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**BLM Utah 2023 Third Quarter Competitive Oil and Gas Lease Sale Environmental Assessment
DOI-BLM-UT-0000-2023-0001-EA
Sanpete, Sevier, and Wayne Counties, Utah**



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

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Table 1. Acronyms

ACHP	Advisory Council on Historic Preservation
AMR	Air Monitoring Report
AO	Administrative Officer
APD	Application for Permit to Drill
APE	area of potential effects
AQI	Air Quality Index
AQRV	Air Quality Related Value
bbl	barrel(s)
BLM	Bureau of Land Management
CAA	Clean Air Act
CAP	Criteria Air Pollutants
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CH ₄	methane
CO	carbon monoxide
CO ₂	carbon dioxide
CO ₂ e	carbon dioxide equivalent
COA	condition of approval
CSU	Controlled Surface Use
DWQ	Division of Water Quality
DWSPZ	Drinking Water Protection Zones
EA	Environmental Assessment
EIA	U.S. Energy Information Administration
EJ	environmental justice
EOI	Expression of Interest
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
EUR	estimated ultimate recovery
FLPMA	Federal Land Policy and Management Act of 1976
GHG	greenhouse gas
GIS	geographic information system
HA	Herd Area
HAP	hazardous air pollutant
IDT	interdisciplinary team
IPCC	Intergovernmental Panel on Climate Change

IWG	Interagency Working Group on Social Cost of Greenhouse Gases, United States Government
kgS/ha/yr	Kilograms of Sulfur per hectare per year
km	kilometer(s)
LANDFIRE	Landscape Fire and Resource Management Planning Tools
m	meter(s)
mcf	thousand cubic feet
MLA	Mineral Leasing Act of 1920
Mt	megatonnes
MSAVI	Modified Soil Adjusted Vegetation Index
N ₂ O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAIP	National Agricultural Imagery Program
NATA	National Air Toxics Assessment
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
NRHP	National Register of Historic Places
NSO	no surface occupancy
O ₃	ozone
Pb	lead
PFYC	Potential Fossil Yield Classification
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
RMPA	Resource Management Plan Amendment
SCC	social cost of carbon
SHPO	State Historic Preservation Office
SITLA	Utah School and Institutional Trust Lands Administration

SME	Surface Management Entity
SO ₂	sulfur dioxide
SRMA	Special Recreation Management Area
SSA	Sole Source Aquifer
STEO	short-term energy outlook
TCP	traditional cultural property
TDS	Total Dissolved Solids
UDOGM	Utah Division of Oil Gas and Mining
UNEP	United Nations Environment Programme
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
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 18 lease parcels (totaling 31,807.99 acres) nominated for sale in the BLM Utah Third Quarter 2023 Competitive Oil and Gas Lease Sale (Lease Sale). There are 14 parcels covering 26,853.94 acres on public lands managed by the BLM's Richfield Field Office (RFO), including 658.82 acres of split estate (private surface). There are an additional four parcels covering 4,954.05 acres on National Forest System (NFS) lands administered by the United States Department of Agriculture Forest Service (USFS), Fishlake National Forest. These 18 lease parcels span three counties:

Table 2. Surface ownership

County	Parcels	Surface Management Entity	Acres
Sanpete	1283, 1301, 1308, 1311, 1314, 1325, 1334, 7361, 7362, 7363, 7379, 7383	BLM	26,569.37
Sanpete	1308, 7363	BLM and Private	3,038.74 BLM/ 658.82 Private
Wayne	708 (partial), 709 (partial), 711, 713	USFS	4,600.05
Sevier	708 (partial), 709 (partial)	USFS	354.67

The BLM manages the mineral estate associated with the four lease parcels located on USFS-managed surface. The legal descriptions of the nominated lease parcels are found in Appendix B. BLM Parcel List with Stipulations. On July 27, 2022, the USFS provided the BLM with consent to lease, which is required before the BLM can proceed with consideration of leasing the minerals contained in the USFS parcels. The USFS completed its own review for resources on National Forest System (NFS) lands and attached stipulations and lease notices as appropriate (USFS Appendix B and USFS Appendix C).¹ The BLM manages the onshore mineral estate for all federal agencies. For detailed information on the leasing process, see the following website: <https://www.blm.gov/programs/energy-and-minerals/oil-and-gas/leasing/parcel-nominations>.

On June 26, 2023, a total of three (3) USFS parcels (3,691.12 acres) were removed from the lease sale. These three parcels (708, 709, 711) are located in Greater Sage-grouse habitat and within the USFS Fishlake National Forest. Therefore, a total of 15 parcels encompassing 28,116.87 acres are being considered for the lease sale and will be identified in the Notice of Competitive Lease Sale (NCLS).

1.2 PURPOSE AND NEED

The BLM's purpose 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 promote the exploration and development of oil and gas on the public domain.

¹ USFS Appendix B and USFS Appendix C can be found on the BLM's ePlanning page for this lease sale, which is available at <https://eplanning.blm.gov/eplanning-ui/project/2022049/510>

1.3 DECISION TO BE MADE

The BLM Authorized Officer, in consultation with the USFS (for NFS surface-managed parcels), will decide whether to make available for lease the nominated lease parcels with or without constraints, in the form of lease stipulations, as provided for in the approved land use plans. If the decision is to make the lands available for lease, and to subsequently issue a lease, 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. The BLM Authorized Officer also has the authority to defer the parcels based on the analysis of potential effects presented in this EA. The Decision Record will identify whether the BLM decides to lease the nominated lease parcels and the rationale for the decision.

1.4 BLM AND USFS LAND USE PLAN CONFORMANCE

The Proposed Action conforms with the following land use plans:

- Richfield Field Office RMP, October 2008, as amended (BLM, 2008)
- Fishlake National Forest, Record of Decision and Final Environmental Impact Statement for Oil and Gas (OG) Leasing (USDA, 2013)
- 2015 USDA Forest Service Greater Sage-grouse Record of Decision and Plan Amendments for Idaho and Southwest Montana, Nevada, and Utah (USDA, 2015)

The nominated lease parcels fall within areas that are open to leasing under the respective land use plans indicated above and are subject to certain stipulations, specifically, the lands are open to leasing under decisions MIN-1, MIN-3, MIN-5, MIN-6, MIN-7, MIN-9, MIN-11 from the Richfield RMP (BLM, 2008). The USFS has independently found that the action conforms with relevant USFS land use plan decisions (see USFS Appendix B). Maps of the nominated lease parcels are contained in Appendix A. The nominated lease parcels, lease parcel surface ownership, lease parcel legal description, total acreage, and lease stipulations and notices that apply are detailed in Appendix B. Appendix C summarizes lease stipulations and notices in greater detail.

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

The BLM's mandate, as derived from various laws, including the MLA and the Federal Land Policy and Management Act of 1976 (FLPMA), as amended, is to promote the exploration and development of oil and gas on the public domain.

Under the Federal Onshore Oil and Gas Leasing Reform Act of 1987 (FOOGLRA), the BLM and the USFS have shared responsibilities with respect to the issuance and administration of oil and gas leases on NFS lands. In addition, the BLM and the USFS entered into a Memorandum of Understanding (MOU),² that further defines the responsibilities of each agency for such leasing on NFS lands. The BLM is solely responsible for the offering for sale and issuance of oil and gas leases on NFS lands, but it may only exercise this authority with the consent of, and subject to any surface portions required by, the USFS. FOOGLRA further 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.

² Concerning Oil and Gas Leasing and Operations, USFS Agreement No. 06-SU-11132428-052 (2006).

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 applicable 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
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 C. Lease Stipulation and Notice Summary for details.
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 no 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 3101.1 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)	This Act directs the BLM to conduct quarterly oil and gas lease sales whenever eligible lands are available for leasing. It also grants the USFS the authority to make decisions and implement regulations concerning the leasing of public domain minerals for lands it administers.
Inflation Reduction Act of 2022 (IRA)	The IRA made the following major changes to BLM’s oil and gas leasing program: • Rescinded the BLM’s authority to issue noncompetitive leases under the MLA by striking 30 U.S.C. 226(c). • Removed BLM’s authority to issue reversionary noncompetitive leases. • Updated the royalty rate and rental rate lease terms for competitive leases. • Changed the grounds and conditions for certain reinstatements. In addition, Section 50265 of the IRA states that the BLM may not issue a right-of-way for wind or solar energy development on federal land unless it has 1) held an onshore oil and gas lease sale during the past 120 days and 2) offered the lesser of a “sum total” of either 2,000,000 acres or 50 percent of the acreage for which EOIs have been submitted for lease sales during the previous 1-year period. The BLM has issued policy guidance to implement the oil and gas leasing provisions in the IRA and provided updated direction on other program components (i.e., Headquarters Office [HQ]³ Instruction Memorandum [IM] 2023-006, IM 2023-007, IM 2023-008, and IM 2023-010).

³ Prior to September 4, 2020, the BLM’s Headquarters Office was referred to as the “Washington Office.” IMs predating this change in designation contain the prefix “WO,” whereas IMs issued afterwards contain the prefix “HQ.”

Relevant Statute, Regulation, or Policy	Relationship to the Proposed Action
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, existing records reviews and consultation with SHPO, Native American Tribes, consulting parties, and the public drive 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 C. Lease Stipulation and Notice Summary for details.
43 CFR 3100	These regulations govern onshore oil and gas leasing, development, and production of federal minerals.
43 CFR Subpart 3120	These regulations govern competitive oil and gas lease sales.
HQ IM 2023-006, Implementation of Section 50265 in the Inflation Reduction Act for Expressions of Interest for Oil and Gas Lease Sales	This IM provides guidance regarding BLM's implementation of IRA Section 50265 with regard to EOIs.
HQ IM 2023-007, Evaluating Competitive Oil and Gas Lease Sale Parcels for Future Lease Sales*	This IM provides guidance to BLM offices in selecting parcels to be offered in oil and gas lease sales, and it also supplements HQ IM 2023-010, <i>Oil and Gas Leasing – Land Use Planning and Lease Parcel Reviews</i> . This IM informs the agency's organization, procedures, and practice.
HQ IM 2023-008, Impacts of the Inflation Reduction Act of 2022 (Pub. L. No. 117-169) to the Oil and Natural Gas Leasing Program	This IM provides the BLM State Offices with guidance for implementing the provisions of the IRA pertaining to EOIs, noncompetitive lease offers, pending competitive leases, and reinstatements. This IM updates expired policy WO IM 2014-004, <i>Oil and Gas Informal Expressions of Interest</i> .
HQ IM 2023-010, Oil and Gas Leasing – Land Use Planning and Lease Parcel Reviews	This IM sets out the policy of the BLM to ensure that oil and gas lease sales are held in accordance with the MLA (30 U.S.C. 226), IRA (Pub. L. No. 117-169), and other applicable laws. This policy addresses land use planning, lease parcel review, lease sales, lease issuance, and IM implementation and directs the BLM to incorporate the revised policy, as appropriate, into the affected BLM handbooks and manuals.

* See Appendix E for BLM's evaluation of the nominated lease sale parcels in accordance with HQ IM 2023-007.

1.5.1 Other Plans

There are four 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 documents because it contemplates making available for competitive leasing nominated oil and gas lease parcels.

- **State Resource Management Plan.** The State of Utah maintains a statewide RMP used to define 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." (State of Utah, 2021)
- **Sanpete County Resource Management Plan.** The Sanpete County RMP is an addendum to the county's General Plan. Adopted into the General Plan in 2017, the Sanpete County RMP enumerates the following objectives with respect to energy: 1) "Responsible energy development is the standard in the county." 2) "Opportunity for energy development is created (Sanpete County, 2017)
- **Sevier County Plan Resource Management Plan.** The current Sevier County RMP was completed in 2022. It is an update to the Sevier County 2017 General Plan. With respect to energy, the Sevier County RMP articulates the following objective: "Continue exploration and development of our energy resources with a timely and simplified permit process." (Resource Management Plan, Sevier County 2017 General Plan Update, Updated 2022). (Sevier County, 2017)
- **Wayne County Public Lands Resource Management Plan.** The Wayne County Public Lands RMP was completed in 2017. It states that "Wayne County's objectives as to mining, mineral and energy resources is to allow and encourage leasing, exploration and development of these resources wherever it is not absolutely prohibited such as in National Parks and Wilderness Study Areas." (Wayne County, 2017) Public Involvement and Issues

1.5.2 Internal Scoping

Beginning on December 1, 2021, 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 plan under the NEPA framework. Weekly meetings were held with IDT members during the parcel review process. Additionally, other resource-specific meetings with resource specialists were held to aid in refining issues related to the nominated lease parcels.

1.5.3 External Scoping

The BLM held a 30-day public scoping period from November 22, 2022, until December 22, 2022. The BLM received 25 comment submittals via ePlanning during the scoping period. Most of the comment submittals raised general objections to oil and gas leasing in general. None of the comments mentioned any parcels specifically by number. The Utah School and Institutional Trust Lands Administration (SITLA) and Utah Public Lands Policy Coordinating Office (PLPCO) submitted comments in favor of leasing all of the parcels. Concerns and comments presented by the public and non-governmental organizations are summarized below:

- Parcels are in critical habitat (Sage-grouse, trout, "wildlife")
- Leasing would result in pollution and contribute to climate change.

-
- Leasing would contribute to economic growth and development.

The preliminary Lease Sale EA was made available for a public comment period from March 20 to April 19, 2023. All comments received were reviewed and analyzed. Substantive comments were extracted and responded to appropriately. See Appendix D. Comments Received During the Public Comment Period and BLM's Responses.

1.5.4 Issues

The Council on Environmental Quality (CEQ) regulations at 40 CFR 1500.4(i) state that the scoping process should be used “not only to identify significant environmental issues deserving of study, but also to deemphasize insignificant issues narrowing the scope of the [NEPA] process accordingly.” 40 CFR 1501.9(f)(1) indicates that the lead agency “shall identify and eliminate from detailed study the issues that are not significant or have been covered by prior environmental review(s), narrowing the discussion of these issues in the statement to a brief presentation of why they will not have a significant effect on the human environment or providing a reference to their coverage elsewhere.”

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

- What quantity of air pollutants would be produced based on the assumptions for analysis? How would air pollutant emissions from subsequent development of leased parcels affect air quality and air quality related values? How would future 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 Greater Sage Grouse (GRSG) and its habitat in the Parker Mountain population area?

An additional 22 issues were identified, considered, and dismissed from detailed analysis during review of the Proposed Action. These issues, and explanations for why they were dismissed from detailed analysis, are presented in section 3.4.

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

Table 4. Issues Considered but not Analyzed in this EA.

Resource or Concern	Rationale for not Analyzing in EA
Special designations	Special designations include Areas of Critical Environmental Concern, Lands with Wilderness Characteristics, National Scenic and Historic Trails, Research Natural Areas, Special Recreation Management Areas (SRMAs), designated Wilderness, National Monuments, National Conservation Areas, National Parks, Wilderness Study Areas, and Wild and Scenic Rivers. There are no special designations located within or adjacent to the nominated lease parcels. The nearest special designation is Capitol Reef National Park, which is 5 miles east of nominated USFS parcel 0709 and 5 miles southeast of USFS parcel 0713. All USFS lease parcels are designated by lease stipulation as No Surface Occupancy (NSO) and are topographically screened from Capitol Reef National Park by the Sevier Plateau. Therefore, analysis of potential effects to special designations is not warranted.

Resource or Concern	Rationale for not Analyzing in EA
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 Muddy Creek Herd Area, which is approximately 12.5 miles northeast of nominated lease parcel 0709. Therefore, analysis of potential effects to wild horses and burros is not warranted.
Fuels and fire management	The potential for ignition of wildland fire from activities associated with future potential development of the nominated lease parcels would be minimized to the extent practicable through adherence to all applicable federal, state, and local fire safety requirements. No specific concerns or conflicts were identified through internal scoping relating to the effects of future potential development following lease reinstatement on fuels and fire management.
Lands and realty	Future potential development of the nominated lease parcels would be subject to existing land rights and interests (e.g., easements and water rights). Any potential land use conflicts would be resolved through other processes, such as administrative or legal proceedings, independent from this NEPA review.

1.5.5 Public Protest Period

In compliance with BLM Instruction Memorandum (IM) 2023-010, the Notice of a Competitive Lease Sale (NCLS) will be made available for a 30-day protest period from June 27 to July 27, 2023. If there are any timely protests, the BLM will resolve these protests prior to issuing leases.

1.5.6 Recent Court Decisions

On January 27, 2022, the United States District Court for the District of Columbia issued a decision in *Friends of the Earth v. Haaland*, vacating offshore oil and gas lease sale 257 because the Department of the Interior did not quantify the effects of that sale on emissions from the foreign consumption of oil and gas, despite (in the Court's view) possessing the tools and methodology to do so (583 F. Supp. 3d 113 (D.D.C. 2022)). Given the analysis presently available to the BLM, *Friends of the Earth* does not affect BLM's analysis of this proposed lease sale.

Unlike the Bureau of Ocean Energy Management (BOEM)—the agency responsible for sale 257—the BLM has not traditionally used simulation tools like MarketSim (the tool at issue in *Friends of the Earth* and used by BOEM in preparation for sale 257) when evaluating effects on foreign consumption from proposed BLM State Office lease sales. Indeed, the *Friends of the Earth* court recognized that it had previously upheld BLM's decision not to consider foreign effects where the BLM had “refused to quantify emissions resulting from particular lease parcels, and thus could not conceptualize the extent to which the lease sales would contribute to the local, regional, and global climate change.” *Id.* at 140 n. 14 (quotation omitted). Likewise, the court ruled against BOEM for forgoing the foreign consumption analysis for sale 257 in part because BOEM shortly thereafter applied that analysis to a draft NEPA analysis for proposed offshore sale 258. The court's reasoning does not apply to the BLM, which, as noted above, lacks access to any historic or imminent foreign effects analysis at the level of individual BLM State Office lease sales. If and when the BLM undertakes this or similar analysis in the future, it may be appropriate to include and consider that analysis when proposing onshore lease sales.

CHAPTER 2. DESCRIPTION OF ALTERNATIVES

2.1 INTRODUCTION

The nominated lease parcels are in two general locations. The BLM lease parcels are located in Sanpete County along the western edge of the RFO along the county line between Millard and Sanpete Counties. These parcels are on the northern end of the Valley Mountain range between the towns of Fayette and Scipio. The four USFS parcels are further south on the county line between Wayne and Sevier Counties near the town of Fremont. The locations of the nominated lease parcels are depicted in Appendix A. Figures/Maps.

This EA addresses three alternatives in detail: Alternative A – Proposed Action, Alternative B – Greater Sage-Grouse Avoidance Alternative, and Alternative C – No Action Alternative.

2.2 ALTERNATIVE A – PROPOSED ACTION

Under the Proposed Action, the BLM would offer for competitive leasing federal minerals associated with the 18 nominated lease parcels. Surface management, the legal land description of the nominated lease parcels (totaling 31,807.99 acres), and lease stipulations and notices attached to the parcels are included in Appendix B. Appendix C provides a summary of stipulations and lease notices. Appendix A contains parcel maps. Under the Proposed Action, the BLM Authorized Officer would lease the 18 nominated parcels based on the analysis of potential effects presented in this EA.

This BLM lease sale will include updated fiscal provisions authorized by Congress in the Inflation Reduction Act of 2022 (Pub. L. No. 117-169):

- Minimum bids for all offered parcels will be \$10 per acre, an increase from the \$2 per acre minimum bid set in 1987;
- Royalty rates will be 16.67 percent, up from the previous minimum of 12.5 percent; and
- Rental rates will be \$3 per acre for the first two years; \$5 per acre for years three through eight; and \$15 per acre for years nine and ten. (Prior to the Inflation Reduction Act, rental rates were \$1.50 per acre for the first five years and \$2 per acre for each year thereafter, rates originally set in 1987).

An issued lease may be held for ten years, after which the lease expires unless oil or gas is produced in paying quantities (43 CFR 3107.2).⁴ A producing lease can be held indefinitely by economic production. The drilling of wells on lease parcels is not permitted until the leaseholder submits, and the BLM approves (subsequent to additional site-specific environmental review documentation), a complete Application for Permit to Drill (APD) package (Form 3160-3) following the requirements specified under Onshore Oil and Gas Orders listed in 43 CFR 3162 (BLM 2017).⁵ The BLM has authority, according to the standard terms and conditions of the leases, to attach conditions of approval (COAs) to the APD that reduce or avoid impacts to public land, resources, and/or resource values.

Under 43 CFR 3101.1-2, such reasonable measures may include, but are not limited to, modification to siting or design of facilities, timing of operations, and specification of interim and final reclamation

⁴ 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.

⁵ 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/>

measures. Measures shall be deemed consistent with lease rights granted provided that they do not require relocation of proposed operations by more than 200 meters (m); require that operations be sited off the leasehold; or prohibit new surface-disturbing operations for a period in excess of 60 days in any lease year.

2.3 ALTERNATIVE B – GREATER SAGE-GROUSE AVOIDANCE ALTERNATIVE

Under this alternative, the four nominated lease parcels located on USFS-managed surface estate would not be included in the Lease Sale because portions of three parcels contain Priority Habitat Management Areas (PHMA) for GRSG (in total 1,183 acres) and all four parcels are within 1.8 to 2.9 miles of a documented GRSG lek. In its review process and in accordance with the land use direction in the Oil and Gas Leasing Analysis Record of Decision (USDA, 2013) and USDA Forest Service Greater Sage-grouse Record of Decision and Plan Amendments for Idaho and Southwest Montana, Nevada, and Utah (USDA, 2015), the USFS attached No Surface Occupancy (NSO) stipulation to these parcels without allowances for waivers or modifications. This stipulation would apply under the Proposed Action. Exceptions may be granted, with unanimous concurrence from a team of agency GRSG experts from the USFWS, USFS, and the Utah Division of Wildlife Resources, if there would be no direct, indirect, or cumulative effects to GRSG or their habitats or granting the exception provides an alternative to a similar action occurring on a nearby parcel and the exception provides a clear net conservation gain to GRSG (USDA, 2015).

Stipulations that prohibit surface occupancy prevent on-parcel surface effects for all on-parcel resources. As a result, on-parcel GRSG related effects would not occur on the USFS-managed nominated lease parcels regardless of the action alternative due to the NSO stipulation. However, impacts from future potential development of these parcels that would occur off-parcel because the NSO stipulation has the potential to impact adjacent PHMA, which is located on BLM managed lands. Removing the nominated lease parcels located on USFS-managed surface estate from the Lease Sale would eliminate the possibility of impacts to GRSG habitat that would otherwise have the potential to occur. Under this alternative, only the 14 nominated lease parcels located on BLM-managed and private surface (totaling 14 parcels and 26,853.94 acres of federal mineral estate) would be offered for competitive leasing.

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 the Lease Sale. However, in the absence of land use plan amendments closing the lands to leasing, 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 nine 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 in Sections 2.5.1 through 2.5.9.

2.5.1 Avoid Leasing in High Probability Cultural Resources Areas

Under this alternative the BLM would not offer lease parcels in areas where any of BLM's Class I Cultural Resource Inventory – Existing Information Inventory Predictive Models (Class I site type model) would predict a high probability for cultural resources. BLM's Class I site type model is a tool that

provides an overview of known and mathematically probable cultural resource site occurrences to aid BLM's planning efforts. This alternative was not considered in detail because it solely utilizes the Class I site type model to avoid all areas of high mathematical probability and ignores analysis of impacts to cultural resources based on the reasonably foreseeable development (RFD) scenario (see section 3.2.1. for the RFD methodology discussion). In contrast, BLM's current cultural resources analysis for this EA provides a more focused parcel-by-parcel analysis in relation to the RFD scenario when considering impacts to cultural resources and potential effects to historic properties. This alternative was not considered in detail because it is not necessary to avoid development near known or potentially present cultural resources based on the following: 1) existing regulatory requirements provide mechanisms to preserve cultural resources even if all of the parcels are leased, and 2) application of stipulation HQ-CR-1 provides mechanisms to identify and avoid impacts to cultural resources at the lease development level.

2.5.2 Defer All Parcels in Areas of Low to Moderate Potential for Oil and Gas Development/Delayed Leasing Option

This alternative would involve offering for competitive leasing only high-potential lands with limited multiple-use conflicts, if any, while deferring other parcels that either pose potential resource conflicts or have only moderate or low potential for oil and gas development. This alternative was not considered in detail because the impact would be fundamentally the same as Alternatives B and C. This is because those alternatives already involve deferral of all parcels (Alternative C) or a portion of the parcels (Alternative B, wherein the USFS parcels are deferred). Additionally, none of the parcels were determined by the ID team to be high preference for leasing. "Preference" refers to the possibility for resource conflicts within the parcel and not the potential to ultimately produce in saleable quantities. See Table 17 Criteria for leasing related to IM-2023-007 for BLM's Utah 2023 Competitive Oil and Gas Lease Sale.

2.5.3 Greenhouse Gas Emission Reductions Alternative

Under this alternative the BLM would implement methane and waste prevention with enforcement through a "rigorous leak detection and repair (LDAR) program." This alternative does not respond to the purpose and need described in Section 1.2 and is outside the scope of the decision to be made articulated in Section 1.3. The measures indicated must be implemented through regulatory action that cannot be implemented through a decision made at the leasing stage. In addition, the BLM has proposed new onshore oil and gas regulations for Waste Prevention, Production Subject to Royalties, and Resource Conservation (BLM 2022) which may produce similar emissions reductions to the suggested alternative. Once finalized these regulations would apply to the nominated lease parcels, if leased.

2.5.4 Implementing a Managed Decline of GHG Emissions/Imposing a Climate Requirement on Leases

According to the commenter suggesting this alternative: "BLM retains the authority to set a declining rate of production on leases over time that can accommodate lease rights but provide for an orderly phase-out of onshore fossil fuel production consistent with limiting warming to 1.5°C. The MLA allows BLM, under certain circumstances, to 'alter or modify from time to time the rate of prospecting and development and the quantity and rate of production under such plan.' 30 U.S.C. § 226(m). Moreover, nearly every BLM lease for onshore oil and gas contains a provision allowing BLM to 'reserve the right to specify rates of development and production in the public interest.'"

This alternative does not respond to the purpose and need described in Section 1.2 and is outside the scope of the decision to be made described in Section 1.3 because it relates to the approach to

management of leased parcels rather than responding to EOIs as required under MLA. In addition, this potential mitigating measure is already in place under the MLA as noted by the commenter.

2.5.5 No New Greenhouse Gas Emissions Alternative

Under this alternative the BLM would delay leasing or development 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, which is already analyzed and does not meet the purpose and need.

2.5.6 “Mitigation Hierarchy” Alternative

Under this alternative the BLM would follow the mitigation hierarchy required by IM 2021-046, MS-1794, and H-1794-1 (BLM, 2021). Specifically, the BLM would “first avoid damage to the public lands and resources; second, minimize damage that cannot be avoided; and third, compensate for any residual impacts to important, scarce, or sensitive resources or resources protected by law.” This alternative was not considered in detail because it represents current BLM practices with respect to exploration and development of oil and gas leases rather than a suggestion concerning alternative configurations of nominated lease parcels. Consequently, this alternative would not respond to the purpose and need described in Section 1.2 and is beyond the scope of the decision to be made described in Section 1.3.

2.5.7 “Full Deferral” Alternative

Under this alternative the BLM would expressly defer leasing of any of the nominated lease parcels until such time that the oil and gas leasing and development program aligns with U.S. climate targets. This alternative was eliminated from detailed analysis for the following reasons: 1) It is fundamentally the same as the No Action Alternative, which is already analyzed, and 2) it would not meet the purpose and need described in Section 1.2, which relates to responding to EOIs as required under MLA.

2.5.8 Methane Waste Minimization Alternative

Under this alternative the BLM would apply a stipulation that mandates the use of best available methane reduction technologies to all parcels. This alternative was not considered in detail because stipulations are derived from RMPs and not at the leasing stage. A new stipulation would require an RMP amendment which is outside the scope of this EA. The BLM is already addressing methane waste through the rulemaking process (i.e., proposed Waste Prevention, Production Subject to Royalties, and Resource Conservation rule). Future development on all leases will have to comply with applicable laws and regulation in effect at the time. The proposed waste prevention rule would apply to every lease once finalized, and a methane waste minimization alternative would not be substantially different. The BLM also has discretion to apply conditions of approval at the APD stage to further minimize methane waste. Mitigation measure for reducing methane emissions, which could be applied as conditions of approval at the APD stage, are discussed in section 3.4.2.3 and in the Annual GHG report.

2.5.9 Groundwater Protection Alternative

Under this alternative the BLM would not lease parcels in areas overlying usable groundwater and surface water or include other measures to ensure that all usable groundwater zones are protected. This alternative was not considered in detail because the BLM already has existing groundwater protections and casing and cementing requirements. See Section 3.4 (AIB-11).

CHAPTER 3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL EFFECTS

3.1 INTRODUCTION

Chapter 3 contains the effects analysis related to the issues identified for analysis. Section 3.2 describes the analysis assumptions for the future potential development of the nominated lease parcels. Section 3.3 describes the effects of the No Action Alternative for all issues. Section 3.4 presents the issues that are considered but eliminated from detailed analysis. Section 3.5 presents the issues that are analyzed in detail.

Lease stipulations and notices are referred to throughout the analysis in Sections 3.4 and 3.5 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 authorized officer 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). Whereas lease notices may not serve as the basis for denial of lease operations, 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).

3.2 ANALYSIS ASSUMPTIONS

While leasing, itself, 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. Because there are currently no development proposals for the nominated lease parcels, the BLM is unable to complete an analysis that uses information related to a specific proposed project or projects. However, for the purpose of this analysis, Section 3.2.1 outlines the methodology for estimating number of wells, acres of surface disturbance, and potential production volumes associated with the future potential development of the 18 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 F provides a summary of the phases of oil and gas development):

- Construction of new access roads or expansion of existing roads,
- Pad construction,
- Drilling of a well,
- Hydraulically fracturing a well,
- Installation of pipeline,

- Production, including vehicle traffic; hauling of produced fluids such as oil or produced water; compression to move gas through pipeline systems; potential venting from storage tanks; regular well monitoring; and work-over tasks for the life of the well,
- Well plugging and abandonment, and
- Reclamation and remediation.

3.2.1 Methodology for Estimating Number of Oil and Gas Wells, Surface Disturbance, and Production Volumes

For purposes of estimating the number of wells to be drilled within the RFO during the resource management planning process completed in 2008, the planning area was divided into four geographic areas, defined by USGS plays and assessment units. These are: (1) the eastern portion of Wayne and Garfield counties (generally east of R. 12 E.), which is underlain by true Paradox Basin plays; (2) the southern part of the planning area, as defined by the Permo-Triassic Unconformity Play; (3) the Wasatch Plateau, defined by the Cretaceous Sandstone Play, but also including Coal Bed Natural Gas (CBNG) in the Ferron, Emery, and Blackhawk coals; and (4) the area from the eastern boundary of the Sevier Frontal Zone Play to the western boundary of the RFO planning area. From 1940-2004 the average number of wells drilled each year in the RFO, was slightly over three. The RFD for the RFO estimates only 454 wells possible for the entire planning area. Based on these calculations the BLM does not anticipate a 1:1 relationship between nominated lease parcels and wells. In the RFO only 2.7% of parcels currently leased are actually being developed.

In the combined 3.7 million-acre RFO and Fishlake National Forest, there are approximately 1.7 million acres of federal mineral estate that are open to oil and gas leasing. Of these acres, 157,907 acres are already leased (9.4% of the federal mineral estate open to oil and gas leasing) across 113 total parcels. Of the total lease parcels, lease development activities have been proposed or are ongoing on 3 parcels (2.7% of the total leased parcels).

The nominated lease parcels located on BLM and private surface (14 in total) are in the area that runs from the eastern boundary of the Sevier Frontal Zone Play to the western boundary of the RFO planning area (described above under (4)). In this area, wells are anticipated to be drilled at a rate of up to 24 per year (BLM, 2005). Based on this reasonably foreseeable development (RFD) area estimate, future potential development on the nominated lease parcels is anticipated to result in approximately a total of 9 wells across all 14 lease parcels. Historic production rates indicate that it is unlikely that all of the parcels will be developed if leased.

The USFS, with the assistance of the BLM, developed the reasonably foreseeable development scenario (RFDS) for Oil and Gas for the Fishlake National Forest, where the four USFS parcels are located. These parcels are contiguous and located in a low potential area according to the RFDS and are not within any known oil fields (USDA 2007). These parcels are subject to NSO restrictions and, therefore, any future development of these parcels would have to occur off-lease-likely on adjacent BLM-managed land that is located outside of GRS habitat.

The RFDS estimates an average of 3 wells per year, or 45 wells over 15 years within the entire Fishlake National Forest (1,707,810 acres). The average acreage of disturbance for each well is expected to be approximately 12 acres, which includes 4-acres for the well pad and 8 acres for new road construction (assumes steep terrain). The nominated parcels represent 0.29% of the RFDS area. It is estimated that one well would be drilled to access federal minerals under all four USFS parcels, resulting in the potential disturbance of 12 acres. Historic production rates indicate it is unlikely as on parcel 711, a well was

drilled and plugged and abandoned in 1981. The next closest wells were drilled three miles north of parcel 709 and just over three miles east of parcel 713. Because surface occupancy would not be permitted on the USFS lease parcels (due to NSO stipulation), lease development activities would have to occur off-lease and on adjacent BLM managed lands. The BLM estimates that well pad placement and associated lease development infrastructure (roads, etc.) would occur within approximately three miles of the lease parcels. This estimate is based on typical industry capabilities with respect to the length of laterals to access minerals off-lease with horizontal drilling. The active BLM leases just west of the nominated lease parcels on USFS-managed surface represent the most likely drilling locations though other drilling locations are possible. (Refer to: Figure 5 Overview of the 4 USFS parcels, PHMA and authorized leases.)

The projected number of wells, acres of surface disturbance, and associated oil, gas, and produced water production for the nominated lease parcels are summarized in Table 6. Disturbance would remain on the landscape until final abandonment and reclamation of facilities (generally assumed to occur after 30 years). Interim/ongoing reclamation procedures would be used to limit impacts by restoring disturbed areas as soon as they are no longer required for operations (e.g., reclamation of construction staging areas).

Table 5. Estimated Well Count and Production for the Nominated Lease Parcels.

SME	Acres	RFD Area	Total Estimated Wells†	Surface Disturbance (acres)	Oil Production (bbl)	Gas Production (mcf)	Water Production (bbl)
BLM/Private	25,633.54/ 1,220.40	4	9	108	271,449	6,591,969	798,807
USFS	4,954.05	The Late Proterozoic & Cambrian Play (2403)	1	12	30,161	732,441	88,756
Total	31,807.99	–	10	120	301,610	7,324,410	887,563

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

* 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.

† In cases where the methodology 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.

3.3 NO ACTION ALTERNATIVE FOR ALL ISSUES

Under the No Action Alternative, the BLM would not lease the 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.

