and vehicle traffic. Emissions from operation activities occur throughout the life of a well. Several factors may influence actual emissions including location, geological formation, well depth, equipment used, supporting infrastructure, and other factors. To estimate emissions for this Lease Sale the BLM used the emission factors from the AMR (BLM, 2024) for a weighted average gas well due to there being both vertical and horizontal drilling proposed in this lease. These single well emissions are presented in Table 5345. Annual emissions for each alternative are based on the single well emissions factors and the estimated number of wells developed and operating in each year and are presented in

Table 54 and Table 55 and 47 for Alternative A and Table 48 and Table 49 for Alternative B.

Table 53. Single Well Emissions Factors in Tons Per Year (tpy), and Metric Tonnes (t)

Well Type	CO (tpy)	NO_x (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)	SO_2 (tpy)	VOC (tpy)	HAP (tpy)	CO_2 (t)	CH_4 (t)	N_2O (t)
–Weighted Average – Well Construction	2.75	8.51	1.01	0.37	0.02	1.19	0.11	1,200.8	0.31	0.010
–Weighted Average – Well Production Operations	3.27	1.94	0.41	0.22	4.56E-04	8.11	0.91	897.28	2.04	0.001

Table 54 Annual CAP and HAP emissions for the Proposed Action Alternative (Alternative A) in Tons Per Year

	# Wells		Well Development Emissions							Well Operation Emissions							Sum of Well Development and Operation Emissions						
Year	Developed	Operating	PM_{10}	$PM_{2.5}$	VOC	NO_X	CO	SO_2	HAPs	PM_{10}	$PM_{2.5}$	VOC	NO_X	CO	SO_2	HAPs	PM_{10}	$PM_{2.5}$	VOC	NO_X	CO	SO_2	HAPs
1	10	10	10.1	3.7	11.9	85.1	27.5	0.20	1.10	4.1	2.2	81.1	19.4	32.7	0.00	9.10	14.2	5.9	93.0	104.5	60.2	0.20	10.20
2	13	23	13.1	4.8	15.5	110.6	35.8	0.26	1.43	9.4	5.1	186.5	44.6	75.2	0.01	20.93	22.6	9.9	202.0	155.3	111.0	0.27	22.36
3	9	32	9.1	3.3	10.7	76.6	24.8	0.18	0.99	13.1	7.0	259.5	62.1	104.6	0.01	29.12	22.2	10.4	270.2	138.7	129.4	0.19	30.11
4	10	42	10.1	3.7	11.9	85.1	27.5	0.20	1.10	17.2	9.2	340.6	81.5	137.3	0.02	38.22	27.3	12.9	352.5	166.6	164.8	0.22	39.32
5	13	55	13.1	4.8	15.5	110.6	35.8	0.26	1.43	22.6	12.1	446.1	106.7	179.9	0.03	50.05	35.7	16.9	461.5	217.3	215.6	0.29	51.48
6	19	74	19.2	7.0	22.6	161.7	52.3	0.38	2.09	30.3	16.3	600.1	143.6	242.0	0.03	67.34	49.5	23.3	622.8	305.3	294.2	0.41	69.43
7	14	88	14.1	5.2	16.7	119.1	38.5	0.28	1.54	36.1	19.4	713.7	170.7	287.8	0.04	80.08	50.2	24.5	730.3	289.9	326.3	0.32	81.62
8	13	101	13.1	4.8	15.5	110.6	35.8	0.26	1.43	41.4	22.2	819.1	195.9	330.3	0.05	91.91	54.5	27.0	834.6	306.6	366.0	0.31	93.34
9	15	116	15.2	5.6	17.9	127.7	41.3	0.30	1.65	47.6	25.5	940.8	225.0	379.3	0.05	105.56	62.7	31.1	958.6	352.7	420.6	0.35	107.21
10	17	133	17.2	6.3	20.2	144.7	46.8	0.34	1.87	54.5	29.3	1078.6	258.0	434.9	0.06	121.03	71.7	35.6	1,098.9	402.7	481.7	0.40	122.90
11	0	133	0.0	0.0	0.0	0.0	0.0	0.00	0.00	54.5	29.3	1078.6	258.0	434.9	0.06	121.03	54.5	29.3	1,078.6	258.0	434.9	0.06	121.03
12	0	133	0.0	0.0	0.0	0.0	0.0	0.00	0.00	54.5	29.3	1078.6	258.0	434.9	0.06	121.03	54.5	29.3	1,078.6	258.0	434.9	0.06	121.03
13	0	133	0.0	0.0	0.0	0.0	0.0	0.00	0.00	54.5	29.3	1078.6	258.0	434.9	0.06	121.03	54.5	29.3	1,078.6	258.0	434.9	0.06	121.03
14	0	133	0.0	0.0	0.0	0.0	0.0	0.00	0.00	54.5	29.3	1078.6	258.0	434.9	0.06	121.03	54.5	29.3	1,078.6	258.0	434.9	0.06	121.03
15	0	133	0.0	0.0	0.0	0.0	0.0	0.00	0.00	54.5	29.3	1078.6	258.0	434.9	0.06	121.03	54.5	29.3	1,078.6	258.0	434.9	0.06	121.03
16	0	133	0.0	0.0	0.0	0.0	0.0	0.00	0.00	54.5	29.3	1078.6	258.0	434.9	0.06	121.03	54.5	29.3	1,078.6	258.0	434.9	0.06	121.03
17	0	133	0.0	0.0	0.0	0.0	0.0	0.00	0.00	54.5	29.3	1078.6	258.0	434.9	0.06	121.03	54.5	29.3	1,078.6	258.0	434.9	0.06	121.03
18	0	133	0.0	0.0	0.0	0.0	0.0	0.00	0.00	54.5	29.3	1078.6	258.0	434.9	0.06	121.03	54.5	29.3	1,078.6	258.0	434.9	0.06	121.03
19	0	133	0.0	0.0	0.0	0.0	0.0	0.00	0.00	54.5	29.3	1078.6	258.0	434.9	0.06	121.03	54.5	29.3	1,078.6	258.0	434.9	0.06	121.03
20	0	133	0.0	0.0	0.0	0.0	0.0	0.00	0.00	54.5	29.3	1078.6	258.0	434.9	0.06	121.03	54.5	29.3	1,078.6	258.0	434.9	0.06	121.03
21	0	133	0.0	0.0	0.0	0.0	0.0	0.00	0.00	54.5	29.3	1078.6	258.0	434.9	0.06	121.03	54.5	29.3	1,078.6	258.0	434.9	0.06	121.03
22	0	133	0.0	0.0	0.0	0.0	0.0	0.00	0.00	54.5	29.3	1078.6	258.0	434.9	0.06	121.03	54.5	29.3	1,078.6	258.0	434.9	0.06	121.03
23	0	133	0.0	0.0	0.0	0.0	0.0	0.00	0.00	54.5	29.3	1078.6	258.0	434.9	0.06	121.03	54.5	29.3	1,078.6	258.0	434.9	0.06	121.03
24	0	133	0.0	0.0	0.0	0.0	0.0	0.00	0.00	54.5	29.3	1078.6	258.0	434.9	0.06	121.03	54.5	29.3	1,078.6	258.0	434.9	0.06	121.03
25	0	133	0.0	0.0	0.0	0.0	0.0	0.00	0.00	54.5	29.3	1078.6	258.0	434.9	0.06	121.03	54.5	29.3	1,078.6	258.0	434.9	0.06	121.03
26	0	133	0.0	0.0	0.0	0.0	0.0	0.00	0.00	54.5	29.3	1078.6	258.0	434.9	0.06	121.03	54.5	29.3	1,078.6	258.0	434.9	0.06	121.03
27	0	133	0.0	0.0	0.0	0.0	0.0	0.00	0.00	54.5	29.3	1078.6	258.0	434.9	0.06	121.03	54.5	29.3	1,078.6	258.0	434.9	0.06	121.03
28	0	133	0.0	0.0	0.0	0.0	0.0	0.00	0.00	54.5	29.3	1078.6	258.0	434.9	0.06	121.03	54.5	29.3	1,078.6	258.0	434.9	0.06	121.03
29	0	133	0.0	0.0	0.0	0.0	0.0	0.00	0.00	54.5	29.3	1078.6	258.0	434.9	0.06	121.03	54.5	29.3	1,078.6	258.0	434.9	0.06	121.03
30	0	133	0.0	0.0	0.0	0.0	0.0	0.00	0.00	54.5	29.3	1078.6	258.0	434.9	0.06	121.03	54.5	29.3	1,078.6	258.0	434.9	0.06	121.03
31	0	123	0.0	0.0	0.0	0.0	0.0	0.00	0.00	50.4	27.1	997.5	238.6	402.2	0.06	111.93	50.4	27.1	997.5	238.6	402.2	0.06	111.93
32	0	110	0.0	0.0	0.0	0.0	0.0	0.00	0.00	45.1	24.2	892.1	213.4	359.7	0.05	100.10	45.1	24.2	892.1	213.4	359.7	0.05	100.10
33	0	101	0.0	0.0	0.0	0.0	0.0	0.00	0.00	41.4	22.2	819.1	195.9	330.3	0.05	91.91	41.4	22.2	819.1	195.9	330.3	0.05	91.91
34	0	91	0.0	0.0	0.0	0.0	0.0	0.00	0.00	37.3	20.0	738.0	176.5	297.6	0.04	82.81	37.3	20.0	738.0	176.5	297.6	0.04	82.81
35	0	78	0.0	0.0	0.0	0.0	0.0	0.00	0.00	32.0	17.2	632.6	151.3	255.1	0.04	70.98	32.0	17.2	632.6	151.3	255.1	0.04	70.98
36	0	59	0.0	0.0	0.0	0.0	0.0	0.00	0.00	24.2	13.0	478.5	114.5	192.9	0.03	53.69	24.2	13.0	478.5	114.5	192.9	0.03	53.69
37	0	45	0.0	0.0	0.0	0.0	0.0	0.00	0.00	18.5	9.9	365.0	87.3	147.2	0.02	40.95	18.5	9.9	365.0	87.3	147.2	0.02	40.95
38	0	32	0.0	0.0	0.0	0.0	0.0	0.00	0.00	13.1	7.0	259.5	62.1	104.6	0.01	29.12	13.1	7.0	259.5	62.1	104.6	0.01	29.12
39	0	17	0.0	0.0	0.0	0.0	0.0	0.00	0.00	7.0	3.7	137.9	33.0	55.6	0.01	15.47	7.0	3.7	137.9	33.0	55.6	0.01	15.47
Total (MT)			134.3	49.2	158.3	1,131.8	365.8	2.66	14.63	1,635.9	877.8	32,358.9	7,740.6	13,047.3	1.82	3,630.90	1,770	927	32,517	8,872	13,413	4	3,646
Max Year			19.2	7.0	22.6	161.7	52.3	0.38	2.09	54.5	29.3	1,078.6	258.0	434.9	0.06	121.03	71.7	35.6	1,098.9	402.7	481.7	0.4	122.9
Average Year			13.4	4.9	15.8	113.2	36.6	0.3	1.5	41.9	22.5	829.7	198.5	334.5	0.0	93.1	45.4	23.8	833.8	227.5	343.9	0.1	93.5
Minimum Year			9.1	3.3	10.7	76.6	24.8	0.2	1.0	4.1	2.2	81.1	19.4	32.7	0.0	9.1	7.0	3.7	93.0	33.0	55.6	0.0	10.2

