



March 2026

Ely District 2026 First Quarter Competitive Oil and Gas Lease Sale

Environmental Assessment

DOI-BLM-NV-L060-2025-0016-EA



I have considered the factors mandated by the National Environmental Policy Act (NEPA). This environmental assessment represents the Bureau of Land Management's (BLM's) good-faith effort to fulfill NEPA's requirements by prioritizing documentation of the most important relevant considerations within the statutorily mandated page limits and timeline. This prioritization reflects the BLM's expert judgment; and any considerations addressed briefly or left unaddressed are, in the BLM's judgment, comparatively non-substantive and would not meaningfully inform the BLM's consideration of environmental effects and the decision to be made. The EA is substantially complete, considers the factors mandated by NEPA, and, in my judgment, contains analysis adequate to inform the BLM's decision regarding the proposed action.

Responsible Official: _____

Date: _____

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CHAPTER 1. INTRODUCTION

1.1. Background

It is the policy of the Bureau of Land Management (BLM), as mandated by various laws including the Mineral Leasing Act (MLA) of 1920 and the Federal Land Policy and Management Act (FLPMA) of 1976 (FLPMA), to make mineral resources available and to support their development to meet national, regional, and local needs. 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 and other applicable laws, regulations, and policies. Additionally, the Federal Onshore Oil and Gas Leasing Reform Act (FOOGLRA) of 1987.

(FOOGLRA) states that lease sales shall be held for each State where eligible lands are available at least quarterly and more frequently if the Secretary of the Interior determines such sales are necessary. Eligible lands are those that are open for leasing, and which the BLM has received Expressions of Interest (EOIs) nominating lands to be offered for lease.

During the land use planning process required by the FLPMA¹, the BLM analyzes several alternatives before deciding which public lands and minerals are open for leasing and under what terms and conditions. In accordance with the Land Use Plan (LUP), lands can be deemed open to leasing under standard terms and conditions, closed to leasing, or open under special operating constraints—including No Surface Occupancy (NSO)—identified as lease stipulations at the lease stage. Lease stipulations (43 Code of Federal Regulations [CFR] 3101.1-2) are used to mitigate potential impacts to resources. Any surface management of non-BLM administered land overlaying federal minerals is determined by the BLM in consultation with the appropriate surface management agency or the private surface owner.

The BLM implements the LUP by processing public EOIs on a quarterly basis. The Nevada State Office (NSO) reviews the EOIs and determines whether or not the existing NEPA analyses prepared for the LUPs provide basis for leasing oil and gas resources within these parcels, or if additional analysis is needed before making a leasing decision. Once the NSO reviews the nominations, removes lands not legally available for leasing, and compiles the remaining lands, NSO sends a preliminary parcel list to the appropriate District Office where the parcels are located. Whereas the decision to open lands to leasing was not an ir retrievable commitment of resources, implementing the decision by offering parcels may be. As such, when the BLM incrementally implements the RMP decision by proposing to lease specific parcels, its resource specialists review the area potentially affected to determine if there is new information or circumstances, and if there is, if it would substantially change the analysis in the planning documents (keeping in consideration the lease stipulations), and effects are similar both quantitatively and qualitatively to those identified in the programmatic documents, again, keeping in consideration the lease stipulations.

¹ The land use planning process can result in several types of Land Use Plans (LUPs) or the amendment of existing LUPs. The most common LUP is a Resource Management Plan (RMP), which guides the management of all resources within the boundaries of a BLM Field Office. Older LUPs may be limited to managing part of a Field Office, or multiple Field Offices.

District and field office staff review the legal descriptions of the parcels to confirm they are in areas open to leasing under the relevant LUPs, ensures appropriate stipulations have been applied and identify any special resource conditions of which potential bidders should be made aware, resulting in the attachment of lease notices (LN) (43 CFR 3101.1-3).