Issues Analyzed in Brief (AIB)

Following internal and external scoping, 22 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 context and intensity of the impact related to 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 are described in the lease form that 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 (approximately 30–60 days) or cease after interim reclamation (approximately 2–5 years). Long-term effects are considered to be those associated with operation 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).

AIB-1 Threatened and Endangered Species

How would future potential development of the nominated lease parcels affect federally listed threatened and endangered (T&E) species or their habitats?

All 18 parcels were analyzed individually for occurrence of federally listed species, in coordination with the U.S. Fish and Wildlife Service (USFWS). According to lease stipulation HQ-TES-1, which applies to all of 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 of a 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 (see Appendix B. BLM Parcel List with Stipulations B and Appendix C. Lease Stipulation and Notice Summary. In addition, due to the potential for currently or future listed plant species to be identified within the parcels, lease notice T&E-05 applies to all lease parcels. Section 4.1 further discusses how the Proposed Action would comply with threatened and endangered species management guidelines outlined in the 2008 RFO RMP (BLM, 2008), as well as ESA Section 7 consultation requirements. For all parcels with Federal surface ownership, applying the identified T&E lease notices – which were developed through formal ESA Section 7 Consultation with the USFWS during development of the applicable land use plan – would mitigate potential impacts from mineral development on the nominated lease parcels and adjacent lands. As discussed below, the application of the identified lease stipulations and notices to the nominated lease parcels, as well as the requirements outlined in the applicable land use plan, will adequately mitigate potential impacts to listed or candidate T&E species at the leasing stage. At the lease development stage, site-specific ESA Section 7 consultation with USFWS will occur as necessary and will take into consideration infrastructure siting, habitat suitability determinations, survey results, and any additional site-specific considerations or avoidance measures. The following species were determined to occur in the planning area:

Utah Prairie Dog (Cynomys parvidens)**BLM SURFACE MANAGED PARCELS**

Parcels 1301, 1308, 1311, 1314, 1325, 1334, 7363, 7367, 7373, 7379, and 7383 (11 parcels) are located within the USFWS Area of Influence (AOI) for the Utah prairie dog. AOIs typically encompass larger areas than simply where the species is known to exist because of direct and indirect effects to the species and their habitat. In this case, occurring within ten miles of a⁶ historic Utah prairie dog colony. Of those 11 parcels, Parcels 1301, 1311, 1314, 1325, 1334, 7367, 7373, 7379, and 7383 (nine parcels) have modeled suitable habitat (Ikeda, 2010).

Table 6. Acres of Utah Prairie Dog Modeled Habitat by Parcel.

Parcel	Acres	Acres Modeled Habitat	Percent Modeled Habitat	Stipulations and Notices
1301	2077	2	0.1%	UT-S-221: Controlled Surface Use/Timing Limitations – Utah Prairie Dog T&E-09: Utah Prairie Dog
1311	2295	24	1.0%	UT-S-221: Controlled Surface Use/Timing Limitations – Utah Prairie Dog T&E-09: Utah Prairie Dog
1314	1220	3	0.2%	UT-S-221: Controlled Surface Use/Timing Limitations – Utah Prairie Dog T&E-09: Utah Prairie Dog
1325	1056	10	0.9%	UT-S-221: Controlled Surface Use/Timing Limitations – Utah Prairie Dog T&E-09: Utah Prairie Dog
1334	2362	7	0.3%	UT-S-221: Controlled Surface Use/Timing Limitations – Utah Prairie Dog T&E-09: Utah Prairie Dog
7367	2357	2	0.1%	UT-S-221: Controlled Surface Use/Timing Limitations – Utah Prairie Dog T&E-09: Utah Prairie Dog
7373	1588	61	3.8%	UT-S-221: Controlled Surface Use/Timing Limitations – Utah Prairie Dog T&E-09: Utah Prairie Dog
7379	1622	5	0.3%	UT-S-221: Controlled Surface Use/Timing Limitations – Utah Prairie Dog T&E-09: Utah Prairie Dog
7383	2085	64	3.1%	UT-S-221: Controlled Surface Use/Timing Limitations – Utah Prairie Dog T&E-09: Utah Prairie Dog

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 no future translocations of the species will occur in the vicinity of the parcels. Given the lack of active or historic Utah prairie 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 from the BLM surface managed parcels is not warranted.

⁶ A recovery unit is a designation made by the USFWS to divide habitat into administrative areas to aid in recovery efforts.

USFS SURFACE MANAGED PARCELS

The four USFS-managed parcels and surrounding lands are located within the USFWS AOI for Utah prairie dog, in the Awapa Recovery Unit for Utah prairie dog, and have modeled suitable habitat present (Ikeda, 2010).

Table 7. Acres of Utah Prairie Dog Modeled Habitat by Parcel.

Parcel	Acres	Acres Modeled Habitat	Percent Modeled Habitat
USFS 0708	760	592	77.9%
USFS 0709	1131	603	53.3%
USFS 0711	1920	1733	90.3%
USFS 0713	1263	601	47.6%

As described in Section 3.2.1, No Surface Occupancy Stipulations will be implemented for the above referenced USFS lease parcels, thus pushing any future potential surface development off-lease. There are adjacent BLM-managed lands, which have active oil and gas leases (UTU93250, UTU93251). Drilling of the USFS parcels from adjacent BLM surface would require a right-of-way before any development project could begin.

Both active leases are located entirely within the USFWS AOI for Utah prairie dog, within the Awapa Recovery Unit for Utah prairie dog, and have modeled suitable habitat present (Ikeda, 2010).

Table 8. Acres of Utah Prairie Dog Modeled Habitat on Adjacent Active Lease Parcels

Lease	Acres	Acres Habitat	Percent Habitat
UTU93250	1843	1395	75.7%
UTU93251	1241	934	75.3%
Total	3084	2329	75.5%

Additionally, 50 acres of the Southwest corner of UTU93251 is located within a half-mile of a mapped, historic Utah prairie dog colony. The nearest active colony (as of 2022) is located approximately 6.6 miles to the southwest of UTU93251.

Using the disturbance assumptions in Section 3.2.1, 12 acres of disturbance would occur within the area encompassing the two active lease units. Assuming random placement of disturbance within the area, 9.1 acres of modeled suitable habitat would be directly impacted by the development (0.3% of the modeled habitat within the active lease areas). However, siting of development infrastructure would likely avoid areas of steep topography, increasing the probability of development occurring within suitable habitat. Therefore, impacts would be expected to be closer to 12 acres of disturbance to modeled suitable habitat (0.5% of the modeled habitat within the lease areas).

The following BLM lease stipulations and lease notices from the RFO RMP are applied to the nominated lease parcels, in addition to USFS lease stipulations, to reduce and minimize impacts to the species through completion of surveys and avoidance of occupied or suitable unoccupied habitat, regardless of surface land management.

Lease Stipulations

-
- UT-S-221: Controlled Surface Use/Timing Limitations – Utah Prairie Dog: USFS Parcels 0708, 0709, 0711, and 0713.

Lease Notices:

- T&E-09: Utah Prairie Dog: USFS Parcels 0708, 0709, 0711, and 0713.

Additionally, Appendix 14 of the RFO RMP provides committed conservation measures for Utah prairie dog (BLM, 2008, pp. A14-17 - A14-18) applicable to all BLM authorized activities.

Considering that the implementation of the lease stipulations, lease notice, and committed conservation measures on the nominated parcels would further reduce the potential impacts to occupied, unoccupied or unidentified colonies into the foreseeable future at the lease development stage, detailed analysis on the impacts to Utah prairie dog from the Forest Service surface managed parcels is not warranted.

Yellow-billed cuckoo (Coccyzus americanus) Western Distinct Population Segment

Parcels 1283, 1314, and 7363 intersect the USFWS AOI for the Western Distinct Population Segment of the yellow-billed cuckoo (western yellow-billed cuckoo). Parcels 7361, 7379, and 7383 are located within a half-mile of the AOI for the species. The 2015 USFWS guidelines for the identification and evaluation of suitable habitat for western yellow-billed cuckoo in Utah (US Fish and Wildlife Service, 2015) describes suitable habitat as patches of riparian habitat with vegetation that is predominantly multi-layered, with riparian canopy trees and at least one layer of understory shrubby vegetation. Additionally, patches must be at least 12 acres in extent, and which must have somewhere within the patch an area that is at least 100 meters wide by 100 meters long.

Based on aerial imagery, within Parcel 7363 there is a narrow band of potential riparian forest. This area does not meet the specification for suitable habitat. However, there is a patch of vegetation that meets the size specification within a half-mile of Parcel 7363 on private and state-managed lands to the east of the parcel.

As there is no suitable habitat within any nominated parcel, there would be no potential removal of suitable habitat from on-lease development. However, impacts to suitable habitat may include sound disturbance from construction, maintenance, and operations or off-lease development of associated infrastructure.

The following BLM lease notice is applied to reduce and minimize impacts to the species through implementation of avoidance and minimization measures, including the completion of surveys, avoidance of occupied habitat, and incorporation of sound mitigation measures.

Lease Notices:

- T&E-27: Western yellow-billed cuckoo: Parcel 7363

Implementation of the lease notice above and the other identified lease stipulations and lease notices (see Appendix B and Appendix C) will help minimize impacts to the species. Considering that the implementation of the lease stipulations and lease notice on the nominated parcels would further reduce the potential impacts to future identified occupied habitat into the foreseeable future at the lease development stage, detailed analysis on the impacts to yellow-billed cuckoo is not warranted.

California condor (Gymnogyps californianus)

The four USFS nominated lease parcels are located within the non-essential experimental population area (ESA section 10(j)) for California condor. Currently, the population has neither expanded into the vicinity of the nominated lease parcels, nor is it a self-sustaining population. However, over the life of the lease it is possible that the occupied range of the experimental population will expand.

Within a half-mile of the nominated lease parcels and the adjacent active leases on BLM-managed lands there are areas classified by LANDFIRE as the Colorado Plateau Mixed Bedrock Canyon and Tableland land type. The USGS Species GAP Analysis Project identifies this land type as being associated with California condor habitat (USGS Gap Analysis Project, 2017). However, none of these areas have been evaluated by the BLM, USFS or USFWS to determine habitat suitability for nesting.

The following lease stipulations and lease notices are applied to minimize impacts to the California condor.

Lease Stipulations

- UT-S-293: Controlled Surface Use/Timing Limitations – California Condor: USFS Parcels 0708, 0709, 0711, and 0713.

Lease Notices:

- T&E-11: California Condor: USFS Parcels 0708, 0709, 0711, and 0713.

Listed Fish of the Upper Colorado River Drainage Basin

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 listed fish species (bonytail chub [*Gila elegans*], Colorado pikeminnow [*Ptychocheilus lucius*], humpback chub [*Gila cypha*], and razorback sucker [*Xyrauchen texanus*]) and must be evaluated with regard to the criteria described in the Upper Colorado River Endangered Fish Recovery Program. At the leasing stage, it would be too speculative 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 source within the same basin is used, lease stipulations and lease notices are applied to the USFS nominated lease parcels that are located within the Fremont River Watershed (which falls within the Upper Colorado River drainage basin above Lake Powell).

Lease Stipulations

- UT-S-184: Controlled Surface Use/Timing Limitations – Endangered Fish of the Upper Colorado River Drainage Basin: USFS Parcels 0708, 0709, 0711, and 0713

Lease Notices:

- T&E-03: Endangered Fish of the Upper Colorado River Drainage Basin: Parcels 708, 709, 711, and 713

Application of these lease stipulations and lease notices will mitigate potential impacts to listed fish species.

Barneby reed-mustard (Hesperidanthus barnebyi)

The four USFS nominated lease parcels intersect the USFWS AOI for Barneby reed-mustard. These USFS parcels are subject to NSO restrictions and, therefore, any future development of these parcels would have to will occur off- lease. The adjacent BLM lands intersect the western edge of the AOI.

Table 9. Acres of the Barneby reed-mustard AOI in Adjacent Active Lease Parcels

Lease	Acres	Acres Habitat	Percent Habitat
UTU93250	1843	165	9.0%
UTU93251	1241	262	21.1%
Total	3084	427	13.8%

However, a BLM internally produced habitat model (BLM, 2022) identifies no suitable habitat within the active leases and the AOI for the species. Therefore, it is not expected that development of the nominated lease parcels from the active BLM leases would impact habitat for Barneby reed-mustard. However, as a precaution the below lease stipulation and lease notice are applied to the nominated lease parcels to account for potential future discovery of populations in new habitat types associated with lease development from adjacent areas.

Implementation of the below lease stipulation and notice will help minimize impacts to the species.

Lease Stipulations

- UT-S-308: Controlled Surface Use/Timing Limitations – Listed Plant Species: All Parcels
- UT-S-309: Controlled Surface Use/Timing Limitations – Barneby Reed-Mustard: Parcels 708, 709, 711, and 713

Lease Notices:

- T&E-13: Barneby Reed-Mustard (*Schoenocrambe barnebyi*): Parcels 708, 709, 711, and 713

Ute ladies'-tresses (Spiranthes diluvialis)

All nominated lease parcels on BLM-managed lands intersect the USFWS AOI for Ute ladies'-tresses. The AOI was developed based on a USFWS-developed habitat model. However, the threshold used for classifying habitat in watersheds without known populations of the species is very low (i.e., is very conservative) and overestimates the potential habitat area. Using an elevation and aspect detrended Modified Soil Adjusted Vegetation Index (MSAVI) surface calculated from the four band National Agricultural Imagery Program (NAIP), it is possible to identify areas that qualify as statistical outliers (greater than 2 standard deviations) after removing areas of open water. This helps eliminate areas that are clearly not habitat (including shrublands) but still represents an overestimation of potential habitat because it includes – in addition to wetlands, which are suitable habitat for Ute ladies'-tresses – areas of higher vegetative production, such as moister pinyon-juniper woodlands and Gambel's oak woodlands.

Table 10. Acres within Ute ladies'-tresses AOI

Parcel	Acres	Acres in AOI	Percent in AOI	Acres in AOI with relatively greater soil moisture (greener than expected)	Percent in AOI and greener
1283	2077	1127	54.3%	52	2.5%
1301	2295	1205	52.5%	100	4.4%
1308	1220	116	9.5%	6	0.5%
1311	2111	141	6.7%	3	0.1%
1314	2362	1446	61.2%	18	0.8%
1325	1588	783	49.3%	1	0.1%
1334	1622	651	40.1%	0.2	0.0%
7361	2085	907	43.5%	184	8.8%
7362	2090	960	45.9%	309	14.8%
7363	2477	1258	50.8%	24	1.0%
7367	4714	1052	22.3%	316	6.7%
7373	1920	1235	64.3%	16	0.8%
7379	2526	850	33.7%	7	0.3%
Total	30,265	12,261	40.5%	1,036.8	3.4%

Using the disturbance assumptions in Section 3.2.1 and assuming random placement of disturbance relative to areas that may provide habitat for Ute ladies'-tresses, development of the nominated lease parcels would impact 3.7 acres of potential habitat. However, the attached stipulation requires a 300-foot avoidance between surface disturbing activities, rights-of-way, or surface pipelines and occupied habitat. Therefore, there would be no effect of leasing or subsequent lease development on the species.

Implementation of the below lease stipulations will help minimize impacts to the species.

Lease Stipulations:

- UT-S-308: Controlled Surface Use/Timing Limitations – Listed Plant Species: All Parcels
- UT-S-314: Controlled Surface Use/Timing Limitations – Ute Ladies'-Tresses (*Spiranthes Diluvialis*): Parcels 1283, 1301, 1308, 1311, 1314, 1325, 1334, 7361, 7363, 7367

Considering that the implementation of the lease stipulations on the nominated parcels would further reduce the potential impacts to future identified occupied habitat into the foreseeable future at the lease development stage, detailed analysis on the impacts to Ute-ladies' tresses is not warranted.

Last Chance townsendia (Townsendia aprica)

The four USFS nominated lease parcels intersect the USFWS AOI for *Townsendia aprica*. The adjacent existing BLM leases intersect the western edge of the AOI.

Table 11. Acres of the Last Chance Townsendia AOI in Adjacent Active Lease Parcels

Lease	Acres	Acres Habitat	Percent Habitat
UTU93250	1843	619	33.6%
UTU93251	1241	886	71.3%
Total	3084	1505	48.8%

However, a BLM internally produced habitat model (Roe, unpublished) identifies no suitable habitat within the active leases for the species. Therefore, it is not expected that development of the proposed leases from the active BLM leases would impact habitat for the Last Chance Townsendia. However, as a precaution the below lease stipulations and lease notice are applied to the nominated lease parcels to account for potential future discovery of populations in new habitat types associated with lease development from adjacent areas, and they will help minimize potential impacts to the species.

Lease Stipulations

- UT-S-308: Controlled Surface Use/Timing Limitations – Listed Plant Species: All Parcels
- UT-S-310: Controlled Surface Use/Timing Limitations Last Chance Townsendia (*Townsendia aprica*): Parcels 708, 709, 711, and 713

Lease Notices:

- T&E-14: Last Chance Townsendia (*Townsendia aprica*): Parcels 708, 709, 711, and 713

AIB-2 Sensitive Species

How would future potential development of the nominated lease parcels affect BLM sensitive species (plants and wildlife)?

The BLM has several lease stipulations and lease notices that protect sensitive species statewide (see Appendix C). As detailed below, BLM identified certain nominated lease parcels as having occurrence, or potential occurrence, of several sensitive species of plants or animals. 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. 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.

The application of Lease Notices UT-LN-49: Utah Sensitive Species and UT-LN-51: Special Status Plants Not Federally Listed, to all lease parcels as a COA would adequately mitigate potential impacts to populations or individual special status plant and animal species.

Aquatic Animal Species

There are 10.5 km of perennial streams within or intersecting nominated lease parcels 708, 713, and 7363. These include the Sevier River or Sevier Bridge Reservoir (7363), UM Creek (708), and Pole Creek (713). These streams are historic habitat for Bonneville and Colorado River cutthroat trout and may be current habitat for southern leatherside chub. These species are managed under conservation agreements to prevent the need for listing under the ESA.

Table 12. Sensitive aquatic animal species potential in nominated lease parcels on BLM managed lands

Common Name	Scientific Name	Status	Background and documentation for Species/potential habitat occurrence in parcels	Lease Parcel ID
Bonneville cutthroat trout	<i>Oncorhynchus Clarkii Utah</i>	Conservation Agreement Species	Historic habitat	7363
Colorado River cutthroat trout	<i>Oncorhynchus Clarkii pleuriticus</i>	Conservation Agreement Species	Historic habitat	708, 713
Southern leatherside chub	<i>Lepidomeda aliciae</i>	Conservation Agreement Species	Southern leatherside chub are found throughout the Sevier River drainage and may inhabit streams and tributaries of the Sevier River in the RFO.	7363

As noted above, the following lease notice is applied to all nominated lease parcels to mitigate potential impacts to sensitive aquatic animal species. See also the analysis contained in AIB-13 Riparian Areas, Wetlands, and Floodplains.

Lease Notices:

- UT-LN-49 Utah Sensitive Species: All Parcels

Terrestrial Animal Species

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

Table 13. Sensitive terrestrial animal species potentially in nominated lease parcels on BLM managed lands

Common Name	Scientific Name	Status	Background and documentation for Species/potential habitat occurrence in parcels	Lease Parcel ID
Bald Eagle	<i>Haliaeetus leucocephalus</i>	SPC	The lease parcels contain suitable habitat. Bald eagles occur within the lease parcels mostly during winter months. There may be winter roosting areas and nests within the parcels.	All
Burrowing owl	<i>Athene cunicularia</i>	SPC	Primary and secondary breeding habitat is widely distributed throughout the state of Utah. This species prefers open areas within deserts, grasslands, and sagebrush steppe communities. This small owl nests and roosts in underground	All

Common Name	Scientific Name	Status	Background and documentation for Species/potential habitat occurrence in parcels	Lease Parcel ID
			burrows in open and short-grass habitats. Habitat consists of well-drained, level to gently sloping areas characterized by sparse vegetation and bare ground such as moderately or heavily grazed pasture.	
Ferruginous hawk	<i>Buteo regalis</i>	SS	Ferruginous hawks are distributed throughout most of Utah. All parcels have suitable habitat. 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.	All
Golden eagle	<i>Aquila chrysaetos</i>	SS	Suitable habitat occurs within all parcels and species is widely distributed statewide. Nests may occur within parcels.	All
Allen's big-eared bat	<i>Idionycteris phyllotis</i>	SPC	Population occurs in southern portion of state and is rare in the remainder of state. Species preferred habitat includes riparian areas in woodlands. Species occurrence is unlikely. Lease Parcels are outside the known range of the species	NA
Big free-tailed bat	<i>Nyctinomops macrotis</i>	SPC	Substantial value habitat occurs within RFO managed land, but the species is rare in Utah. Individuals rarely occur in northern Utah and species occurs primarily in southern portion of state. No known occurrences within parcels.	NA
Dark kangaroo mouse	<i>Microdipodops megacephalus</i>	SS	No known habitat types for this species are found within the lease parcels.	NA
Fringed Myotis	<i>Myotis thysanodes</i>	SPC	Species distribution is mostly in southern portion of state. It is not very common in Utah and unlikely to be within parcels.	NA
Kit fox	<i>Vulpes macrotis</i>	SPC	Suitable habitat does not occur within the lease parcels. Kit foxes live primarily in open desert, shrubby or shrub-grass habitat; shadscale, greasewood or sagebrush.	NA

Common Name	Scientific Name	Status	Background and documentation for Species/potential habitat occurrence in parcels	Lease Parcel ID
Pygmy rabbit	<i>Brachylagus idahoensis</i>	SS	Not expected within these parcels. Populations known within RFO are limited to sagebrush flats in Piute County.	NA
Western red bat	<i>Lasiurus blossevillii</i>	SS	No critical value habitat within parcels. No known occurrences of species within parcels.	NA
Spotted Bat	<i>Euderma maculatum</i>	SPC	No known occurrences of this species within parcels. GAP Analysis- predicated habitat map shows species suitable habitat to be in eastern part of state. Species may be found in variety of habitats but is currently a very rare species in Utah.	NA
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	SPC	Species distribution is widely spread throughout state, but no known occurrences of the species are documented within parcels.	NA
Monarch butterfly	<i>Danaus plexippus</i>	SS	Monarch butterflies have the potential to nest in any areas with milkweeds for larval development and nectaring sources. Additionally, any area with adequate floral resources may be used by monarchs during migration.	ALL
Western bumblebee	<i>Bombus occidentalis</i>	SS	Western bumblebees are primarily a mid to high elevation species found in a variety of habitats including mixed woodlands, urban areas, and montane meadows. All or portions of the nominated lease parcels may provide suitable nesting and foraging habitat for the species.	ALL

The following lease stipulations and lease notices apply to all nominated lease parcels to mitigate potential impacts to sensitive terrestrial animal species.

Lease Stipulations

- UT-S-276: Controlled Surface Use/Timing Limitations – Bald Eagles: All Parcels

Lease Notices:

- UT-LN-44 Raptors: All Parcels

- UT-LN-49 Utah Sensitive Species: All Parcels
- UT-LN-107: Bald Eagle: All Parcels
- UT-LN-156 Pollinators and Pollinator Habitat: All Parcels

Plant Species

Within the nominated lease parcels, there are no known populations of BLM sensitive plant species. However, many sensitive species have not been fully surveyed, and there is uncertainty with respect to the distribution, status, or trend of the species. Based upon desktop review, two sensitive species were determined to have potential habitat within Parcels 1325 and 1334 (Table 14). Potential habitat for these species has not been evaluated within the nominated lease parcels to quantify acres of suitable habitat, nor have distribution models been developed for either species.

Table 14. Sensitive Plant Species with Potential to Occur within Nominated Lease Parcels on BLM Managed Lands

Scientific Name	Common Name	Background and documentation for Species/potential habitat occurrence in parcels
<i>Penstemon wardii</i>	Ward's penstemon	<i>Penstemon wardii</i> is known to occur in the southern portion of the Valley Mountains, which is where all BLM parcels are located for this lease sale. Based on the known location on the southern end of the range, and the habitat from which that collection was taken, it is possible that <i>P. wardii</i> could be found within two parcels of the lease sale block (Parcels 1325 and 1334).
<i>Townsendia jonesii</i> var. <i>lutea</i>	Sevier townsendia	The variety is known primarily from outcrops of the Arapien Formation on the east side of the Sevier River Valley. However, additional populations are known to exist on the west side of the Sevier River Valley and the west side of the Valley Mountains. Based on the known locations and the habitat from which collections have been taken, it is possible that <i>T. jonesii</i> var. <i>lutea</i> could be found within two parcels of the lease sale block (Parcels 1325 and 1334).

Implementation of the below lease notices and standard terms and conditions of the lease will help minimize potential impacts to the species because the lease notices require X [suggest a sentence explaining why this will minimize potential impacts].

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 impact migratory birds?

The parcels are located on lands that transition from a sagebrush at the lower elevations to Pinyon and Juniper woodlands to mountain brush and ponderosa pine at the upper elevations. There are very few anthropogenic features, other than fences and ponds, and low numbers of public land users in the Valley Mountain Range compared to other areas of the field office. Vegetation restoration projects have been implemented over many years to reduce pinyon-juniper encroachment in order to preserve shrub and herbaceous vegetation, which benefits a large number of migratory bird species.

The BLM parcels fall within the North American Bird Conservation Initiative Bird Conservation Region 9. One of the integrated monitoring for birds by conservation region monitoring stations (UT-BCR9-RI4 within or very near the nominated parcel)s and has inventoried the following species: Ash-throated Flycatcher, Bewick's Wren, Black-billed Magpie, Black-throated Gray Warbler, Black-throated Sparrow, Blue-gray Gnatcatcher, Brewer's Sparrow, Broad-tailed Hummingbird, Brown-headed Cowbird, Bushtit, Chipping Sparrow, Chukar, Common Nighthawk, Common Raven, Cooper's Hawk, Dark-eyed Junco, Dusky Flycatcher, Ferruginous Hawk, Gray Flycatcher, Green-tailed Towhee, House Finch, Juniper Titmouse, Lark Sparrow, Mountain Bluebird, Mourning Dove, Northern Flicker, Pine Siskin, Pinyon Jay, Plumbeous Vireo, Red-tailed Hawk, Rock Wren, Spotted Towhee, Turkey Vulture, Virginia's Warbler, Warbling Vireo, Western Bluebird, Western Screech-Owl, Western Tanager, Western Wood-Pewee, White-breasted Nuthatch, Woodhouse's Scrub-Jay, Yellow-rumped Warbler.

The Migratory Bird Treaty Act (MBTA) prohibits the taking (i.e., killing, capturing, selling, trading, and transport) of protected migratory birds without prior authorization by the USFWS (16 USC 703-712). Instructional Memorandum No. 2008-050 requires the BLM to address the potential effects of the projects on migratory bird populations and their habitat and implement best management practices to avoid or minimize the possibility of impacts, through such measures as timing limitations during nesting seasons, surveys for bird nests, and monitoring (<https://www.blm.gov/policy/im-2008-050>).

The Utah BLM has several lease notices that comply with this policy at the leasing stage of development ranging from those applied statewide (UT-LN-45: Migratory Birds, found in Appendix B – Stipulations and Notices of this document) to more narrow groups of taxa (see UT-LN-44 Raptors). In addition, several migratory birds have been designated as BLM Sensitive Species, and these may have additional protections through notices to prospective buyers regarding the potential for occurrence on a given parcel (see UT-LN-49).

For the Lease Sale, the BLM analysis of potential for occurrence indicated that application of the following lease notices was appropriate for every parcel in the sale: UT-LN-44 Raptors, and UT-LN-45: Migratory Birds.

UT-LN-44 provides that raptor habitat exists in a given parcel, and those surveys will be required to identify any nesting birds. UT-LN-45 gives prospective buyers 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. Based on these surveys, buffers and timing limitations may be applied. In combination, these lease notices provide mitigation measures which will mitigate impacts to migratory birds by allowing the opportunity to make adjustments, such as design modifications, at the site-specific level when an Application for Permit to Drill is received.

.Lease Notices

- UT-LN-44: Raptors: All parcels
- UT-LN-45: Migratory Birds: All parcels

AIB-4 Cultural Resources

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

For the purposes of this Lease Sale, the BLM is the lead agency for the completion of the Section 106 of the National Historic Preservation (NHPA) process for both the BLM and USFS. The BLM is conducting an intensive literature review for the Lease Sale using survey and site information from BLM Utah's

cultural resources database (CURES), Utah Division of State History Sego Database, Marriott Library of the University of Utah online archaeological record collection (UDAM), and BLM Field Office and USFS records 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. BLM is conducting this work in accordance with the *State Protocol Agreement Between the Bureau of Land Management and the Utah State Historic Preservation Office* (State Protocol) Appendix E: Supplemental Procedures for Oil and Gas Leasing (BLM 2023).

BLM archaeologists at the Field and State Office and archaeologists from USFS Fishlake National Forest review this data against the lease sale parcel locations, including their respective applicable stipulations and lease notices, to determine if oil and gas development could occur without incurring adverse effects to historic properties, taking into consideration impacts to all known cultural resources as well.

The Cultural Resource Stipulation, 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 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.

For the USFS lease parcels, the applicable stipulation is the Controlled Surface Use Stipulation FIF2013-CSU-04: Cultural Resources, which provides:

The lessee or operator shall contact the Forest Service to determine the level of on-site cultural resource inventory required prior to undertaking any surface-disturbing activities on Forest Service lands covered by this lease. Site specific cultural resource inventories will be required for exploratory and production facilities. The minimum level of survey will be to walk the center line/preliminary line for all roads and pipelines and visit each well pad. Additional level of survey detail above this will be identified in the project specific Memorandum of Agreement with the State of Utah SHPO with consideration of site richness in the area and potential for off-site impacts. Exceptions: none. Modifications: none. Waiver: none.

Additionally, the four USFS parcels are subject to lease notice FIF2013-LN-01: Cultural Resources, which states:

The Forest Service authorized officer is responsible for ensuring that the leased lands are examined prior to the undertaking of any ground-disturbing activities to determine whether or not cultural resources are present, and to specify mitigation measures for effects on cultural resources that are found to be present.

The lessee or operator may engage the services of a cultural resource specialist acceptable to the Forest Service to conduct any necessary cultural resource inventory of the area of proposed surface disturbance. In consultation with the Forest Service authorized officer, the lessee or

operator may elect to conduct an inventory of a larger area to allow for alternative or additional areas of disturbance that may be needed to accommodate other resource needs or operations.

The lessee or operator shall implement mitigation measures required by the Forest Service to preserve or avoid destruction of cultural resource values. Mitigation may include relocation of proposed facilities, testing, salvage, and recordation or other protective measures.

During the course of actual surface operations on Forest Service lands associated with this lease, the lessee or operator shall immediately bring to the attention of the Forest Service the discovery of any cultural or paleontological resources. The lessee or operator shall leave such discoveries intact until directed to proceed by Forest Service.

Based on the type and density of sites within and surrounding the 18 parcels, the individual sizes of the parcels, the application of the cultural resources protection stipulations, and the varied topography of the parcels, the BLM anticipates that reasonably foreseeable development can occur within the 18 parcels without adverse impacts to cultural resources and without an adverse effect to historic properties. The NHPA Section 106 review process to determine if the lease sale will have an adverse effect to historic properties 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 and USFS Forest Service 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. New analysis of impacts to cultural resources and potential adverse effects to historic properties will 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 analysis may identify and document currently unknown and unrecorded cultural resources.

AIB-5 Paleontological Resources

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

The Potential Fossil Yield Classification (PFYC) is a tool that allows the BLM to predict the likelihood of a geologic unit to contain paleontological resources. The PFYC is based on a numeric system of 1–5. An area identified as PFYC 1 has very low likelihood of containing paleontological resources, whereas an area identified as PFYC 5 is a geologic unit that has a very high likelihood to contain scientifically significant paleontological resources. 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. Within areas identified as PFYC 4, paleontological resource management concerns are moderate to high.

An examination of BLM records indicates there are no known paleontological resources within the lease parcels. If an APD is filed, specific clearances would be conducted and incorporated into that future NEPA process at the development stage. If paleontological resources are located, the Administrative Officer (AP) would be contacted. BMPs, SOPs, and site-specific mitigation may be applied at the APD stage as COAs.

Effects on paleontological resources can be mitigated by standard terms and conditions, which require a lessee to conduct inventories or special studies at the discretion of the BLM. Site-specific projects that would cause surface disturbance in areas with unknown or moderate to high potential may require a

paleontological survey and/or monitoring conducted at the time of proposed lease development in accordance with NEPA, Paleontological Resources Preservation Act (PRPA), and FLPMA. Specifically, the BLM has applied stipulation UT-LN-72 to all of the parcels which requires surveys for paleontological resources prior to lease development to comply with the PRPA, NEPA, and FLPMA.

Fossils uncovered during ground disturbing activities would be protected pursuant to the standard discovery requirements. Additionally, should a parcel be located in an area that has high potential for paleontological resources, COAs would be applied at the APD stage. The proponent may be required to do pre-construction surveys and/or have a paleontologist onsite for any surface disturbing activities. The proponent is required to notify the BLM of any discoveries identified during construction.

Surface disturbance and risk of effects on paleontological resources associated with reasonably foreseeable environmental trends and planned actions within the analysis area would depend on the locations of proposed disturbance relative to PFYC class. As currently mapped, nearly the entire analysis area is PFYC 2 or 4; there are no PFYC 5 areas identified in the area. As such, the risk would be low to high, and the same measures for minimizing effects at the site-specific level as described above would be followed for resources associated with reasonably foreseeable environmental trends. 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. Future potential development of the nominated lease parcels would be analyzed further through separate NEPA processes, as directed by regulations and current policy.

Notices

- UT-LN-72 High Potential Paleontological Resources on all parcels

AIB-6 Native American Concerns

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

The BLM is not aware of any documented Traditional Cultural Properties or Sacred Sites located within or in proximity to the nominated lease parcels. However, resources and locations of Native American religious and traditional concern may be present within the proposed parcels. As discussed in Section 4.2, the BLM initiated government-to-government consultation with Tribes and will respond to any consultation requests. If the nominated parcels are leased, future potential development would go through new NEPA and NHPA processes – as directed by regulation and current policy – to analyze and disclose any potential impacts to any Native American concerns regarding resources and locations.

AIB-7 Environmental Justice

How would future potential development of the nominated lease parcels affect Environmental Justice (EJ) populations?

Environmental justice (EJ) refers to the fair treatment and meaningful involvement of people of all races, cultures, and incomes with respect to the development, implementation, and enforcement of environmental laws, regulations, programs, and policies (CEQ, 1997). Executive Order 12898, Federal

Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (February 16, 1994), requires federal agencies to determine whether proposed actions would have disproportionately high and adverse environmental impacts to minority, low-income, and American Indian populations of concern. BLM policy, as contained in BLM Land Use Planning Handbook H-1601-1 (BLM 2005: Appendix C), provides direction on how to fulfill agency responsibilities for Executive Order 12898.