Table 55 Annual GHG Emissions for the Proposed Action Alternative (Alternative A) in Metric Tonnes

	# Wells		Well Development Emissions				Well Operation Emissions				Mid-Stream Emissions				End-Use Emissions			
Years	Developed	Operating	CO_2	CH_4	N_2O	CO_2e (100-yr)	CO_2	CH_4	N_2O	CO_2e (100-yr)	CO_2	CH_4	N_2O	CO_2e (100-yr)	CO_2	CH_4	N_2O	CO_2e (100-yr)
1	10	10	12,008.0	3.10	0.100	12,127.7	8,972.8	20.40	0.010	9,583.5	154,790.1	1,946.52	2.216	213,401.3	911,621.4	21.88	3.073	913,112.5
2	13	23	15,610.4	4.03	0.130	15,766.0	20,637.4	46.92	0.023	22,041.9	274,996.3	3,490.07	3.930	380,073.3	1,613,770.6	38.38	5.336	1,616,371.2
3	9	32	10,807.2	2.79	0.090	10,914.9	28,713.0	65.28	0.032	30,667.0	283,177.3	3,634.01	4.037	392,572.9	1,654,504.6	38.90	5.340	1,657,121.6
4	10	42	12,008.0	3.10	0.100	12,127.7	37,685.8	85.68	0.042	40,250.5	318,925.1	4,108.58	4.543	442,601.1	1,860,496.2	43.56	5.954	1,863,419.6
5	13	55	15,610.4	4.03	0.130	15,766.0	49,350.4	112.20	0.055	52,709.0	392,136.6	5,053.73	5.586	544,262.7	2,287,223.2	53.53	7.313	2,290,814.6
6	19	74	22,815.2	5.89	0.190	23,042.6	66,398.7	150.96	0.074	70,917.5	529,260.0	6,809.94	7.542	734,254.9	3,089,020.5	72.42	9.912	3,093,884.5
7	14	88	16,811.2	4.34	0.140	16,978.8	78,960.6	179.52	0.088	84,334.4	529,428.6	6,860.95	7.533	735,941.2	3,081,145.5	71.68	9.727	3,085,936.9
8	13	101	15,610.4	4.03	0.130	15,766.0	90,625.3	206.04	0.101	96,792.8	532,982.2	6,935.66	7.577	741,733.4	3,096,627.5	71.71	9.682	3,101,407.5
9	15	116	18,012.0	4.65	0.150	18,191.5	104,084.5	236.64	0.116	111,168.0	576,864.8	7,510.38	8.200	802,912.6	3,350,918.9	77.56	10.465	3,356,086.9
10	17	133	20,413.6	5.27	0.170	20,617.1	119,338.2	271.32	0.133	127,459.9	636,967.3	8,293.27	9.054	886,578.5	3,699,971.3	85.63	11.553	3,705,677.2
11	0	133	0.0	0.00	0.000	0.0	119,338.2	271.32	0.133	127,459.9	412,346.1	5,500.60	5.830	577,855.8	2,371,285.1	53.37	6.971	2,374,778.7
12	0	133	0.0	0.00	0.000	0.0	119,338.2	271.32	0.133	127,459.9	317,110.6	4,278.81	4.473	445,840.3	1,814,791.5	40.29	5.173	1,817,404.4
13	0	133	0.0	0.00	0.000	0.0	119,338.2	271.32	0.133	127,459.9	260,960.8	3,547.10	3.675	367,667.7	1,488,749.2	32.75	4.157	1,490,860.0
14	0	133	0.0	0.00	0.000	0.0	119,338.2	271.32	0.133	127,459.9	222,967.0	3,046.97	3.136	314,622.9	1,269,042.0	27.73	3.489	1,270,820.8
15	0	133	0.0	0.00	0.000	0.0	119,338.2	271.32	0.133	127,459.9	195,198.2	2,678.76	2.743	275,773.8	1,108,950.5	24.10	3.011	1,110,490.7
16	0	133	0.0	0.00	0.000	0.0	119,338.2	271.32	0.133	127,459.9	173,865.4	2,394.26	2.441	245,880.9	986,257.1	21.34	2.650	987,616.4
17	0	133	0.0	0.00	0.000	0.0	119,338.2	271.32	0.133	127,459.9	156,890.7	2,166.84	2.201	222,063.4	888,819.1	19.15	2.367	890,036.1
18	0	133	0.0	0.00	0.000	0.0	119,338.2	271.32	0.133	127,459.9	143,024.0	1,980.33	2.006	202,585.3	809,353.2	17.38	2.139	810,455.0
19	0	133	0.0	0.00	0.000	0.0	119,338.2	271.32	0.133	127,459.9	131,461.7	1,824.29	1.842	186,328.6	743,188.4	15.91	1.950	744,195.0
20	0	133	0.0	0.00	0.000	0.0	119,338.2	271.32	0.133	127,459.9	121,661.0	1,691.64	1.704	172,537.1	687,173.9	14.68	1.792	688,100.4
21	0	133	0.0	0.00	0.000	0.0	119,338.2	271.32	0.133	127,459.9	113,239.8	1,577.36	1.586	160,678.1	639,098.5	13.62	1.657	639,956.5
22	0	133	0.0	0.00	0.000	0.0	119,338.2	271.32	0.133	127,459.9	105,921.2	1,477.81	1.483	150,364.9	597,359.5	12.70	1.541	598,158.5
23	0	133	0.0	0.00	0.000	0.0	119,338.2	271.32	0.133	127,459.9	99,498.8	1,390.27	1.392	141,309.0	560,764.7	11.90	1.439	561,512.1
24	0	133	0.0	0.00	0.000	0.0	119,338.2	271.32	0.133	127,459.9	93,815.2	1,312.65	1.312	133,290.4	528,407.2	11.19	1.350	529,109.2
25	0	133	0.0	0.00	0.000	0.0	119,338.2	271.32	0.133	127,459.9	88,748.4	1,243.33	1.241	126,138.4	499,583.7	10.56	1.271	500,245.3
26	0	133	0.0	0.00	0.000	0.0	119,338.2	271.32	0.133	127,459.9	84,202.2	1,181.03	1.177	119,718.2	473,740.1	10.00	1.201	474,365.8
27	0	133	0.0	0.00	0.000	0.0	119,338.2	271.32	0.133	127,459.9	80,099.6	1,124.72	1.120	113,921.9	450,433.6	9.49	1.137	451,026.9
28	0	133	0.0	0.00	0.000	0.0	119,338.2	271.32	0.133	127,459.9	76,378.1	1,073.57	1.067	108,661.8	429,305.6	9.03	1.080	429,869.7
29	0	133	0.0	0.00	0.000	0.0	119,338.2	271.32	0.133	127,459.9	72,986.6	1,026.89	1.020	103,866.5	410,062.6	8.62	1.028	410,600.1
30	0	133	0.0	0.00	0.000	0.0	119,338.2	271.32	0.133	127,459.9	69,882.9	984.13	0.976	99,476.4	392,461.9	8.24	0.981	392,975.2
31	0	123	0.0	0.00	0.000	0.0	110,365.4	250.92	0.123	117,876.4	62,873.4	885.95	0.878	89,514.4	352,999.9	7.40	0.881	353,460.9
32	0	110	0.0	0.00	0.000	0.0	98,700.8	224.40	0.110	105,418.0	54,973.9	775.02	0.768	78,279.1	308,578.5	6.47	0.769	308,981.0
33	0	101	0.0	0.00	0.000	0.0	90,625.3	206.04	0.101	96,792.8	49,101.9	692.64	0.686	69,929.7	275,545.2	5.77	0.685	275,904.1
34	0	91	0.0	0.00	0.000	0.0	81,652.5	185.64	0.091	87,209.4	43,092.9	608.21	0.602	61,381.7	241,764.4	5.06	0.600	242,078.9
35	0	78	0.0	0.00	0.000	0.0	69,987.8	159.12	0.078	74,750.9	36,104.3	509.81	0.504	51,434.2	202,512.9	4.23	0.502	202,776.0
36	0	59	0.0	0.00	0.000	0.0	52,939.5	120.36	0.059	56,542.4	26,906.9	380.05	0.376	38,335.0	150,902.2	3.15	0.373	151,098.1
37	0	45	0.0	0.00	0.000	0.0	40,377.6	91.80	0.045	43,125.5	20,133.4	284.49	0.281	28,687.9	112,894.5	2.36	0.279	113,040.9
38	0	32	0.0	0.00	0.000	0.0	28,713.0	65.28	0.032	30,667.0	14,028.6	198.31	0.196	19,991.6	78,648.3	1.64	0.194	78,750.2
39	0	17	0.0	0.00	0.000	0.0	15,253.8	34.68	0.017	16,291.9	7,313.6	103.42	0.102	10,423.4	40,995.0	0.86	0.101	41,048.1
Total (MT)	133		159,706	41.23	1.330	161,298	3,580,147	8,139.60	3.990	3,823,797	7,564,316	100,582.37	107.033	10,590,890	43,558,968	984.20	129.123	43,623,548
Max Year			22,815.2	5.89	0.190	23,043	119,338.2	271.32	0.133	127,460	636,967.3	8,293.27	9.054	886,579	3,699,971.3	85.63	11.553	3,705,677
Average Year							91,798.6	208.71	0.1	98,046.1	193,956.8	2,579.04	2.744	271,561	1,116,896.6	25.24	3.311	1,118,553
			Development Percent of Total =			0%	Operations Percent of Total =			7%	Mid-Stream Percent of Total =			18%	End-Use Percent of Total =			75%