Once the Field Office completes the interdisciplinary parcel review (ID Team) the BLM determines if preparation of an EA is necessary for considering the public nominated parcels for the lease sale. If so, this EA and an unsigned FONSI are made available to the public, along with the list of available parcels and stipulations and notices, for a 30-day public comment period on the BLM's NEPA Register (also known as ePlanning)². Additional information regarding the BLM's leasing process is also made available for public review and reference. When the public comment period ends, the BLM analyzes and incorporates the substantive comments, where appropriate, into the EA. The final parcel list with stipulations and notices is made available to the public through a Notice of Competitive Lease Sale (NCLS), which starts a 30-day protest period, and includes the revised EA and unsigned FONSI. If any changes to the parcels, lease notices, or stipulations result from the protests, an erratum to the NCLS would be posted to the BLM website and on NEPA Register to notify the public of the change, prior to the lease sale. The parcels would be available for sale at an online auction held by the BLM, tentatively scheduled for March 11, 2026.

Once the lease has been issued, the lessee has the right to use as much of the leased land as necessary to explore for, drill for, extract, remove, and dispose of oil and gas deposits located under the leased lands, subject to non-discretionary statutes, the standard lease terms and stipulations. Even if no restrictions are attached to the lease, the operations must be conducted in a manner that avoids unnecessary or undue degradation of the environment and minimizes adverse effects on the land, air, water, cultural, biological, and visual elements of the environment, as well as other land uses or users. 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)³. A producing lease can be held indefinitely by economic production.

This Environmental Assessment (EA) documents the Bureau of Land Management's (BLM) review of the anticipated environmental impacts of leasing 11 oil and gas lease parcels totaling 19,957.15 acres (Table 1-1). Parcel descriptions are available in Appendix A. The lease parcels are located in Nye County on public lands managed by BLM's Ely District Office (District) which were nominated for auction in the BLM Nevada First Quarter 2026 Competitive Oil and Gas Lease Sale (Lease Sale). Maps of the nominated lease parcels are in Appendix B.

² The NEPA Register is a BLM environmental information internet site and can be accessed online at: <https://eplanning.blm.gov/eplanning-ui/home>.

³ Unless the lease is within an Operating Unit and the Unit is held by production of wells on other leases within the Unit.

Table 1-1. Acreage per parcel as offered for Lease Sale.

Parcel	Total Acres
NV-2026-03-2242	1919.24
NV-2026-03-2269	1480.89
NV-2026-03-2271	1903.08
NV-2026-03-2263	2522.64
NV-2026-03-2259	1920.00
NV-2026-03-2254	1810.74
NV-2026-03-2249	1810.54
NV-2026-03-2251	1920.00
NV-2026-03-2243	1680.56
NV-2026-03-2237	1760.00
NV-2026-03-2240	1120.00

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. Eligible lands are those that are open for leasing, and which the BLM has received Expressions of Interest nominating lands to be offered for lease. The need for the action is established by the BLM’s responsibility under the Mineral Leasing Act of 1920 (MLA), as amended and the Federal Onshore Oil & Gas Leasing Reform Act of 1987 (FOOGLRA), to make mineral resources, such as oil and gas, available for development and as part of the BLM’s multiple-use and sustained-yield mandate under the Federal Land Policy and Management Act of 1976 (FLPMA) as amended.

1.3. Decision to be Made

The BLM Authorized Officer (AO) will decide whether to offer for lease any or all of the nominated lease parcels with or without constraints, in the form of lease stipulations and lease notices, as provided for in the approved land use plan. If the decision is to offer federal minerals for lease, and to subsequently issue a lease if a successful bid is received, standard terms and conditions under Section 6 of the BLM Lease Form (Form 3100-11, Offer to Lease and Lease for Oil and Gas), herein referred to as “standard terms and conditions,” would apply, as well as any necessary additional terms and conditions. The AO has the authority to defer parcels based on the analysis of potential effects presented in this EA. The Decision Record will identify whether the BLM decided to offer for lease any of the nominated lease parcels and the rationale for the decision. Here and throughout this EA the term “parcels” refers to “parcels or parts of parcels,” as stipulations are applied to the smallest appropriate part of a parcel, down to 40-acre quarter-quarter section or lot, or smaller if specified in the applicable RMP.