The CEQ has developed guidance (CEQ, 1997) to assist federal agencies with their NEPA procedures so that EJ concerns are effectively identified and addressed. The guidance focuses on identifying minority and low-income EJ populations using census data. The BLM's IM 2022-059 builds upon CEQ's guidance and provides further direction for considering EJ concerns in BLM-prepared NEPA documents, including a detailed framework for identifying EJ populations using census data as well as several other recommended data sources (BLM 2022d).

The environmental justice analysis area for this Lease Sale is Sanpete, Sevier and Wayne Counties, UT, because these are the counties where the parcels are located. The reference area is the State of Utah. Additionally, several census block groups in the immediate vicinity of the proposed action are included.

Table 15. Demographic data

Geography	Low Income	Minority	Native American
Sanpete County	38%	14%	1%
Sevier County	36%	8%	1.2%
Wayne County	36%	8%	0.6%
Blockgroup 490559791001 (Wayne)	30%	4%	1%
Blockgroup 490419752001 (Sevier)	34%	8%	1%
Blockgroup 490399723001 (Sanpete)	52%	46%	2%
Reference Area: State of Utah	25%	22%	1.1%

Data sources: EPA EJScreen: <http://www.epa.gov/ejscreen> (accessed January 2023); BLM Environmental Justice Mapping Tool; not publicly available (accessed January 2023). Both rely on Census Bureau American Community Survey data.

A low-income community of concern is present if a low-income population in one or more study area geographies is at or above the low-income level of the reference area or is at or above 50%. This screening identified that all examined geographies met or exceeded these criteria. A potential low-income EJ community of concern, therefore, is identified for the purposes of this analysis. It should be noted that the low-income data for these tracts is of medium reliability, at best.

A minority community of concern is present if the percentage of the population identified as belonging to a minority group in a study area is equal to or greater than 50 percent, or it is more than 10 percentage points higher than that of the reference area. This screening identified that Blockgroup 490399723001 (Sanpete) had a minority population that met these criteria. A minority EJ community of concern, therefore, is identified for the purposes of this analysis.

The BLM realizes that additional adverse impacts may be identified by local communities as specific development locations and types are proposed. Therefore, the BLM would provide EJ communities of concern with opportunities to identify any perceived adverse environmental impacts at the time of site-

specific analysis during the APD stage. As a result, the following discussion assesses only the effects for the issues identified by the BLM during scoping associated with this leasing process. The BLM would continue to work with potentially affected communities of concern to identify and address additional EJ issues as they arise. This would include adding environmental justice as an issue to be analyzed in detail even at the leasing stage, should concerns be identified through scoping and outreach to potentially affected communities.

The federal government cannot control where oil and gas reserves may exist. Consequently, there may be instances where oil and gas exploration activities disproportionately and adversely affect EJ communities of concern due to proximity and other factors, and for variable amounts of time. For example, a typical horizontal well averages from 30 to 60 days from start of drilling to completion and may have a greater effect (increased dust, traffic, etc.) on resident populations in close proximity, while the drilling operations are ongoing. These types of exploration activities may result in adverse impacts to EJ communities of concern located near the drilling operations; however, the BLM does not know exactly where drilling operations may take place until lease development is proposed, if a nominated lease parcel is developed at all. Thus, the BLM uses stipulations and COAs to minimize impacts to nearby populations, including EJ communities of concern, during construction and operations, to the extent practicable.

AIB-8 General Wildlife and Game Species

How would future potential development of the nominated lease parcels impact general wildlife and game species?

The parcels transition from a sagebrush at the lower elevations to Pinyon and Juniper woodlands to mountain brush and pine at the upper elevations. There are very few anthropogenic features, other than fences and ponds, and low numbers of public land users in the Valley Mountain Range compared to other areas of the field office. Documented wildlife in the Valley Mountain Range, where all of the BLM and private surface parcels are located, include the following: mourning dove, cottontail rabbit, black-tailed jackrabbit, rock squirrel, whitetail antelope squirrel, bushytail woodrat, longtail weasel, spotted skunk, striped skunk, common raven, magpie, chipping sparrow, sage sparrow, black-chinned hummingbird, horned lark, pinyon jay, golden eagle, rough-legged hawk, kestrel, red-tailed hawk, coyote, bobcat, cougar, great basin rattlesnake, sagebrush lizard, great basin gopher snake, mule deer, and elk. These are the dominant species that occur. There are other species (mainly birds) that use the area as a transition site during migration, etc. The parcels occur in mule deer crucial winter range habitat identified by the Utah Division of Wildlife (UDWR). Mule deer migrate through these areas based on seasonal use. The BLM has received data of all identified mule deer migration and stopover habitat from GPS collared deer studies, and no identified corridors are shown on these leases. Collars will have to be placed on these herds at some point to get the best migration data, but studies have not yet been completed in this area. The BLM will additionally analyze the impacts to mule deer migration at the APD phase and confer with the local UDWR biologist at that time to get the best information. The BLM will also use the latest and best references for information on movement and analyze any habitat loss at the APD phase. The USFS lease parcels transition from Mountain sagebrush at the lower elevations to Aspen and Conifer at the upper elevations.

UDWR identifies the BLM lease parcels as crucial spring/winter mule deer habitat and the USFS lease parcels as elk winter substantial habitat.

Past, present, and future vegetation restoration projects which also include herbicide treatments and surface reclamation of one well pad, have improved habitat availability for wildlife and big-game species. The reclamation activities improve nesting cover for ground nesting birds, improve fawning habitat for

mule deer, and restore proper hydrological functionality by increasing ground cover, slowing water movement across the surface and increasing percolation where applicable. Migratory birds have also benefitted from the improved herbaceous cover associated with these vegetative treatments. It is assumed that future vegetative restoration will produce similar effects where they are implemented. Additionally, the BLM has installed many wildlife habitat improvements within in the analysis area including numerous watering developments.

Disturbance from future potential fluid mineral development of the nominated lease parcels can result in loss of vegetation, burrows, and nests, by creating up to 108 acres (0.3% of the leasable acres) of habitat impact and fragmentation. Therefore, it is likely that short term measurable impacts to wildlife species will occur during production due to human presence, noise disturbance, and loss of habitat. However, reclamation following abandonment of a well will return those areas to suitable habitat for the aforementioned wildlife species. Future restoration projects in nearby areas, along with those habitat restoration projects that have already occurred, would help offset any disturbance to wildlife habitat. Pre-disturbance surveys would be required at the time of proposed lease development in accordance with standard terms and conditions of the lease. The surveys would analyze potential effects on game and non-game species habitat. Avoidance, minimization, and/or mitigation measures would also be determined at that time. The BLM has the authority under standard terms and conditions to attach COAs at the site-specific level to minimize significant 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.

There are 10.5 km of perennial streams within or intersecting the parcels. These include the Sevier River, UM Creek, and Pole Creek. These waterbodies may provide habitat for game fish such as brown trout, brook trout, walleye, and other sportfish. Stipulations discussed in the riparian and sensitive species section providing buffers from aquatic habitats will provide protection for habitat for sportfish.

Stipulations:

- UT-S-233 All parcels except 1283 and 7367

Lease Notices:

- UT-LN-156 Pollinators All Parcels

AIB-9 Vegetation

How would future potential development of the nominated lease parcels impact vegetation?

Vegetation resources will not be impacted to the degree that would require detailed analysis in this EA. There are no relic or unique vegetation populations in the nominated parcels. Only 0.4% of vegetation resources may be impacted within the 31,807.99 acres. Refer to section 3.2.1. Reclamation procedures would be required to ensure long-term vegetation and physical and biological impacts to affected soil profiles are minimized. Reclamation provisions/procedures would include re-vegetation (utilizing appropriate seed mix based on the ecological site, elevation and topography), topsoil preservation, road reclamation, noxious weed controls, etc. SOPs, BMPs, and site-specific design features applied at the APD stage, including reclamation, will be applied as COAs.

Although leasing itself does not cause ground disturbing activities, the potential for future development of any subsequently issued lease, could result in new surface disturbance and potential loss of vegetation within the 31,807.99 acres lease sale parcels. Any activity that involves surface disturbance or direct resource impacts would have to be authorized as a lease operation through future NEPA analysis, on a case-by-case basis, at the APD stage. Reclamation provisions/procedures including re-vegetation (utilizing appropriate seed mix based on the ecological site, elevation and topography) would be a part of the APD analysis. Long-term and/or permanent impacts to vegetation would be minimized through interim and final reclamation activities at the permitted well locations.

There are a variety of vegetation types within these 18 Parcels with the associated Ecological Site Descriptions (ESD). The vegetation types include Alkali flats, sage brush steppe and Pinyon and Utah Juniper woodlands. The annual precipitation ranges from 8 inches to 16 inches.

AIB-10 Invasive Species (Noxious Weeds)

How would future potential development of the nominated lease parcels contribute to the spread of invasive species and noxious weeds?

Executive Order 13112 (Executive Office of the President, 1999) requires Federal Agencies to promote activities in a manner which avoids the introduction or spread of invasive species. Invasive species introduced to Utah affect plant and animal communities. Surface disturbing activities have the potential to introduce and contribute to the spread of invasive species/noxious weeds. The BLM “Partners Against Weeds, An Action Plan for the Bureau of Land Management” provides strategies to prevent and control the spread of noxious weeds. Additional control and procedural information are documented in the Programmatic EIS Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States and its Record of Decision, (BLM 2007, BLM 2016). Noxious weeds are invasive exotic plants designated by the State of Utah as being hazardous to public health, the environment, or the economy (Utah Code Title 4, Chapter 17).

Noxious and invasive weed species are present on the subject BLM parcels and within 3 miles of the Forest Service parcels according to VMAP data. The BLM coordinates with county and local governments to conduct an active program for control of the following noxious species within the BLM lease parcels in Sanpete, Sevier and Wayne Counties: Musk thistle, Scotch thistle, Small whitetop, Common mullein, Russian knapweed, Squarrose knapweed and Diffuse knapweed. Many invasive species are also present in the same parcels. Some of the most common and abundant include: Cheatgrass, Halogeton, Russian thistle, Storks bill, Tansy Mustard, and Field bindweed. Invasive weeds are not actively managed. The noxious weed populations are widely scattered and of low densities and generally associated with roads and wildfire burn scars. The primary control method is spot spraying because of the low plant densities within the infestations.

There are very few noxious weeds present within 3 miles of the Forest Service parcels. Roadsides contain mostly Halogeton and Russian thistle.

Soil disturbance associated with fluid mineral development will increase the potential for establishment of new noxious and invasive weed populations. All lease parcels include a notice that lands have been identified as containing noxious weeds. Standard operating procedures such as washing of vehicles and annual monitoring and spraying by the operator, along with site specific measures applied as conditions of approval (COA) at the APD stage, is sufficient to prevent the spread or introduction of invasive and noxious species. All disturbed areas and piles of topsoil will be reseeded with weed-free seed the first fall after the disturbance is made to provide competition against weeds.

Other constraints, including the use of certified weed-free seed and vehicle/equipment wash stations, would be applied as necessary at the APD stage as documented in filing plans and conditions of approval. Control measures would be implemented during any ground disturbing activity. Treatment will occur as part of regular operations, and BMPs, SOPs and site-specific mitigation will be applied at the APD stage as COAs. These expectations are required for all parcels in the lease. Application of UT-LN-52 is warranted on all parcels. Negligible impacts would be expected as a result of leasing and/or production.

Lease Notice:

- UT-LN-52 on all BLM Parcels

AIB-11 Water Resources/Quality (Drinking/Surface/Ground)

How would potential future development of the nominated lease parcels impact the availability and quality of groundwater and surface water resources?

Water Resources- Quantity/Needs

Water 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. Withdrawal could affect local groundwater flow patterns and create changes in quality and quantity of the remaining groundwater based on the quantity of water required for surface management and downhole operations. The quantity and quality of water used, produced, and disposed of or re-used varies enormously depending on local geology, financial constraints, and regulations, with implications for the environmental impacts of oil and gas production (American Geosciences Institute, 2018).

Water produced along with oil and gas is often naturally salty and may contain oil residues, chemicals from hydraulic fracturing and drilling fluids, and natural contaminants from the rocks themselves. It is usually either disposed of deep underground or treated and reused, though some is allowed to partially evaporate in surface pits. During the production phase the amount of water produced by a well can vary from almost none to over 100 barrels of water per barrel of oil. Nationally, an average of about 10 barrels of water are produced for each barrel of oil (American Geosciences Institute, 2018).

Using the estimate of ten wells to be drilled as identified in section 3.2.1, depending on if hydraulic fracturing occurs, the average estimate for water use would vary between 4.6 to 49.1 acre-feet per year per well. 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. In addition, some water is recycled from fluids produced by the well, so the net consumption might be less at sites that recycle water back into a receiving geologic formation. (USGS, 2019)

Other water needs are associated with surface management and include the use of water to control fugitive dust on roads. The source, volume, and transportation methods of the produced water involved is identified in the drilling plan per Onshore Order #1(43 CFR 3171)⁷. These water sources are from state permitted sources with valid water rights as managed by Utah water appropriation policy per each water basin.

Detailed impacts of this water use cannot be addressed until site specific operations identify the water source. Onshore Order #1 requires the submission of a drilling plan and surface use management plan where the source and transportation of usable water is identified. Potential site-specific impacts relating to

⁷ On June 16, 2023 Onshore Orders 1, 2, 6, and 7 were codified into 43 CFR 3171.

future authorizations will be reviewed and possibly analyzed in detail when an APD is received. Prior to approving an APD, Hydrologic and Engineering reviews would be conducted on all proposed down-hole activities, including hydraulic fracturing (if proposed). 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.

Groundwater

The lease parcels have been reviewed for proximity of Sole Source Aquifers (SSA) or Public Drinking Water Source Protection Zones (DWSPZ) as defined by the Environmental Protection Agency (EPA) and State of Utah Drinking Water Division. There is a DWSPZ (groundwater) in parcel 0708; therefore, the following stipulations and notices would apply to the affected portions of that lease parcel: UT-S-78; UT-LN-56, and UT-LN-58. There are no other identified ground or surface drinking water protection zones in the area of the lease parcels. The parcels were also reviewed for potential water right conflicts where a quantity or quality impairment would be possible. Multiple water rights held by both BLM and individuals are located in or near the lease parcels and will be further analyzed at the APD stage. These water rights have beneficial uses of stock water, irrigation, and domestic. Water quality must continue to be acceptable to meet the beneficial uses of the water right per Division of Water Quality rule (UAC R317-2-3).

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, which will be followed for all issued leases. The application of this IM will enhance the existing process for the continued protection of usable ground water zones (< 10,000 mg/L as defined in Onshore Oil and Gas Order No. 2) associated with oil and gas exploration and development activities. BLM has prepared a SSA COA to be attached to any APD submitted for lands within an SSA. Additionally, lease notices UT-LN-56 and UT-LN-58 apply to any parcels that overlies a DWSPZ to ensure protection of a drinking water source.

All wells passing through potential usable water aquifers are required to be cased and cemented at sufficient intervals above and below all useable water zones. Well casings would be pressure tested to ensure downhole integrity. 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. This would eliminate the intermixing of ground water from various aquifers encountered during the drilling process.

Surface water

The lease parcels have been reviewed for proximity to surface waters. The BLM identified 10.5 km of perennial streams within or intersecting the parcels. These include the Sevier River, UM Creek, and Pole Creek. The site-specific SOPs, BMPs, COAs and lease stipulations attached to each parcel will mitigate impacts from the Proposed Action to surface water resources because surface disturbing activities will occur outside of riparian and wetland areas where surface water is present. Other development activity with the potential impact on surface water such as stream crossings and culvert installations will be designed per BLM standards with existing SOPs and BMPs. Surface water resources will not be impacted to the degree that require detailed analysis in the EA. Parcels 1301 and 7363 are known to have surface water resources with hydric soils, riparian areas, and floodplains and therefore the following stipulations and notices would apply to these parcels: UT-S-111; UT-S-121; UT-LN-53.

AIB-12 Sensitive/Fragile Soils

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

Soil movement disrupts the existing structure of the soil horizons, or levels, 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 characterized 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.

According to the Natural Resources Conservation Service (NRCS), 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.

Within the lease parcels there are fragile soils, soils that are on slopes greater than 30%, and soils that are not suitable for road construction.

Under the assumptions in 3.2.1 there would be 108 acres of soil disturbance within the 26,853.94 BLM acres of lease parcels. Of the total BLM acres, 12,461 have a severe erosion hazard from unsurfaced roads, 7,209 acres are highly susceptible to site degradation during disturbance, 4,161 acres have high potential to recover from degradation, 22,694 acres are poorly suited for using the natural surface of the soil for roads, and 4,195 acres are fragile, meaning a low potential to resist degradation and low resilience. (See soil report for details (NRCS Natural Resources Conservation Service, 2023)) No soil disturbance is expected within the USFS parcels due to the “No Surface Occupancy” stipulations applied to all of those parcels in all of the alternatives where they are proposed for leasing.

Reclamation procedures would be required to ensure long-term vegetation and physical and biological impacts to affected soil profiles are minimized. Reclamation provisions/procedures would include re-vegetation (utilizing appropriate seed mix based on the ecological site, elevation and topography), topsoil preservation, road reclamation, noxious weed controls, etc. The parcels contain steep topography. SOPs, BMPs, and site-specific design features applied at the APD stage, including reclamation, will be applied as COAs.

Stipulations: UT-S-102 (Fragile Soils/Slopes 30 Percent or Greater) on all parcels

AIB-13 Riparian Areas, Wetlands, and Floodplains

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

The lease parcels have been reviewed for proximity to riparian areas, wetlands, and floodplains. Through resource knowledge and/or GIS analysis of the National Wetlands Inventory layer, the BLM identified 10.5 km of perennial streams within or intersecting the parcels. These include the Sevier River, UM Creek, and Pole Creek. Streams with perennial water will have associated riparian habitat, although the extent of that habitat may not be well mapped. 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.

Notice LN-128 would be added to all parcels to inform potential lessees of the requirements of EO 11988: UT- Federal Flood Risk Management Standard.

BMPs and SOPs, and site-specific mitigation may be applied at the APD stage as COAs. Protective measures for riparian and wetland areas and floodplains may include no surface occupancy or disruptive activity within 100 meters of riparian resources (UT-LN-53), or no surface occupancy within 100-year floodplains (UT-LN-128 and within 500 feet of intermittent and perennial streams, rivers, riparian area, wetland, water wells and.

Any USFS parcel that would be accessed via directional drilling from adjacent BLM-managed lands (because of the NSO stipulation) would have to be addressed through the Right of Way application and accompanying NEPA analysis that would ensure proper buffering and protection of wetlands and riparian resources.

Stipulations

- UT-S-111 (NSO Wetland/Hydric Soils) on all parcels, including USFS parcels where access may occur from BLM surface.
- UT-S-121 (NSO Riparian and Wetland areas and 330ft buffer) on all parcels, including forest service parcels where access may occur from BLM surface.

Notices

- UT-LN-53 (Riparian Area Buffer) on all parcels, including forest service parcels where access may occur from BLM surface.
- UT-LN-128 (Floodplain Management) on all parcels, NSO within 100-year floodplain.

Applying these protective measures (stipulations and lease notices) at the time of leasing will inform the lessee of the resource. No further analysis is needed at the leasing stage, but additional mitigation measures and buffers may be applied at the APD stage, as necessary to protect these areas. Additional site-specific NEPA analysis will occur at that time.

AIB-14 Recreation

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

Recreational opportunities and activities within the nominated BLM lease parcels consist mainly of Off-Highway Vehicles (OHVs) driving, 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. Yuba Reservoir State Park and the Painted Rocks Campground are located 3 miles north of the nearest parcels. Some OHV recreationists at Yuba State Park may venture south into the project area, but vehicle access routes from the north are limited. Visitation within the project area is normally low as the main recreational draw and focus will continue to be Yuba State Park and water-based activities. 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 public lands would still be available in the vicinity.

All USFS parcels are subject to an NSO lease stipulation for high scenic integrity areas, inventoried roadless areas, and sensitive species of plants and wildlife, among others. See Appendix B. To reduce impacts from potential light (and sound) pollution, lease notices: “UT- LN-77 Light and Sound – Areas Adjacent to Capitol Reef National Park,” and “UT-LN-164 – Noise in Areas Adjacent to National Parks” are applied to parcels USFS 0708, 0711, 0709 and 0713. While these lease stipulations and notices are not specifically focused on recreation, they also serve to protect a variety of recreation values, including wildlife viewing and photography and primitive recreation. Finally, all USFS parcels are topographically screened to the west of Capitol Reef National Park by the Sevier Plateau which is several thousand feet higher than the nearest boundary of the national park.

AIB-15 Visual Resources

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

All of the BLM parcels are located within a Visual Resource Management (VRM) Class 4 management area. 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. The proposed action would be conducted following The Gold Book (BLM, 2007) and would likely create moderate-level visual contrasts prior to site reclamation and weak-level visual contrasts after site reclamation to the forms, lines, textures, and colors of the characteristic landscape. Moderate to low level visual contrasts, whether short or long term, would meet VRM Class 4 objectives for BLM parcels.

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. All USFS parcels are subject to an NSO lease stipulation for high scenic integrity areas. To reduce impacts from potential light (and sound) pollution, lease notices “UT- LN-77 Light and Sound – Areas Adjacent to Capitol Reef National Park”, and “UT-LN-164 – Noise in Areas Adjacent to National Parks,” are applied to parcels USFS 0708, 0711, 0709 and 0713. All USFS parcels are topographically screened to the west of Capitol Reef National Park by the Sevier Plateau which is several thousand feet higher than the nearest boundary of the national park. NSO stipulations for the USFS parcels would mean that no visual contrast impacts would occur within these parcels.

AIB-16 Woodlands and Forestry

How would future potential development of the lease parcels affect woodlands and forest resources?

Surface disturbance associated with reasonably foreseeable environmental trends and planned actions within the proposed parcels may temporarily remove some forested or woodland surface vegetation, altering the plant community composition, increasing potential for erosion and soil compaction, and increasing the likelihood for the introduction of noxious weeds. Low precipitation levels combined with a moderate potential of weed infestation may contribute to fragmented forested/woodland plant communities. The future development of the lease parcels could add to these trends if removal of forested or woodland surface vegetation is required within the well pad area and any needed access roads. Impacts to topsoil would be expected as would an increased potential for erosion. After the wells are vacated, proper reclamation would help alleviate the soil and erosion impacts. Revegetation would be needed to alleviate the noted impacts and to reduce the risk of infestation of weed species. Reintroduction of tree species would be a slow process and may be prevented depending on the aggressiveness of the seeded species. This would result in a minimal but long-term impact.

Based on review of Landscape Fire and Resource Management Planning Tools (LANDFIRE) geographic information system (GIS) data, the nominated lease parcels are covered by the woodland types listed in Table 16.

Table 16. Woodland Types within the Nominated Lease Parcels

Parcel ID	Woodland Cover Type	Total Acres of Woodland Type within the Parcel	Total Percent of Parcel Covered by Woodlands
708	Colorado Plateau Pinyon-Juniper Woodland	120.8	19%
	Inter-Mountain Basins Aspen-Mixed Conifer Forest and Woodland	0.3	
	Rocky Mountain Lower Montane-Foothill Riparian Woodland	0.9	
	Southern Rocky Mountain Ponderosa Pine Woodland	0.1	
709	Colorado Plateau Pinyon-Juniper Woodland	509.0	60%
	Inter-Mountain Basins Aspen-Mixed Conifer Forest and Woodland	8.3	
	Inter-Mountain Basins Curl-leaf Mountain Mahogany Woodland	13.8	
	Inter-Mountain Basins Subalpine Limber-Bristlecone Pine Woodland	28.8	
	Rocky Mountain Aspen Forest and Woodland	15.7	
	Rocky Mountain Lower Montane-Foothill Riparian Woodland	0.9	
	Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland	6.5	
	Southern Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest and Woodland	72.9	
	Southern Rocky Mountain Mesic Montane Mixed Conifer Forest and Woodland	7.5	
	Southern Rocky Mountain Ponderosa Pine Woodland	17.4	
711	Colorado Plateau Pinyon-Juniper Woodland	1031.6	57%
	Inter-Mountain Basins Aspen-Mixed Conifer Forest and Woodland	0.4	
	Inter-Mountain Basins Curl-leaf Mountain Mahogany Woodland	6.7	

Parcel ID	Woodland Cover Type	Total Acres of Woodland Type within the Parcel	Total Percent of Parcel Covered by Woodlands
	Inter-Mountain Basins Subalpine Limber-Bristlecone Pine Woodland	10.8	
	Rocky Mountain Aspen Forest and Woodland	0.4	
	Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland	0.4	
	Southern Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest and Woodland	21.0	
	Southern Rocky Mountain Mesic Montane Mixed Conifer Forest and Woodland	4.2	
	Southern Rocky Mountain Ponderosa Pine Woodland	9.6	
713	Colorado Plateau Pinyon-Juniper Woodland	543.4	78%
	Inter-Mountain Basins Aspen-Mixed Conifer Forest and Woodland	28.4	
	Inter-Mountain Basins Curl-leaf Mountain Mahogany Woodland	23.0	
	Inter-Mountain Basins Subalpine Limber-Bristlecone Pine Woodland	136.6	
	Rocky Mountain Aspen Forest and Woodland	8.7	
	Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland	28.3	
	Rocky Mountain Subalpine Mesic-Wet Spruce-Fir Forest and Woodland	0.2	
	Southern Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest and Woodland	108.0	
	Southern Rocky Mountain Mesic Montane Mixed Conifer Forest and Woodland	66.1	
	Southern Rocky Mountain Ponderosa Pine Woodland	48.1	
1283	Colorado Plateau Pinyon-Juniper Woodland	412.7	69%
	Great Basin Pinyon-Juniper Woodland	1018.3	
	Southern Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest and Woodland	0.4	
1301	Colorado Plateau Pinyon-Juniper Woodland	316.7	37%
	Great Basin Pinyon-Juniper Woodland	444.8	
	Inter-Mountain Basins Aspen-Mixed Conifer Forest and Woodland	0.2	
	Inter-Mountain Basins Curl-leaf Mountain Mahogany Woodland	73.1	
	Rocky Mountain Aspen Forest and Woodland	1.9	
	Rocky Mountain Bigtooth Maple Ravine Woodland	11.1	
	Southern Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest and Woodland	7.1	

June 2023

30-Day Protest Period

June 27 to July 27, 2023

Parcel ID	Woodland Cover Type	Total Acres of Woodland Type within the Parcel	Total Percent of Parcel Covered by Woodlands
	Southern Rocky Mountain Mesic Montane Mixed Conifer Forest and Woodland	3.4	
1308	Colorado Plateau Pinyon-Juniper Woodland	287.0	56%
	Great Basin Pinyon-Juniper Woodland	382.5	
	Inter-Mountain Basins Curl-leaf Mountain Mahogany Woodland	3.8	
	Rocky Mountain Bigtooth Maple Ravine Woodland	0.3	
	Southern Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest and Woodland	5.1	
	Southern Rocky Mountain Mesic Montane Mixed Conifer Forest and Woodland	0.4	
1311	Colorado Plateau Pinyon-Juniper Woodland	272.3	85%
	Great Basin Pinyon-Juniper Woodland	621.1	
	Southern Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest and Woodland	4.6	
	Southern Rocky Mountain Mesic Montane Mixed Conifer Forest and Woodland	1.0	
1314	Colorado Plateau Pinyon-Juniper Woodland	93.0	48%
	Great Basin Pinyon-Juniper Woodland	1037.9	
1325	Colorado Plateau Pinyon-Juniper Woodland	138.3	49%
	Great Basin Pinyon-Juniper Woodland	646.4	
1334	Colorado Plateau Pinyon-Juniper Woodland	166.9	35%
	Great Basin Pinyon-Juniper Woodland	406.1	
7361	Colorado Plateau Pinyon-Juniper Woodland	430.1	84%
	Great Basin Pinyon-Juniper Woodland	1290.9	
	Inter-Mountain Basins Curl-leaf Mountain Mahogany Woodland	14.2	
	Rocky Mountain Aspen Forest and Woodland	0.7	
	Rocky Mountain Bigtooth Maple Ravine Woodland	2.2	
	Southern Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest and Woodland	7.9	
	Southern Rocky Mountain Mesic Montane Mixed Conifer Forest and Woodland	0.4	
7362	Colorado Plateau Pinyon-Juniper Woodland	654.6	90%
	Great Basin Pinyon-Juniper Woodland	1117.8	

Parcel ID	Woodland Cover Type	Total Acres of Woodland Type within the Parcel	Total Percent of Parcel Covered by Woodlands
	Inter-Mountain Basins Curl-leaf Mountain Mahogany Woodland	63.6	
	Rocky Mountain Aspen Forest and Woodland	7.5	
	Rocky Mountain Bigtooth Maple Ravine Woodland	18.9	
	Southern Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest and Woodland	6.6	
	Southern Rocky Mountain Mesic Montane Mixed Conifer Forest and Woodland	4.5	
7363	Colorado Plateau Pinyon-Juniper Woodland	103.5	67%
	Great Basin Pinyon-Juniper Woodland	1546.9	
7367	Colorado Plateau Pinyon-Juniper Woodland	388.3	49%
	Great Basin Pinyon-Juniper Woodland	732.3	
	Inter-Mountain Basins Curl-leaf Mountain Mahogany Woodland	24.0	
	Rocky Mountain Aspen Forest and Woodland	0.4	
	Rocky Mountain Bigtooth Maple Ravine Woodland	7.8	
	Southern Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest and Woodland	0.4	
7373	Colorado Plateau Pinyon-Juniper Woodland	194.3	44%
	Great Basin Pinyon-Juniper Woodland	656.2	
	Inter-Mountain Basins Curl-leaf Mountain Mahogany Woodland	1.0	
	Southern Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest and Woodland	0.1	
7379	Colorado Plateau Pinyon-Juniper Woodland	119.5	50%
	Great Basin Pinyon-Juniper Woodland	1092.2	
	Inter-Mountain Basins Curl-leaf Mountain Mahogany Woodland	39.9	
	Southern Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest and Woodland	0.1	
7383	Colorado Plateau Pinyon-Juniper Woodland	0.9	0.1%
	Great Basin Pinyon-Juniper Woodland	7.8	

While woodlands do occur throughout the nominated lease parcels, the proportions of woodland to non-woodland areas where a well pad would likely be developed is low. The expected loss of woodlands due to future potential development is anticipated to be low. This is due to factors including slope, rock outcrops, and the option for directional drilling in many areas. Additionally, based on the assumptions outlined in Section 3.2.1, the acres of disturbance from the establishment of the estimated 10 wells would

only amount to 120 acres of potential impact to woodlands. This amounts to an estimated total woodland impact of approximately 0.4% of the total acres of the nominated lease parcels. These areas have not been identified as areas to be managed for woodlands or forest products. As such, no significant impacts are anticipated locally or regionally as a result of future development of these lease parcels. Following best management practices, proper reclamation, design features, stipulations, and the standard lease terms and conditions, impacts are expected to be negligible.

AIB-17 Travel and Transportation Management

How would future potential development of the nominated lease parcels impact travel and transportation management?

All of the nominated lease parcels are within the RFO Travel Management Area (TMA). Roads constructed as part of well completion would be closed to the public and not added to the public access network. Use of the existing travel and transportation network within the BLM parcels would not be substantially changed by the proposed action. All USFS parcels are subject to an NSO lease stipulation in part due to the presence of Inventoried Roadless Areas.

AIB-18 Livestock Grazing

How would future potential development of the nominated lease parcels impact livestock grazing?

There are currently seven BLM livestock grazing allotments (totaling 29,608.11 acres) entirely within the 31,807.99-acres of the lease parcels. Surface disturbance associated with future potential development of the lease parcels would involve vegetation removal and changes in forage conditions, altering the permitted grazing availability for livestock in those disturbed areas. Leasing or production activities would not cause changes to grazing permit terms and conditions. Any activity that involves surface disturbance or direct resource impacts would have to be authorized as a lease operation through future NEPA analysis, on a case-by-case basis, at the APD stage. Impacts to livestock grazing may occur as a result of subsequent actions, including exploration development, production, etc. Therefore, reclamation provisions/procedures including re-vegetation (utilizing appropriate seed mix based on the ecological site, elevation and topography), road reclamation, range improvement project replacement/restoration (e.g., fences, troughs and cattle guards), and an increase in noxious weeds, would be identified in future NEPA/decision documents on a case-by-case basis (at the APD stage). Additionally, alterations to existing range improvements are also possible and would constitute a long-term effect. Future potential development within the nominated lease parcels would result in approximately 120 acres of new disturbance associated with reasonably foreseeable environmental trends and planned actions. Proposed vegetation treatments and reclamation projects may offset surface disturbance as new forage for livestock grazing is made available through revegetation. Therefore, impacts to livestock grazing are not expected.

AIB-19 Mineral Resources and Energy Production

How would future potential development on 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 is documented in section 2.2.1. 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. On February 21, 2023, BLM reviewed its mining claims and mineral material and confirmed only two of the 18 parcels overlap existing authorizations. parcel 1283 overlaps an active placer claim and parcel 7383 overlaps a mineral material site. However, based on the lease parcel and location of the mineral material site, there should not be any conflicts with the potential development of the oil and gas resources or other minerals on these lease parcels.

If the lease parcels are developed, wells within the parcels may be completed using hydraulic fracturing techniques. Additional information is provided in 3.2.1. “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 performed 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 Onshore Order No. 2 and Onshore Order No. 7. 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). The majority 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 mineral resources.

AIB-20 Socioeconomics

How would future potential development of the nominated lease parcels affect socioeconomics, including quality-of-life?

The study area includes Sanpete, Sevier, and Wayne Counties in the State of Utah, which encompasses 3,831,993 acres. Because socioeconomic (SE) data are typically available at the county level, county boundaries are used to define the SE study area. Data were obtained 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 (BLM, 2020)

Of the total study area, 2,821,236 acres – 73.6 percent of the total – are federally owned lands, and 1,232,243 of those acres are managed by the BLM. 732,509 acres within the study area are privately owned, 1,347 are Tribal lands, and 276,900 are owned by state, county, city, or other non-federal agencies. In 2020, the total population in the study area was 54,594, representing an increase of 9.6 percent from 2010. The largest contributor to this change in total population was natural change. The number of employed workers in the study area in 2020 was 22,671. In 2019, the average annual unemployment rate was 4.1 percent. This increased to an average of 8.4 percent during the pandemic year of 2020 but has since returned to pre-pandemic levels or lower. In 2020, 84.7 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 2020 ranged from \$21,254 to \$24,041 across the three counties.