Table 56 Annual CAP and HAP emissions for the Greater Sage-grouse Alternative (Alternative B) in Tons Per Year

	# Wells		Well Development Emissions							Well Operation Emissions							Sum of Well Development and Operation Emissions						
Year	Developed	Operating	PM_{10}	$PM_{2.5}$	VOC	NO_X	CO	SO_2	HAPs	PM_{10}	$PM_{2.5}$	VOC	NO_X	CO	SO_2	HAPs	PM_{10}	$PM_{2.5}$	VOC	NO_X	CO	SO_2	HAPs
1	10	10	10.1	3.7	11.9	85.1	27.5	0.20	1.10	4.1	2.2	81.1	19.4	32.7	0.00	9.10	14.2	5.9	93.0	104.5	60.2	0.20	10.20
2	13	23	13.1	4.8	15.5	110.6	35.8	0.26	1.43	9.4	5.1	186.5	44.6	75.2	0.01	20.93	22.6	9.9	202.0	155.3	111.0	0.27	22.36
3	9	32	9.1	3.3	10.7	76.6	24.8	0.18	0.99	13.1	7.0	259.5	62.1	104.6	0.01	29.12	22.2	10.4	270.2	138.7	129.4	0.19	30.11
4	10	42	10.1	3.7	11.9	85.1	27.5	0.20	1.10	17.2	9.2	340.6	81.5	137.3	0.02	38.22	27.3	12.9	352.5	166.6	164.8	0.22	39.32
5	13	55	13.1	4.8	15.5	110.6	35.8	0.26	1.43	22.6	12.1	446.1	106.7	179.9	0.03	50.05	35.7	16.9	461.5	217.3	215.6	0.29	51.48
6	19	74	19.2	7.0	22.6	161.7	52.3	0.38	2.09	30.3	16.3	600.1	143.6	242.0	0.03	67.34	49.5	23.3	622.8	305.3	294.2	0.41	69.43
7	14	88	14.1	5.2	16.7	119.1	38.5	0.28	1.54	36.1	19.4	713.7	170.7	287.8	0.04	80.08	50.2	24.5	730.3	289.9	326.3	0.32	81.62
8	13	101	13.1	4.8	15.5	110.6	35.8	0.26	1.43	41.4	22.2	819.1	195.9	330.3	0.05	91.91	54.5	27.0	834.6	306.6	366.0	0.31	93.34
9	15	116	15.2	5.6	17.9	127.7	41.3	0.30	1.65	47.6	25.5	940.8	225.0	379.3	0.05	105.56	62.7	31.1	958.6	352.7	420.6	0.35	107.21
10	17	133	17.2	6.3	20.2	144.7	46.8	0.34	1.87	54.5	29.3	1078.6	258.0	434.9	0.06	121.03	71.7	35.6	1,098.9	402.7	481.7	0.40	122.90
11	0	133	0.0	0.0	0.0	0.0	0.0	0.00	0.00	54.5	29.3	1078.6	258.0	434.9	0.06	121.03	54.5	29.3	1,078.6	258.0	434.9	0.06	121.03
12	0	133	0.0	0.0	0.0	0.0	0.0	0.00	0.00	54.5	29.3	1078.6	258.0	434.9	0.06	121.03	54.5	29.3	1,078.6	258.0	434.9	0.06	121.03
13	0	133	0.0	0.0	0.0	0.0	0.0	0.00	0.00	54.5	29.3	1078.6	258.0	434.9	0.06	121.03	54.5	29.3	1,078.6	258.0	434.9	0.06	121.03
14	0	133	0.0	0.0	0.0	0.0	0.0	0.00	0.00	54.5	29.3	1078.6	258.0	434.9	0.06	121.03	54.5	29.3	1,078.6	258.0	434.9	0.06	121.03
15	0	133	0.0	0.0	0.0	0.0	0.0	0.00	0.00	54.5	29.3	1078.6	258.0	434.9	0.06	121.03	54.5	29.3	1,078.6	258.0	434.9	0.06	121.03
16	0	133	0.0	0.0	0.0	0.0	0.0	0.00	0.00	54.5	29.3	1078.6	258.0	434.9	0.06	121.03	54.5	29.3	1,078.6	258.0	434.9	0.06	121.03
17	0	133	0.0	0.0	0.0	0.0	0.0	0.00	0.00	54.5	29.3	1078.6	258.0	434.9	0.06	121.03	54.5	29.3	1,078.6	258.0	434.9	0.06	121.03
18	0	133	0.0	0.0	0.0	0.0	0.0	0.00	0.00	54.5	29.3	1078.6	258.0	434.9	0.06	121.03	54.5	29.3	1,078.6	258.0	434.9	0.06	121.03
19	0	133	0.0	0.0	0.0	0.0	0.0	0.00	0.00	54.5	29.3	1078.6	258.0	434.9	0.06	121.03	54.5	29.3	1,078.6	258.0	434.9	0.06	121.03
20	0	133	0.0	0.0	0.0	0.0	0.0	0.00	0.00	54.5	29.3	1078.6	258.0	434.9	0.06	121.03	54.5	29.3	1,078.6	258.0	434.9	0.06	121.03
21	0	133	0.0	0.0	0.0	0.0	0.0	0.00	0.00	54.5	29.3	1078.6	258.0	434.9	0.06	121.03	54.5	29.3	1,078.6	258.0	434.9	0.06	121.03
22	0	133	0.0	0.0	0.0	0.0	0.0	0.00	0.00	54.5	29.3	1078.6	258.0	434.9	0.06	121.03	54.5	29.3	1,078.6	258.0	434.9	0.06	121.03
23	0	133	0.0	0.0	0.0	0.0	0.0	0.00	0.00	54.5	29.3	1078.6	258.0	434.9	0.06	121.03	54.5	29.3	1,078.6	258.0	434.9	0.06	121.03
24	0	133	0.0	0.0	0.0	0.0	0.0	0.00	0.00	54.5	29.3	1078.6	258.0	434.9	0.06	121.03	54.5	29.3	1,078.6	258.0	434.9	0.06	121.03
25	0	133	0.0	0.0	0.0	0.0	0.0	0.00	0.00	54.5	29.3	1078.6	258.0	434.9	0.06	121.03	54.5	29.3	1,078.6	258.0	434.9	0.06	121.03
26	0	133	0.0	0.0	0.0	0.0	0.0	0.00	0.00	54.5	29.3	1078.6	258.0	434.9	0.06	121.03	54.5	29.3	1,078.6	258.0	434.9	0.06	121.03
27	0	133	0.0	0.0	0.0	0.0	0.0	0.00	0.00	54.5	29.3	1078.6	258.0	434.9	0.06	121.03	54.5	29.3	1,078.6	258.0	434.9	0.06	121.03
28	0	133	0.0	0.0	0.0	0.0	0.0	0.00	0.00	54.5	29.3	1078.6	258.0	434.9	0.06	121.03	54.5	29.3	1,078.6	258.0	434.9	0.06	121.03
29	0	133	0.0	0.0	0.0	0.0	0.0	0.00	0.00	54.5	29.3	1078.6	258.0	434.9	0.06	121.03	54.5	29.3	1,078.6	258.0	434.9	0.06	121.03
30	0	133	0.0	0.0	0.0	0.0	0.0	0.00	0.00	54.5	29.3	1078.6	258.0	434.9	0.06	121.03	54.5	29.3	1,078.6	258.0	434.9	0.06	121.03
31	0	123	0.0	0.0	0.0	0.0	0.0	0.00	0.00	50.4	27.1	997.5	238.6	402.2	0.06	111.93	50.4	27.1	997.5	238.6	402.2	0.06	111.93
32	0	110	0.0	0.0	0.0	0.0	0.0	0.00	0.00	45.1	24.2	892.1	213.4	359.7	0.05	100.10	45.1	24.2	892.1	213.4	359.7	0.05	100.10
33	0	101	0.0	0.0	0.0	0.0	0.0	0.00	0.00	41.4	22.2	819.1	195.9	330.3	0.05	91.91	41.4	22.2	819.1	195.9	330.3	0.05	91.91
34	0	91	0.0	0.0	0.0	0.0	0.0	0.00	0.00	37.3	20.0	738.0	176.5	297.6	0.04	82.81	37.3	20.0	738.0	176.5	297.6	0.04	82.81
35	0	78	0.0	0.0	0.0	0.0	0.0	0.00	0.00	32.0	17.2	632.6	151.3	255.1	0.04	70.98	32.0	17.2	632.6	151.3	255.1	0.04	70.98
36	0	59	0.0	0.0	0.0	0.0	0.0	0.00	0.00	24.2	13.0	478.5	114.5	192.9	0.03	53.69	24.2	13.0	478.5	114.5	192.9	0.03	53.69
37	0	45	0.0	0.0	0.0	0.0	0.0	0.00	0.00	18.5	9.9	365.0	87.3	147.2	0.02	40.95	18.5	9.9	365.0	87.3	147.2	0.02	40.95
38	0	32	0.0	0.0	0.0	0.0	0.0	0.00	0.00	13.1	7.0	259.5	62.1	104.6	0.01	29.12	13.1	7.0	259.5	62.1	104.6	0.01	29.12
39	0	17	0.0	0.0	0.0	0.0	0.0	0.00	0.00	7.0	3.7	137.9	33.0	55.6	0.01	15.47	7.0	3.7	137.9	33.0	55.6	0.01	15.47
Total (MT)			134.3	49.2	158.3	1,131.8	365.8	2.66	14.63	1,635.9	877.8	32,358.9	7,740.6	13,047.3	1.82	3,630.90	1,770	927	32,517	8,872	13,413	4	3,646
Max Year			19.2	7.0	22.6	161.7	52.3	0.38	2.09	54.5	29.3	1,078.6	258.0	434.9	0.06	121.03	71.7	35.6	1,098.9	402.7	481.7	0.4	122.9
Average Year			13.4	4.9	15.8	113.2	36.6	0.3	1.5	41.9	22.5	829.7	198.5	334.5	0.0	93.1	45.4	23.8	833.8	227.5	343.9	0.1	93.5
Minimum Year			9.1	3.3	10.7	76.6	24.8	0.2	1.0	4.1	2.2	81.1	19.4	32.7	0.0	9.1	7.0	3.7	93.0	33.0	55.6	0.0	10.2

TABLE 57 ANNUAL GHG EMISSIONS FOR THE GREATER SAGE-GROUSE ALTERNATIVE (ALTERNATIVE B) IN METRIC TON

	# Wells		Well Development Emissions				Well Operation Emissions				Mid-Stream Emissions				End-Use Emissions			
Years	Developed	Operating	CO_2	CH_4	N_2O	CO_2e (100-yr)	CO_2	CH_4	N_2O	CO_2e (100-yr)	CO_2	CH_4	N_2O	CO_2e (100-yr)	CO_2	CH_4	N_2O	CO_2e (100-yr)
1	6	6	7,204.8	1.86	0.060	7,276.6	5,383.7	12.24	0.006	5,750.1	88,950.5	1,112.59	1.275	122,453.8	524,949.7	12.67	1.789	525,815.6
2	8	14	9,606.4	2.48	0.080	9,702.1	12,561.9	28.56	0.014	13,416.8	160,949.3	2,031.89	2.302	222,128.3	946,458.0	22.63	3.165	947,996.4
3	5	19	6,004.0	1.55	0.050	6,063.8	17,048.3	38.76	0.019	18,208.6	158,111.8	2,021.11	2.256	218,956.8	925,229.4	21.84	3.012	926,702.7
4	6	25	7,204.8	1.86	0.060	7,276.6	22,432.0	51.00	0.025	23,958.6	181,233.1	2,323.75	2.584	251,186.3	1,059,246.1	24.92	3.426	1,060,924.1
5	8	33	9,606.4	2.48	0.080	9,702.1	29,610.2	67.32	0.033	31,625.4	226,983.9	2,910.33	3.237	314,595.4	1,326,648.5	31.22	4.290	1,328,750.1
6	11	44	13,208.8	3.41	0.110	13,340.4	39,480.3	89.76	0.044	42,167.2	298,595.6	3,825.42	4.259	413,755.8	1,745,756.6	41.11	5.656	1,748,525.9
7	9	53	10,807.2	2.79	0.090	10,914.9	47,555.8	108.12	0.053	50,792.3	310,324.7	3,999.63	4.420	430,720.3	1,809,990.5	42.36	5.786	1,812,832.3
8	8	61	9,606.4	2.48	0.080	9,702.1	54,734.1	124.44	0.061	58,459.0	311,499.6	4,033.83	4.433	432,917.8	1,813,385.9	42.22	5.734	1,816,209.5
9	9	70	10,807.2	2.79	0.090	10,914.9	62,809.6	142.80	0.070	67,084.2	334,072.6	4,330.30	4.753	464,413.2	1,944,038.3	45.21	6.134	1,947,060.2
10	10	80	12,008.0	3.10	0.100	12,127.7	71,782.4	163.20	0.080	76,667.6	364,643.2	4,728.49	5.187	506,968.5	2,121,585.0	49.32	6.688	2,124,880.5
11	0	80	0.0	0.00	0.000	0.0	71,782.4	163.20	0.080	76,667.6	236,574.1	3,144.60	3.348	331,197.1	1,362,509.2	30.80	4.043	1,364,530.6
12	0	80	0.0	0.00	0.000	0.0	71,782.4	163.20	0.080	76,667.6	182,070.1	2,448.56	2.570	255,738.6	1,043,444.6	23.26	3.002	1,044,957.2
13	0	80	0.0	0.00	0.000	0.0	71,782.4	163.20	0.080	76,667.6	149,876.3	2,030.80	2.112	210,970.7	856,185.1	18.91	2.412	857,407.1
14	0	80	0.0	0.00	0.000	0.0	71,782.4	163.20	0.080	76,667.6	128,071.1	1,744.92	1.802	180,561.6	729,883.7	16.01	2.024	730,913.4
15	0	80	0.0	0.00	0.000	0.0	71,782.4	163.20	0.080	76,667.6	112,125.3	1,534.28	1.576	158,277.3	637,807.1	13.91	1.747	638,698.6
16	0	80	0.0	0.00	0.000	0.0	71,782.4	163.20	0.080	76,667.6	99,871.3	1,371.46	1.403	141,124.0	567,220.2	12.32	1.537	568,006.9
17	0	80	0.0	0.00	0.000	0.0	71,782.4	163.20	0.080	76,667.6	90,118.8	1,241.27	1.265	127,453.9	511,154.3	11.05	1.373	511,858.5
18	0	80	0.0	0.00	0.000	0.0	71,782.4	163.20	0.080	76,667.6	82,150.9	1,134.47	1.153	116,272.8	465,425.8	10.03	1.240	466,063.2
19	0	80	0.0	0.00	0.000	0.0	71,782.4	163.20	0.080	76,667.6	75,506.9	1,045.11	1.059	106,940.1	427,350.1	9.18	1.130	427,932.4
20	0	80	0.0	0.00	0.000	0.0	71,782.4	163.20	0.080	76,667.6	69,874.8	969.13	0.979	99,022.2	395,115.5	8.47	1.039	395,651.3
21	0	80	0.0	0.00	0.000	0.0	71,782.4	163.20	0.080	76,667.6	65,035.5	903.67	0.911	92,213.6	367,449.9	7.85	0.960	367,946.1
22	0	80	0.0	0.00	0.000	0.0	71,782.4	163.20	0.080	76,667.6	60,829.8	846.64	0.852	86,292.4	343,431.4	7.32	0.893	343,893.3
23	0	80	0.0	0.00	0.000	0.0	71,782.4	163.20	0.080	76,667.6	57,139.1	796.49	0.800	81,093.0	322,373.8	6.86	0.834	322,805.9
24	0	80	0.0	0.00	0.000	0.0	71,782.4	163.20	0.080	76,667.6	53,873.0	752.02	0.754	76,489.2	303,755.1	6.45	0.782	304,160.9
25	0	80	0.0	0.00	0.000	0.0	71,782.4	163.20	0.080	76,667.6	50,961.5	712.31	0.713	72,383.0	287,170.7	6.09	0.736	287,553.1
26	0	80	0.0	0.00	0.000	0.0	71,782.4	163.20	0.080	76,667.6	48,349.2	676.62	0.676	68,697.0	272,301.5	5.76	0.695	272,663.1
27	0	80	0.0	0.00	0.000	0.0	71,782.4	163.20	0.080	76,667.6	45,991.9	644.36	0.643	65,369.3	258,892.6	5.47	0.659	259,235.5
28	0	80	0.0	0.00	0.000	0.0	71,782.4	163.20	0.080	76,667.6	43,853.6	615.05	0.613	62,349.5	246,737.6	5.21	0.625	247,063.6
29	0	80	0.0	0.00	0.000	0.0	71,782.4	163.20	0.080	76,667.6	41,905.0	588.31	0.586	59,596.5	235,667.6	4.97	0.595	235,978.1
30	0	80	0.0	0.00	0.000	0.0	71,782.4	163.20	0.080	76,667.6	40,121.8	563.80	0.561	57,076.2	225,542.8	4.75	0.568	225,839.3
31	0	74	0.0	0.00	0.000	0.0	66,398.7	150.96	0.074	70,917.5	36,102.9	507.65	0.504	51,368.5	202,893.9	4.27	0.510	203,160.2
32	0	66	0.0	0.00	0.000	0.0	59,220.5	134.64	0.066	63,250.8	31,495.7	443.09	0.440	44,819.8	176,961.4	3.72	0.444	177,193.4
33	0	61	0.0	0.00	0.000	0.0	54,734.1	124.44	0.061	58,459.0	28,290.4	398.24	0.395	40,265.8	158,907.9	3.34	0.398	159,115.9
34	0	55	0.0	0.00	0.000	0.0	49,350.4	112.20	0.055	52,709.0	24,843.1	349.91	0.347	35,365.1	139,508.5	2.93	0.349	139,690.8
35	0	47	0.0	0.00	0.000	0.0	42,172.2	95.88	0.047	45,042.2	20,756.1	292.48	0.290	29,551.3	116,532.4	2.44	0.291	116,684.6
36	0	36	0.0	0.00	0.000	0.0	32,302.1	73.44	0.036	34,500.4	15,645.7	220.55	0.218	22,277.6	87,826.9	1.84	0.219	87,941.5
37	0	27	0.0	0.00	0.000	0.0	24,226.6	55.08	0.027	25,875.3	11,521.4	162.47	0.161	16,407.0	64,664.2	1.35	0.161	64,748.5
38	0	19	0.0	0.00	0.000	0.0	17,048.3	38.76	0.019	18,208.6	7,947.0	112.11	0.111	11,318.2	44,594.4	0.93	0.111	44,652.5
39	0	10	0.0	0.00	0.000	0.0	8,972.8	20.40	0.010	9,583.5	4,105.2	57.94	0.057	5,847.4	23,032.3	0.48	0.057	23,062.3
Total (MT)	80		96,064	24.80	0.800	97,021	2,153,472	4,896.00	2.400	2,300,028	4,350,372	57,625.66	61.608	6,084,435	25,091,628	569.48	75.113	25,129,105
Max Year			13,208.8	3.41	0.110	13,340	71,782.4	163.20	0.080	76,668	364,643.2	4,728.49	5.187	506,968	2,121,585.0	49.32	6.688	2,124,880
Average Year							55,217.2	125.54	0.1	58,975.1	111,548.0	1,477.58	1.580	156,011	643,375.1	14.60	1.926	644,336
			Development Percent of Total =			0%	Operations Percent of Total =			7%	Mid-Stream Percent of Total =			18%	End-Use Percent of Total =			75%