In 2020, the total number of people living in poverty, as defined by the U.S. Census Bureau, was 37.0 percent of the population. Out of all persons living within the study area in 2020, 5,084, or 9.3 percent, self-identified as being a member of a minority group. Of those, 587, or 1.1 percent of the total population, self-identified as American Indians. The total number of housing units was 21,402 of which 81.2 percent were occupied and 13.4 percent were seasonal, recreational, or occasionally occupied properties. Of those living within the study area aged 25 or older, 21.0 percent had earned a bachelor's degree or higher in 2020. In 2020, there were approximately 6,579 total jobs in non-services industries in the study area. In the same year there were around 15,814 jobs in services related industries, and there were approximately 5,296 additional jobs in the government sector. This total includes federal, state, county, and local government jobs. In 2020, the industries employing the largest numbers of employees in the study area were: government (primarily state, county, and local government); retail trade, and health care.

Within the study area, the average annual wage for all reported jobs was \$39,300 in 2021. The highest paying industries, on average, were mining, financial activities, and manufacturing. 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 in comparison to other regions. In 2020, total non-labor income within the study area was \$911,750,000, representing 43.1 percent of all income measured in 2020 dollars. The highest category of non-labor income was dividends, interest, and rent, at \$339,076,000. In fiscal year 2019, a total of \$5,964,060 (2021 dollars) was paid by federal land management agencies to state and local governments. Of those payments, \$4,194,631 were Payments In Lieu of Taxes (PILT) (BLM, 2022).

The only direct 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 49

percent of the proceeds. Revenues generated by royalties on production totaled \$7.72 million in the three-county study area for calendar year 2021. Revenues generated from rents on oil and gas parcels leased but not producing in the study area for calendar year 2021 were negative due to repayments to lessors based on overpayments in past years. (ONRR, 2020). Subsequent oil and gas exploration, development and production could affect the local economy in terms of additional jobs, income and tax revenues. Oil and gas companies typically provide in-house scientists and technicians for most pre-drilling exploration work. 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 ten-year period of time and not at the same time. The crews, ranging from 20 to 30 people, would spend a portion of their salary (approximately \$200-\$250 per person per day) in local or regional communities for the duration of the project (four to eight weeks).

During development and production phases, the potential for local socioeconomic impacts could increase. More long-term roads and drill pads could be constructed, along with associated support facilities. Typically, most of this work is supplied by local contractors. Local businesses may realize increased revenue from the purchase of supplies, meals, rooms, 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. Half of that amount is provided to the state government, which then provides a portion to the counties (IMPLAN, 2020). Indirect impacts to socioeconomics from oil and gas production would likely be minor, given the RFD scenarios; however, 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) may provide substantial income to county governments for schools and other expenditures. The Proposed Action would not be expected to induce substantial growth or concentration of population, displace a large number of 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, converse effects would be expected to occur. 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 or counties.

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-21 Farmlands (Prime or Unique)

How would future potential development of the nominated lease parcels impact prime or unique farmlands?

Soil map units that NRCS classifies as farmland of statewide importance minimally intersect the west edge of parcels 7383 and 1334. However, these soils would never be utilized in agricultural practices while retained in BLM ownership. Therefore, neither leasing nor development would reduce the number of irrigable acres of farmland of statewide importance in the state. There are no prime farmlands within any of the parcels. BMPs, SOPs and site-specific mitigation may be applied at the APD stage as COAs would be implemented as needed.

AIB-22 Human Health and Safety

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

Within the 5.4 million-acre RFO area, there are 33 existing active well bores of all well types across all land jurisdictions as of July 2023. 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 F) and corresponding potential contamination of air, soil, or water; exposure to naturally occurring radioactive material (NORM) in drill cuttings or produced water (see Appendix F); traffic congestion and collisions from commercial vehicles and heavy use;; infrequent industrial accidents; presence of hydrogen sulfide (H₂S); or increased levels of fugitive dust (PM₁₀ 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 3.4.1 for projected levels of CAPs, HAPs and their effects on air quality standards.

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 ozone (O₃) 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 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 links provide additional information on air pollution health effects:

Criteria Pollutants:

- Ozone (<https://www.epa.gov/ground-level-ozone-pollution>) (EPA, 2023a)
- Particulates (<https://www.epa.gov/pm-pollution/particulate-matter-pm-basics>) (EPA, 2023b)
- Nitrogen dioxide (<https://www.epa.gov/no2-pollution/basic-information-about-no2>) (EPA, 2023c)
- Carbon monoxide (<https://www.epa.gov/co-pollution/basic-information-about-carbon-monoxide-co-outdoor-air-pollution#What%20is%20CO>) (EPA, 2023d)
- Lead (<https://www.epa.gov/lead-air-pollution/basic-information-about-lead-air-pollution#health>) (EPA, 2023e)
- Sulfur dioxide (<https://www.epa.gov/so2-pollution/sulfur-dioxide-basics#effects>) (EPA, 2023f)
- Hazardous air pollutants (<https://www.epa.gov/haps/health-effects-notebook-hazardous-air-pollutants>) (EPA, 2023g)

While the air quality analysis, section 3.4.1, estimates the risk of cancer and/or other health impacts solely based on exposure to HAPs, other economic or social indicators can also influence the general health risks of a population, such as poverty status, educational attainment, or language proficiency. 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 the state of Utah compared with the nation as a whole. (Headwaters Economics, 2023)

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 future 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).

Future potential development on the nominated lease parcels is estimated to be 10 new wells for this lease sale. This is a 30% increase in addition to the 33 existing active wells. 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 on fire response and mitigation.
- Developers who install and operate oil and gas wells, facilities, and pipelines are responsible for complying with the applicable laws and regulations governing hazardous materials and for following all hazardous spill response plans and stipulations. UDOGM 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.
- Onshore Order No. 6 provides the requirements and standards for conducting oil and gas operations in an environment known to or expected to contain H₂S. Compliance with this Order will protect public health and safety and those personnel essential to maintaining control of the well.

See AIB-11 for further information regarding potential surface and groundwater effects and relevant regulations, stipulations, and lease notices offering protections to groundwater and surface water quality. Risks from hazardous or solid wastes would be mitigated by BMPs, SOPs, and site-specific COAs.

3.4 ISSUES ANALYZED IN DETAIL

The issues identified for detailed analysis in this EA were developed in accordance with CEQ regulations and the guidelines set forth in the BLM NEPA Handbook H-1790-1 (BLM 2008c) 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. The issues chosen to be analyzed are Air Quality, Greenhouse Gases/Climate Change, and Greater Sage-grouse.

3.4.1 Issue 1: Air Quality

What quantity of air pollutants would occur as a result of future development based on the assumptions for analysis? How would air pollutant emissions from subsequent development of leased parcels 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 a number of different and widespread sources of emissions. The impact analysis area for air quality is the airshed in which the lease parcels are located, including Sanpete, Sevier, and Wayne Counties. This spatial scope of analysis was identified 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, short-term effects to air quality are considered those that cease after well construction and completion (30–60 days); long-term effects are considered those associated with operations and production and would cease after operations/production are concluded.

3.4.1.1 Affected Environment

The BLM Utah 2021 Air Monitoring Report (AMR) (BLM, 2022) discusses past, present, and foreseeable emissions and air quality data for Utah. Information from the AMR is incorporated by reference to help describe the air quality affected environment in the impact analysis area.

The Environmental Protection Agency (EPA) has primary responsibility for regulating air quality, including six nationally regulated criteria air pollutants (CAP): carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃), particulate matter⁸ (PM₁₀ & PM_{2.5}), sulfur dioxide (SO₂) and lead (Pb). Volatile Organic Compounds (VOCs) are also regulated by the EPA as sunlight causes it to react with NO₂ to form O₃. Every three years the Utah Division of Air Quality (UDAQ) compiles statewide emission inventories to assess the level of pollutants released into the air from different sources. Statewide and County 2017 emissions inventories are provided in Section 3.1 of the AMR (BLM, 2022) and listed in Table 17. In Utah, the largest sources of CAPs emitted by human activities are area sources for PM₁₀ and PM_{2.5}, on-road sources for CO and NO₂, point sources for SO₂, and oil and gas sources for VOCs. The largest sources in individual counties may vary from state total emissions.

Table 17. Existing Emissions in Utah (tons/year) (2017)

County	CO	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC
Sanpete	8,562	1,054	5,884	1,006	27	17,201
Sevier	18,242	1,911	5,885	1,670	86	20,332
Wayne	5,374	491	1,396	204	3	19,982
State of Utah	869,722	146,796	186,543	56,570	14,848	965,120

The EPA has established National Ambient Air Quality Standards (NAAQS) for CAPs (incorporated by reference from Section 2.2.1 of the AMR (BLM, 2022)). 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. Areas where pollutant concentrations are below the NAAQS are designated as attainment or unclassifiable. Locations where monitored pollutant concentrations are higher than the NAAQS are designated nonattainment, and air quality is considered unhealthy (BLM, 2022). 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 in Utah are incorporated from Section 3.2 of the AMR and listed in Table 18. Based on design values, the EPA has designated nonattainment areas in Utah along the Wasatch Front and in portions of Duchesne and Uintah Counties below 6,250 ft elevation (i.e., Uinta Basin). It is assumed that counties without reported design values 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). There are no air quality monitors in Sanpete, Sevier, and Wayne Counties where the lease parcels are located. The closest counties with representative design values for the lease parcel airshed are listed in Table 18. Sanpete, Sevier, and Wayne Counties are designated as attainment or unclassifiable for all NAAQS.

Table 18. 2018 to 2020 Criteria Air Pollutant Design Values

Pollutant	Location	Averaging Time	Concentration ²	NAAQS
O ₃	Carbon County	8-hour	0.069 ppm	0.070 ppm
NO ₂	Carbon County	Annual	2 ppb	53 ppb
NO ₂	Carbon County	1-hour	16 ppb	100 ppb
PM _{2.5}	Washington County ¹	Annual	5.2 µg/m ³	12.0 µg/m ³
PM _{2.5}	Washington County ¹	24-hour	15 µg/m ³	35 µg/m ³

¹ Distant, but the most representative of the area where parcels are located with a reported design value.

² Concentrations in parts per million (ppm), parts per billion (ppb), microgram per cubic meter (µg/m³)

HAZARDOUS AIR POLLUTANTS

Hazardous air pollutants (HAPs) are known or suspected to cause cancer or other serious health effects, or adverse environmental effects, and are also regulated by the EPA. Examples of listed HAPs emitted by the oil and gas industry include benzene, toluene, ethyl benzene, mixed xylenes, formaldehyde, normal-hexane, acetaldehyde, and methanol. A list of HAP point source emissions by County is published by

the UDAQ. The 2017 emissions for common oil and gas related HAPs are listed for each field office in Section 3.1 of the AMR (BLM 2021).

The EPA Air Toxics Screening Assessment is used to evaluate impacts from existing HAP emissions in Utah (EPA, 2023). The EPA has determined that the total cancer risk in Utah is 17.8 in a 1 million and is 9.91, 11.20, and 9.34 in a million respectively in Sanpete, Sevier, and Wayne Counties where parcels are located. The oil and gas industry contributes less than 0.5% to total county cancer risk, with the industry cancer risk in Sanpete and Sevier counties 0.05 in a million and 0.0 in a million in Wayne County. 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.

The noncancer respiratory hazard index for the State of Utah is 0.24 and is 0.09, 0.13, and 0.10 in Sanpete, Sevier, and Wayne Counties respectively. Hazard index values less than one mean it is unlikely that air toxics will cause adverse noncancer health effects over a lifetime of exposure. Oil and gas development and other foreseeable emission sources would contribute to HAP emissions and associated carcinogenic and noncancer risks.

AIR QUALITY RELATED VALUES

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. The USFS parcels are located approximately 8 kilometers west of Capitol Reef National Park, with the remaining parcels located more than 80 kilometers away.

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 (Section 3.3.1 and Figures 3 through 6 of the AMR). Progress toward Regional Haze Rule goals is demonstrated by the marked improvement on the most impaired days at Utah Class I areas. Visibility at Capitol Reef National Park has improved from approximately 9 deciview to 7 deciview on the most impaired days over the respective period of record.

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 and generally improving (See Section 3.3.2 of the AMR).

The CAA requires the EPA to set NAAQS for pollutants considered harmful to public health and the environment. *Primary standards* provide public health protection, and *secondary standards* provide for public welfare, including protection against degraded visibility and damage to animals, crops, vegetation, and buildings (EPA 2021i). The primary NAAQS are set at a level to protect public health, including the health of at-risk populations, with an adequate margin of safety (EPA 2021i).

Various federal and state-level permitting programs ensure protectiveness of the NAAQS and reduce effects to AQRVs at Class I areas. New major emitting facilities or significant modifications to major emitting facilities are required to undergo prevention of significant degradation (PSD) pre-construction review. PSD review requires an air quality analysis to assess the project's potential contribution to the NAAQS and PSD increments (maximum allowable increases in air quality over baseline concentrations), a Best Available Control Technology Analysis, and an additional effects analysis (to assess potential effects to soils, vegetation, and visibility) (EPA 2020b). Complete PSD applications are generally

forwarded to the NPS Air Quality Division for review to ensure protectiveness of AQRVs at Class I areas. Additional state-level permitting requirements have been adopted by NMED such as New Source Review permitting requirements or de-minimis emission thresholds (10 pounds per hour or 25 tons per year of any criteria pollutant) that must be met in lieu of completing the construction permitting process are also enforced within the analysis area in order to ensure protectiveness of the NAAQS (NMED 2001). Construction permitting requirements are listed in NMAC 20.2.72 (NMED 2001).

3.4.1.2 *Environmental Effects*

IMPACTS OF THE PROPOSED ACTION

Any potential effects to air quality from the sale of lease parcels would occur at such time that any issued leases are developed and not at the leasing stage itself. The Proposed Action does not authorize or guarantee the number of wells analyzed herein. If leased, drilling of wells on a lease would not be permitted until the BLM approves an APD. Any APD received would be subject to site-specific NEPA review. However, development assumptions have been made in this EA to better inform the decision maker and the public of potential impacts to air quality if the leases are developed.

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 4) end-use (combustion or other uses) of the fuels produced. While well development and production operation emissions (phases 1 and 2) occur on-lease and the BLM has 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 (phase 1), there could be emissions from earth-moving equipment, vehicle traffic, drilling, and completion activities. NO₂, SO₂, 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 NO₂ and CO emissions, with lesser amounts of SO₂. These temporary emissions would be short-term during the drilling and completion phases, which is expected to last between 30 to 60 days per well.

During well production and operations (phase 2) 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 production and operational phase of a well, NO₂, CO, VOC, and HAP emissions would result from the long-term use of storage tanks, pumps, separators, and other equipment. Additionally, dust (PM₁₀ and PM_{2.5}) would be produced by wind erosion on well pads and roads, and by vehicles servicing the wellsite infrastructure.

Single well emissions estimates for well development and production operations are based on typical development and production operations scenarios identified for each field office in the BLM Utah 2021 Air Monitoring Report (BLM, 2022). 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 19. 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 establish production on a lease and if production is not attempted within the 10-year timeframe, the lease will be terminated with no development or emissions occurring.

Table 19. Estimated Annual Emissions from the Development of the 18 Lease Parcels (tons/year)

Activity	Counties	PM ₁₀	PM _{2.5}	VOC	NO _x	CO	SO ₂	HAPs
Max Year	Sanpete	4.7	2.3	74.1	26.0	32.1	0.021	8.279
	Sevier & Wayne	7.6	1.1	4.1	8.0	4.7	0.009	0.378
Average Year	Sanpete	3.2	1.6	57.9	15.8	23.9	0.007	6.473
	Sevier & Wayne	0.2	0.0	0.1	0.2	0.1	0.000	0.010

Emissions of criteria air pollutants would also occur outside the impact analysis area from transport, processing, distribution, and end-use of produced oil and gas. Because there are potentially tens to hundreds of thousands of mid-stream and downstream emissions sources, the BLM is not able to quantify air quality and health impacts from these sources. Generally crude oil from the well fields in Utah are trucked to the Price River Terminal in Wellington, Utah, for shipment to refineries, or trucked to refineries in Salt Lake City. If the Uinta Basin Railway is constructed, trains on the proposed rail line could transport crude oil produced in Utah to markets across the United States. Utah's refineries produce mostly motor gasoline, diesel fuel, and jet fuel. Pipelines carry refined products from Salt Lake City's refineries to markets in Utah, Idaho, Nevada, Wyoming, eastern Washington, and Oregon. 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 Utah, Nevada, Idaho, and Colorado. Downstream combustion, whether in stationary facilities and motor vehicles/airplanes are regulated by the EPA, other Federal agencies, or delegated 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. Emission inventories may need to be developed prior to issuing any APD approvals. 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. Utah Administrative Code R307-410-4 lists emissions thresholds for new or modified sources, and projects with proposed emissions increases below these thresholds would not violate NAAQS alone, including secondary standards for protection of the environment. The emissions listed in Table 19 are below the emissions thresholds in R307-410-4.

Air quality and AQRV impacts from the development of exploration and production wells were modeled in the RFDS for Fishlake National Forest (USDA, 2007), and results from this study are incorporated by reference. The analysis evaluated maximum modeled air pollutant concentrations at various distances and elevations (above and below) from a well site and compared them to Class I and Class II increment thresholds. Generally, results predicted that air quality standards would be met if the Class I airsheds are at a distance of 55 kilometers (34 miles) or greater from a production well or 5 kilometers (3 miles) or greater from an exploratory well. Further modeling and analysis are recommended if the source is less

than 55 or 5 km, respectively. Results predicted no potential compliance problems for Class II airsheds. Similar results and recommendations are made for visibility standards. The USFS lease parcels are approximately 8 kilometers (5 miles) from Capitol Reef National Park and additional analysis may be needed at the APD stage to ensure that air quality and AQRV standards are met in this Class I area if development results in a producing well.

Substantial air resource impacts are not anticipated from lease development based on the emissions estimates being below modeling thresholds, the small increase to county level emissions (Table 17), and the project area attaining all ambient air quality standards. Additional analysis, in consultation with the National Park Service, may be necessary at the APD stage to ensure that development of the USFS parcels will not adversely affect air quality and AQRV objectives in Capitol Reef National Park. 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 AVOIDANCE ALTERNATIVE

In this alternative, none of the Forest Service parcels would be offered for lease to avoid Greater Sage-Grouse habitat. Estimates of maximum year and average year emissions for this alternative are the same as the estimates for Sanpete County, while there would be no emissions in Sevier and Wayne counties since this is where the four FS parcels are located. As discussed in the Proposed Action, no adverse impacts to air quality and AQRVs from development of leases will occur because emissions are below the thresholds identified in Utah administrative code R307-410, and modeling for the Fishlake National Forest (USDA 2007) indicated no adverse impacts to Class I areas when development occurs more than 55km away.

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.

3.4.1.3 *Mitigation Measures and Residual Effects*

The BLM mitigates air pollutants at the leasing stage by attaching stipulations and notices to the lease parcels prior to sale. Stipulations and notices listed in Appendix B 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 could be expected when lease rights are exercised. Additional air quality control measures may be warranted and imposed at the APD stage (such as mitigation measures, BMPs, and an air emissions inventory). 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, further conditions of approval (COAs) could be applied based on the environmental analysis for the APD. These control measures are dependent on future regional modeling studies or other analysis or changes in regulatory standards. Application of these notices would be sufficient to notify the lease holder of additional air quality control measures that are necessary to ensure protection and maintenance of the NAAQS. Also, any future development in nonattainment areas would be subject to the conformity process of the Clean Air Act which may require additional mitigation or offsets.

Regulatory agencies also require various mitigations measures for oil and gas well permits. State permit by rule requirements for oil and gas wells are identified in Utah Administrative Code R307-504-511.

3.4.1.4 *Cumulative Effects*

This document incorporates by reference the projected changes to air quality and AQRVs that are evaluated in the BLM's 2017 Air Resource Modeling Study (ARMS). This modeling study provides a reference for potential changes to the affected environment occurring from existing and foreseeable emissions producing activities, including oil and gas development.

EMISSIONS TRENDS

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

Emissions in the oil and gas sector roughly parallel oil and gas production. Future trends in oil and gas production growth for the Rocky Mountain region are used from the U.S. Energy Information Administration (EIA) 2023 Annual Energy Outlook (AEO) (EIA, 2023) (EIA, 2020) to provide an estimate of the change in emissions from oil and gas sources in Utah. U.S. production of natural gas and petroleum and liquids is projected to rise amid growing demand for exports and industrial uses. U.S. natural gas production is projected to increase by 15% from 2022 to 2050. Similarly, oil and gas related emissions from existing and foreseeable wells, plus development of lease parcels, are anticipated to rise due to increasing production (UDAQ, 2020). Presently in Sanpete, Sevier, and Wayne Counties there are 38 active oil and gas wells, and the Proposed Action could result in an additional 10 wells - about a 26% increase. Without accounting for production and decline differences between new and existing wells, emissions for CAPs and HAPs would be anticipated to increase around 26% too.

MODELED AIR QUALITY PROJECTIONS

The BLM prepares the Air Resource Management Strategy (ARMS) regional modeling study to evaluate foreseeable changes to air quality and AQRVs from oil and gas activity in Utah.

ARMS projected oil and gas emissions for Low and High development scenarios using the UDAQs Uinta Basin Oil and Gas Emissions Model. Foreseeable emissions for non-oil and gas emissions sources are incorporated from the Intermountain Data Warehouse WAQS 2011b air quality modeling dataset. Source apportionment is used in the modeling study to evaluate changes to air quality and AQRVs from all sources including Biogenic sources, BLM Uinta Basin Oil and Gas sources, other oil and gas sources (including BLM authorized sources outside Duchesne and Uintah Counties), and non-oil and gas anthropogenic sources (including oil and gas combustion from mobile and stationary sources). Future year modeling results are compared with the NAAQS for criteria pollutants (O₃, PM_{2.5}, PM₁₀, NO₂ and SO₂) throughout the State of Utah. The contributions of BLM oil and gas development emissions to air quality and AQRVs at Utah Class I and Class II sites and at sensitive lakes are also compared against PSD increment concentrations, and visibility and deposition thresholds of concern. The

model performed very well in simulating O₃ at some representative sites in Utah over entire the year but underpredicted wintertime O₃ exceedances associated with inversions in the Uinta Basin. To address the underestimation of winter O₃ concentration, the relative change in the modeled concentrations between the current and future year simulations are used to scale the observed current year ozone Design Value to obtain a projected future year Design Value.

The ARMS model shows potential exceedances of the O₃ NAAQS along the Wasatch Front, Uintah Basin, and portions of southern Utah. O₃ exceedances along the Wasatch Front are mainly due to non-oil and gas anthropogenic sources, exceedances in the Uintah Basin are mainly due to oil and gas sources (Federal and non-Federal oil and gas development), and exceedances in the southern part of the state are due to local and out-of-state non-oil and gas anthropogenic activities. Observed O₃ design values in southern Utah are below the NAAQS and continued monitoring is warranted so modeled exceedances do not become reality. Modeled O₃ shows decreasing concentrations between the base year and future year model run. Evaluation of the Annual and 24-hour PM_{2.5}, and 24-hour PM₁₀ NAAQS show exceedances only occurring due to exceptional events such as wildfires and no exceedances due to anthropogenic activities. The model showed no exceedances of the SO₂ or NO₂ NAAQS. The PSD analysis showed exceedance of the Class II NO₂ threshold (13.3 ppb) at the Uintah and Ouray Indian Reservation, primarily from non-BLM oil and gas development.

The ARMS impact analysis results indicate that air impacts of emissions from projected oil and gas development activities under BLM jurisdiction in Uintah and Duchesne Counties (BLM-OGD) for both High and Low Development Scenarios were strongly confined to the Uintah Basin and did not contribute to the long-range transport of impacts outside of the Basin. This conclusion holds true for all pollutants. Emissions from BLM oil and gas development were not responsible for any violations of the NAAQS, PSD, visibility and deposition thresholds of concern predicted by the 2025 High and Low Development Scenarios in areas outside of the Uinta Basin. The contributions of BLM oil and gas development emissions to all air quality and AQRVs were minor in comparison to other emission sectors. The BLM oil and gas development emissions contributed 8.88% and 4.22% respectively to the total 2025 High and Low simulated daily 8-hour maximum O₃ concentrations in the Uinta Basin and contributed less than 0.01% to simulated daily 8-hour maximum O₃ outside the Uintah Basin. The maximum contribution of BLM oil and gas development emissions to total PM_{2.5} concentrations are less than 1% and were four times less than contributions from other oil and gas development activities that are not on BLM lands.

AIR QUALITY RELATED VALUES

Air quality related values were also analyzed in the ARMS 2017 modeling study. Future year projections show improvements of AQRVs at Class I, Class II, and sensitive lakes in Utah compared to 2011 Base Year emissions. Since the air quality impacts from Uinta Basin oil and gas development were well contained within the basin as discussed previously, this emission source sector was not responsible for any exceedances of the 0.5 and 1.0 deciview difference (Δdv) thresholds occurring at Class I National Parks in Utah. Biogenic emissions and non-oil and gas emissions are the main contributors to Δdv exceedances in Utah National Parks. Bryce Canyon and Capitol Reef National Park experienced visibility improvements in the future year scenarios compared to base year for both the worst 20% and the best 20% visibility days. Arches and Canyonlands National Park, which are located closer to oil and gas development experienced visibility improvement for best 20% days but slight visibility worsening for worst 20% days. Other oil and gas development, including BLM development outside the Uinta Basin, is projected to produce visibility impacts exceeding the 0.5 and 1.0 dv thresholds for 21 and 2 days, respectively, at Canyonlands National Park.

The ARMS 2017 future year simulated sulfur and nitrogen depositions at sensitive areas were substantially less than those simulated during the base year. The simulated total annual nitrogen

depositions by both base year and future year were below the corresponding critical loads at all assessed areas. All of Class I, Class II areas and sensitive lakes experienced nitrogen deposition improvements in future year compared to base year simulations. Similar conclusions are applicable to source impacts on total annual sulfur deposition. Base year and future year simulated sulfur depositions for all Class I, Class II and sensitive lakes were well below the critical load of 5 kgS/ha/yr. The future year also resulted in improvements on sulfur deposition at all areas.

It is not possible to determine the change in cumulative cancer risk in the county from potential new wells without performing air quality modeling. However, the current count level cancer risks of around 10 in a million is well below the level of concern (100 in a million), and the current oil and gas facilities only contribute half a percent to the county level total. An estimated 26% increase in oil and gas related HAPs emissions would not make a noticeable change to cumulative HAPs impacts.

In summary, the cumulative air quality in the impact analysis area is maintained at current levels or projected to improve. Atmospheric concentrations for CAPs are projected to be below the NAAQS or show improvement (i.e., decreasing concentrations). Visibility is projected to improve at Capitol Reef National Park, the closest Class I area to lease parcels, 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.

3.4.2 Issue 2: Greenhouse Gases and Climate Change

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

Future development of the lease parcels under consideration could lead to emissions of carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O), the three most common GHG's associated with oil and gas development. These GHG emissions would be emitted from leased parcels if developed and from the consumption of any fluid minerals that may be 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 parcel 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, production, abandonment operations, production and transportation, and potential regulatory changes over the 10-year primary lease term. Actual development on a lease may vary from what is analyzed in this EA and may be evaluated through 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 effects of the proposed leasing action on GHG emissions and climate change by estimating and analyzing potential GHG emissions from projected oil and gas development on the parcels proposed for leasing using estimates based on past oil and gas development and available information from existing development within the State.

Further discussion of climate change science and predicted impacts, as well as the reasonably foreseeable and cumulative GHG emissions associated with BLM's oil and gas leasing actions, are included in the BLM Specialist Report on Annual Greenhouse Gas Emissions and Climate Trends (BLM, 2022) (hereinafter referred to as the 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/2022>.

3.4.2.1 *Affected Environment*

Climate change is a global process that is affected by the sum total of GHGs in the Earth's atmosphere. There are uncertainties regarding the incremental contribution to global GHGs from a single proposed land management action and 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 as a result of specific 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. GHGs influence the global climate by increasing the amount of solar energy retained by land, water bodies, and the atmosphere. GHGs can have long atmospheric lifetimes, which allows them to become well mixed and uniformly distributed over the entirety of the Earth's surface no matter their point of origin. Therefore, potential emissions resulting from the proposed action can be compared to state, national, and global GHG emission totals to provide context and potential contribution to climate change impacts.

Table 20 shows the total estimated GHG emissions (state, private, and federal lands) from fossil fuels at the global, national, and state scales over the last five years. Emissions are shown in megatonnes (Mt) per year of carbon dioxide equivalent (CO₂e). Chapter 3 of the Annual GHG Report contains additional information on GHGs and an explanation of CO₂e. State and national energy-related CO₂ 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 4, 5, and 6).

Table 20. Global and U.S. GHG Emissions 2015 – 2020 (Mt CO₂/yr)

Scale	2016	2017	2018	2019	2020
Global	36,465.6	36,935.6	37,716.2	37,911.4	35,962.9
U.S.	5,077.0	5,005.5	5,159.3	5,036.0	4,535.3
Utah	73.4	73.4	74.7	75.5	71.4

Source: Annual GHG Report, Chap. 6, Table 6-1 (Global and U.S.) and Table 6-3 (State).

Mt (megaton) = 1 million metric tons

NA = Not Available

The continued increase of anthropogenic GHG emissions over the past 60 years has contributed to global climate change impacts. A discussion of past, present, and projected future climate change impacts is described in Chapters 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 GHG emission levels. These chapters are incorporated by reference in this analysis.

3.4.2.2 *Environmental Consequences*

IMPACTS OF THE PROPOSED ACTION

While the leasing action does not directly result in development that will generate GHG emissions, emissions from potential future development of the leased parcels are reasonably foreseeable and can be

estimated for the purposes of this lease sale. There are four general phases of post-lease development 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 operation 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.

Emissions inventories at the leasing stage are imprecise due to uncertainties including the type of mineral development (oil, gas (or both), or helium), 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. In order to estimate reasonably foreseeable, on-lease emissions at the leasing stage, the BLM uses estimated well numbers 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 CO₂ 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 will be similar to the national level emissions identified by the Department of Energy's National Energy Technology Laboratory (NETL, 2009; NETL, 2019).

The emission estimates calculated for this analysis were generated using the assumptions previously described above using the BLM Lease Sale Emissions Tool and Reasonably Foreseeable Development (RFD). Emissions are presented for each of the four phases of post-lease development 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 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 4, Table 4-7 and 4-9).
- 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 4).

Table 21 lists the estimated direct (well development and production operations) and indirect (mid-stream and end-use) GHG emissions in metric tons (tonnes) for the subject leases over the average 30-year production life of the lease.

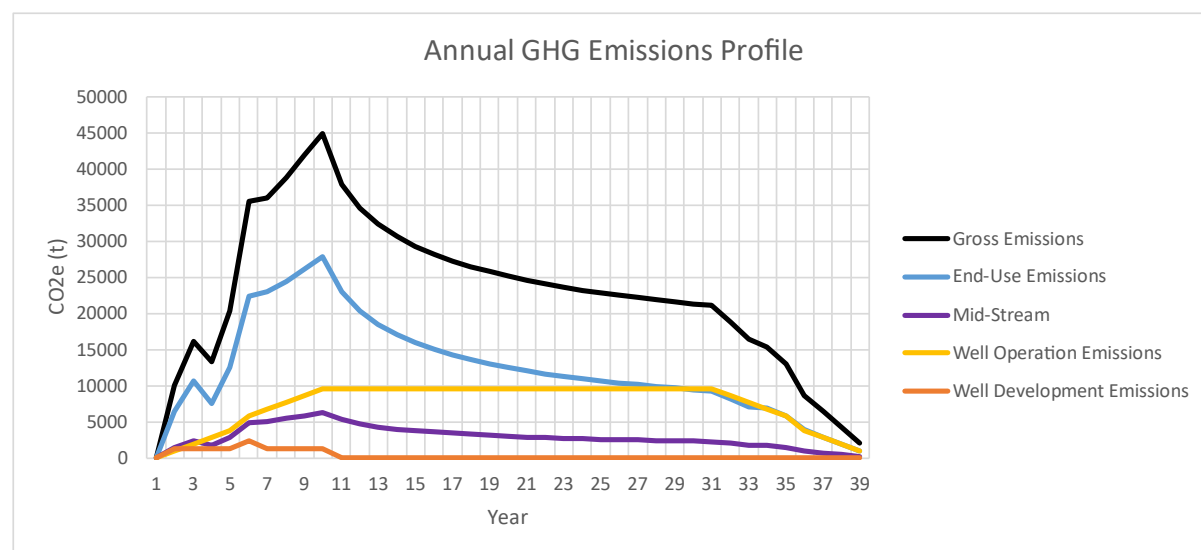
Table 21. Estimated Life of Lease Emissions from Well Development, Well Production Operations, Mid-stream, and End-use related to the 18 Lease Parcels (tonnes)

Activity	CO ₂	CH ₄	N ₂ O	CO ₂ e (100-yr)	CO ₂ e (20-yr)
Well Development	12,008	3.12	0.081	12,123	12,287
Well Production Operations	269,185	612.00	0.542	287,570	319,822
Mid-Stream	80,964	1,010.44	1.161	111,392	164,642
End-Use	476,138	11.48	1.620	476,922	477,527
Total	838,294	1,637.04	3.404	888,007	974,279

Source: BLM Lease Sale Emissions Tool

GHG emissions vary annually over the production life of a well due to declining production rates over time. Source: BLM Lease Sale Emissions Tool

Figure 1 shows the estimated GHG emissions profile over the production life of a typical lease including well development, well production operations, mid-stream, end-use, and gross (total of well development, well production, mid-stream, and end-use) emissions.

**Figure 1. Estimated GHG emissions profile.** 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 and to emissions at the state and national level. The EPA GHG equivalency calculator can be used (<https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>) to express the potential average year GHG emissions on a scale relatable to everyday life. For instance, the projected average annual GHG emissions from potential development of the subject leases are equivalent to 5,551 gasoline-fueled passenger vehicles driven for one year, or the emissions that could be avoided by operating 7 wind turbines as an alternative energy source or offset by the carbon sequestration of 20,664 acres of forest land.

Table 22 compares emission estimates over the 30-year life of the lease compared to the 30-year projected Federal emissions in the state and nation from existing wells, the development of approved APDs, and emissions related to reasonably foreseeable lease actions.

Table 22. Comparison of the Life of Lease Emissions to other Federal Oil and Gas Emissions

Reference	Mt CO ₂ e (100-yr)	Life of Lease % of Reference
Lease Sale Emissions (Life of Lease)	0.888	100.000%
UT Reasonably Foreseeable Short-term Federal (O&G) ¹	187.84	0.473%
UT EIA Projected Long-term Federal (O&G) ²	536.32	0.166%
U.S. Reasonably Foreseeable Short-term Onshore Federal (O&G)	4,614.81	0.019%
U.S. Projected Long-term Onshore Federal (O&G)	13,560.24	0.007%

Source: U.S. and Federal emissions from BLM Lease Sale Emissions Tool and Annual GHG Report Tables 5-17 and 5-18.

¹ Short-term foreseeable is estimated Federal emissions from existing producing wells, approved APDs, and one year of leasing.