APPENDIX H. SAGE-GROUSE PRIORITIZATION

Final Utah Greater Sage-grouse (GRSG)
Plan Conformance and Leasing Considerations
Quarter 3, 2025 Lease Sale
April 10, 2025

For the Quarter 3 lease-sale (2025), the BLM has prioritized leasing in Greater Sage-grouse habitat, based on an evaluation and balancing of biological components (described below) and fluid mineral components (described below), to fully comply with applicable provisions of the 2015 Greater Sage Grouse (GRSG) Resource Management Plan Amendment (ARMPA) to reduce impacts from potential fluid mineral development on GRSG and its habitat. This lease-sale applies Management Actions (MAs) from the ARMPA and associated stipulations that pertain to unleased fluid minerals in GRSG management areas as listed above. Implementation of these MAs and stipulations help to mitigate disturbance, habitat loss, and cumulative impacts to GRSG. The ARMPA provides that "priority will be given to development in non-habitat areas first and then in the least suitable habitat for GRSG" (Objective MR-1).

The 2015 GRSG Record of Decision (ROD), describes how this objective is intended "to guide development to lower conflict areas and, as such, protect important habitat." This leasing prioritization strategy was developed as one of the tools the BLM would apply to meet that objective. Review of plan conformance is conducted during the lease sale process and again during proposed site-specific actions, such as when processing an Application for Permit to Drill (APD). At both stages, the BLM coordinates with the State of Utah to address any concerns related to GRSG or wildlife.

The BLM has prioritized leasing and development outside Priority Habitat Management Areas (PHMA) and General Habitat Management Areas (GHMA) to limit surface disturbance and encourage new development in areas outside GRSG habitat, consistent with the ROD. In addition to the multiple MAs in the ARMPA, the following framework was used to assist the BLM UT in its prioritization process for the subject parcels in this Lease Sale.

The ARMPA includes several MAs and stipulations intended to achieve the desired condition explained in the Objective MR-1, which is "leasing and development of fluid mineral resources…outside of [Priority Habitat Management Areas] PHMA and [General Habitat Management Areas] GHMA" and to give priority "to development in non-habitat areas first and then in the least suitable habitat for GRSG". The no surface occupancy (NSO) stipulation represents a fluid mineral leasing allocation decision for PHMA and provides that certain areas may be "open to leasing, subject to NSO stipulations" which preclude any new surface occupying fluid mineral development in PHMA.

There are also several MAs that help to avoid sensitive areas and that limit future surface disturbance and disruptive developments in PHMA and GHMA. These include (1) disturbance caps (MA-SSS-3B), (2) density caps (MA-SSS-3C), (3) noise restrictions (MA-SSS-3E), (4) tall structure restrictions (MA-SSS-3F), (5) seasonal restrictions (MA-SSS-3G), (6) buffers (MA-SSS-3H and MA-SSS-5C)), and (7) application of Required Design Features (MA-SSS-3I and MA-SSS-5D). The overlapping combination of all these measures achieves Objective MR-1 by creating a strong economic incentive to lease and develop outside PHMA as a result of the significant restrictions on development within PHMA. Even if PHMA were leased, it would be "subject to [these] applicable stipulations for the conservation of GRSG" as specifically noted in Objective MR-1. In combination with the land use allocations and stipulations in the ARMPA, a strategy that encourages new development in areas that would not conflict with GRSG could help the agency determine which lands to offer for leasing on a quarterly basis. In addition to those MAs, this prioritization strategy outlines a process to help inform the BLM Authorized Officer in identifying areas of important habitat and sensitive areas in an effort to encourage leasing and development to lower conflict areas. This prioritization occurs at both the leasing stage as described here in this appendix, and again at the development stage where habitat availability and quality would be considered, as described in ARMPA MA-MR-6.

Prioritization Process Outline

The BLM has evaluated all parcels nominated in this Lease Sale within GRSG PHMA and GHMA in terms of their biological components, such as: (1) the amount of PHMA/GHMA in each parcel; (2) the parcel's proximity to active leks; (3) habitat treatments since the ARMPA; (4) areas identified for GRSG habitat recovery from wildfire; and (5) input from the Adaptive Management Strategy Team in coordination with the Utah Division of Wildlife Resources where appropriate. These components are included in Table 1.

The BLM has also evaluated parcels in terms of certain fluid mineral considerations: (1) whether the parcel is adjacent to existing leases; (2) the parcel's proximity to and density of existing oil and gas well(s) (producing well(s)); (3) whether there are nearby oil and gas agreements (communitization, exploratory unit, and secondary recovery); (4) potential drainage cases; (5) oil and gas potential; and (6) the well data map. These components are included in Table 2.

Biological Components

For this Lease Sale, GRSG associated parcels occur within the Uintah population area (parcels 1514, 7667, 7668, and 7716) for a total of four (4) parcels. The Uintah population area includes seven separate habitat and distinct populations. Threats that USFWS noted in the COT report for the Uintah population area include fire, conifer encroachment, weeds/annual grasses, energy, mining, infrastructure, recreation, and urbanization.

Parcels 1514, 7667, 7668 are within the Deadman's Bench distinct population. Deadman's Bench is a dry, low-elevation area with even-aged Wyoming big sagebrush and low understory vegetation cover but diverse forbs. Nonnative weeds are common; in particular, cheatgrass is abundant and is a management concern. Limited telemetry monitoring indicates some Deadman's Bench birds stayed in the area year-round. Other birds moved north of Deadman's Bench into Snake John Reef and Thunder Ranch (10 to 13 miles north of Highway 40). During recent sagebrush removal projects, winter bird use in the area has been verified, but the origin of the birds is unknown.

The Deadman's Bench area is arid with anthropogenic disturbances and degraded habitat. These factors likely decrease the resiliency of the habitat and the GRSG population. There is one unoccupied lek within the 3.1-mile buffer and it is closest to parcel 7668. Utah Division of Wildlife Resources (UDWR) personal communication (March 27, 2025) reveals that no males were counted in the last ten years and most recent counts were recorded 11 to 20 years ago; therefore, there are no occupied leks in the vicinity of any of the lease parcels.

Lease parcel 7716 is within the Bookcliffs distinct population area. This area is primarily Wyoming big sagebrush and black sagebrush in the low elevation and pinyon-juniper with pockets of mountain sagebrush in the upper elevations. This population has steadily declined and one of the primary threats in the low elevations may be gas development, which is extensive in proximity to the lease parcel and the leks in this area.

The four (4) nominated parcels in this Lease Sale that are within GRSG habitat have been evaluated based on the biological and fluid components listed below in the tables.

Table 1. Overview of Biological Components of Each Parcel Considered

Parcel #	(Field Office/GRSG Population)	Parcel Size (Acres)	% w/in PHMA	% w/in GHMA	Occupied leks w/in 3.1 mi (#)	Habitat treatments since ARMPA (acres)	Wildfire since ARMPA (acres)	Adaptive Management Trigger Met (Yes/No)
1514	Uintah	960	0%	100%	0	0	0	No
7667	Uintah	1,773.47	0%	100%	0	13.49	0	No
7668	Uintah	1,040.14	0%	100%	0	2.11	0	No
7716	Uintah	2,249.33	0%	9.11%	0	0	0	No

* Since the 2015 GRSG ARMPA and 2008 Vernal Field Office RMP, there are no longer occupied leks within proximity to the lease parcels based on Utah Division of Wildlife Resource communication; however, in consideration of "active" leks identified through these planning processes, Vernal Field Office RMP stipulations were placed on the lease parcels as appropriate until amended through a land use planning process.