Compared to emissions from other existing and foreseeable short-term Federal oil and gas development, the life of lease emissions for the Proposed Action is 0.473% of Federal fossil fuel authorization emissions in the State of Utah and 0.019% of Federal fossil fuel authorization emission in the nation. If “long-term” Federal oil and gas development and production remains a constant percentage of EIA projected energy demand, then the estimated emissions from the life of leases in the Proposed Action are 0.166% Federal fossil fuel authorization emissions in the state and 0.007% of Federal emissions in the nation over the next 30 years. In summary, potential GHG emissions from the Proposed Action could result in GHG emissions of 0.888 MT CO₂e over the life of the lease.

The “social cost of carbon,” “social cost of nitrous oxide,” and “social cost of methane” – together, the “social cost of greenhouse gases” (SC-GHG) are estimates of the monetized damages associated with incremental increases in GHG emissions in a given year. Such analysis should not be construed to mean a cost determination is necessary to address potential impacts of GHGs associated with specific alternatives. These numbers were monetized; however, they do not constitute a complete cost-benefit analysis, nor do the SC-GHG numbers present a direct comparison with other impacts analyzed in this document. The SC-GHG is provided only as a way to measure the benefits of GHG emissions reductions to inform agency decision-making. For Federal agencies, the best currently available estimates of the SC-GHG are the interim estimates of the social cost of carbon dioxide (SC-CO₂), methane (SC-CH₄), and nitrous oxide (SC-N₂O) developed by the Interagency Working Group (IWG) on the SC-GHG. Select estimates are published in the Technical Support Document (IWG 2021)⁸ and the complete set of annual

⁸ IWG 2021. *Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide, Interim Estimates under Executive Order 13990*. Interagency Working Group on Social Cost of Greenhouse Gases, February 2021.

estimates are available on the Office of Management and Budget's website.⁹ To address uncertainty, the IWG recommends reporting four SC-GHG estimates in any analysis.

The SC-GHGs associated with estimated emissions from future potential development of the lease parcels are reported in Table 23. These estimates represent the present value (from the perspective of 2023) of future market and nonmarket costs associated with CO₂, CH₄, and N₂O emissions from potential well development and operations, and potential mid-stream and end-uses. Estimates are calculated based on IWG estimates of social cost per metric ton of emissions for a given emissions year and BLM's estimates of emissions in each year. They are rounded to the nearest \$1,000. The estimates assume development will start in 2023 and end-use emissions complete in 2056, based on experience with previous lease sales.

Table 23. SC-GHGs Associated with Future Potential Development of the Lease Parcels

	Social Cost of GHG (2023\$)			
	Average Value, 5% discount rate ¹⁰	Average Value, 3% discount rate	Average Value, 2.5% discount rate	95 th Percentile Value, 3% discount rate
Development and Production operations	\$3,247,000	\$12,866,000	\$19,650,000	\$38,975,000
Mid-Stream and End-Use	\$7,672,000	\$29,433,000	\$44,633,000	\$89,063,000
Total	\$10,919,000	\$42,299,000	\$64,283,000	\$128,038,000

As detailed in the Annual GHG Report (BLM, 2022), which the BLM has incorporated by reference, the BLM also looked at other tools to inform its analysis, including the MAGICC model (see Section 7.0 of the Annual GHG Report). This model run suggests that "30-plus years of projected federal emissions would raise average global surface temperatures by approximately 0.0158 °C., or 1% of the lower carbon budget temperature target." As this is an assessment of what BLM has projected could come from the entire Federal fossil fuel program, including the projected emissions from the proposed action, over the next 30 years, the reasonably foreseeable lease sale emissions contemplated in this EA are not expected to substantially affect the rate of change in climate effects, bring forth impacts that are not already identified in existing literature, or cause a change in the magnitude of impacts from climate change at the state, national, or global scales.

IMPACTS OF THE GREATER SAGE-GROUSE AVOIDANCE ALTERNATIVE

The emissions for this alternative are presented in Table 24 and are calculated using the same methodology as described for the Proposed Action emissions. Potential GHG emissions from the GRSG Habitat Avoidance Alternative could result in GHG emissions of 0.858 Mt CO₂e over the life of the lease. Compared to emissions from other existing and foreseeable short-term Federal oil and gas development, the 30-year life of lease emissions for this Alternative is 0.457% of Federal fossil fuel authorization emissions in the state and 0.019% of Federal fossil fuel authorization emission in the nation through the

⁹ <https://www.whitehouse.gov/omb/information-regulatory-affairs/regulatory-matters/#scghgs>

¹⁰ The Discount Rate is the estimated rate at which the value of a dollar is expected to be lost per year due to inflation)

year 2050. If “long-term” Federal oil and gas development and production remains a constant percentage of EIA projected energy demand, then the estimated emissions from the life of leases in the Proposed Action 0.160% Federal fossil fuel authorization emissions in the state and 0.006% of Federal emissions in the nation over the next 30 years. The projected average annual GHG emissions from expected development following the proposed lease sale are equivalent to 4,866 gasoline-fueled passenger vehicles driven for one year, or the emissions that could be avoided by operating 6 wind turbines as an alternative energy source or offset by the carbon sequestration of 26,881 acres of forest land.

Table 24. Estimated Life of Lease Emissions from Well Development, Well Production Operations, Mid-stream, and End-use (tonnes)

Activity	CO ₂	CH ₄	N ₂ O	CO ₂ e (100-yr)	CO ₂ e (20-yr)
Well Development	10,807	2.81	0.073	10,911	11,059
Well Production Operations	242,266	550.80	0.488	258,813	287,840
Mid-Stream	80,964	1,010.44	1.161	111,392	164,642
End-Use	476,138	11.48	1.620	476,922	477,527
Total	810,175	1,575.53	3.342	858,038	941,068

Source: BLM Lease Sale Emissions Tool

The SC-GHG associated with estimated emissions from future potential development of the lease parcels under the Greater Sage-Grouse Habitat Avoidance Alternative are reported in Table 25. These SC-GHG estimates are calculated using the same methodology as described for the Proposed Action.

Table 25. SC-GHGs Associated with Future Potential Development of the Greater Sage-grouse Habitat Avoidance Alternative

	Social Cost of GHG (2023\$)			
	Average Value, 5% discount rate	Average Value, 3% discount rate	Average Value, 2.5% discount rate	95 th Percentile Value, 3% discount rate
Development and Operations	\$2,923,000	\$11,580,000	\$17,685,000	\$35,077,000
Mid-Stream and End-Use	\$6,906,000	\$26,490,000	\$40,170,000	\$80,156,000
Total	\$9,829,000	\$38,070,000	\$57,855,000	\$115,233,000

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 GHG emissions associated with new Federal oil and gas development for the subject leases would occur under the No Action Alternative in the

foreseeable future. Also, the cumulative demand for energy is not expected to differ regardless of BLM decision making (EIA, 2020). The BLM has no information regarding what energy source could fill the energy demand if development does not occur on the subject leases. The change in emissions from energy substitution compared to the Proposed Action could range from a 98.5% decrease if hydroelectricity is substituted to a 110.7% increase if coal is substituted, see Table 10-3 in Section 10.0 of the Annual Report (BLM, 2022). Over the past decade the increasing mix of natural gas has contributed to lower emissions as it has replaced energy produced from coal. In 2022, high prices for natural gas and demand exceeding supply have resulted in some countries reactivating or delaying planned closures of coal fired power plants (Reuters, 2022). In the future, renewable energy is anticipated to become a larger part of the U.S. energy mix and reducing energy related carbon emissions. It has been estimated that with a 35% integration of wind and solar energy into the Western United States electric grid there would be an additional 25-45% reduction in carbon emissions (BLM, 2022). Based on this information there is potential for higher emissions over the short-term and reduced emissions over the long-term.

The BLM cannot estimate the net effects across all energy markets to understand the mix of energy resources that will meet demand and therefore cannot provide an estimate of SC-GHG for the No Action Alternative.

3.4.2.3 Mitigation Measures and Residual Effects

GHG emissions contribute to changes in atmospheric radiative forcing resulting in climate change impacts. GHGs act to contain solar energy loss by trapping longer wave radiation emitted from the Earth's surface and act as a positive radiative forcing component. The buildup of these gases has contributed to the current changing state of the climate equilibrium towards warming. Chapters 8 and 9 of the Annual GHG Report provides a detailed discussion of climate change science, trends, and impacts. The relationship between GHG emissions and climate impacts is complex, but a project's potential to contribute to climate change is reduced as its net emissions are reduced. When net emissions approach zero, the project has little or no contribution to climate change. Net-zero emissions can be achieved through a combination of controlling and offsetting emissions. 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 Report provides a more detailed discussion of GHG mitigation strategies.

The Federal government 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 (49 CFR 60, subpart OOOOa) which imposes emission limits, equipment design standards and monitoring requirements on oil and gas facilities.

In addition to these Federal regulations, states have also implemented air quality and greenhouse gas regulations for the oil and gas industry. The State of Utah also regulates GHG emissions from oil and gas facilities under the following rules: Administrative Code R307-500 Series which applies to all oil and natural gas exploration, production, and transmission operations; well production facilities; natural gas compressor stations; and natural gas processing plants in Utah. These rules require emissions control standards for pneumatic controllers, venting and flaring, tank truck loading, storage vessels, dehydrators, volatile organic compound (VOC) control devices, stationary natural gas engines, and leak detection and repair requirements.

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. This decision

authority is applicable when development is proposed on public lands and BLM assesses its specific location, design and proposed operation. 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 on stationary combustion sources, mobile combustion sources, fugitive sources, and process emissions occurring on a lease parcel. Analysis and approval of future development may include application of BMPs within BLM's authority, as Conditions of Approval, to reduce or mitigate GHG emissions. Additional measures developed at the project development stage also 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 the Annual GHG Report.

3.4.2.4 Cumulative Effects

The analysis of GHGs contained in this EA includes estimated emissions from those leases 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 (see Chapter 5). 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.

The Annual Report provides an estimate of short-term and long-term GHG emissions from activities across the BLM's oil and gas program. The short-term methodology presented in the Annual Report includes a trends analysis of (1) leased federal lands that are held-by-production, (2) approved applications for permit to drill (APDs), and (3) leased lands from competitive lease sales occurring over the next annual reporting cycle (12 months), to provide a 30-year projection of potential emissions from Federal oil and gas lease actions over the next 12 months. The 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 oil and gas. For both methodologies, the emissions are calculated using life-cycle-assessment emissions and data 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 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.

Table 26 shows the aggregate GHG emissions estimate that would occur from Federal leases, existing and foreseeable, between the years 2022 and 2050, using the methodology described above. The 5-year lease averages include all types of oil and gas leases, including leases granted under the Mineral Leasing Act as well as other authorities that have been issued over the last five years. As such, the projections made from the 5-year averages represent the potential for all types of future oil and gas development activity, and although not at exact acreages, include emissions that would be associated with the subject leases. However, they may also over-estimate the potential emissions from the 12-month cycle of competitive oil and gas leasing activities if the projected lease sale or development activity does not actually occur or is less than estimated.

Table 26. Reasonably Foreseeable Projected Emissions

State (BLM Administrative Unit)	Annual Report Figure 5-1 -GHG Emissions from Past, Present, and Foreseeable Federal Lease Development (Mt CO ₂ e)
Alabama (ES)	9.34
Alaska	136.9
Arkansas (ES)	9.34
California	51.49
Colorado	243.1
Idaho	0.17
Illinois	0.31
Kansas (ES)	3.32
Kentucky (ES)	0.19
Louisiana (ES)	43.29
Michigan (ES)	1.95
Mississippi (ES)	2.89
Montana	58.82
Nebraska (WY)	0.21
Nevada	2.74
New Mexico	1,939.52
New York	0.01
North Dakota (MT)	379.63
Ohio (ES)	0.37
Oklahoma (NM)	20.43
Pennsylvania	0.46
South Dakota (MT)	2.31
Texas (NM)	49.55
Utah	187.84
Virginia	0.15
West Virginia (ES)	0.45
Wyoming	1,487.65
Total	4,614.81

The most recent short-term energy outlook (STEO) published by the EIA

(<https://www.eia.gov/outlooks/steo/>) (EIA, 2023) (EIA 2022) predicts that the world's oil and gas supply

and consumption will increase over the next 18-24 months. The latest STEO projections are adequate to use for this analysis 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 depend on oil and gas development and operations on existing U.S. onshore leases. The latest STEO includes the following projections for the next two years:

- U.S. liquid fuels consumption is projected to increase to 20.45 million barrels per day (b/d) in 2023 up from 20.28 million b/d in 2022 and further increase to 20.76 million b/d in 2024.
- U.S. crude oil production is expected to average 11.9 million b/d in 2022 and to rise to 12.4 million b/d in 2023 and 12.63 b/d in 2024.
- U.S. natural gas consumption is expected to average 86.4 Bcf/d in 2023, decreasing from 88.5 Bcf/d in 2022.
- U.S. LNG exports are expected to increase from 10.59 billion cubic feet/day (Bcf/d) in 2022 to 12.07 Bcf/d in 2023 and 12.73 Bcf/d in 2024.
- U.S. Coal production is expected to total 552 million short tons (MMst) in 2023 and 502.6 MMst in 2024 and decrease to 17% of total U.S. electricity generation in 2023 compared to 20% in 2022 driven by on-going retirement of coal-fired generating plants.

Generation from renewable sources will make up an increasing share of total U.S. electricity generation, rising from 22% in 2022 to 24% in 2023 and 26% in 2024. Recent events both domestically and internationally that have resulted in abrupt changes to the global oil and gas supply and other EIA studies and recent U.S. analyses (associated with weather impacts, etc.) regarding short-term domestic “supply disruptions” or sudden increases in demand suggest that reducing domestic supply (in the near-term under the current supply and demand scenario) would 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 2021). Recent supply disruptions have resulted in 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/>) (EIA, 2023) projects energy consumption increases through 2050 as population and economic growth outweighs efficiency gains. As a result, U.S. production of natural gas, 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 CO₂ emissions are expected to fall 25% to 38% below 2005 level, depending on economic growth factors. (EIA 2021). Further discussion of past, present and projected global and state GHG emissions can be found in Chapter 6 of the Annual Report.

Executive Order 14008, "Tackling the Climate Crisis at Home and Abroad" (January 27, 2021), directs the executive branch to establish policies or rules that put the United States on a path to achieve carbon neutrality, economywide, by no later than 2050. This goal is consistent with IPCC's recommendation to reduce net annual global CO emissions between 2020 and 2030 in order to reach carbon neutrality by mid-century. Federal agencies are still in the process of developing policies that align with a goal of carbon neutrality by 2050. In the short-term, the order has a stated goal of reducing economy wide GHG emissions by 50 to 52% relative to 2005 emissions levels no later than 2030.

Carbon budgets are an estimate of the amount of additional GHGs that could be emitted into the atmosphere over time to reach carbon neutrality while still limiting global temperatures to no more than

1.5°C or 2°C above preindustrial levels. The IPCC Special Report on Global Warming of 1.5°C is the most widely accepted authority on the development of a carbon budget to meet the goals of the Paris Agreement. None of the global carbon budgets or pledges that countries have committed to stay within as part of the Paris Agreement are binding. Carbon budgets were originally envisioned as being a convenient tool to simplify communication of a complex issue and to assist policymakers considering options for reducing GHG emissions on a national and global scale. Carbon budgets have not yet been established on a national or subnational scale, primarily due to the lack of consensus on how to allocate the global budget to each nation, and as such the global budgets that limit warming to 1.5 °C or 2.0 °C are not useful for BLM decision making, particularly at the lease sale stage, as it is unclear what portion of the budget applies to emissions occurring in the United States.

However, stakeholders and members of the public have requested that the BLM consider comparing its predicted emissions in the context of global carbon budgets. Table 7-4 in the 2021 BLM Specialist Report provides an estimate of the potential emissions associated with BLMs fossil fuel authorizations in relation to IPCC carbon budgets. Total Federal fossil fuel authorizations including coal, natural gas and oil represents approximately 1.75 % of a suggested global carbon budget of 400-500 GtCO₂ needed to limit global warming to 1.5 C.

While continued fossil fuel authorizations will occur over the next decade to support energy demand and remain in compliance with the leasing mandates in the Inflation Reduction Act (IRA) passed in 2022, the U.S. Energy Information Administration International Energy Outlook expects renewable energy consumption to double between 2020 and 2050 and nearly equal liquid fuels consumption by 2050. The U.S. has committed to the expansion of renewable energy through infrastructure investments in clean energy transmission and grid upgrades include in the Bipartisan Infrastructure Investment and Jobs Act as well as clean energy investments and incentives included in the Inflation Reduction Act.

3.4.3 Issue 3: Greater Sage-Grouse

How would future potential development of the nominated lease parcels impact GRSG and its habitat in the Parker Mountain population area?

Greater sage-grouse (GRSG) is a BLM-UT sensitive species (managed under BLM Manual 6840) and USFS sensitive species (Managed under Forest Service Manual 2670). The federal agencies 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). Specifically, of the parcels nominated and available, none of the BLM parcels are within GRSG GHMA or PHMA. Portions of USFS parcels 708, 709, and 711 are within GRSG PHMA within the Parker Mountain sage-grouse population area. Parcel 713 is outside of PHMA; however, is within 2.9 miles of the nearest occupied lek and USFS include a NSO on the parcel due to proximity to lek. The Parker Mountain PHMA provides suitable habitat for one of the larger GRSG populations in Utah and is one of Utah's population areas that remains open to hunting. The analysis area for GRSG is contained within the Parker Mountain Biologically Significant Unit (BSU), as well as a 3-mile buffer of the USFS parcels to assess potential impacts from off-parcel leases.

3.4.3.1 Affected Environment

GRSG and their habitat have been a critical 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, dated October 2, 2015).

The Parker Mountain PHMA occupies diverse habitats ranging from Wyoming big sagebrush in the valleys to mountain shrub/aspen habitat at 10,000 feet in elevation. The lease parcels are largely Wyoming big sagebrush with some pinyon-juniper. The nearest occupied lek is within approximately 1.8 miles from the USFS lease parcels. The three parcels are partially within PHMA and support all seasonal life needs of GRSG. Parcel 708 contains 606 acres of PHMA habitat, which is approximately 94.6% of the total parcel, PHMA within Parcel 709 is approximately 10.2% of the total parcel, and PHMA within Parcel 711 is approximately 24.01% of the total parcel. Refer to Table 27. for acres of PHMA, seasonal habitat values, and proximity of parcels to leks.

Table 27. Acres of PHMA, Seasonal Habitat Values and Leks associated with the USFS Lease Parcels

Parcel #	Population Area	Priority Habitat Management Area (Acres)	Distance to Nearest Lek (Miles)	Sage-Grouse Habitat (Acres)		
				Seasonal Habitat Values		
				Nesting	Winter	Summer
708	Parker Mountain	606 of 640 acres (94.6% of the parcel)	1.8	606	606	606
709	Parker Mountain	116 of 1131.12 acres (10.2%)	1.9	95	116	116
711	Parker Mountain	461 of 1920 acres (24.01%)	2.9	461	461	461
713	Parker Mountain	0 acres	2.9	0	0	0

In the 2015 BLM and USFS planning strategy, adaptive management was incorporated to provide additional certainty for effectiveness of conservation when implemented in concert with the GRSG conservation measures presented in the plan amendments (BLM 2015). The Utah Subregional adaptive management strategy includes the identification of soft and hard triggers and a management approach for responding to those triggers (BLM 2015). BLM-Utah coordinates annually with state and federal partners through the Plan Implementation Council to discuss and review annual variations in populations and changes in habitat to determine if any soft or hard triggers are met. Soft triggers indicate that management changes are needed to address habitat or population losses before they become severe. Monitoring data is reviewed and evaluated if a soft trigger is tripped. Hard triggers are a threshold indicating that immediate action is needed to stop a severe deviation from GRSG conservation objectives. Population declines from 2020 to 2021 were unexpected following normal historic population cycles, which resulted in tripping a hard population trigger per the adaptive management process lined out in the 2015 Utah Greater Sage-grouse Plans (BLM, 2015). The population trigger was due to six consecutive years of negative population growth (λ) based on leks counted within PHMA (BLM, 2015). Extreme drought coupled with severe winter and wet weather in late spring of 2019-2020 and continued drought may have had effects on survival and reproductive success (UDWR, 2021). The Richfield Field Office is in the process of compiling data and completing a Causal Factor Analysis for the Parker Mountain population area due to the 2021 hard trigger. Infrastructure associated with oil and gas within the area is low and likely not a

contributing factor towards the population trigger. There is one existing lease which is not developed within the Parker Mountain population area.

Anthropogenic disturbances in the area are low due to low human populations and lack of economically developable resources. Primary land uses include grazing, agriculture, dispersed recreation, and hunting. Disturbances associated with two-lane highways, distribution power lines, and a transmission line exist within the area.

The USFS has applied a No Surface Occupancy Stipulation to parcels in GRSG PHMA and in proximity to leks. Refer to Appendix B for stipulations and applicability to the parcel. The USFS conducted their own review of the National Forest System (NFS) lands and determined applicability of the stipulations to the parcels. The USFS consent to lease is found in section 1.1.

3.4.3.2 *Environmental Impacts*

IMPACTS OF THE PROPOSED ACTION

Under the Proposed Action, 18 parcels would be offered for sale of which three of the USFS parcels are within PHMA. Collectively, approximately 32.0% of the USFS parcel acreage is within PHMA.

The USFS parcels within PHMA have a NSO stipulation (USDA, 2015) applied to protect GRSG and their seasonal habitats within PHMA and proximity to occupied leks. Therefore, there would be no direct on parcel impacts to greater sage-grouse or its habitat should the parcels be leased. Based on the RFDS and the NSO stipulation, it is expected that well pad, road construction, and associated production and maintenance operations could occur off parcel and potentially within a 3-mile radius of the leased parcels,¹¹ which could lead to direct and indirect impacts to greater sage-grouse and their habitat within PHMA on BLM-managed lands. Refer to Figure 5 for further detail.

The potentially resulting off-lease impacts would be further analyzed at the APD stage and if approvals are needed for any off-parcel actions from the BLM (i.e., via rights-of-ways), those would be analyzed in future NEPA. However, there is potential that off-lease impacts, as a result of the USFS NSO stipulation, could result in direct and indirect impacts within PHMA on the adjacent BLM or SITLA lands, where development associated with the NSO leases is most likely to occur. Such impacts could occur if the mineral resources were developed from surrounding state, Federal, or private lands. There are two leased parcels in proximity to the USFS parcels, within the PHMA and managed by the BLM that were leased in 2018. Under the RFDS it is possible that these parcels could be used (via approved right-of-way) to access the USFS parcels by directional drilling. There is also a SITLA parcel in close proximity, which could be used to access the USFS parcels. In this case, any potential impacts to GRSG would have to be analyzed in the NEPA associated with the ROW. Impacts to GRSG PHMA could occur off-parcel if the USFS parcels are leased. Rights-of-way for US Forest Service lands or private surface would be handled by the appropriate surface management entity.

IMPACTS OF THE GREATER SAGE-GROUSE AVOIDANCE ALTERNATIVE

Under Alternative B, there would be no impacts to GRSG within or outside of PHMA either on or off parcels (associated with the USFS NSO as described under Alternative A) since the four USFS parcels would not be leased. Therefore, there would be no new impacts to PHMA from this lease sale. For GRSG, Alternative B would be essentially the same as a No Action Alternative with respect to impacts to

¹¹ Three miles is an average assumed for analysis purposes. Potential directional drilling distance depends on many factors including terrain, geologic formation and available access.

GRSG and its habitat. The BLM would not offer the USFS parcels for lease and no new foreseeable oil and gas development would occur on the subject leases or off-parcel on adjacent BLM lands within PHMA. As discussed under the Proposed Action, impacts from development of nearby leases could still occur, resulting in impacts to GRSG in PHMA. Those impacts would just not be increased by BLM action under this lease sale.

3.4.3.3 *Mitigation Measures and Residual Effects*

The 4 USFS parcels are NSO; therefore, there are no additional mitigation measures required for GRSG.

3.4.3.4 *Cumulative Effects*

There are approximately 711,975 acres of PHMA within the Parker Mountain population area. Of this, approximately 40 acres (0.006%) is currently under Federal lease and these leases are subject to NSO restrictions. If the USFS lease parcels are sold, they would be subject to an NSO stipulation for the portions within PHMA. Because of this stipulation, impacts beyond those analyzed in the Greater Sage-grouse ARMPA FEIS (BLM 2015) are not expected. The RFDS assumes potential for one (1) well drilled on these parcels and no disturbance associated with the development due to the NSO. However, impacts could occur off-parcel on adjacent leased lands resulting in potential cumulative impacts. 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 2015 ARPMA FEIS (BLM 2015). Cumulative 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 PHMA as needed.

Alternative B and the No Action alternative would be similar and would not result in cumulative impacts associated with this lease sale within PHMA. Past and present actions that have affected and would likely continue to affect GRSG and PHMA in the analysis area include ranching and livestock grazing, range improvements, recreation (including OHV use), authorization of ROWs for utilities and other uses, and road development.

CHAPTER 4. CONSULTATION AND COORDINATION

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

4.1 ENDANGERED SPECIES ACT CONSULTATION

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

- Richfield RMP: 2008 (including the 2020 re-initiation to add the geographic area for yellow-billed cuckoo in the Richfield Field Office)

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 are 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 (leasing phase) does not exceed the impacts analyzed in the existing consultations.

An email with parcel list, geospatial data, and supporting determinations for the parcels was sent on December 12, 2022, to the USFWS Utah Ecological Services Office.

USFWS completed their review and agreed with the BLM's determinations via an email on May 8, 2023.

When or if APDs are submitted to develop these parcels, further evaluation and Section 7 consultation species 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 November 22, 2022, the BLM initiated consultation with the Tribes for the Lease Sale as provided for by the National Environmental Policy Act (NEPA), the National Historic Preservation Act (NHPA), the American Indian Religious Freedom Act (AIRFA), and Executive Order 13007. The BLM contacted the Hopi Tribe, Kaibab Band of Paiute Indians, Moapa Band of Paiute Indians, Navajo Nation, Paiute Indian Tribe of Utah, Pueblo of Jemez, Pueblo of Zuni, San Juan Southern Paiute, Southern Ute Indian Tribe, Ute Indian Tribe, Ute Mountain Ute Tribe, and White Mesa.

On December 20, 2022, the BLM received comments and concerns from the Moapa Band of Paiute Indians Tribal Historic Preservation Office (THPO) regarding potential impacts to areas of religious and cultural significance from the proposed oil and gas lease sale. On January 19, 2023, the BLM Richfield Field Office Manager spoke with the Moapa Band of Paiute Indians THPO about their concerns, and the meeting concluded with the Tribe sharing that their questions had been answered and concerns addressed. On May 1, 2023, BLM provided the Moapa Band of Paiute Indians THPO the draft cultural resources

literature review report for their review. On June 14, 2023, the Moapa Band of Paiute Indians THPO informed BLM that it had reviewed the draft report and has no questions or comments for the project. They did request to be contacted in the future should any of the proposed lease parcels receive development. Tribal consultation has concluded with the Moapa Band of Paiute Indians for the Lease Sale.

As of June 27, 2023, no other Tribes have responded to BLM's notification about the lease sale. The BLM will remain available to engage with Tribes and respond to any consultation requests. 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 STATE HISTORIC PRESERVATION OFFICE AND TRIBAL HISTORIC PRESERVATION OFFICE CONSULTATION

The BLM is preparing a comprehensive literature review and analysis of cultural resources on the lease parcels 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 and hereto after referred to as Section 106). BLM is conducting this work in accordance with the *State Protocol Agreement Between the Bureau of Land Management and the Utah State Historic Preservation Office* (State Protocol) Appendix E: Supplemental Procedures for Oil and Gas Leasing. For the purposes of this lease sale, BLM is lead agency for the completion of the Section 106 process for the both the BLM and USFS.

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 that 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 constitutes 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 invited the following Native American tribes to participate in government-to-government consultations via certified letter sent November 22, 2022:

Hopi Tribe, Kaibab Band of Paiute Indians, Moapa Band of Paiute Indians, Navajo Nation, Paiute Indian Tribe of Utah, Pueblo of Jemez, Pueblo of Zuni, San Juan Southern Paiute, Southern Ute Indian Tribe, Ute Indian Tribe, Ute Mountain Ute Tribe, and White Mesa.

The BLM UTSO also sent invitations to potential NHPA consulting parties on February 10 and 13, 2023. Invitations were sent to Utah Rock Art Research Association (URARA), Utah School and Institutional Trust Lands Administration (SITLA), Utah Public Lands Policy Coordination Office (PLPCO), Utah Professional Archaeological Council (UPAC), LDS Church History, Sanpete County, Sevier County, and Wayne County.

On December 20, 2022, the BLM received comments and concerns from the Moapa Band of Paiute Indians Tribal Historic Preservation Office (THPO) regarding potential impacts to areas of religious and cultural significance from the proposed oil and gas lease sale. On January 19, 2023, the BLM Richfield Field Office Manager spoke with the Moapa Band of Paiute Indians THPO about their concerns, and the meeting concluded with the Tribe sharing that their questions had been answered and concerns addressed. Consultation with the Moapa Band of Paiute Indian will be ongoing throughout the Section 106 process.

On February 13, 2023, the BLM received a letter from URARA requesting consulting party status. The letter shared that they do not currently know of any cultural resources or historic properties within the nominated lease parcels, but they will share any information they learn with the BLM.

On May 1, 2023, BLM provided the Moapa Band of Paiute Indians and URARA the draft cultural resource literature review report to review and provide comment.

On June 5, 2023, URARA informed BLM that it has no comments on the draft cultural resources literature review report. They additionally requested to be informed of the project going forward. Consultation with URARA has concluded for the Lease Sale.

On June 14, 2023, the Moapa Band of Paiute Indians THPO informed BLM that it had reviewed the draft report and has no questions or comments for the project. They did request to be contacted in the future should any of the proposed lease parcels receive development. Tribal consultation has concluded with the Moapa Band of Paiute Indians for the Lease Sale.

On [ongoing], BLM sought concurrence regarding our finding of effect for the 2023 Lease Sale Cultural Resources Report with Utah SHPO. On [ongoing], BLM received [ongoing] from SHPO.

CHAPTER 5. LIST OF PREPARERS

Table 28 contains a list of individuals that contributed to preparation of this EA.

Table 28. List of EA Preparers

Name	Area of Expertise	Organization
Tylia Varilek	Archaeologist	BLM UTSO
Dave Cook	Wildlife Biologist	BLM UTSO
Nathan Packer	Natural Resource Specialist	BLM UTSO
Jared Dalebout	Hydrologist	BLM UTSO
Cassie Mellon	Fisheries Biologist/Riparian	BLM UTSO
Jared Reese	Wildlife Biologist	BLM UTSO
Christine Fletcher	Greater Sage-Grouse Plan Implementation Coordinator	BLM UTSO
Aaron Roe	Botanist	BLM UTSO
Erik Vernon	Air Quality Specialist	BLM UTSO
Bill Stevens	Economist	BLM MbFO
Ray Kelsey	National Conservation Lands Program Lead	BLM UTSO
Angela Wadman	Branch Chief, Fluid Minerals	BLM UTSO
Benjamin Gaddis	Branch Chief, Planning and Environmental Coordination	BLM UTSO
Jamie Pool	Natural Resource Litigation Advisor	BLM UTSO

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APPENDIX A. FIGURES/MAPS

BLM Utah 2023 Oil and Gas Lease Sale

BUREAU OF LAND MANAGEMENT

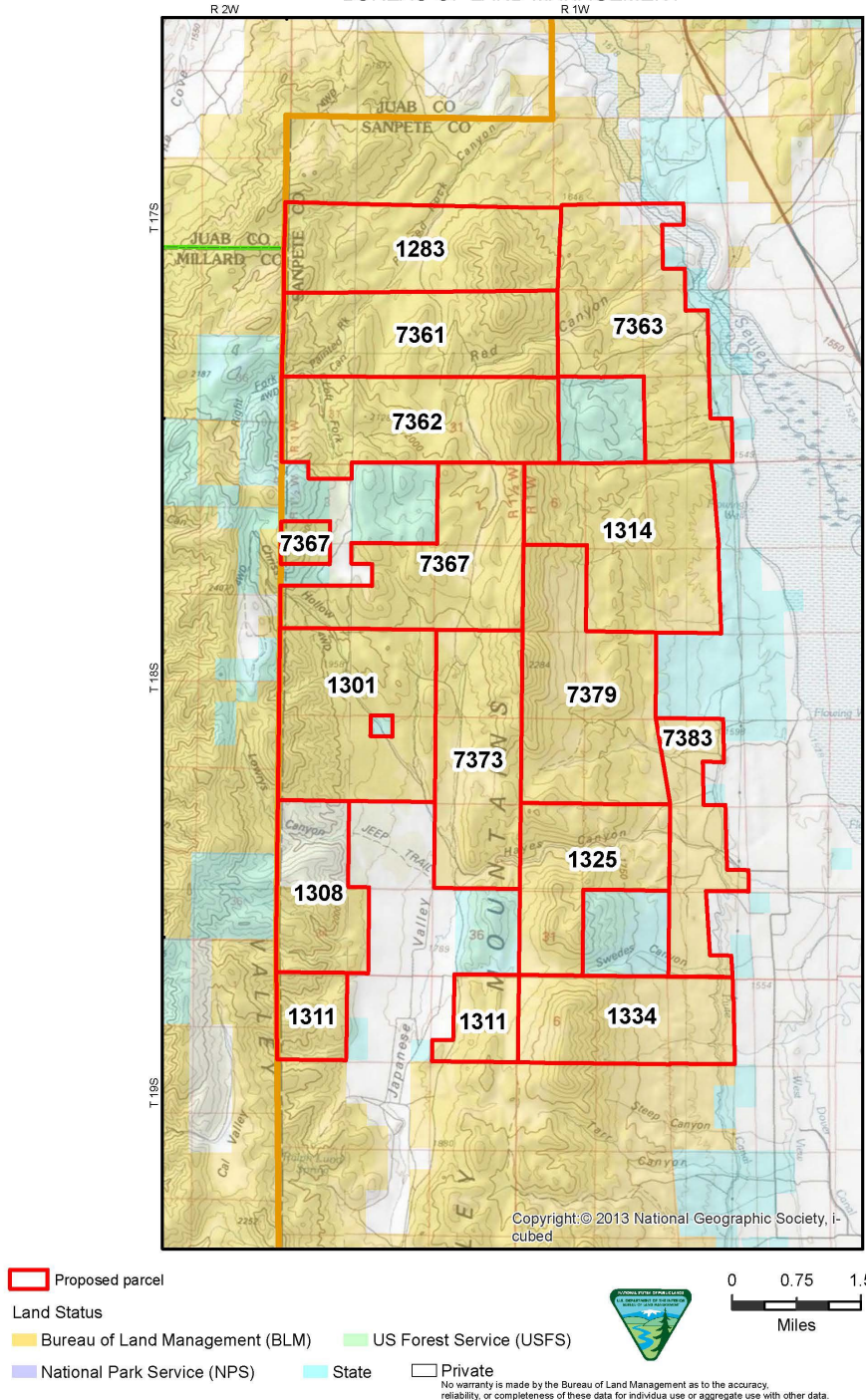


Figure 22. There are 14 parcels covering 26,853.94 acres on public lands managed by the BLM's Richfield Field Office.