Fluid Mineral Components

As noted in the ARMPA, any parcel considered for leasing in PHMA would be subject to an NSO stipulation, thus no surface disturbance would occur on those parcels. In addition to the NSO stipulation, for all parcels in PHMA and GHMA, seasonal stipulations would also apply, which limit certain activities within various proximity to leks during certain times of the year. Application of other management actions and Required Design Features would help inform whether it is possible to directionally drill from an authorized surface location outside of PHMA or on a valid existing lease.

Table 2. Overview of the Fluid Minerals Components of Each Parcel Considered

Parcel #	(Field Office/ GRSG Population)	Parcel Size (Acres)	% w/in 3.1 mi		Distance to Closest O&G Location	Well Density w/in 1 Mile	Within Existing O&G Agreement	O&G Potential (Per Square Mile)
			Leased %	HBP %				
1514	Uintah	960	73.62%	31.6%	Producing well 0.4 miles to the N	0.16	No	Oil: 54.74 Mbbl, Gas: 1157.84 MMcf
7667	Uintah	1,773.47	58.29%	16.7%	Producing well 1.3 miles to the NW	0	No	Oil: 9.52 Mbbl, Gas: 514.96 MMcf
7668	Uintah	1,040.14	81.71%	6.6%	Producing well 0.2 miles to the SE	0.43	Yes	Oil: 54.32 Mbbl, Gas: 879.45 MMcf
7716	Uintah	2,249.33	5.85%	38.8%	Producing well 1.1 miles to the W	0	No	Oil: 13.36 Mbbl, Gas: 1323.26 MMcf

Evaluation for Quarter 3 (2025) Nominated Parcels:

Twenty-five (25) parcels were evaluated for the Quarter 3 (2025) Lease Sale. Of those parcels, none were located within PHMA. However, four (4) of the nominated parcels were (either entirely or partially) located within GHMA. All parcels within GHMA were evaluated through the prioritization process and presented to the Authorized Officer. After all resource issues were carefully evaluated, including the biological and fluid mineral components described above, all parcels in GHMA were brought forward for evaluation in the Quarter 3 (2025) Lease Sale. No (0) parcels were recommended for deferral.

A summary of the prioritization for the four (4) parcels nominated for the Quarter 3 (2025) sale that were in GRSG habitat is listed below.

Parcels Considered Low Priority for Leasing at This Time

After careful consideration of the biological and fluid mineral components for the four (4) parcels in GRSG habitat in the Quarter 3 (2025) Lease Sale, the BLM did not identify any parcels that are considered low priority for leasing at this time.

Historically, the Deadman's Bench area contained two occupied GRSG leks known as the Bonanza and North Deadman leks. However, with the increase in anthropogenic disturbances, including oil and gas development and associated infrastructure, the Bonanza lek has since become un-occupied and has not seen GRSG activity in quite some time. Personal communication (March 27, 2025) with UDWR indicates these leks are unoccupied and most recent counts were recorded 11 to 20 years ago. The GHMA habitat in the Deadman's Bench and Bookcliffs area is identified as summer and winter habitat.

Parcels Considered Higher Priority for Leasing at This Time

The four (4) proposed parcels within GHMA (1514, 7667, 7668, and 7716) were determined to have a higher priority for leasing because they are generally where fewer biological component(s) are present, and more than one fluid mineral component is also present. All proposed parcels within this Lease Sale are eligible for leasing with the applicable MAs, stipulations, and notices in conformance with the ARMPA. Application of stipulations have been confirmed by the Utah State Office Leasing Team.

This prioritization process helped to inform which proposed parcels (low priority for leasing and high priority for leasing) should be carried forward and be analyzed in the NEPA document, which is being prepared in connection with the leasing decision for the Quarter 3 (2025) Lease Sale. In the Decision Record, the Authorized Officer will determine whether all, some, or none of the proposed parcels, will be offered during the Lease Sale based on this prioritization analysis and any other appropriate factors.

Parcel 1514– The parcel is 100% within GHMA. It is in the Deadman Bench distinct population area of the Uintah population areas and the parcel is bordered to the southeast by a state section. This area has a relatively high percentage of leased lands and leased lands held by production in this Lease Sale. There is a producing well approximately 0.4 miles to the north. It also has high oil and gas potential as listed in Table 2. Therefore, it would be one of the leases that would be a high priority to lease at this time. This parcel will include the following lease notices to protect GRSG:

<u>Lease Notices:</u>
UT-LN-131 - Greater Sage-Grouse – Net Conservation Gain
UT-LN-132 - Greater Sage-Grouse – Required Design Features
UT-LN-133 - Greater Sage-Grouse – Buffer

Parcels 7667 – This parcel is 100% within GHMA, on the western edge of the Deadman's Bench area of the Uintah population. The majority of the parcel is in winter habitat. There is little to no oil and gas development in proximity to the parcel. This parcel has 58.29% of leased lands in the area but only 16.7% are held by production. The nearest producing well is 1.3 miles to the northwest. It has high oil and gas potential. This parcel has the same notices as parcel 1514.

Parcels 7668 – This parcel is 100% within GHMA in the Uintah population area. The northern portion of the parcel is within winter habitat. In addition, the parcel has a high potential for oil and gas occurrence, with a producing well located approximately 0.2 miles to the southeast. Also, it appears that there is a relatively high number of existing leases adjacent to the parcel; however, only 6.6% are held by production. This parcel is the

only parcel within an existing Oil and Gas Agreement. This parcel has the same notices as parcel 1514, but also has the following CSU stipulations identified in the Vernal 2008 RMP:

CSU/Stipulations:
UT-S-195 Vernal No Surface Occupancy – Greater Sage-grouse Leks
UT-S-205 (Vernal) Timing Limitation – Greater Sage-grouse Brood Rearing and Nesting
UT-S-206 (Vernal) Controlled Surface Use – Greater Sage-Grouse (Noise Reduction)
UT-S-207 (Vernal) Controlled Surface Use – Greater Sage-grouse (Structures)

Parcels 7716 – Only 9.11% of this parcel is within GHMA in the Bookcliffs distinct population area and is bordered by tribal lands. The portion of the parcel in GHMA is also in winter habitat. There is 5.85% of lease lands in the area with 38.8% held by production. The parcel has a high potential for oil and gas occurrence, with a producing well 1.1 miles to the west.

Since the parcels that are considered high priority for this sale have the appropriate stipulations and notices attached to them from the 2015 UT GRSG ARMPA, they would all be available for leasing.

Parcels Where Adaptive Management Triggers have been Tripped

BLM Utah does not have any parcels within areas where an adaptive management trigger has been tripped for this lease sale.

Parcel #	(Field Office/GRSG Population)	Priority (Low/High)	Rationale
1514	Uintah	High	100% of the parcel is located within GHMA 0 occupied leks in proximity to the parcel Producing well within 0.4 miles to the north Approximately 73.62% of the land adjacent to the lease are already leased. O&G potential is High Not within an existing O&G Agreement
7667	Uintah	High	100% of the parcel falls within GHMA 0 occupied leks in proximity to the parcel Producing well within 1.3 miles to the northwest 58.29% of the land adjacent to the parcel is currently leased O&G potential is High Not within an existing O&G Agreement
7668	Uintah	High	100% of the parcel falls with GHMA 0 occupied leks in proximity to the parcel Producing well within 0.2 miles to the southeast Approximately 81.71% percent of the lands adjacent are already leased O&G potential is High Within an existing O&G Agreement
7716	Uintah	High	9.11% percent of the parcel is in GHMA 0 occupied leks in proximity to the parcel Producing well within 1.1 miles to the west Approximately 5.85% percent of the lands adjacent are already leased O&G potential is High Not within an existing O&G Agreement

Stipulations and Lease Notices in Full

UT-LN-131	**Greater Sage-Grouse – Net Conservation Gain** In Priority and General Habitat Management Areas (PHMA and GHMA) all actions that result in habitat loss and degradation will require mitigation that provides a net conservation gain to the Greater Sage-Grouse (GRSG). Mitigation must account for any uncertainty associated with the effectiveness of the mitigation and will be achieved through avoiding, minimizing and compensating for impacts. Mitigation will be conducted according to the mitigation framework found in Appendix F in the 2015 Utah Approved Management Pla n Amendment.
UT-LN-132	**GREATER SAGE-GROUSE – REQUIRED DESIGN FEATURES** Apply the Required Design Features (RDF)* in Appendix C of the 2015 Utah Approved Management Plan Amendment when developing a lease in Priority and General Habitat Management Areas (PHMA and GHMA). *RDFs may not be required if it is demonstrated through the NEPA analysis that the RDF associated project/activity is: • Documented to not be applicable to the site-specific conditions of the project/activity (e.g. due to site limitations or engineering considerations). Economic considerations, such as increased costs, do not necessarily require that an RDF be varied or rendered inapplicable; • An alternative RDF, state-implemented conservation measure, or plan-level protection is determined to provide equal or better protection for GRSG or its habitat; • Provide no additional protection to GRSG or its habitat.
UT-LN-133	**GREATER SAGE-GROUSE - BUFFER** In Priority and General Habitat Management Areas (PHMA and GHMA), the BLM will apply the lek buffer-distances identified in the USGS Report Conservation Buffer Distance Estimates for Greater Sage-Grouse – A Review (Open File Report 2014-1239) in accordance with Appendix B, Applying Lek-Buffer Distances, consistent with valid and existing rights and applicable law in authorizing management actions.
UT-S-195	**NO SURFACE OCCUPANCY – GREATER SAGE-GROUSE LEKS** No surface-disturbing activities within 1/4 mile of active Greater Sage-Grouse leks year-round found outside of Priority Habitat Management Areas (PHMA). **Exception:** None **Modification:** None **Waiver:** None
UT-S-205	**TIMING LIMITATION – GREATER SAGE-GROUSE BROOD REARING AND NESTING** No surface-disturbing activities within 2 miles of active Greater Sage-Grouse leks found outside of Priority Habitat Management Areas (PHMA) within brood rearing and nesting habitat from March 1 - June 15. **Exception:** None **Modification:** None **Waiver:** None
UT-S-206	**CONTROLLED SURFACE USE – GREATER SAGE-GROUSE (NOISE REDUCTION)**