BLM Utah 2023 Oil and Gas Lease Sale

BUREAU OF LAND MANAGEMENT

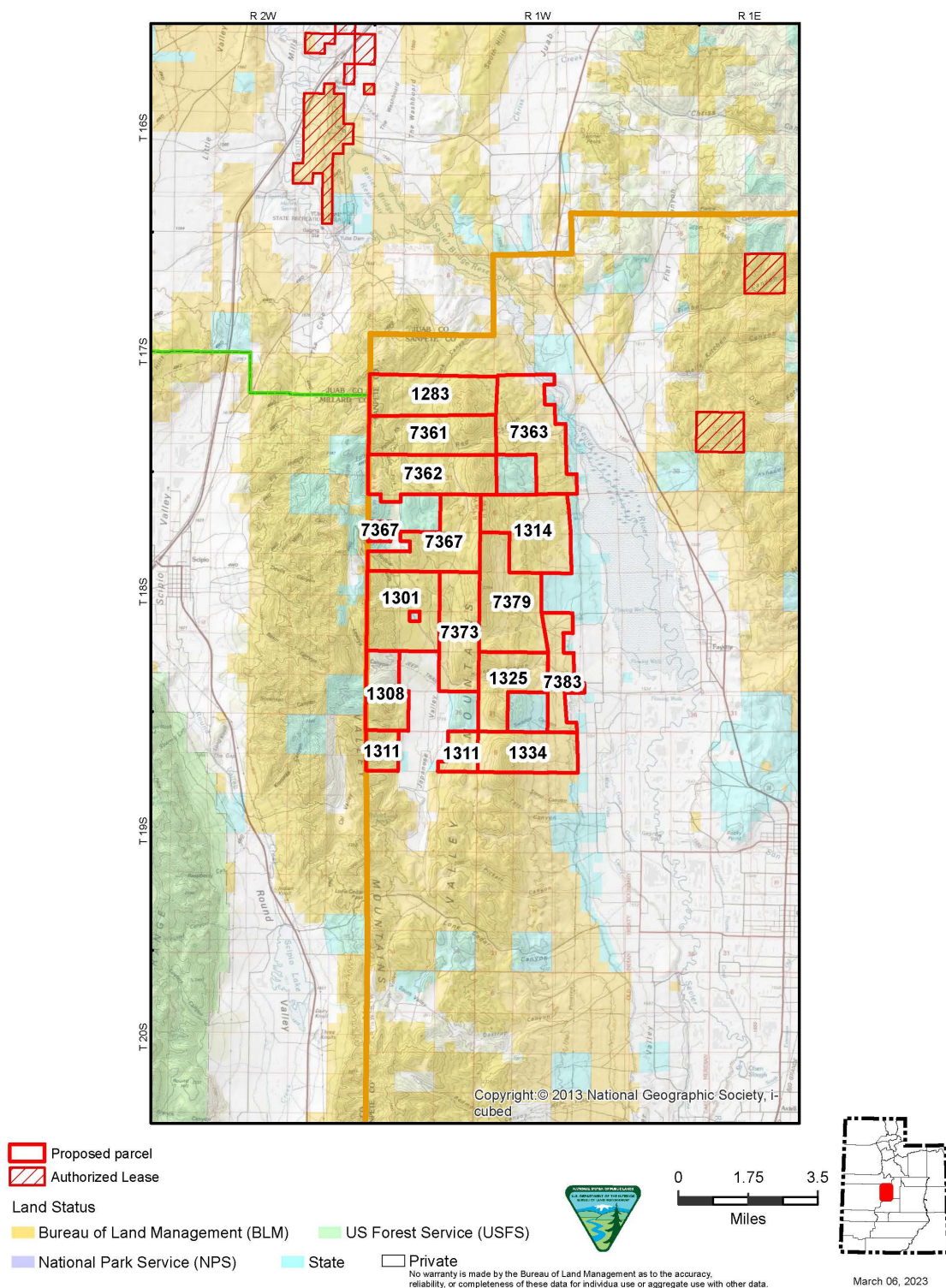


Figure 33. Authorized leases nearby the 14 BLM Parcels.

BLM Utah 2023 Oil and Gas Lease Sale

FISHLAKE NATIONAL FOREST

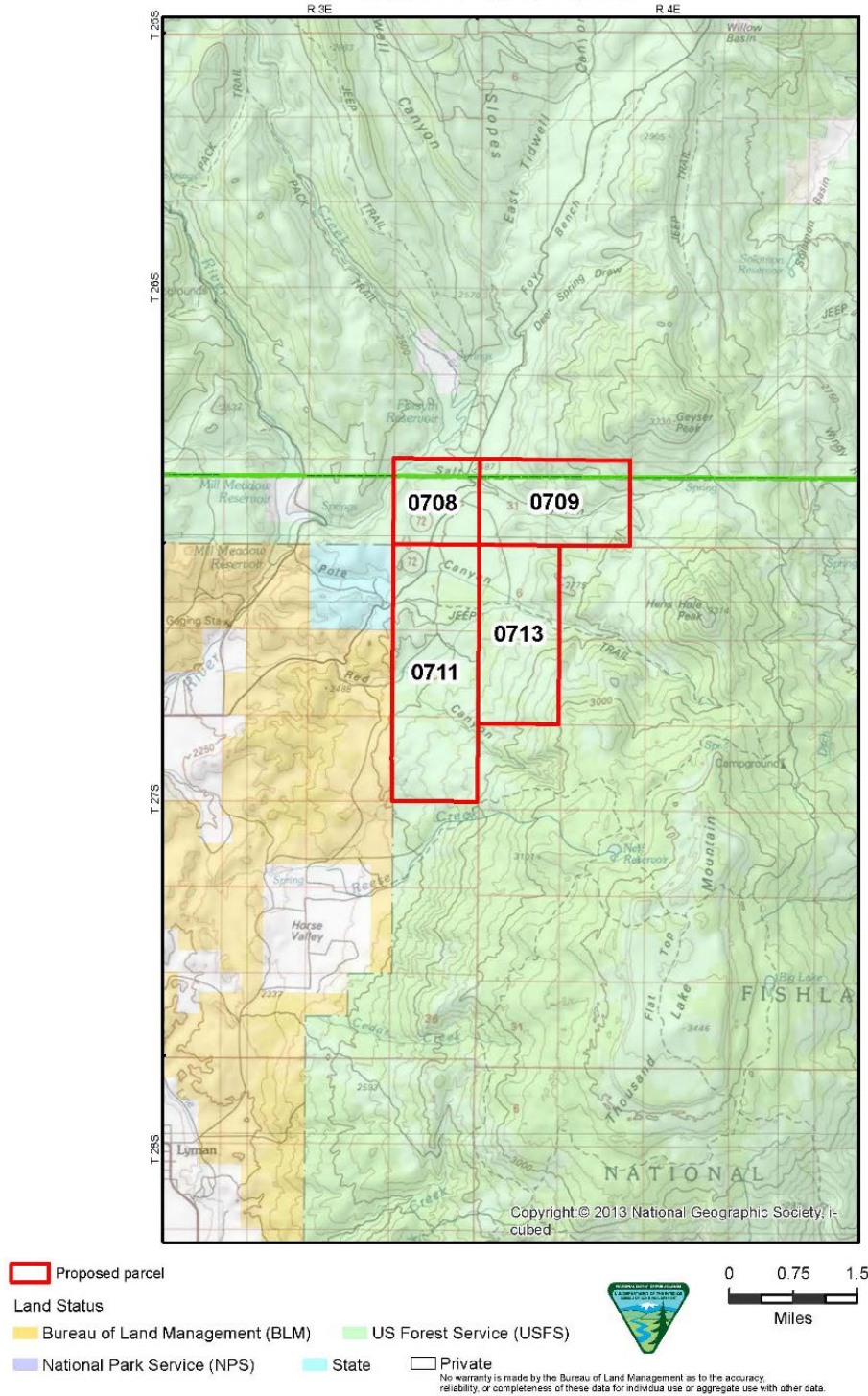


Figure 44. Overview of the 4 USFS Parcels.

BLM Utah 2023 Oil and Gas Lease Sale

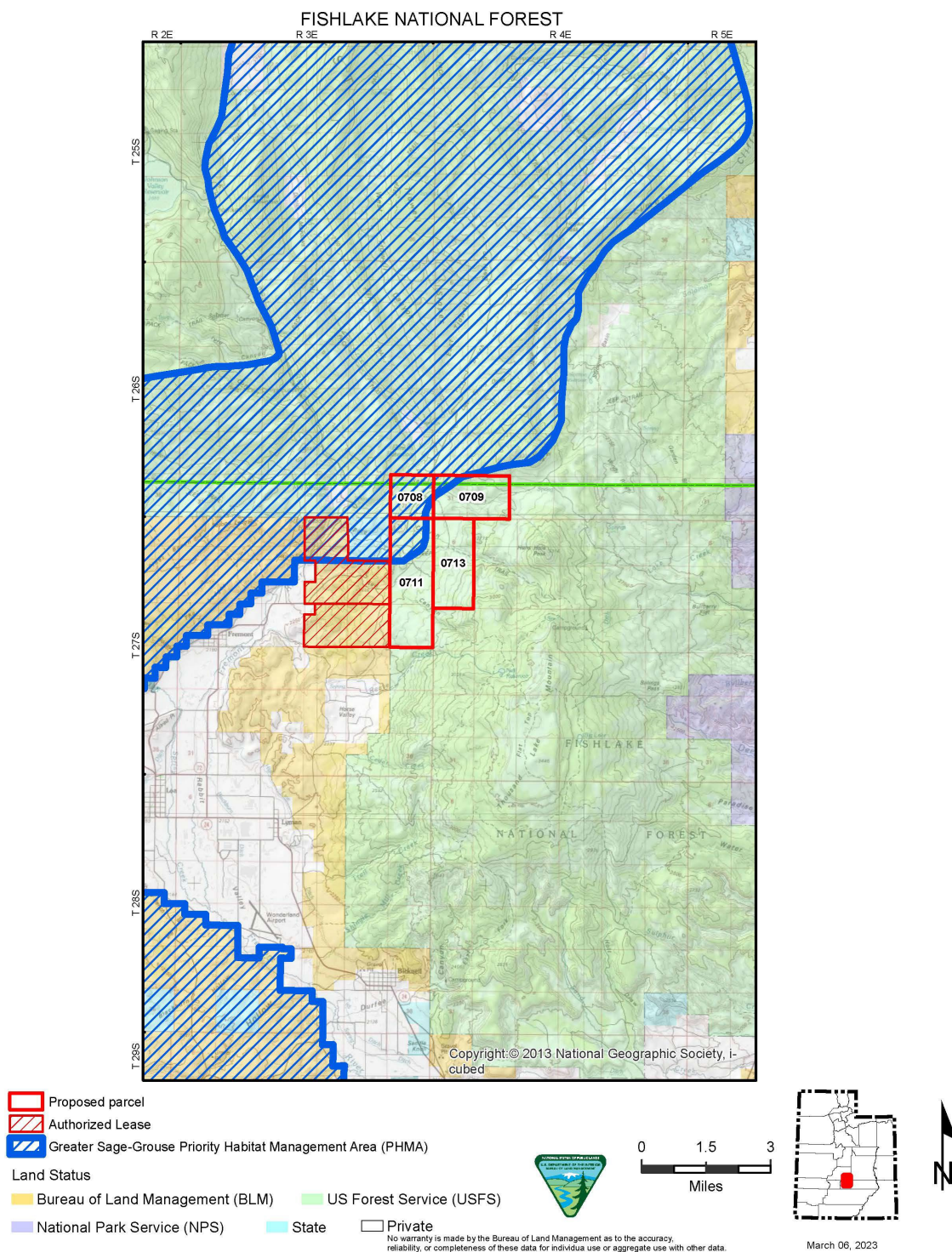


Figure 5. Overview of the 4 USFS parcels, PHMA and authorized leases.

APPENDIX B. BLM PARCEL LIST WITH STIPULATIONS AND NOTICES

In addition to the parcel specific Stipulations and Notices listed below, the stipulations and notices presented in this table would be applied to **ALL** BLM 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)	

PARCEL 1283

UT-2023-09-1283 UT, Richfield Field Office, Bureau of Land Management, PD <u>T. 17 S., R. 1 W., SALT LAKE MER</u> Sec. 19, ALL. 2,076.78 Acres Sanpete County EOI# UT00017777	
Stipulations	Notices
UT-S-01: Air Quality	UT-LN-44: Raptors
UT-S-102: Controlled Surface Use – Fragile Soils/Slopes 30 Percent or Greater	UT-LN-45: Migratory Bird
UT-S-111: No Surface Occupancy – Wetland/ Hydric Soils	UT-LN-49: Utah Sensitive Species
UT-S-121: No Surface Occupancy – Riparian and Wetland Areas	UT-LN-51: Special Status Plants Not Federally Listed
UT-S-276: Controlled Surface Use/Timing Limitations – Bald Eagle	UT-LN-52: Noxious Weeds
UT-S-308: Controlled Surface Use/Timing Limitations – Listed Plant Species	UT-LN-53: Riparian Areas
UT-S-314: Controlled Surface Use/Timing Limitations – Ute Ladies'-Tresses (<i>Spiranthes diluvialis</i>)	UT-LN-56: Drinking Water Source Protection Zone
	UT-LN-58: Drinking Water Protection Zone
	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: Bald Eagle

	UT-LN-128: Floodplain Management
	UT-LN-156: Pollinators and Pollinator Habitat
	T&E-05: Listed Plant Species

PARCEL 7363**UT-2023-09-7363 Split Estate**

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

T. 17 S., R. 1 W., SALT LAKE MER

Sec. 20, ALL;

Sec. 21, N1/2NW1/4, SW1/4NW1/4, W1/2SW1/4, SE1/4SW1/4;

Sec. 28, SW1/4NE1/4, W1/2, W1/2SE1/4;

Sec. 29, ALL;

Sec. 33, W1/2NE1/4, W1/2, SE1/4.

2,477.16 Acres

Sanpete County

EOI# UT00017801

Stipulations	Notices
UT-S-01: Air Quality	UT-LN-44: Raptors
UT-S-102: Controlled Surface Use – Fragile Soils/Slopes 30 Percent or Greater	UT-LN-45: Migratory Bird
UT-S-111: No Surface Occupancy – Wetland/Hydric Soils	UT-LN-49: Utah Sensitive Species
UT-S-121: No Surface Occupancy – Riparian and Wetland Areas	UT-LN-51: Special Status Plants Not Federally Listed
UT-S-221: Controlled Surface Use/Timing Limitations – Utah Prairie Dog	UT-LN-52: Noxious Weeds
UT-S-233: Timing Limitation – Crucial Mule Deer and Elk Winter Habitat	UT-LN-53: Riparian Areas
UT-S-276: Controlled Surface Use/Timing Limitations – Bald Eagle	UT-LN-56: Drinking Water Source Protection Zone
UT-S-308: Controlled Surface Use/Timing Limitations – Listed Plant Species	UT-LN-58: Drinking Water Protection Zone
UT-S-314: Controlled Surface Use/Timing Limitations – Ute Ladies'-Tresses (<i>Spiranthes diluvialis</i>)	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: Bald Eagle
	UT-LN-128: Floodplain Management

	UT-LN-156: Pollinators and Pollinator Habitat
	T&E-05: Listed Plant Species
	T&E-09: Utah Prairie Dog
	T&E-27: Yellow-Billed Cuckoo

PARCEL 7361

UT-2023-09-7361 UT, Richfield Field Office, Bureau of Land Management, PD <u>T. 17 S., R. 1 W., SALT LAKE MER</u> Sec. 30, ALL. 2,085.28 Acres Sanpete County EOI# UT00017778	
Stipulations	Notices
UT-S-01: Air Quality	UT-LN-44: Raptors
UT-S-102: Controlled Surface Use – Fragile Soils/Slopes 30 Percent or Greater	UT-LN-45: Migratory Bird
UT-S-111: No Surface Occupancy – Wetland/ Hydric Soils	UT-LN-49: Utah Sensitive Species
UT-S-121: No Surface Occupancy – Riparian and Wetland Areas	UT-LN-51: Special Status Plants Not Federally Listed
UT-S-233: Timing Limitation – Crucial Mule Deer and 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-308: Controlled Surface Use/Timing Limitations – Listed Plant Species	UT-LN-56: Drinking Water Source Protection Zone
UT-S-314: Controlled Surface Use/Timing Limitations – Ute Ladies'-Tresses (<i>Spiranthes diluvialis</i>)	UT-LN-58: Drinking Water Protection Zone
	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: Bald Eagle
	UT-LN-128: Floodplain Management
	UT-LN-156: Pollinators and Pollinator Habitat
	T&E-05: Listed Plant Species

PARCEL 7362**UT-2023-09-7362**

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

T. 17 S., R. 1 W., SALT LAKE MER

Sec. 31, ALL.

T. 18 S., R. 1.5 W., SALT LAKE MER

Sec. 3, Lots 1 and 2.

2,152.77 Acres

Sanpete County

EOI# UT00017780; UT00017802

Stipulations	Notices
UT-S-01: Air Quality	UT-LN-44: Raptors
UT-S-102: Controlled Surface Use – Fragile Soils/Slopes 30 Percent or Greater	UT-LN-45: Migratory Bird
UT-S-111: No Surface Occupancy – Wetland/ Hydric Soils	UT-LN-49: Utah Sensitive Species
UT-S-121: No Surface Occupancy – Riparian and Wetland Areas	UT-LN-51: Special Status Plants Not Federally Listed
UT-S-233: Timing Limitation – Crucial Mule Deer and 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-308: Controlled Surface Use/Timing Limitations – Listed Plant Species	UT-LN-56: Drinking Water Source Protection Zone
UT-S-314: Controlled Surface Use/Timing Limitations – Ute Ladies'-Tresses (<i>Spiranthes diluvialis</i>)	UT-LN-58: Drinking Water Protection Zone
	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: Bald Eagle
	UT-LN-128: Floodplain Management
	UT-LN-156: Pollinators and Pollinator Habitat
	T&E-05: Listed Plant Species

PARCEL 7367**UT-2023-09-7367**

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

T. 18 S., R. 1 ½ W., SALT LAKE MER

Sec. 1, ALL;
 Sec. 3, LOT 6;
 Sec. 3, SW1/4SE1/4;
 Sec. 10, LOTS 1, 3, 4;
 Sec. 10, NW1/4NE1/4, SE1/4;
 Sec. 11, NE1/4, N1/2NW1/4, SE1/4NW1/4, S1/2;
 Sec. 12, ALL.

2,294.91 Acres

Sanpete County

EOI# UT00017802

Stipulations	Notices
UT-S-01: Air Quality	UT-LN-44: Raptors
UT-S-102: Controlled Surface Use – Fragile Soils/Slopes 30 Percent or Greater	UT-LN-45: Migratory Bird
UT-S-111: No Surface Occupancy – Wetland/ Hydric Soils	UT-LN-49: Utah Sensitive Species
UT-S-121: No Surface Occupancy – Riparian and Wetland Areas	UT-LN-51: Special Status Plants Not Federally Listed
UT-S-221: Controlled Surface Use/Timing Limitations – Utah Prairie Dog	UT-LN-52: Noxious Weeds
UT-S-276: Controlled Surface Use/Timing Limitations – Bald Eagle	UT-LN-53: Riparian Areas
UT-S-308: Controlled Surface Use/Timing Limitations – Listed Plant Species	UT-LN-56: Drinking Water Source Protection Zone
UT-S-314: Controlled Surface Use/Timing Limitations – Ute Ladies'-Tresses (<i>Spiranthes diluvialis</i>)	UT-LN-58: Drinking Water Protection Zone
	UT-LN-72: High Potential Paleontological Resources
	UT-LN-96: Air Quality Mitigation Measures
	UT-LN-99: Regional Ozone Formation Control
	UT-LN-102: Air Quality Analysis
	UT-LN-107: Bald Eagle
	UT-LN-128: Floodplain Management
	UT-LN-156: Pollinators and Pollinator Habitat
	T&E-05: Listed Plant Species
	T&E-09: Utah Prairie Dog

PARCEL 1314**UT-2023-09-1314**

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

T. 18 S., R. 1 W., SALT LAKE MER

Sec. 4, LOTS 2 thru 4;

Sec. 4, SW1/4NE1/4, S1/2NW1/4, SW1/4, W1/2SE1/4;

Sec. 5, ALL;

Sec. 6, ALL;

Sec. 8, ALL;

Sec. 9, W1/2NE1/4, W1/2, W1/2SE1/4.

2,361.84 Acres

Sanpete County

EOI# UT00017807

Stipulations	Notices
UT-S-01: Air Quality	UT-LN-44: Raptors
UT-S-102: Controlled Surface Use – Fragile Soils/Slopes 30 Percent or Greater	UT-LN-45: Migratory Bird
UT-S-111: No Surface Occupancy – Wetland/ Hydric Soils	UT-LN-49: Utah Sensitive Species
UT-S-121: No Surface Occupancy – Riparian and Wetland Areas	UT-LN-51: Special Status Plants Not Federally Listed
UT-S-221: Controlled Surface Use/Timing Limitations – Utah Prairie Dog	UT-LN-52: Noxious Weeds
UT-S-233: Timing Limitation – Crucial Mule Deer and Elk Winter Habitat	UT-LN-53: Riparian Areas
UT-S-276: Controlled Surface Use/Timing Limitations – Bald Eagle	UT-LN-56: Drinking Water Source Protection Zone
UT-S-308: Controlled Surface Use/Timing Limitations – Listed Plant Species	UT-LN-58: Drinking Water Protection Zone
UT-S-314: Controlled Surface Use/Timing Limitations – Ute Ladies’-Tresses (<i>Spiranthes diluvialis</i>)	UT-LN-72: High Potential Paleontological Resources
	UT-LN-96: Air Quality Mitigation Measures
	UT-LN-99: Regional Ozone Formation Control
	UT-LN-102: Air Quality Analysis
	UT-LN-107: Bald Eagle
	UT-LN-128: Floodplain Management
	UT-LN-156: Pollinators and Pollinator Habitat
	T&E-05: Listed Plant Species

	T&E-09: Utah Prairie Dog
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PARCEL 7379**UT-2023-09-7379**

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

T. 18 S., R. 1 W., SALT LAKE MER

Sec. 7, ALL;

Sec. 17, ALL;

Sec. 18, ALL;

Sec. 19, ALL;

Sec. 20, ALL.

2,525.66 Acres

Sanpete County

EOI# UT00017809

Stipulations	Notices
UT-S-01: Air Quality	UT-LN-44: Raptors
UT-S-102: Controlled Surface Use – Fragile Soils/Slopes 30 Percent or Greater	UT-LN-45: Migratory Bird
UT-S-111: No Surface Occupancy – Wetland/ Hydric Soils	UT-LN-49: Utah Sensitive Species
UT-S-121: No Surface Occupancy – Riparian and Wetland Areas	UT-LN-51: Special Status Plants Not Federally Listed
UT-S-221: Controlled Surface Use/Timing Limitations – Utah Prairie Dog	UT-LN-52: Noxious Weeds
UT-S-233: Timing Limitation – Crucial Mule Deer and Elk Winter Habitat	UT-LN-53: Riparian Areas
UT-S-276: Controlled Surface Use/Timing Limitations – Bald Eagle	UT-LN-56: Drinking Water Source Protection Zone
UT-S-308: Controlled Surface Use/Timing Limitations – Listed Plant Species	UT-LN-58: Drinking Water Protection Zone
	UT-LN-72: High Potential Paleontological Resources
	UT-LN-96: Air Quality Mitigation Measures
	UT-LN-99: Regional Ozone Formation Control
	UT-LN-102: Air Quality Analysis
	UT-LN-107: Bald Eagle
	UT-LN-128: Floodplain Management
	UT-LN-156: Pollinators and Pollinator Habitat
	T&E-05: Listed Plant Species
	T&E-09: Utah Prairie Dog

PARCEL 7373**UT-2023-09-7373**

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

T. 18 S., R. 1 ½ W., SALT LAKE MER

Sec. 13, ALL;

Sec. 24, ALL;

Sec. 25, ALL.

1,920 Acres

Sanpete County

EOI# UT00017804

Stipulations	Notices
UT-S-01: Air Quality	UT-LN-44: Raptors
UT-S-102: Controlled Surface Use – Fragile Soils/Slopes 30 Percent or Greater	UT-LN-45: Migratory Bird
UT-S-111: No Surface Occupancy – Wetland/Hydric Soils	UT-LN-49: Utah Sensitive Species
UT-S-121: No Surface Occupancy – Riparian and Wetland Areas	UT-LN-51: Special Status Plants Not Federally Listed
UT-S-221: Controlled Surface Use/Timing Limitations – Utah Prairie Dog	UT-LN-52: Noxious Weeds
UT-S-233: Timing Limitation – Crucial Mule Deer and Elk Winter Habitat	UT-LN-53: Riparian Areas
UT-S-276: Controlled Surface Use/Timing Limitations – Bald Eagle	UT-LN-56: Drinking Water Source Protection Zone
UT-S-308: Controlled Surface Use/Timing Limitations – Listed Plant Species	UT-LN-58: Drinking Water Protection Zone
UT-S-314: Controlled Surface Use/Timing Limitations – Ute Ladies'-Tresses (<i>Spiranthes diluvialis</i>)	UT-LN-72: High Potential Paleontological Resources
	UT-LN-96: Air Quality Mitigation Measures
	UT-LN-99: Regional Ozone Formation Control
	UT-LN-102: Air Quality Analysis
	UT-LN-107: Bald Eagle
	UT-LN-128: Floodplain Management
	UT-LN-156: Pollinators and Pollinator Habitat
	T&E-05: Listed Plant Species
	T&E-09: Utah Prairie Dog

PARCEL 1301**UT-2023-09-1301**

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

T. 18 S., R. 1 ½ W., SALT LAKE MER

Sec. 14, ALL;

Sec. 15, ALL;

Sec. 22, ALL;

Sec. 23, NE1/4, W1/2NW1/4, SE1/4NW1/4, S1/2.

2,295.4 Acres

Sanpete County

EOI# UT00017803

Stipulations	Notices
UT-S-01: Air Quality	UT-LN-44: Raptors
UT-S-102: Controlled Surface Use – Fragile Soils/Slopes 30 Percent or Greater	UT-LN-45: Migratory Bird
UT-S-111: No Surface Occupancy – Wetland/ Hydric Soils	UT-LN-49: Utah Sensitive Species
UT-S-121: No Surface Occupancy – Riparian and Wetland Areas	UT-LN-51: Special Status Plants Not Federally Listed
UT-S-221: Controlled Surface Use/Timing Limitations – Utah Prairie Dog	UT-LN-52: Noxious Weeds
UT-S-233: Timing Limitation – Crucial Mule Deer and Elk Winter Habitat	UT-LN-53: Riparian Areas
UT-S-276: Controlled Surface Use/Timing Limitations – Bald Eagle	UT-LN-56: Drinking Water Source Protection Zone
UT-S-308: Controlled Surface Use/Timing Limitations – Listed Plant Species	UT-LN-58: Drinking Water Protection Zone
UT-S-314: Controlled Surface Use/Timing Limitations – Ute Ladies'-Tresses (<i>Spiranthes diluvialis</i>)	UT-LN-72: High Potential Paleontological Resources
	UT-LN-96: Air Quality Mitigation Measures
	UT-LN-99: Regional Ozone Formation Control
	UT-LN-102: Air Quality Analysis
	UT-LN-107: Bald Eagle
	UT-LN-128: Floodplain Management
	UT-LN-156: Pollinators and Pollinator Habitat
	T&E-05: Listed Plant Species
	T&E-09: Utah Prairie Dog

PARCEL 7383**UT-2023-09-7383**

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

T. 18 S., R. 1 W., SALT LAKE MER

Sec. 21, LOTS 1 thru 4;

Sec. 21, W1/2NE1/4, E1/2NW1/4, E1/2SW1/4;

Sec. 28, LOTS 1 thru 4;

Sec. 28, W1/2NE1/4, E1/2NW1/4, E1/2SW1/4, W1/2SE1/4, SE1/4SE1/4;

Sec. 33, LOTS 1 thru 3;

Sec. 33, E1/2NW1/4, NE1/4SW1/4, S1/2SW1/4, SW1/4SE1/4.

1,178.39 Acres

Sanpete County

EOI# UT00017813

Stipulations	Notices
UT-S-01: Air Quality	UT-LN-44: Raptors
UT-S-102: Controlled Surface Use – Fragile Soils/Slopes 30 Percent or Greater	UT-LN-45: Migratory Bird
UT-S-111: No Surface Occupancy – Wetland/ Hydric Soils	UT-LN-49: Utah Sensitive Species
UT-S-121: No Surface Occupancy – Riparian and Wetland Areas	UT-LN-51: Special Status Plants Not Federally Listed
UT-S-221: Controlled Surface Use/Timing Limitations – Utah Prairie Dog	UT-LN-52: Noxious Weeds
UT-S-233: Timing Limitation – Crucial Mule Deer and Elk Winter Habitat	UT-LN-53: Riparian Areas
UT-S-276: Controlled Surface Use/Timing Limitations – Bald Eagle	UT-LN-56: Drinking Water Source Protection Zone
UT-S-308: Controlled Surface Use/Timing Limitations – Listed Plant Species	UT-LN-58: Drinking Water Protection Zone
UT-S-314: Controlled Surface Use/Timing Limitations – Ute Ladies'-Tresses (<i>Spiranthes diluvialis</i>)	UT-LN-72: High Potential Paleontological Resources
	UT-LN-96: Air Quality Mitigation Measures
	UT-LN-99: Regional Ozone Formation Control
	UT-LN-102: Air Quality Analysis
	UT-LN-107: Bald Eagle
	UT-LN-128: Floodplain Management
	UT-LN-156: Pollinators and Pollinator Habitat
	T&E-05: Listed Plant Species
	T&E-09: Utah Prairie Dog

PARCEL 1308**UT-2023-09-1308 Split Estate**

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

T. 18 S., R. 1 ½ W., SALT LAKE MER

Sec. 27, ALL;

Sec. 34, ALL;

Sec. 35, W1/2NW1/4, W1/2SW1/4.

1,220.4 Acres

Sanpete County

EOI# UT00017805

Stipulations	Notices
UT-S-01: Air Quality	UT-LN-44: Raptors
UT-S-102: Controlled Surface Use – Fragile Soils/Slopes 30 Percent or Greater	UT-LN-45: Migratory Bird
UT-S-111: No Surface Occupancy – Wetland/ Hydric Soils	UT-LN-49: Utah Sensitive Species
UT-S-121: No Surface Occupancy – Riparian and Wetland Areas	UT-LN-51: Special Status Plants Not Federally Listed
UT-S-233: Timing Limitation – Crucial Mule Deer and 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-308: Controlled Surface Use/Timing Limitations – Listed Plant Species	UT-LN-56: Drinking Water Source Protection Zone
UT-S-314: Controlled Surface Use/Timing Limitations – Ute Ladies'-Tresses (<i>Spiranthes diluvialis</i>)	UT-LN-58: Drinking Water Protection Zone
	UT-LN-72: High Potential Paleontological Resources
	UT-LN-96: Air Quality Mitigation Measures
	UT-LN-99: Regional Ozone Formation Control
	UT-LN-102: Air Quality Analysis
	UT-LN-107: Bald Eagle
	UT-LN-128: Floodplain Management
	UT-LN-156: Pollinators and Pollinator Habitat
	T&E-05: Listed Plant Species

PARCEL 1325**UT-2023-09-1325**

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

T. 18 S., R. 1 W., SALT LAKE MER

Sec. 29, ALL;

Sec. 30, ALL;

Sec. 31, ALL.

1,587.76 Acres

Sanpete County

EOI# UT00017811

Stipulations	Notices
UT-S-01: Air Quality	UT-LN-44: Raptors
UT-S-102: Controlled Surface Use – Fragile Soils/Slopes 30 Percent or Greater	UT-LN-45: Migratory Bird
UT-S-111: No Surface Occupancy – Wetland/Hydric Soils	UT-LN-49: Utah Sensitive Species
UT-S-121: No Surface Occupancy – Riparian and Wetland Areas	UT-LN-51: Special Status Plants Not Federally Listed
UT-S-221: Controlled Surface Use/Timing Limitations – Utah Prairie Dog	UT-LN-52: Noxious Weeds
UT-S-233: Timing Limitation – Crucial Mule Deer and Elk Winter Habitat	UT-LN-53: Riparian Areas
76: Controlled Surface Use/Timing Limitations – Bald Eagle	UT-LN-56: Drinking Water Source Protection Zone
UT-S-308: Controlled Surface Use/Timing Limitations – Listed Plant Species	UT-LN-58: Drinking Water Protection Zone
UT-S-314: Controlled Surface Use/Timing Limitations – Ute Ladies'-Tresses (<i>Spiranthes diluvialis</i>)	UT-LN-72: High Potential Paleontological Resources
	UT-LN-96: Air Quality Mitigation Measures
	UT-LN-99: Regional Ozone Formation Control
	UT-LN-102: Air Quality Analysis
	UT-LN-107: Bald Eagle
	UT-LN-128: Floodplain Management
	UT-LN-156: Pollinators and Pollinator Habitat
	T&E-05: Listed Plant Species
	T&E-09: Utah Prairie Dog

PARCEL 1311**UT-2023-09-1311**

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

T. 19 S., R. 1 ½ W., SALT LAKE MER

Sec. 1, LOTS 1 thru 3;

Sec. 1, S1/2NE1/4, SE1/4NW1/4, NE1/4SW1/4, S1/2SW1/4, SE1/4;

Sec. 3, ALL.

1,055.55 Acres

Sanpete County

EOI# UT00017806

Stipulations	Notices
UT-S-01: Air Quality	UT-LN-44: Raptors
UT-S-102: Controlled Surface Use – Fragile Soils/Slopes 30 Percent or Greater	UT-LN-45: Migratory Bird
UT-S-111: No Surface Occupancy – Wetland/Hydric Soils	UT-LN-49: Utah Sensitive Species
UT-S-121: No Surface Occupancy – Riparian and Wetland Areas	UT-LN-51: Special Status Plants Not Federally Listed
UT-S-221: Controlled Surface Use/Timing Limitations – Utah Prairie Dog	UT-LN-52: Noxious Weeds
UT-S-233: Timing Limitation – Crucial Mule Deer and Elk Winter Habitat	UT-LN-53: Riparian Areas
UT-S-276: Controlled Surface Use/Timing Limitations – Bald Eagle	UT-LN-56: Drinking Water Source Protection Zone
UT-S-308: Controlled Surface Use/Timing Limitations – Listed Plant Species	UT-LN-58: Drinking Water Protection Zone
UT-S-314: Controlled Surface Use/Timing Limitations – Ute Ladies'-Tresses (<i>Spiranthes diluvialis</i>)	UT-LN-72: High Potential Paleontological Resources
	UT-LN-96: Air Quality Mitigation Measures
	UT-LN-99: Regional Ozone Formation Control
	UT-LN-102: Air Quality Analysis
	UT-LN-107: Bald Eagle
	UT-LN-128: Floodplain Management
	UT-LN-156: Pollinators and Pollinator Habitat
	T&E-05: Listed Plant Species
	T&E-09: Utah Prairie Dog

PARCEL 1334**UT-2023-09-1334**

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

T. 19 S., R. 1 W., SALT LAKE MER

Sec. 4, LOTS 2 thru 4;

Sec. 4, SW1/4NE1/4, S1/2NW1/4, SW1/4, W1/2SE1/4;

Sec. 5, ALL;

Sec. 6, ALL.