	Within ½ mile of known active Greater Sage-Grouse leks found outside of Priority Habitat Management Areas (PHMA) use the best available technology such as installation of multi-cylinder pumps, hospital sound reducing mufflers, and placement of exhaust systems to reduce noise. **Exception:** None **Modification:** None **Waiver:** None
UT-S-207	**CONTROLLED SURFACE USE – GREATER SAGE-GROUSE (STRUCTURES)** No permanent facilities or structures would be allowed within 2 miles of Greater Sage-Grouse leks found outside of Priority Habitat Management Areas (PHMA) when possible. **Exception:** None **Modification:** None **Waiver:** None

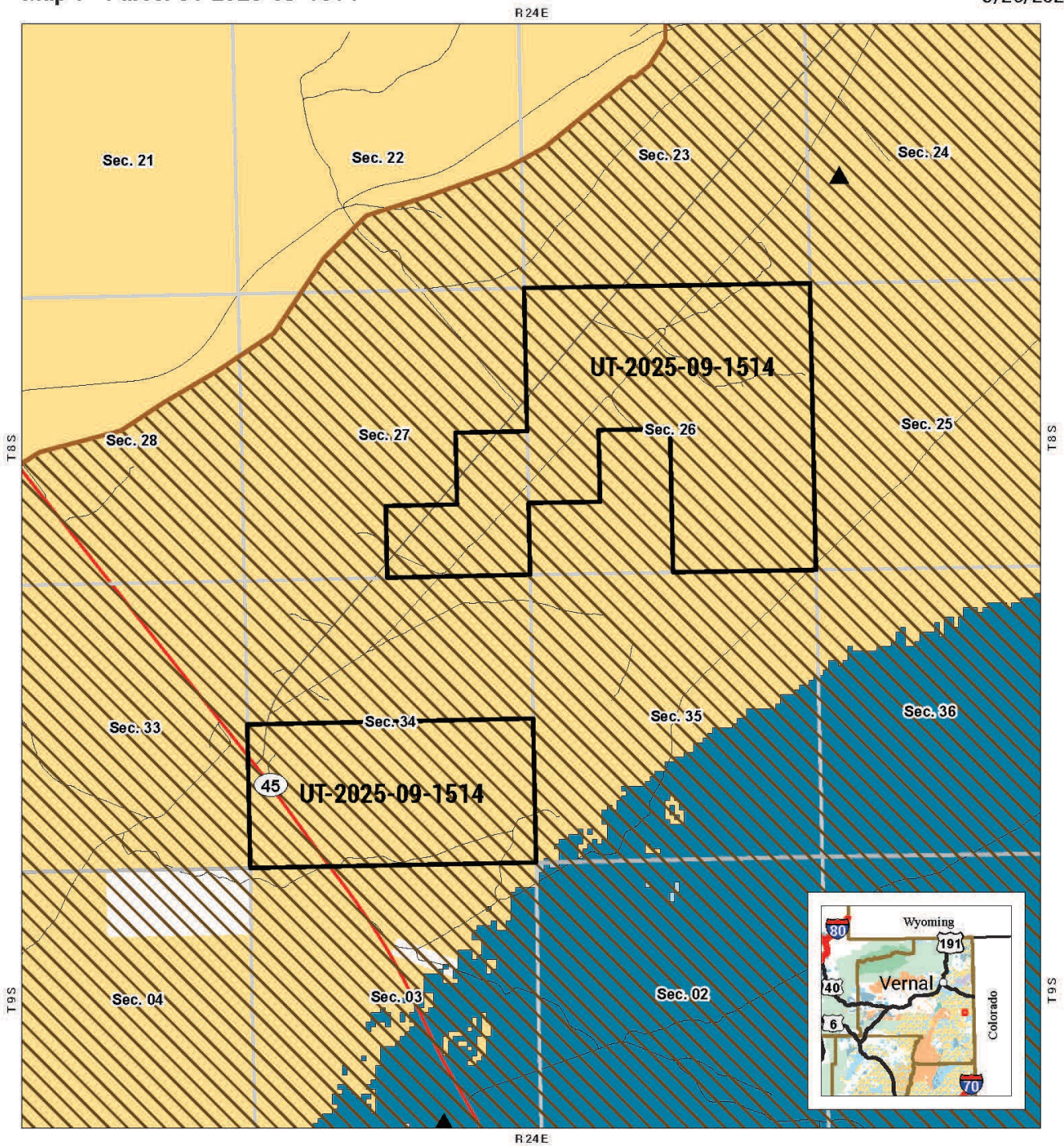
Q3 Oil and Gas Lease Sale

Bureau of Land Management
Utah State Office
440 West 200 South, Ste. 500
Salt Lake City, UT 84101
801-539-4001

Utah

Map 1 - Parcel UT-2025-09-1514

3/26/2025



UT-2025-09-1514
General Habitat Management Areas
BLM Utah FEIS Disturbance Compilation
Winter Habitat
Summer Habitat

Active OG Wells
Bureau of Land Management (BLM)
Private
State of Utah

N
0 ½ Mile
0 ½ Kilometer

Q3 Oil and Gas Lease Sale

Bureau of Land Management
Utah State Office
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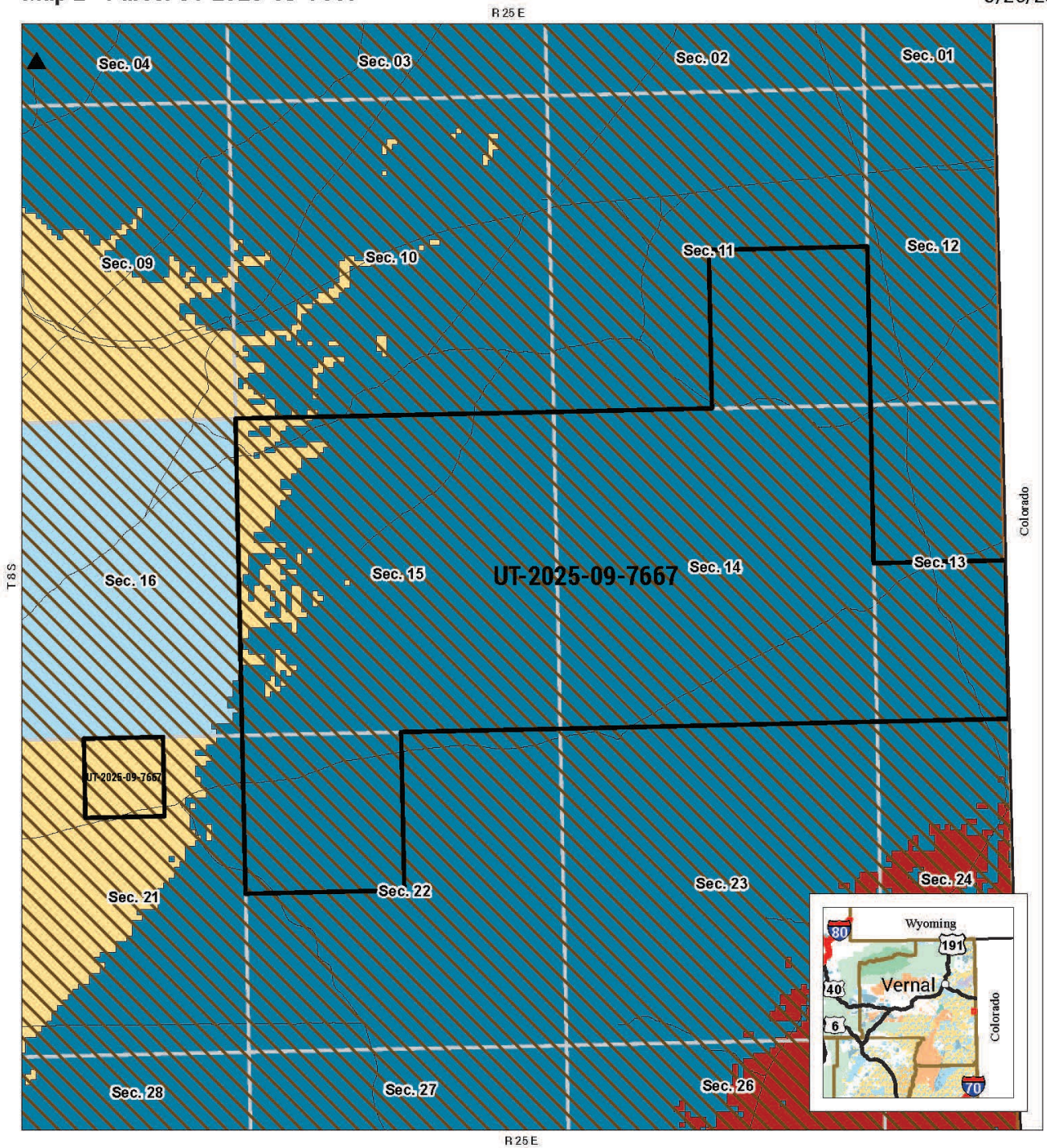
Salt Lake City, UT 84101
801-539-4001

Utah

Map 2 - Parcel UT-2025-09-7667

3/26/2025



- UT-2025-09-7667
- General Habitat Management Areas
- BLM Utah FEIS Disturbance Compilation
- Nesting Habitat
- Winter Habitat
- Summer Habitat
- Active OG Wells
- Bureau of Land Management (BLM)
- State of Utah

N

0 ½ Mile

0 ½ Kilometer

Q3 Oil and Gas Lease Sale

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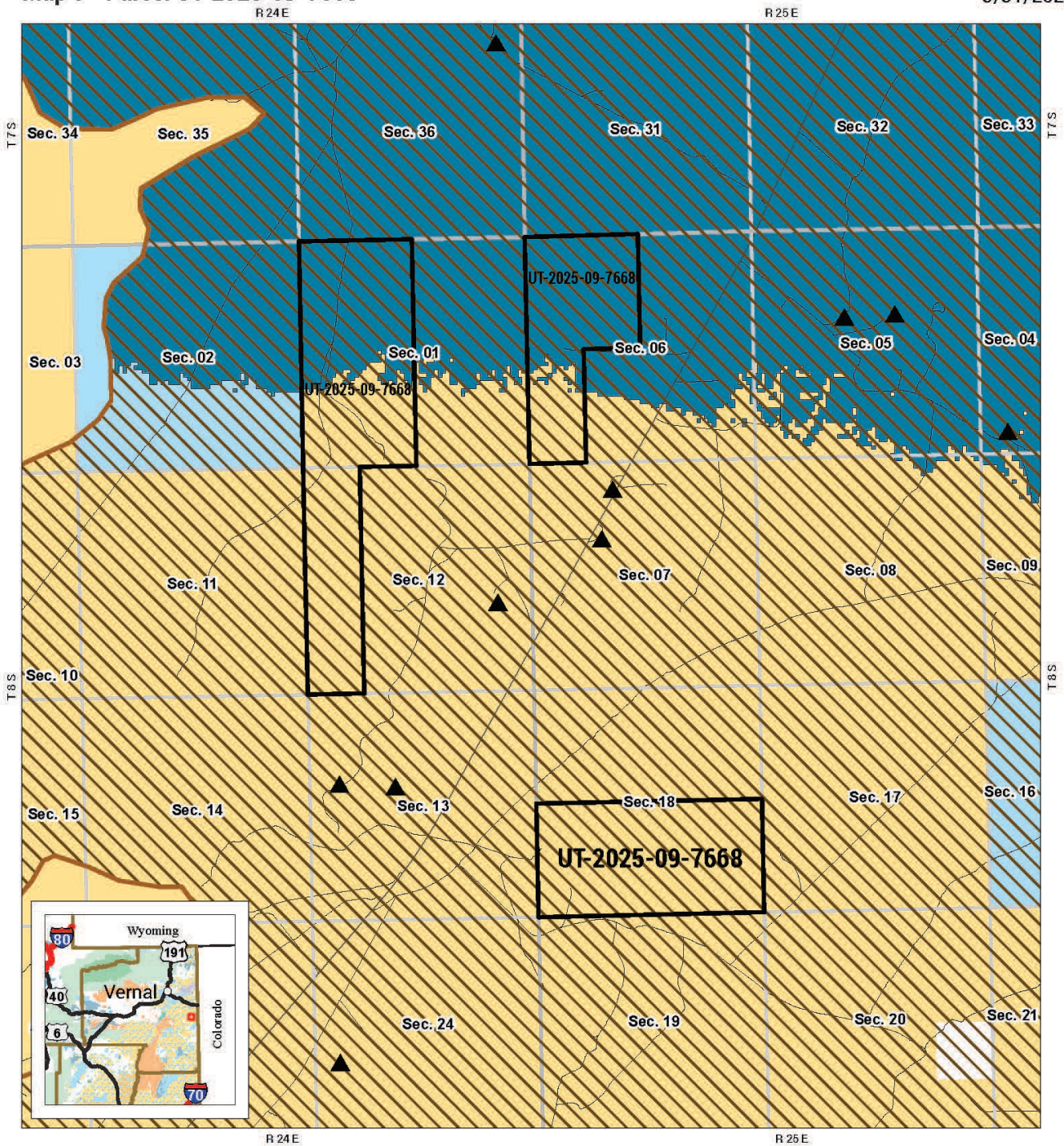
Salt Lake City, UT 84101
801-539-4001

Utah

Map 3 - Parcel UT-2025-09-7668

3/31/2025



UT-2025-09-7668
General Habitat Management Areas
BLM Utah FEIS Disturbance Compilation
Winter Habitat

Active OG Wells
Bureau of Land Management (BLM)
Private
State of Utah

N

0 ½ Mile
0 ½ 1 Kilometer

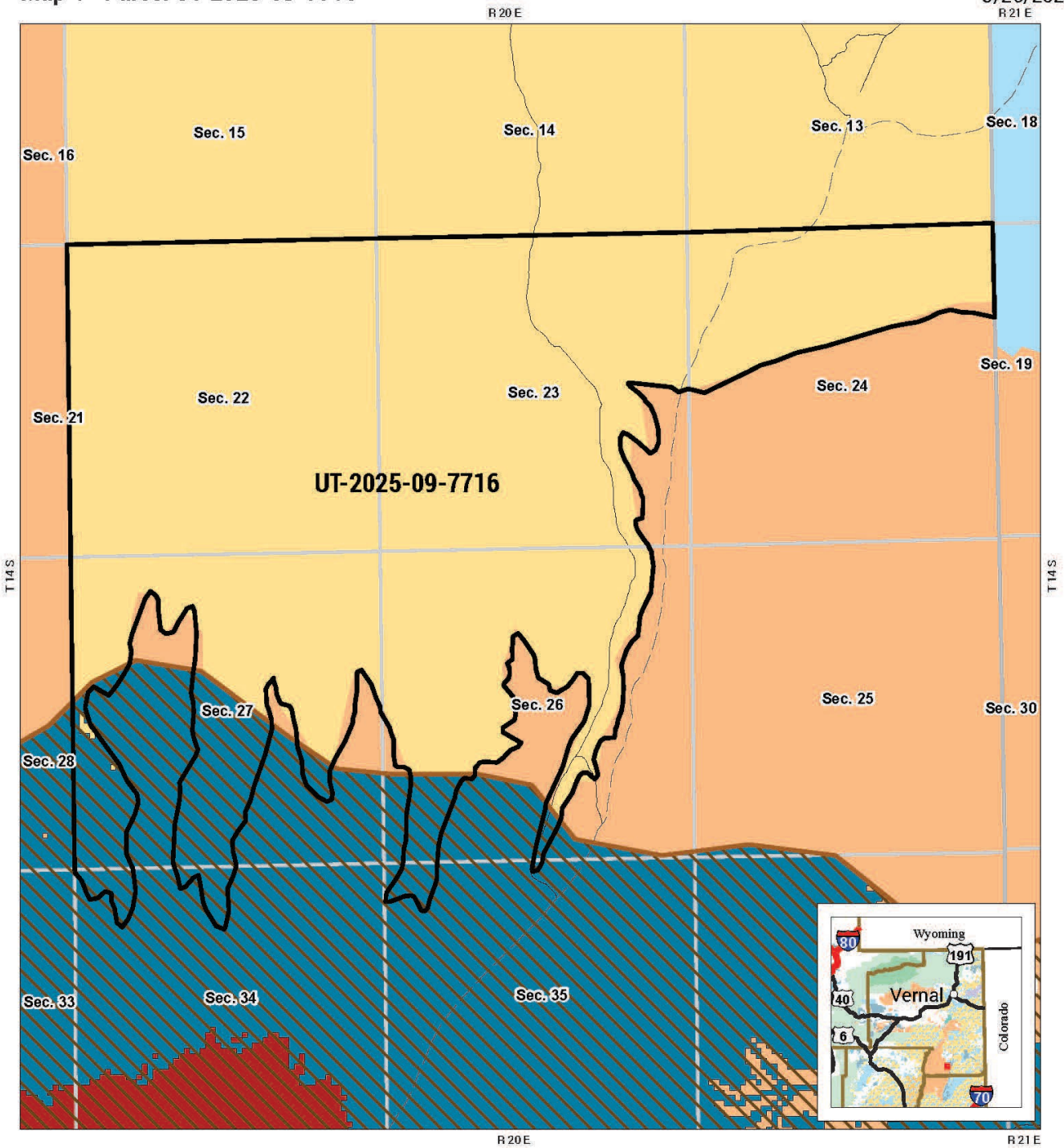
Q3 Oil and Gas Lease Sale

Bureau of Land Management
Utah State Office
440 West 200 South, Ste. 500
Salt Lake City, UT 84101
801-539-4001

Utah

Map 4 - Parcel UT-2025-09-7716

3/26/2025



- UT-2025-09-7716
- General Habitat Management Areas
- BLM Utah FEIS Disturbance Compilation
- Nesting Habitat
- Winter Habitat
- Summer Habitat
- Bureau of Land Management (BLM)
- American Indian Reservation
- State of Utah

N

0 ½ Mile

0 ½ Kilometer