1,622.04 Acres

Sanpete County

EOI# UT00017815

Stipulations	Notices
UT-S-01: Air Quality	UT-LN-44: Raptors
UT-S-102: Controlled Surface Use – Fragile Soils/Slopes 30 Percent or Greater	UT-LN-45: Migratory Bird
UT-S-111: No Surface Occupancy – Wetland/Hydric Soils	UT-LN-49: Utah Sensitive Species
UT-S-121: No Surface Occupancy – Riparian and Wetland Areas	UT-LN-51: Special Status Plants Not Federally Listed
UT-S-221: Controlled Surface Use/Timing Limitations – Utah Prairie Dog	UT-LN-52: Noxious Weeds
UT-S-233: Timing Limitation – Crucial Mule Deer and Elk Winter Habitat	UT-LN-53: Riparian Areas
UT-S-276: Controlled Surface Use/Timing Limitations – Bald Eagle	UT-LN-56: Drinking Water Source Protection Zone
UT-S-308: Controlled Surface Use/Timing Limitations – Listed Plant Species	UT-LN-58: Drinking Water Protection Zone
UT-S-314: Controlled Surface Use/Timing Limitations – Ute Ladies'-Tresses (<i>Spiranthes diluvialis</i>)	UT-LN-72: High Potential Paleontological Resources
	UT-LN-96: Air Quality Mitigation Measures
	UT-LN-99: Regional Ozone Formation Control
	UT-LN-102: Air Quality Analysis
	UT-LN-107: Bald Eagle
	UT-LN-128: Floodplain Management
	UT-LN-156: Pollinators and Pollinator Habitat
	T&E-05: Listed Plant Species
	T&E-09: Utah Prairie Dog

USFS PARCEL 0708

UT-2023-09-0708 FS Parcel FIF0260S0030E0002 UT, Forest Service, Fishlake National Forest, PD <u>T. 26 S., R. 3 E., SALT LAKE MER</u> Sec. 36, ALL. 640 Acres Sevier and Wayne Counties EOI# UT00002410	
Stipulations	Notices
FIF2013-N-01: Lands Administered by the Fishlake National Forest Under Jurisdiction of Department of Agriculture	FIF2013-LN-01: Cultural Resources
FIF2013-NSO-02: Steep Slopes > 35%	FIF2013-LN-02: Threatened or Endangered Species
FIF2013-NSO-05: Perennial Streams, Reservoirs, Springs, and Lakes	FIF2013-LN-03: Migratory Birds
FIF2013-NSO-06: Drinking Water Source Protection Zones (Protection Zones 1-3, and T2 and T4)	UT-LN-44: Raptors
FIF2013-NSO-08: Aquatic Fauna	UT-LN-49: Utah Sensitive Species
FIF2013-NSO-09: Greater Sage Grouse Leks	UT-LN-53: Riparian Areas
FIF2013-NSO-14: High Scenic Integrity Areas	UT-LN-56: Drinking Water Source Protection Zone
FIF2013-NSO-15: Inventoried Roadless Areas	UT-LN-58: Drinking Water Protection Zone
FIF2013-NSO-27: Sensitive Wildlife Species	UT-LN-77: Light and Sound – Areas Adjacent to Capitol Reef National Park
FIF2013-TL-01: Bighorn Sheep Lambing Areas, Crucial Elk Calving & Mule Deer Fawning Habitat	UT-LN-107: Bald Eagle
FIF2013-TL-02: Crucial Elk & Mule Deer Winter Range	UT-LN-156: Pollinators and Pollinator Habitat
FIF2013-TL-04: Greater Sage Grouse Brood-rearing Habitat	UT-LN-164: Noise in Areas Adjacent to National Parks
FIF2013-TL-05: Greater Sage Grouse Winter Habitat	T&E-03: Endangered Fish of the Upper Colorado River Drainage Basin
FIF2013-CSU-03: Air Quality	T&E-05: Listed Plant Species
FIF2013-CSU-04: Cultural Resources	T&E-09: Utah Prairie Dog
FIF2013-CSU-18: Sensitive Wildlife Species	T&E-11: California Condor
UT-S-78: NSO – Cemeteries, Culinary Water Sources, Landfill (Existing and Closed), Lands	T&E-13: Barneby Reed-Mustard

UT-2023-09-0708 FS Parcel FIF0260S0030E0002 UT, Forest Service, Fishlake National Forest, PD <u>T. 26 S., R. 3 E., SALT LAKE MER</u> Sec. 36, ALL. 640 Acres Sevier and Wayne Counties EOI# UT00002410	
Managed Under R&PP Act Leases, Sites listed on the National Register of Historic Places, Incorporated Municipalities, Developed Recreation Sites, and BLM Administrative Sites.	
UT-S-111: NSO – Wetland/ Hydric Soils	T&E-14: Last Chance Townsendia (<i>Townsendia aprica</i>)
UT-S-121: NSO – Riparian and Wetland Areas	
UT-S-184: Controlled Surface Use/Timing Limitations – Endangered Fish of the Upper Colorado River Drainage Basin	
UT-S-221 – Controlled Surface Use/Timing Limitations – Utah Prairie Dog	
UT-S-276: Controlled Surface Use/Timing Limitations – Bald Eagles	
UT-S-293 – Controlled Surface Use/Timing Limitations – California Condor	
UT-S-308: Controlled Surface Use/Timing Limitations – Listed Plant Species	
UT-S-309 – Controlled Surface Use/Timing Limitations – Barneby Reed-Mustard	
UT-S-310: Controlled Surface Use/Timing Limitations Last Chance Townsendia (<i>Townsendia aprica</i>)	

USFS PARCEL 0711**UT-2023-09-0711****FS Parcels FIF0270S0030E0002; FIF0270S0030E0003**

UT, Forest Service, Fishlake National Forest, PD

T. 27 S., R. 3 E., SALT LAKE MER

Sec. 1, ALL.

Sec. 12, ALL.

Sec. 13, ALL.

1920 Acres

Wayne County

EOI# UT00002410

Stipulations	Notices
FIF2013-N-01: Lands Administered by the Fishlake National Forest Under Jurisdiction of Department of Agriculture	FIF2013-LN-01: Cultural Resources
FIF2013-NSO-05: Perennial Streams, Reservoirs, Springs, and Lakes	FIF2013-LN-02: Threatened or Endangered Species
FIF2013-NSO-07: Threatened, Endangered, Proposed and Sensitive Plants	FIF2013-LN-03: Migratory Birds
FIF2013-NSO-09: Greater Sage Grouse Leks	UT-LN-44: Raptors
FIF2013-NSO-14: High Scenic Integrity Areas	UT-LN-49: Utah Sensitive Species
FIF2013-NSO-15: Inventoried Roadless Areas	UT-LN-53: Riparian Areas
FIF2013-NSO-27: Sensitive Wildlife Species	UT-LN-56: Drinking Water Source Protection Zone
FIF2013-TL-02: Crucial Elk & Mule Deer Winter Range	UT-LN-58: Drinking Water Protection Zone
FIF2013-TL-04: Greater Sage Grouse Brood-rearing Habitat	UT-LN-77: Light and Sound – Areas Adjacent to Capitol Reef National Park
FIF2013-TL-05: Greater Sage Grouse Winter Habitat	UT-LN-107: Bald Eagle
FIF2013-CSU-03: Air Quality	UT-LN-156: Pollinators and Pollinator Habitat
FIF2013-CSU-04: Cultural Resources	UT-LN-164: Noise in Areas Adjacent to National Parks
FIF2013-CSU-17: Sensitive Plant Species & Plant MIS	T&E-03: Endangered Fish of the Upper Colorado River Drainage Basin
FIF2013-CSU-18: Sensitive Wildlife Species	T&E-03: Endangered Fish of the Upper Colorado River Drainage Basin
UT-S-111: NSO – Wetland/ Hydric Soils	T&E-05: Listed Plant Species
UT-S-121: NSO – Riparian and Wetland Areas	T&E-09: Utah Prairie Dog

UT-2023-09-0711 FS Parcels FIF0270S0030E0002; FIF0270S0030E0003 UT, Forest Service, Fishlake National Forest, PD <u>T. 27 S., R. 3 E., SALT LAKE MER</u> Sec. 1, ALL. Sec. 12, ALL. Sec. 13, ALL. 1920 Acres Wayne County EOI# UT00002410	
UT-S-184: Controlled Surface Use/Timing Limitations – Endangered Fish of the Upper Colorado River Drainage Basin	T&E-11: California Condor
UT-S-221 – Controlled Surface Use/Timing Limitations – Utah Prairie Dog	T&E-13: Barneby Reed-Mustard
UT-S-276: Controlled Surface Use/Timing Limitations – Bald Eagles	T&E-14: Last Chance Townsendia (<i>Townsendia aprica</i>)
UT-S-293 – Controlled Surface Use/Timing Limitations – California Condor	
UT-S-308: Controlled Surface Use/Timing Limitations – Listed Plant Species	
UT-S-309 – Controlled Surface Use/Timing Limitations – Barneby Reed-Mustard	
UT-S-310: Controlled Surface Use/Timing Limitations Last Chance Townsendia (<i>Townsendia aprica</i>)	

USFS PARCEL 0709**UT-2023-09-0709****FS Parcel FIF0260S0040E0003**

UT, Forest Service, Fishlake National Forest, PD

T. 26 S., R. 4 E., SALT LAKE MER

Sec. 31, ALL.

Sec. 32, ALL.

1131.12 Acres

Sevier and Wayne Counties

EOI# UT00002410

Stipulations	Notices
FIF2013-N-01: Lands Administered by the Fishlake National Forest Under Jurisdiction of Department of Agriculture	FIF2013-LN-01: Cultural Resources
FIF2013-NSO-02: Steep Slopes > 35%	FIF2013-LN-02: Threatened or Endangered Species
FIF2013-NSO-07: Threatened, Endangered, Proposed and Sensitive Plants	FIF2013-LN-03: Migratory Birds
FIF2013-NSO-09: Greater Sage Grouse Leks	UT-LN-44: Raptors
FIF2013-NSO-14: High Scenic Integrity Areas	UT-LN-49: Utah Sensitive Species
FIF2013-NSO-15: Inventoried Roadless Areas	UT-LN-53: Riparian Areas
FIF2013-NSO-25: Utah Prairie Dog Habitat	UT-LN-56: Drinking Water Source Protection Zone
FIF2013-NSO-27: Sensitive Wildlife Species	UT-LN-58: Drinking Water Protection Zone
FIF2013-TL-02: Crucial Elk & Mule Deer Winter Range	UT-LN-77: Light and Sound – Areas Adjacent to Capitol Reef National Park
FIF2013-TL-04: Greater Sage Grouse Brood-rearing Habitat	UT-LN-107: Bald Eagle
FIF2013-TL-05: Greater Sage Grouse Winter Habitat	UT-LN-156: Pollinators and Pollinator Habitat
FIF2013-CSU-03: Air Quality	UT-LN-164: Noise in Areas Adjacent to National Parks
FIF2013-CSU-04: Cultural Resources	T&E-03: Endangered Fish of the Upper Colorado River Drainage Basin
FIF2013-CSU-09: Utah Prairie Dog Habitat	T&E-05: Listed Plant Species
FIF2013-CSU-18: Sensitive Wildlife Species	T&E-09: Utah Prairie Dog
UT-S-111: NSO – Wetland/ Hydric Soils	T&E-11: California Condor
UT-S-121: NSO – Riparian and Wetland Areas	T&E-13: Barneby Reed-Mustard
UT-S-184: Controlled Surface Use/Timing Limitations – Endangered Fish of the Upper Colorado River Drainage Basin	T&E-14: Last Chance Townsendia (<i>Townsendia aprica</i>)

UT-2023-09-0709 FS Parcel FIF0260S0040E0003 UT, Forest Service, Fishlake National Forest, PD <u>T. 26 S., R. 4 E., SALT LAKE MER</u> Sec. 31, ALL. Sec. 32, ALL. 1131.12 Acres Sevier and Wayne Counties EOI# UT00002410	
UT-S-221 – Controlled Surface Use/Timing Limitations – Utah Prairie Dog	
UT-S-276: Controlled Surface Use/Timing Limitations – Bald Eagles	
UT-S-293 – Controlled Surface Use/Timing Limitations – California Condor	
UT-S-308: Controlled Surface Use/Timing Limitations – Listed Plant Species	
UT-S-309 – Controlled Surface Use/Timing Limitations – Barneby Reed-Mustard	
UT-S-310: Controlled Surface Use/Timing Limitations Last Chance Townsendia (<i>Townsendia aprica</i>)	

USFS PARCEL 0713

UT-2023-09-0713 FS Parcel FIF0270S0040E0002 UT, Forest Service, Fishlake National Forest, PD <u>T. 27 S., R. 4 E., SALT LAKE MER</u> Sec. 6, ALL. Sec. 7, ALL. 1262.93 Acres Wayne County EOI# UT00002410	
Stipulations	Notices
FIF2013-N-01: Lands Administered by the Fishlake National Forest Under Jurisdiction of Department of Agriculture	FIF2013-LN-01: Cultural Resources
FIF2013-NSO-02: Steep Slopes > 35%	FIF2013-LN-02: Threatened or Endangered Species
FIF2013-NSO-05: Perennial Streams, Reservoirs, Springs, and Lakes	FIF2013-LN-03: Migratory Birds
FIF2013-NSO-07: Threatened, Endangered, Proposed and Sensitive Plants	UT-LN-44: Raptors
FIF2013-NSO-09: Greater Sage Grouse Leks	UT-LN-49: Utah Sensitive Species
FIF2013-NSO-14: High Scenic Integrity Areas	UT-LN-53: Riparian Areas
FIF2013-NSO-15: Inventoried Roadless Areas	UT-LN-56: Drinking Water Source Protection Zone
FIF2013-NSO-27: Sensitive Wildlife Species	UT-LN-58: Drinking Water Protection Zone
FIF2013-TL-02: Crucial Elk & Mule Deer Winter Range	UT-LN-77: Light and Sound – Areas Adjacent to Capitol Reef National Park
FIF2013-TL-04: Greater Sage Grouse Brood-rearing Habitat	UT-LN-156: Pollinators and Pollinator Habitat
FIF2013-TL-05: Greater Sage Grouse Winter Habitat	UT-LN-164: Noise in Areas Adjacent to National Parks
FIF2013-CSU-03: Air Quality	T&E-03: Endangered Fish of the Upper Colorado River Drainage Basin
FIF2013-CSU-04: Cultural Resources	T&E-05: Listed Plant Species
FIF2013-CSU-17: Sensitive Plant Species & Plant MIS	T&E-09: Utah Prairie Dog
FIF2013-CSU-18: Sensitive Wildlife Species	T&E-11: California Condor
UT-S-111: NSO – Wetland/ Hydric Soils	T&E-13: Barneby Reed-Mustard

UT-2023-09-0713 FS Parcel FIF0270S0040E0002 UT, Forest Service, Fishlake National Forest, PD <u>T. 27 S., R. 4 E., SALT LAKE MER</u> Sec. 6, ALL. Sec. 7, ALL. 1262.93 Acres Wayne County EOI# UT00002410	
UT-S-184: Controlled Surface Use/Timing Limitations – Endangered Fish of the Upper Colorado River Drainage Basin	T&E-14: Last Chance Townsendia (<i>Townsendia aprica</i>)
UT-S-121: NSO – Riparian and Wetland Areas	UT-LN-107: Bald Eagle
UT-S-221 – Controlled Surface Use/Timing Limitations – Utah Prairie Dog	
UT-S-276: Controlled Surface Use/Timing Limitations – Bald Eagles	
UT-S-293 – Controlled Surface Use/Timing Limitations – California Condor	
UT-S-308: Controlled Surface Use/Timing Limitations – Listed Plant Species	
UT-S-309 – Controlled Surface Use/Timing Limitations – Barneby Reed-Mustard	
UT-S-310: Controlled Surface Use/Timing Limitations Last Chance Townsendia (<i>Townsendia aprica</i>)	

APPENDIX C. BLM LEASE STIPULATION AND NOTICE SUMMARY

USFS Appendix C-USFS Stipulations and Notices can be found on the BLM's ePlanning page for this lease sale, which is available at https://eplanning.blm.gov/projects/2022049/200536425/20070389/250076571/USFS%20Appendix%20C_Stipulations+Lease%20Notices.pdf

Table 29. 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 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).

Stipulation	Description/Purpose
	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.

Table 30. Utah Lease Stipulations

Stipulation	Description/Purpose
UT-S-01	AIR QUALITY All new stationery 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-RFO-78	NO SURFACE OCCUPANCY – CEMETERIES, CULINARY WATER SOURCES, LANDFILL (EXISTING AND CLOSED), LANDS MANAGED UNDER R&PP ACT LEASES, SITES LISTED ON THE NATIONAL REGISTER OF HISTORIC PLACES, INCORPORATED MUNICIPALITIES, DEVELOPED RECREATION SITES, AND BLM ADMINISTRATIVE SITES. No surface occupancy for oil and gas activities. Exception: None Modification: None Waiver: None
UT-S-RFO-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 then 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-RFO-111	NO SURFACE OCCUPANCY – WETLAND/HYDRIC SOILS No surface occupancy on wetland soils or soils identified as having hydric soil properties. Exception: Consider exceptions to NSO if a site-specific environmental analysis determines that other placement alternatives would cause undue or unnecessary degradation to

Stipulation	Description/Purpose
	resources. In addition, require the operator to submit a plan prior to commencing operations that addresses: • Erosion control strategies. • Mitigation to protect surface from rutting, compaction, and displacement, and disruption of surface and subsurface hydrologic function. • Mitigation or restoration measures to restore hydrologic function to site. • Proper survey and design by a certified engineer. Modification: None Waiver: None
UT-S-RFO-121	NO SURFACE OCCUPANCY – RIPARIAN AND WETLAND AREAS No surface disturbance and/or occupancy within buffer zones around natural springs. Base the size of the buffer on hydrological, riparian, and other factors necessary to protect the water quality of the springs. If these factors cannot be determined, maintain a 330-foot buffer zone from outer edge. Exception: Consider exceptions if it can be shown that (1) there are no practical alternatives to the disturbance, (2) all long-term impacts can be fully mitigated, and (3) the activity will benefit and enhance the riparian area. Consider compensatory mitigation where surface disturbance cannot be avoided within riparian wetland habitats on a site-specific basis. Modification: None Waiver: None
UT-S-RFO-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 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. 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-RFO-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-RFO-276	CONTROLLED SURFACE USE/TIMING LIMITATIONS – BALD EAGLE The Lessee/Operator is given notice that the lands in this parcel contain 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:

Stipulation	Description/Purpose
	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) 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 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 consultation with the U.S. Fish and Wildlife Service to ensure continued compliance with the ESA. Exception: None Modification: None Waiver: None
UT-S-RFO-314	CONTROLLED SURFACE USE/TIMING LIMITATIONS – UTE LADIES’-TRESSES (<i>SPIRANTHES DILUVIALIS</i>) 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: • <i>Potential habitat</i> is defined as areas that satisfy the broad criteria of the species habitat description; usually determined by preliminary, in-house assessment.

Stipulation	Description/Purpose
	• <i>Suitable habitat</i> 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 https://ecos.fws.gov/ecp/species/2159. • <i>Occupied habitat</i> 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: 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 to 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 rights-of-way where possible, e. Reduce width of rights-of-way and minimize the depth of excavation needed for the roadbed, 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),

Stipulation	Description/Purpose
	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: 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' rights-of-way, 300' of the edge of the roads' rights-of-way, 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 Modification: None Waiver: None

Table 31. Utah Lease Notices

Notice	Description/Purpose
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 Authorized Officer 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 Authorized Officer of the Bureau of Land Management. Based on the result of the field survey, the Authorized Officer 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-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

Notice	Description/Purpose
	The lessee/operator is given notice that lands in this lease have been identified as containing or are near areas containing noxious weeds. Best management practices to prevent or control noxious weeds may be required for operations on the lease.
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, $\leq 10,000$ 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

Notice	Description/Purpose
	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-57	PUBLIC WATER RESERVE The lessee/operator is given notice that lands in this lease have been identified as a designated Public Water Reserve. Surface occupancy or use is subject to the Public Water Reserve Executive Order No. 107. Modification to the Surface Use Plan of Operations may be required for the protection of the reserve up to and including no surface occupancy or use. Protection of a designated public water reserve as discussed in Public Water Reserve Executive Order No. 107. This limitation does not apply to operations and maintenance of producing wells.
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 3101.1-2. In addition, monitoring may be required during surface disturbing activities.
UT-LN-77	LIGHT AND SOUND - AREAS ADJACENT TO CAPITOL REEF NATIONAL PARK Minimize noise and light pollution in areas adjacent with Capitol Reef National Park using best available technology such as installation of multi-cylinder pumps, hospital sound reducing mufflers, and placement of exhaust systems to direct noise away from the National Park. Additionally, there would be a requirement to reduce light pollution 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. However, this requirement is not applicable if it affects human health and safety. Movement of operations to mitigate sound and light impacts would be required to be at least 200 meters from the boundary of the National Park in areas with the objectives of Visual Resource Management classifications of II, III and IV.
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 Authorized Officer.

Notice	Description/Purpose
	• 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-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.

Notice	Description/Purpose
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.
UT-LN-164	NOISE IN AREAS ADJACENT TO NATIONAL PARKS To reduce auditory impacts from mineral operations, projects within 6.1-miles (9,800 meters) of any National Park may be required to comply with noise mitigation efforts or demonstrate that the project would not negatively impact the National Park soundscapes. The project may be required to reduce sound levels to a maximum level of 55 decibels for production equipment (measured from the direction of the Park at a distance of 350 feet from source). These sound levels could be achieved by replacement diesel engine exhaust silencers (mufflers), noise barriers, and other noise control measures. Additionally, the operator may need to use the best available technology such as

Notice	Description/Purpose
	installation of multi-cylinder pumps, hospital sound reducing mufflers, and placement of exhaust systems to direct noise away from the National Park. Movement of operations to mitigate sound impacts may be required to be at least 200 meters in accordance with Section 6 of the lease terms and 43 CFR 3101.1-2.

Table 32 Utah Threatened and Endangered Species Notices

Notice	Description/Purpose
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.

Notice	Description/Purpose
	7) Limit new access routes created by the project. 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-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 on whether the action is temporary or permanent, and whether it occurs when prairie dogs are active or hibernating. A <u>temporary</u> action is completed prior to the following active season leaving no permanent structures and resulting in no permanent habitat loss. A <u>permanent</u> 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 (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 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. 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.

Notice	Description/Purpose
	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-27	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 on 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 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. Avoidance and minimization measures include the following: 1. Habitat suitability within the parcel and/or within a 0.5-mile buffer of the parcel will be identified prior to lease development to identify potential survey needs. Habitat suitability should be determined in accordance with <i>Guidelines for the identification of suitable habitat for WYBCU in Utah</i>. 2. Protocol Breeding Season Surveys will be required in suitable habitats prior to operations unless species occupancy and distribution information are 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 to August 31), and leaves no structure or habitat disturbance, action can proceed without a presence/absence survey. b. If action is proposed between June 1 to August 31, presence/absence surveys for cuckoo will be conducted prior to commencing activity. If cuckoos are detected, activity should be delayed until September 1. c. Eliminate access roads 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:

Notice	Description/Purpose
	a. Protocol level surveys by permitted individuals will be conducted prior to commencing activities. b. If cuckoos are detected, no activity will occur within 0.25-mile of occupied habitat. c. Avoid drilling and permanent structures within 0.25-mile of suitable habitat unless absence is determined according to protocol level survey conducted by permitted individual(s). d. Ensure noise levels at 0.25-mile from suitable habitat do not exceed baseline conditions. Placement of permanent noise-generating facilities should be determined by a noise analysis to ensure noise does not encroach upon the 0.25-mile buffer for suitable habitat. 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 previously considered. Avoidance and minimization measures will be evaluated throughout the duration of the project. 6. Water produced as by-product of drilling or pumping will be managed to ensure maintenance or enhancement of riparian habitat. 7. Where technically or economically feasible, use directional drilling or multiple wells from the same pad to reduce surface disturbance and eliminate drilling is 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 a change of hydrologic regime that would result in loss or degradation of riparian habitat. 9. Re-vegetate with native species 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 D. PUBLIC COMMENTS AND BLM'S RESPONSES

As detailed in Table 33 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 34 for responding to all substantive comments. Substantive comments contained in Table 34. 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:

- Support of or opposition to the lease sale generally or the sale of specific parcels;
- Support of or opposition to the use of certain lease stipulations;
- Support of or opposition to certain alternatives or favoring one alternative over another;
- Opposition to BLM Oil and Gas Leasing Program policies, BLM climate change policies, implementation of various Executive Orders, and/or BLM management generally;
- Assertions of various statutory and regulatory violations without reasoning or explanation;
- Various vague and open-ended statements regarding oil and gas leasing, renewable energy development, and the oil and gas industry; and
- References to additional academic, scientific, or other literature without reasoning or explanation of relevance.

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 13 comments, four of which contained substantive comments.

Note: After the close of the public comment period, a total of three (3) parcels (3,691.12 acres) were removed from the lease sale. These three parcels (708, 709, 711) are located in GRSB PHMA within the USFS Fishlake National Forest. Therefore, a total of 15 parcels encompassing 28,116.87 acres are being considered for the lease sale and will be identified in the NCLS.

Table 33. Public submissions with assigned commentor codes and resource/topic areas.

Name	Organization	Commenter Code	Resource/Topic Area
Government			
Roger Brian	Wayne County Commission	G-13	Alternatives, sage-grouse
Organizations			
Hanna Larsen	Southern Utah Wilderness Alliance	O-07	Air quality, alternatives, cultural, wildlife, ESA, Louisiana v Biden, parcel prioritization, stipulations.
Ben Tettlebaum	The Wilderness Society	O-11	Alternatives, deferring parcels, recreation, mule deer.
Morgan O’Grady	Western Environmental Law Center	O-12	Alternatives, groundwater, sage-grouse, greenhouse gasses, climate change, social cost of carbon, carbon budgeting, naturally occurring radioactive materials, reasonably foreseeable development, environmental justice, NEPA analysis, wildlife, health and safety, wilderness, special status creatures.

Table 34. Comment summary and BLM response.

Letter number	Resource/Topic	Summarized Comment*	Addressed in the EA, Section:	Comment Response
O-07	Air quality	The EA fails to adequately analyze the cumulative impacts of hazardous air pollutants emissions.	3.4.1.1 3.4.1.2 3.4.1.4	HAPS are analyzed in EA sections 3.4.1.1, 3.4.1.2, and 3.4.1.4. Additionally, the BLM Utah 2021 Air Monitoring Report includes information on HAPS and is incorporated by reference. The EA has been updated to include new data from EPA's AirToxScreen and to better summarize how the HAPs emissions from the Proposed Action affects existing hazardous air pollutant risks in Sanpete, Sevier, and Wayne Counties.

Letter number	Resource/Topic	Summarized Comment*	Addressed in the EA, Section:	Comment Response
O-12	Alternative, Groundwater	The BLM must consider a groundwater protection alternative.	2.5.9 and 3.4	To address this comment, the BLM has added consideration of a groundwater protection alternative in EA section 2.5.9 and has made clarifying edits to the analysis of potential impacts to groundwater in EA section 3.4 (AIB-11). In general, however, commenters have not submitted any evidence documenting that oil and gas development approved by BLM has contaminated groundwater in Utah or that offering these parcels for lease will significantly impact water resources.
O-11	Alternatives	The EA should include consideration of a “conservation and climate” alternative that would defer parcels based on a climate screen and the criteria in IM 2023-007.	2.5.3, 2.5.4, and 2.5.5	Section 3.5.2 of the EA analyzes how the future potential development of nominated lease parcels would contribute to GHG emissions and climate change. Please see EA sections 2.5.3, 2.5.4, and 2.5.5 for greenhouse gas reduction alternatives that were considered but eliminated from detailed analysis.
O-07	Alternatives	The BLM failed to consider an adequate range of alternatives and must disclose greenhouse gas emissions associated with each alternative and analyze a minimum of three alternatives.	1.2, 2.1-2.4, 2.5.1-2.5.9 and 3.5.2.2	The EA analyzed three alternatives: the Proposed Action (Alternative A), the Greater Sage-Grouse Avoidance Alternative (Alternative B), and the No Action Alternative (Alternative C). These alternatives represent a reasonable range of alternatives because they respond to the purpose and need. The No Action Alternative serves as a baseline for comparison of environmental effects (including cumulative effects) and demonstrates the consequences of not leasing the identified parcels. See EA sections 1.2 and 2.1-2.4. The BLM has also considered an additional 9 alternatives but dismissed them from detailed analysis, and the agency has provided a brief explanation for why each of these alternatives was dismissed. See EA sections 2.5.1-2.5.9. GHG emissions for the alternatives analyzed in detail are disclosed in EA section 3.5.2.2.

Letter number	Resource/Topic	Summarized Comment*	Addressed in the EA, Section:	Comment Response
O-12	Alternatives Sage-grouse	BLM must defer parcels in greater sage-grouse priority and general habitat given its refusal to implement Alternative B, the “Greater Sage-Grouse Habitat Avoidance Alternative”	3.5.3	Under the Proposed Action, all of the parcels within greater sage-grouse habitat have the NSO stipulation attached (see Appendix B). Potential impacts to greater sage-grouse associated with the alternatives considered in detail are analyzed in EA section 3.5.3.
O-07	Alternatives, Cultural	BLM has not properly considered SUWA's proposed Cultural Resource Preservation Alternative and arbitrarily dismissed this alternative from analysis. BLM's rationale to use lease stipulations to protect cultural resources is not a substitute to SUWA's proposed alternative and it does not release the BLM from the burden of cultural resource analysis.	2.5.1	The alternatives analyzed in detail represent a reasonable range of alternatives because they respond to the purpose and need. The No Action Alternative serves as a baseline for comparison of environmental effects (including cumulative effects) and demonstrates the consequences of not leasing the identified parcels. See EA sections 1.2 and 2.1-2.4. The BLM has also considered an additional nine alternatives, including alternatives that would avoid leasing in high probability cultural resource areas, but dismissed them from detailed analysis, and the agency has provided a brief explanation for why each of these alternatives was dismissed. See EA sections 2.5.1-2.5.9. Potential impacts to cultural resources and Native American concerns are analyzed in brief in EA section 3.4 (AIB-4 and AIB-6, respectively).

Letter number	Resource/Topic	Summarized Comment*	Addressed in the EA, Section:	Comment Response
O-11	Alternatives, Deferring Parcels, Recreation	Four parcels (FS parcels) are within 10 miles of Capitol Reef National Park and should be deferred to protect recreation values	AIB-14	In response to this comment, the BLM has updated EA section 3.4 (AIB-14) to clarify that several NSO lease stipulations and notices are applied to Parcels 0713, 0711, 0709, and 0708, which will minimize or avoid impacts associated with leasing to recreation values near the National Park (see Appendix B).
O-12	Alternatives, GHG	The BLM must consider a methane reduction alternative.	2.5.8.	In response to this comment, the BLM has added consideration of a methane reduction alternative in EA section 2.5.8.
G-13	Alternatives, Greater Sage Grouse	The Wayne County parcels should be re-evaluated, as full NSO stipulations may not be needed, especially for parcel 0713, which does not contain priority sage grouse habitat. Parcels 0711 and 0709 have limited acres of priority habitat also.	Appendix B	The NSO stipulations for parcels 0708, 0709, 0711, and 0713 are derived from the USFS land use plan and can only be modified through additional land use planning by the USFS. See also EA section 1.4. Development of these parcels could still occur from outside the parcel through directional drilling. Potential impacts to sage-grouse and its habitat are analyzed in EA section 3.5.3.
O-11	Alternatives, Parcel Deferral	The BLM cannot lease parcels with low production potential.	2.5.2	The BLM has considered an alternative that would defer all parcels in areas of low to moderate potential for oil and gas development in EA section 2.5.2.

Letter number	Resource/Topic	Summarized Comment*	Addressed in the EA, Section:	Comment Response
O-07	Alternatives, Stipulations, Cultural	BLM's stipulation HQ-CR-1 does not protect cultural resources as evidenced by sites destroyed by oil and gas-related development in the Vernal Field Office.	AIB-4, 4.2, 4.3	The ruling in IBLA 2008-0264 affirmed that the BLM may take a phased approach in meeting its obligations under NHPA Section 106, meaning that the agency “may conduct appropriate NHPA identification and protection activities at the land use planning stage, the lease sale stage, and the site-specific APD stage.” The ruling in IBLA 2008-0264 also affirmed that the BLM's use of protective cultural resource stipulations, among other actions, could demonstrate compliance with the NHPA. For example, the BLM’s Newcastle Field Office in Wyoming ultimately denied an APD because the oil and gas development in question would result in an adverse effect to a historic property that could not be mitigated, as required by the HQ-CR-1 stipulation. Additionally, the examples of damage to cultural resources potentially caused by oil and gas development (a pipeline) in the Vernal Field Office provided by the commenter lacks context because it omits BLM's NHPA Section 106 or mitigation efforts for the historic properties within or near the identified pipeline development; therefore, these examples do not demonstrate a failure of HQ-CR-1 to protect cultural resources.
O-12	Carbon Budgeting	BLM's use of the "MAGICC model" improperly omitted the carbon budget of the US share of the global climate budget	3.4.2.2, 3.4.2.4	The BLM is not aware of an official carbon budget that has been established for the entire country. The BLM does not have the authority to regulate GHG emissions for the United States, and evaluating a total carbon budget for the nation is beyond the scope of this EA.

Letter number	Resource/Topic	Summarized Comment*	Addressed in the EA, Section:	Comment Response
O-12	Climate Change	BLM must analyze all downstream effects from the use of fossil fuels from oil and gas leases.	3.4.1.2 3.4.2.2	Air quality-related impacts from the downstream use of fossil fuels is discussed in EA section 3.4.1.2, and in the BLM Utah 2021 Air Monitoring Report, which is incorporated by reference. Downstream emissions from the leases occur from transport, processing, distribution, and end-use of produced oil and gas. Additionally, EA section 3.4.1.1 discusses air quality standards that are used as a measure to protect human health and the environment.
O-12	EJ	BLM failed to take a hard look at the relationship between health and environmental justice.	AIB-7	In the present case, the BLM has no reason to expect such effects but would defer to expressions of concern by EJ communities, both at the leasing and APD stage. To date, the BLM has not received such from any identified EJ community, but the agency would analyze such impacts if so identified. The commentor assumes that there will be disproportionately adverse impacts to EJ communities' health. The BLM has not received any comments from potentially affected populations calling attention to health issues resulting from the proposed action, nor does the BLM have reason or evidence to presume such exist. Potential impacts on EJ populations are considered in EA section 3.4 (AIB-7).
O-11, O-12	EJ	BLM did not thoroughly analyze impacts to environmental justice based on case law provided in the comment.	AIB-7	The presence of EJ communities in a project area (communities of concern) are communities that may be affected by a proposed action. In the present case, the BLM has no prior reason to expect such effects but would defer to expressions of concern by EJ communities, both at the leasing and APD stage. To date, the BLM has not received such from any identified EJ community, but the agency would analyze such impacts if so identified. Potential impacts on EJ populations are considered in EA section 3.4 (AIB-7).

Letter number	Resource/Topic	Summarized Comment*	Addressed in the EA, Section:	Comment Response
O-07	ESA	The 2008 Richfield RMP Biological Opinion is inadequate and not applicable to the proposed action	3.4, AIB-1, and 4.1	The Department of the Interior has long held that the Mineral Leasing Act allows the use of a segmented decision-making process. Additionally, U.S. Fish and Wildlife Service (USFWS) regulations do not prevent evaluating on-shore mineral leasing activities through incremental-step consultation (See U.S. Fish and Wildlife Service and National Marine Fisheries Service. 1998. Consultation Handbook. Chapter 5, pp. 5-7 through 5-9.). The BLM has reviewed the Richfield RMP Consultation and subsequent re-initiations for completeness. The BLM has coordinated with USFWS on the species list and notices
O-07	ESA	The BLM has not consulted on Ute-ladies' tresses.	3.4, and AIB-1: Ute ladies' tresses	In response to this comment, the BLM has made clarifying edits to EA section 3.4 (AIB-1). Stipulation UT-S-314 is attached to all parcels that have any potential for Ute ladies' tresses habitat. This stipulation has no exceptions, nor can it be modified or waived. It requires site inventories within suitable habitat to determine occupancy. Alteration and disturbance of hydrology is prohibited by the stipulation to protect habitat within and downstream of the project area. A 300-foot minimum buffer is required between rights-of-way, surface disturbance, or surface pipelines. Given the requirements of the stipulation, there would be no effect to the species.

Letter number	Resource/Topic	Summarized Comment*	Addressed in the EA, Section:	Comment Response
O-12	ESA	The cumulative effects extend beyond the project area and therefore require formal consultation. The BLM's Proposed Leasing Action Clearly Crosses the "May Affect" Threshold for Climate-Threatened Species and Requires Consultation.	4.1	The BLM consults with USFWS on projects that may have a physical effect on threatened and endangered species or their habitats. The BLM commits to comply with the ESA for any future development plans that may result from the lease sale. A lease sale is an administrative action only and cannot directly cause any impacts to any threatened or endangered species or their habitats. Finally, issuing a lease does not by itself convey the right to impact threatened or endangered species or their habitats. Therefore, consultation with USFWS is not required at the leasing stage. (Refer to section 4.1)
O-11	GHG	BLM has not properly analyzed greenhouse gas emissions by neglecting to disclose actual, on-the-ground impacts of GHG.	3.4.2.1, 3.4.2.2, and 3.4.2.4	The GHG analysis in the EA is consistent with CEQ guidance on evaluating GHG emissions and climate effects in NEPA. This includes citing available scientific literature to provide evidence of and help explain real-world effects. See the Annual GHG Report, as well as EA sections 3.4.2.1, 3.4.2.2, and 3.4.2.4

Letter number	Resource/Topic	Summarized Comment*	Addressed in the EA, Section:	Comment Response
O-12	GHG	BLM improperly used the EPA GHG tool by segmenting the lease sale. The information in table 22 is decontextualized and fractional comparisons	3.5.2.2	The EPA GHG equivalency calculator allows users to translate GHG emissions or energy usage into "annual emissions from cars, households, or power plants. (https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator)" (Emphasis added on annual). If BLM calculated equivalencies using the total 30-year life of lease emissions instead of the annual average emissions from leases, it would result in the same number of vehicles (and other equivalencies), 5,551 gas-fueled vehicles, but driven for 30 years instead of one year. CEQ guidance only instructs agencies to provide GHG equivalencies for action alternatives, which the BLM does in EA section 3.5.2.2. Equivalencies are not provided for cumulative Federal emissions in the Annual GHG Report because emissions are based on the U.S. Energy Information Administration's (EIA) Annual Energy Outlook, which is updated each year, and constantly changing equivalencies on a cumulative scale could be misleading in a contextual sense. The BLM anticipates there may be substantial changes to emissions projections in the next version of the Annual GHG Report if the EIA Annual Energy Outlook accounts for policies established in the Infrastructure Investment and Jobs Act (more commonly referred to as the Bipartisan Infrastructure Law) and the Inflation Reduction Act. While the BLM finds that this information is not useful in the Annual GHG Report, the equivalences are provided in this response as requested by the commentor. For 2021, the estimated emissions for Federally produced oil (220.17 Mt CO₂e) provided heat and energy for an equivalent of 27,733,270 homes annually, and emissions from Federally produced gas (245.46 MT CO₂e) provided heat and energy for an additional 30,918,874 homes annually.

Letter number	Resource/Topic	Summarized Comment*	Addressed in the EA, Section:	Comment Response
O-11	GHG	BLM must place its GHG emissions into proper context when analyzing impacts	3.4.2.2	The BLM does not make a comparison between the Proposed Action emissions and total global, national, or state emissions. Instead, the EA evaluates the emissions from the proposed action in relation to estimated GHG emissions from Federal fossil fuel leasing at the state and national scales. See Table 22. The BLM provides appropriate context of equivalencies and SC-GHGs according to CEQ guidance. See EA section 3.4.2.2.
O-12	GHG	The BLM failed to consider impacts from other BLM fossil fuel projects/lease sales (offshore oil and gas and coal). Also including non-federal leasing.	3.4.2.4	Federal oil and gas leasing is not a connected action to Federal coal leasing or offshore oil and gas leasing. The BLM has considered emissions from Federal coal leasing and offshore oil and gas leasing in the Annual GHG Report, as identified in section 3.4.2.4 of the EA.
O-12	GHG	The BLM failed to consider offshore oil and gas lease sales in the cumulative effects.	3.4.2	The Annual GHG Report contains information on emissions from offshore leasing, which was estimated to be 378.64 Mt CO ₂ e in 2021.
O-12	GHG	The BLM must analyze the global impacts from GHG emissions.	3.4.2.2	The Annual GHG report adequately covers foreseeable climate impacts from GHG emissions. Consistent with new guidance from CEQ, the BLM provides context for emissions in the form of equivalencies and monetized costs. This information is incorporated by reference in EA section 3.4.2.2. See 40 CFR 1508.1(l); see also Question 37a, CEQ, <i>Forty Most Asked Questions Concerning CEQ's NEPA Regulations</i> , March 23, 1981.

Letter number	Resource/Topic	Summarized Comment*	Addressed in the EA, Section:	Comment Response
O-12	GHG	The Draft EA and the 2021 BLM Specialist Report Fail to Adequately Quantify and Assess All Related Past, Present, and Reasonably Foreseeable Future GHG Emissions and Climate Impacts.	3.4.2.4	Cumulative emissions from past, present, and reasonably foreseeable onshore federal leasing is presented in table 26. See EA section 3.4.2.4.
O-12	GHG	The Draft EA and the 2021 BLM Specialist Report Omit Analysis of the Compatibility of New Commitments of Federal Fossil Fuels with the Paris Agreement.	3.5.2.4	A discussion of the U.S. goal to reduce emissions to limit warming to 1.5° C has been added to EA section 3.5.2.4.
O-11	GHG	The Draft EA and the 2021 BLM Specialist Report Omit Analysis of the Compatibility of New Commitments of Federal Fossil Fuels with the Paris Agreement.	3.4.2.4	At present, there are no binding climate policies or laws to reduce emissions. EA section 3.4.2.4 has been updated to discuss GHG emissions reduction goals.

Letter number	Resource/Topic	Summarized Comment*	Addressed in the EA, Section:	Comment Response
O-12	GHG	The Draft EA and the 2021 BLM Specialist Report Omit Analysis of the Global and National Over-Commitment of Fossil Fuels Relative to Global Carbon Budgets Necessary to Avoid 1.5°C Warming.	3.4.2.4	The production gap uses oil and gas production as a proxy for evaluating emissions commitments to limit global warming to 1.5° C. Alternatively, the BLM has used its discretion to evaluate the world's ability to limit warming to 1.5° C using an emissions gap assessment. See section 7.2 of the Annual GHG Report. The BLM has updated EA section 3.4.2.4 to better summarize information from the Annual GHG Report about the ability to limit warming to 1.5° C.
O-12	GHG	The Draft EA's Emission Comparisons Fail NEPA's "Hard Look" Standard.	3.5.2.2	The BLM does not make a comparison between the Proposed Action emissions and total global, national, or state emissions. Instead, the EA evaluates the emissions from the proposed action in relation to estimated GHG emissions from Federal fossil fuel leasing at the state and national scales. See Table 22. Nor does the BLM attempt to minimize the estimated emissions. The information referenced by the commentor in the preliminary EA (at page 68), shows how much the Proposed Action contributes to the cumulative (past, present, and reasonably foreseeable future) GHG emissions from other Federal oil and gas leasing in the state and nation. See EA section 3.5.2.2.

Letter number	Resource/Topic	Summarized Comment*	Addressed in the EA, Section:	Comment Response
O-11	GHG	The EA fails to adequately explain the estimated GHG emissions from the lease sale and whether the emissions are significant.	3.4.2	The determination of significance occurs in the FONSI and not the EA. See 40 CFR 1508.1(l); see also Question 37a, CEQ, <i>Forty Most Asked Questions Concerning CEQ's NEPA Regulations</i> , March 23, 1981. Currently there are no thresholds for GHG emissions, SC-GHGs, or any other metric that represents a red line for when emissions become significant. To help evaluate GHG emissions, CEQ GHG guidance recommends that agencies consider the quantified emissions and the context of those emissions in relation to social costs, emission reductions goals, and laws and regulations. These evaluations are included as part of EA section 3.4.2.
O-11	GHG	The EA fails to adequately identify or evaluate mitigation measures to address GHG emissions	3.4.2.3	Potential mitigation measures currently required by law and measures that could be applied are discussed in section 3.4.2.3 of the EA. Mitigation is applied as COAs at the permitting stage.
O-12	GHG	BLM's Analysis of the Cumulative Impacts of GHG Emissions is Absent.	3.4.2.4	The cumulative effects of GHGs are analyzed in EA section 3.4.2.4.

Letter number	Resource/Topic	Summarized Comment*	Addressed in the EA, Section:	Comment Response
O-11	Groundwater	BLM failed to analyze the reasonably foreseeable impacts to groundwater from drilling	AIB-11	In response to this comment, the BLM has made clarifying edits to EA section 3.4 (AIB-11), which considers potential impacts to SSAs, Water Rights, and DWSPZs, as well as potential water quantity and quality conflicts. The BLM has used the best available data from the USGS and other sources in its analysis of potential impacts to groundwater from the leasing of the proposed parcels, including aquifer data. The BLM also considered future water quantity analysis. Volume estimates of water use per well has been presented in AIB-11. All usable aquifers that may not be currently used as a drinking water supply could include total dissolved solids (TDS) as high as 10,000 ppm would be protected. Onshore Oil and Gas Order No. 2 and BLM IM-2010-055 similarly define “usable water” generally as those waters containing up to 10,000 ppm of total dissolved solids. This Order and associated BLM UT IM details the BLM’s uniform national standards for the minimum levels of performance expected from lessees and operators when conducting drilling operations on Federal and Indian lands and for abandonment immediately following drilling. The purpose also is to identify the enforcement actions that will result when violations of the minimum standards are found, and when those violations are not abated in a timely manner. The IM provides for detailed and orderly protection of groundwater resources review that has occurred in the EA.
O-11	Health/Safety	BLM Must Take a Hard Look at Human health and safety	3.4 and 3.5.1	Human health and safety are analyzed in various aspects in EA sections 3.4 (AIB-11, AIB-20, and AIB-22) and 3.5.1.

Letter number	Resource/Topic	Summarized Comment*	Addressed in the EA, Section:	Comment Response
O-07	Louisiana v. Biden	The Louisiana v. Biden injunction does not require BLM to hold a lease sale.	1.2, and 1.5	While the commenter is correct that the August 2022 Memorandum Ruling in <i>Louisiana v. Biden</i> does “not apply to lease sales canceled after March 24, 2021[.]” the BLM still has a responsibility under the MLA, as amended, FLPMA, as amended, and various other laws to promote the exploration and development of oil and gas on the public domain. This lease sale, which represents an exercise of the Secretary’s broad discretion under the MLA, is consistent with applicable law. See EA sections 1.2 and 1.5.
O-11	Methane emissions	BLM has not properly analyzed impacts of methane emissions and should postpone leasing until the proposed waste prevention rule is implemented.	3.4.2.2	The BLM does account for methane emissions in the EA, see section 3.4.2.2. Table 21 in the EA shows estimated total life of lease methane emissions of 1,637.04 metric tonnes of methane emissions. The Annual GHG Report also has a detailed accounting of methane emissions for the cumulative Federal oil and gas emissions that are incorporated by reference into the EA. See EA section 3.4.2. Methane emissions from leaks and other fugitive sources are accounted for in the EA; see Table 21, which lists the estimated direct (well development and production operations) and indirect (mid-stream and end-use) GHG emissions in metric tons (tonnes) for the subject leases over the average 30-year production life of the lease. The proposed waste prevention rule is an independent action from this lease sale. Future development on lease parcels will have to comply with applicable laws and regulation in effect at the time, including the any final waste prevention rules.

Letter number	Resource/Topic	Summarized Comment*	Addressed in the EA, Section:	Comment Response
O-11	Mule Deer	New data about how mule deer adapt to oil and gas developments is provided, and BLM must address the best available science. See the Comment letter for references and citations	AIB-8	The BLM has received all available data of identified mule deer migration and stopover habitat from GPS collared deer studies, and no identified corridors are shown on these leases.
O-12	Multiple resources	BLM failed to take a hard look at cultural and heritage resources, WSAs, lands with wilderness characteristics, and special status species.	AIB-6	Potential impacts to cultural and heritage resources and Native American concerns are discussed in EA section 3.4 (AIB-4 and AIB-6, respectively). EA section 4.3 discusses consultation efforts required under Section 106 of the NHPA. Potential impacts to threatened and endangered and special status species of plants and wildlife are discussed in EA section 3.4 (AIB-1 and AIB-2). As noted in EA section 1.5.4 (Table 4), the BLM considered wilderness study areas and lands with wilderness characteristics but did not analyze them in detail because these resources are not present within or adjacent to the nominated lease parcels.
O-12	NEPA	BLM Must Not Improperly Limit the Context of Significance Analysis and should extend consideration to include society as a whole, global, national and regional contexts.	FONSI	The BLM has updated the FONSI in response to this comment.

Letter number	Resource/Topic	Summarized Comment*	Addressed in the EA, Section:	Comment Response
O-12	NEPA	BLM's analysis of federal or state law and policy concerning GHG, and climate change is insufficient. Colorado and NM laws are cited. (Maybe combine with other comments about the Paris accords)	3.5.2	The BLM analyzes potential impacts, including cumulative impacts, associated with climate change and GHG emissions in detail in the EA (see section 3.5.2). The Proposed Action's relationship to statutes, regulations, policies, and other plans is discussed in EA section 1.5. The BLM also works in concert with other federal agencies (including EPA and DOE) to implement U.S. strategies and meet committed goals, including applicable executive and secretary's orders.
O-12	NEPA	BLM's Analysis of GHG emissions and climate change is inadequate because of uncertainty regarding the analysis of these issues.	3.4.2	Given the information available to the agency, the BLM can only analyze the reasonably foreseeable GHG emissions from the lease sale and other reasonably foreseeable actions: as BLM discusses in EA section 3.4.2, potential future development of the nominated lease parcels is speculative. Uncertainty regarding GHG emissions, and their climate effects are also presented in the Annual GHG report, including uncertainty of global warming potential, emissions estimates, the uses of produced oil and gas, emissions control technology, future GHG regulations, and with carbon budgets. The EA provides BLM's best estimate of GHG emissions and climate impacts.

Letter number	Resource/Topic	Summarized Comment*	Addressed in the EA, Section:	Comment Response
O-12	NEPA, Climate change	BLM must evaluate all 2023 lease sales in a single (nationwide) document. Lease sales meet the definition of connected actions.	3.4.2.4	Lease sales in other states are not dependent upon the outcome of the lease sale in Utah and do not meet the definition of connected actions. The BLM does consider GHG emissions from leasing in other states and nationally as part of the cumulative analysis, see section 3.4.2.4 and Table 26. The Annual GHG Report provides a nationwide look at GHG emissions from oil and gas leasing, and a nationwide EA or EIS would not provide different information from that which is incorporated by reference in this EA. The EA is tiered to and incorporates by reference the applicable RMP and associated EIS, as well as other project specific plans and associated EISs. See section 1.5.1 of the EA. BLM also provided additional analysis of potential impacts to various resources in the EA. NEPA allows agencies to prepare an EA “on any action in order to assist agency planning and decision making” (40 CFR § 1501.5; see also 40 CFR § 1508.1 [defining “environmental assessment”]). An agency need not prepare an EIS if it determines that the action will not have significant effect on the human environment or where such effects may be mitigated by adoption of appropriate measures. The level of environmental analysis conducted by the BLM for the Lease Sale, including the determination of significance in the FONSI, is consistent with the purpose and requirements of NEPA.
O-12	NORM	BLM failed to take a hard look at Naturally Occurring Radioactive Materials (NORM) and the effects from it.	Appendix F. Summary of the Typical Phases of Oil and Gas Development	NORM are discussed in EA Appendix F (in the Hydraulic Fracturing section). The EPA has found that Utah has very low levels of NORM associated with oil and gas production waste (EPA, 2023) and as such does not require a detailed analysis.

Letter number	Resource/Topic	Summarized Comment*	Addressed in the EA, Section:	Comment Response
O-11	Outdated RMP, Climate Change	The RMPs used are outdated and do not adequately address climate change. BLM should use IM 2023-010 to limit oil and gas leasing in these areas.	3.5.2	Section 3.5.2 of the EA analyzes how the potential future development of nominated lease parcels would contribute to GHG emissions and climate change. The best available data, such as the GHG Annual Specialist Report is used to ensure proper analysis. The EA is tiered to the Richfield Field Office RMP and associated EIS which made the original resource allocation decision to make these lands available for oil and gas leasing. A revision to the Richfield Field Office RMP can only be addressed as part of the land use planning process and is outside the scope of the EA. IM 2023-010 does not direct what resource decisions should be, but rather indicates the process the BLM should follow to properly conduct the lease sale process. There is no directive to limit oil and gas leasing for any resource issue. BLM Utah strives to consistently follow the procedures outlined in IM 2023-010.
O-07	Parcel Prioritization	The BLM cannot lease parcels with low production potential.	1.4, Appendix E, Appendix F	Parcels are nominated for leasing when interested parties submit Expressions of Interest (EOIs). As a result, Expressions of Interest ultimately determine which parcels are actually considered for leasing (versus merely available for leasing under the RMP), regardless of the estimated production potential of the parcel. The BLM determines which lands are available for leasing in the land use planning process when a Resource Management Plan (RMP) is revised or amended. The RMP decisions are based on resource conflicts that may warrant closing lands to leasing or constraining development, but they have no prioritization consideration. As such, this contention is beyond the scope of the EA.

Letter number	Resource/Topic	Summarized Comment*	Addressed in the EA, Section:	Comment Response
O-12	RFD analysis	BLM must take a hard look at impacts to resources other than climate from development of the proposed leases. The RFD analysis supplied is not sufficient.	3.2.1 RFD	BLM comprehensively analyzed the effects of leasing and future potential development of the nominated lease parcels in EA Sections 3.4 and 3.5 based on the analysis assumptions articulated in Section 3.2.1. The estimated number of wells and acres were used to estimate the amount and extent of potential surface disturbance and water use. Effects were estimated to the extent possible given the current level of knowledge of likely development. Site-specific analysis such as, well location, timing of construction, and full extent of development is impossible at this point in the leasing process.
O-11 O-12	SC-GHG	BLM fails to address social and economic costs resulting from lease development and what warrants incurring those costs in the EA. SC-GHG analysis is flawed because the BLM segmented the lease sales and did not analyze all federal oil and gas lease sales together.	3.5.2.2	The 2023 CEQ GHG Guidance directs agencies to: "Disclose and provide context for the GHG emissions and climate impacts associated with a proposed action and alternatives, including by, as relevant, monetizing climate damages using estimates of the SC-GHG, placing emissions in the context of relevant climate action goals and commitments, and providing common equivalents, as described below in Section IV(B)." The BLM has exercised its discretion by not conducting a full cost-benefit analysis as part of this EA. The BLM applies the best available estimates of the SC-GHG which are those provided by the IWG and are based on discount rates of 2.5, 3, and 5%. The BLM also refers readers to the IWG Technical Support Document which includes a thorough discussion of discount rates, including the idea of considering discount rates below 2.5%. The BLM will continue to apply the most current IWG estimates, including consideration of lower discount rates if and when these are provided by the IWG.

Letter number	Resource/Topic	Summarized Comment*	Addressed in the EA, Section:	Comment Response
O-11	SC-GHG	BLM has not properly analyzed greenhouse gas emissions.	3.4.2	The evaluation of significance is reserved for the FONSI and not in the EA. Currently there are no thresholds for GHG emissions, SC-GHG's, or any other metric that represents a redline for when emissions become significant. When considering the significance of GHG emissions and climate change it is important to consider the weight of evidence and not focus on any single metric. To help evaluate GHG emissions, CEQ GHG guidance recommends agencies consider the quantified emissions and the context of those emissions in relation to social costs, emission reductions goals, and laws and regulations. This includes laws such as the MLA.
O-11	SC-GHG	BLM should include its social cost of carbon calculations to demonstrate that it is using the most up-to-date information	3.4.2.2.	The BLM applies the SC-GHG estimates provided by the IWG as directed in Executive Order 13990, see section 3.4.2.2.
O-11	SC-GHG	Climate impacts should be considered significant after additional analysis and comparison to BLM's past NEPA documents	3.4.2.2	The evaluation of significance is reserved for the FONSI and not in the EA. The BLM's analysis of SC-GHG is consistent with Executive Order 13990 and CEQ guidance on GHG emissions.
O-11	SC-GHG	Draft EA has inconsistencies in the social cost of carbon section to be addressed	3.4.2.2	. These inconsistencies have been fixed in the EA. The social cost calculations cover a 40-year period, same for emissions. This includes the 30-year life of a well, and the estimated 10 years it takes to develop all the wells.

Letter number	Resource/Topic	Summarized Comment*	Addressed in the EA, Section:	Comment Response
O-11	Socioeconomic	BLM fails to address relative costs and benefits of leasing in regard to social and environmental harms in the EA. Leases could impose billions of dollars in social and environmental harm.	AIB-20	The commentor does not provide evidence to support the assertion of "billions" of dollars in social and environmental costs. Furthermore, the commentor cites case law implying that BLM has quantified (in this EA) the benefits of leasing without addressing the costs. In fact, BLM has not quantified benefits or costs due to the speculative nature of such quantification at the leasing stage, see section AIB-20
O-07	ESA	BLM did not analyze southwestern willow-flycatcher impacts. Commenter contends that BLM habitat maps are inaccurate and provides their own.	AIB-1, AIB-2	The USFS Nominated parcels intersect the southwestern willow flycatcher range maps currently published in IPaC (Information for Planning and Consultation). However, these maps are recognized by most authorities to be grossly inaccurate. Studies, including USGS genetic studies (Paxton, Sogge, Theimer, Girard, & Keim, 2007) show that this taxon does not use this area. USFWS is actively redrawing the range maps. The draft maps have the closest potential habitat as Hartnett Draw, approximately 12 miles to the east of the nominated parcels. The USFWS agrees with the BLM's determination of affected species and parcels.
O-12	Wildlife	BLM failed to properly analyze effects to Big Game wildlife species and their habitat.	AIB-8	The possible development footprint is not known until the APD phase. During the Leasing phase, habitat types, stipulations, and notices are identified. In depth analysis needs to occur prior to any development to determine loss and changes in habitat. Please also see comment to letter O-11 for Mule Deer.

Letter number	Resource/Topic	Summarized Comment*	Addressed in the EA, Section:	Comment Response
O-07	Wildlife	Lease stipulations do not adequately protect ESA-listed and BLM sensitive wildlife species and do not release the BLM from the burden of analysis.	2.2, 3.4, AIB-1, AIB-2, AIB-8	As discussed in Section 3.4, AIB-1 and AIB-2, all lease parcels were analyzed for potential occurrence of federally listed and BLM sensitive species, including the presence of suitable habitat within or in close proximity to the proposed parcels (See Tables 6 through 14 in Section 3.4). Based on this analysis, parcel specific lease stipulations and lease notices are applied (See and discussed for each species in Section 3.4, AIB-1 and AIB-2) in addition to HQ-TES-1, which applies to all parcels regardless of potential occurrence or habitat presence. As discussed in AIB-8 and Section 2.2, lease stipulations and notices as well as standard terms and conditions described in the lease form adequately protect federally listed and BLM sensitive species at the time of APD issuance.

* Comments are copied directly as submitted or are paraphrased and/or combined due to their length or identified with other commentors. Summaries are intended to capture the nature of the comments submitted. The summaries do not include all comments received.

APPENDIX E. LEASING PREFERENCE RATING FOR NOMINATED LEASE PARCELS

Background

The following states are permanently enjoined from stopping or pausing any quarterly lease sales s: 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 review as directed by Section 208 in the Executive Order 14008: Tackling The Climate Crisis at Home and Abroad, Department of Interior's [Report on the Federal Oil and Gas Leasing Program](#), and HQ IM-2023-007, *Evaluating Competitive Oil and Gas Lease Sale Parcels for Future Lease Sales*.

In accordance with HQ IM-2023-007, the BLM has evaluated the nominated lease parcels against five criteria to determine each parcel's leasing preference and concluded that all nominated parcels are rated as low preference based on one or more criteria. If a parcel receives a low preference value for any single criterion, it will receive an overall low preference value regardless of the other criteria. The IM 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, or reduced, such that any reasonably foreseeable impacts can be effectively addressed.

On January 9, 2023, the Deputy State Director, in their delegated authority, determined to move all 18 nominated lease parcels forward from the 30-day scoping period for continued analysis in the EA and toward the NCLS, furthering the intent of Section 50265 of the Inflation Reduction Act of 2022, which states that the BLM may not issue a right-of-way for wind or solar energy development on federal land unless it has: (1) held an onshore oil and gas lease sale during the past 120 days; and (2) offered for lease a "sum total" of either 2,000,000 acres or 50% of the acreage for which EOIs have been submitted for lease sales during the previous 1-year period.

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 35. Criteria for leasing related to IM-2023-007 for BLM 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 ¹²	Cultural Resources	Recreation ¹³ (Other Resources)	Development Potential ¹⁴	High	Low
UT-2023-09-1283	Low	Low	High	High	Low		X
UT-2023-09-7363	Low	Low	High	High	Low		X
UT-2023-09-7361	Low	Low	High	High	Low		X
UT-2023-09-7362	Low	Low	High	High	Low		X
UT-2023-09-7367	Low	Low	High	High	Low		X
UT-2023-09-1314	Low	Low	High	High	Low		X
UT-2023-09-7379	Low	Low	High	High	Low		X
UT-2023-09-7373	Low	Low	High	High	Low		X
UT-2023-09-1301	Low	Low	High	High	Low		X
UT-2023-09-7383	Low	Low	High	High	Low		X
UT-2023-09-1308	Low	Low	High	High	Low		X
UT-2023-09-1325	Low	Low	High	High	Low		X
UT-2023-09-1311	Low	Low	High	High	Low		X

¹² 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.

¹³ 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.

¹⁴ Low Determinations were made any of the parcel(s) falls within are Low or Very Low potential for development based on the BLM and USFS' Reasonably Foreseeable Development (RFD) scenario. 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	
UT-2023-09-1334	Low	Low	High	High	Low		X
UT-2021-03-0708	Low	Low	High	Low	Low		X
UT-2021-03-0711	Low	Low	High	Low	Low		X
UT-2021-03-0709	Low	Low	High	Low	Low		X
UT-2021-03-0713	Low	Low	High	Low	Low		X

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

INTRODUCTION

The phases of oil and gas development include construction, drilling operations, completion operations, hydraulic fracturing, and production. During the construction activity phase, the area is cleared of vegetation and the pad is constructed. 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. Well completion follows well drilling. Well completion includes setting the casing to depth, cementing the casing,¹⁵ and perforating the casing in target zones. If a well is going to be drilled directionally,¹⁶ horizontally,¹⁷ or vertically¹⁸ 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. The production phase begins when the well starts producing. The well abandonment and reclamation phases occur 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.

Construction Activities

First, new construction areas need to be cleared of all vegetation. 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.

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, 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

¹⁵ According to BLM regulations from 43 CFR 3160: Onshore Order No. 2, 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.

¹⁶ 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).

¹⁷ 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).

¹⁸ 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).

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.

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 35 includes some of the common wastes (hazardous and nonhazardous) that are produced during construction.

Drilling 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 ¹⁹system 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.

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 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 is a formation stimulation practice used to create additional permeability in a producing formation, thus allowing oil and/or gas to flow more readily toward and into the wellbore.

¹⁹ 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).

Hydraulic fracturing can be used to overcome natural barriers, such as naturally low permeability or reduced permeability resulting from near wellbore damage to the flow of fluids (gas or water) to the wellbore (Groundwater Protection Council 2017). The process has been a method for additional oil and gas recovery since the 1900s; however, with the advancement of technology, in both hydraulic fracturing and horizontal drilling, it is more commonly used than previous hydraulic fracturing and horizontal drilling technologies.

Hydraulic fracturing uses high pressure pumps to pump fracturing fluid into a formation at a calculated, predetermined rate and pressure to generate fractures or cracks in the target formation. For shale developments (within Mancos shale geologic formations, for example), fracture fluids are primarily water-based fluids mixed with additives that help the water to carry “proppants” into the fractures. Proppants, which may be made up of sand, walnut hulls, or other small particles, are needed to “prop” open the fractures once the pumping of fluids has stopped. Once the fracture has initiated, additional fluids are pumped into the wellbore to continue the development of the fracture and to carry the proppant deeper into the formation. The additional fluids are needed to maintain the downhole pressure necessary to accommodate the increasing length of opened fracture in the formation.

Hydraulic fracturing increases the flow rate and volume of reservoir fluids that move from the producing formation into the wellbore. The fracturing fluid is typically more than 99% water and sand, with small amounts of readily available chemical additives used to control the chemical and mechanical properties of the water and sand mixture. Because the fluid is composed mostly of water, large volumes of water are usually needed to perform hydraulic fracturing. However, in some cases, water is recycled or produced water is used.

The predominant fluids currently being used for fracture treatments in the shale gas plays are water-based fracturing fluids mixed with friction-reducing additives, also known as slick water (Groundwater Protection Council 2017). The number of chemical additives used in a typical fracture treatment varies depending on the conditions of the specific well that is to be fractured. A typical fracture treatment uses very low concentrations of between three and 12 additive chemicals, depending on the characteristics of the water and the shale formation being fractured. Each component serves a specific, engineered purpose, from limiting the growth of bacteria to preventing corrosion of the well casing. The makeup of fracturing fluid varies from one geologic basin or formation to another. Because the makeup of each fracturing fluid varies to meet the specific needs of each area, there is no one-size-fits-all formula for the volumes for each additive. In classifying fracture fluids and their additives, it is important to realize that service companies that provide these additives have developed a number of compounds with similar functional properties to be used for the same purpose in different well environments. The difference between additive formulations may be as small as a change in concentration of a specific compound (Groundwater Protection Council 2017).

Before operators or service companies perform a hydraulic fracturing treatment, a series of tests are performed. These tests are designed to ensure that the well, including casing and cement, well equipment, and fracturing equipment are in proper working order and would safely withstand the application of the fracture treatment pressures and pump flow rates.

Hydraulic fracturing of horizontal shale gas wells is commonly performed in stages. Lateral lengths in horizontal wells for development may range from 1,000 feet to more than 5,000 feet. Depending on the lengths of the laterals, treatment of wells may be performed by isolating smaller portions of the lateral. The fracturing of each portion of the lateral wellbore is called a stage. Stages are fractured sequentially beginning with the section at the farthest end of the wellbore, moving up hole as each stage of the treatment is completed until the entire lateral well has been stimulated. During drilling, the BLM is on location during the casing and cementing of the surface casing, which is often the string of casing that

protects groundwater, along with other critical casing and cementing intervals. Before hydraulic fracturing takes place, all surface casing and some deeper, intermediate zones are required to be cemented from the bottom of the cased hole to the surface. The cemented well is pressure tested to ensure there are no leaks and in some cases a cement bond log is run to ensure the cement has bonded to the casing and the formation. If the fracturing of the well is considered to be a “non-routine” fracturing job for the area, the BLM would always be on-site during those operations as well as when abnormal conditions develop during the drilling or completion of a well.

Some soils and geologic formations contain low levels of radioactive material. This naturally occurring radioactive material (NORM) emits low levels of radiation, to which everyone is exposed on a daily basis. When NORM is associated with oil and natural gas production, it begins as small amounts of uranium and thorium within the rock. These elements, along with some of their decay elements, notably Radium-226 and Radium-228, can be brought to the surface in drill cuttings and produced water. Radon-222, a gaseous decay element of radium, can come to the surface along with the shale gas. When NORM is brought to the surface, it remains in the rock pieces of the drill cuttings, remains in solution with produced water, or, under certain conditions, precipitates out in scales or sludges. The radiation is weak and cannot penetrate dense materials such as the steel used in pipes and tanks. The EPA has found that 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 declines over the years, operators perform workover operations, which involve cleaning, repairing, and maintaining the well for the purposes of increasing or restoring production.

Abandonment and Reclamation

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

Table 36. Common Wastes Produced during Oil and Gas Development

Phase	Waste	
Construction, Well Drilling and Completion (including hydraulic fracturing)	Domestic wastes (i.e., 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	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	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)	
Abandonment / Reclamation	Construction materials	
	Decommissioned equipment	
	Contaminated soil (potential)	
	Equipment or wastes that could contain hazardous and nonhazardous materials	

REFERENCES CITED IN APPENDIX F

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