1.4. Relationship to Statutes and Regulations

The Proposed Action and alternatives are in conformance with the NEPA of 1969 (P.L. 91-190 as amended; 42 U.S.C. §4321 et seq.); the MLA of 1920 as amended and supplemented (30 U.S.C. 181 et seq.); the FOOGLRA of 1987, with regulatory authority under 43 CFR Part 3100, Onshore Oil and Gas Operations (43 CFR Part 3160); 43 CFR 3170; and Title V of the FLPMA of 1976, Rights-of-Way (ROW), with regulatory authority under 43 CFR Part 2800, ROW.

Purchasers of oil and gas lease parcels are required to comply with all applicable federal, state, and local laws and regulations, including obtaining all necessary permits prior to any lease development activities. A listing of relevant statutes, regulations, and policies is provided in **Error! Reference source not found..**

Table 1-2. Relationship between the Proposed Action and the relevant statute, regulation, or policy.

RELEVANT STATUTE, REGULATION, OR POLICY	RELATIONSHIP TO THE PROPOSED ACTION
Executive Order 14154 (Jan. 20, 2025)/Secretary's Order 3418 (Feb. 3, 2025)	EO 14154 and the subsequent SO 3418, are intended "...to encourage energy exploration and production on Federal lands and waters, including on the Outer Continental Shelf, in order to meet the needs of our citizens and solidify the United States as a global energy leader long into the future;". The BLM considered these EO's in relationship to the Proposed Action for the encouragement of energy exploration and production on federal lands.
Endangered Species Act of 1973, as amended (ESA)	The ESA Section 7, requires federal agencies to "ensure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of critical habitat of such species." The BLM considered the effects of the Proposed Action on listed species and their habitats and is subject to consultation under this law as appropriate.
Federal Land Policy and Management Act of 1976, as amended (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. The BLM considered protection of various resource values, their natural condition, and human use in the Proposed Action. BLM considered the present and future needs of the American people, balanced and diverse resource uses, long-term needs of future generations, and coordinated management without permanent impairment of the productivity of the land and quality of the environment in the Proposed Action.
Federal Onshore Oil and Gas Leasing Reform Act of 1987, as amended (FOOGLRA)	The FOOGLRA states that lease sales shall be held for each state where eligible lands are available at least quarterly and more frequently if the Secretary of the Interior determines such sales are necessary. BLM has eligible lands for lease sales in the EYDO and has held, and will continue to hold, lease sales as appropriate (when parcels have been nominated). The effects of the Proposed Action were considered in context with the FOOGLRA.

RELEVANT STATUTE, REGULATION, OR POLICY	RELATIONSHIP TO THE PROPOSED ACTION
Mineral Leasing Act of 1920, as amended (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. The BLM considered the MLA in relationship with the effects of the Proposed Action for disposal of oil and gas on federal lands within the District.
National Historic Preservation Act of 1966, amended (NHPA)	Leasing is considered an undertaking pursuant to 54 U.S.C. Section 300101 et seq., commonly known as the NHPA, as amended, and 54 U.S.C. Section 306108, commonly known as Section 106 of the NHPA (Section 106). Section 106 requires all federal agencies to take into account the effects on historic properties from a federal undertaking. As a part of Section 106, federal agencies consult with the State Historic Preservation Office (SHPO) on all undertakings authorized, funded, or carried out by the agency. Agencies may follow a phased approach to Section 106 compliance. At the leasing level, BLM conducts an existing records review and consultation with SHPO, Native American Tribes, consulting parties, and public-driven identification of historic properties. Class III cultural resource surveys are an important part of identification at the lease-development level. The BLM considered the effects of the Lease Sale in relationship with the Proposed Action to historic properties and will consult with the Nevada State Historic Preservation Office as site specific NEPA at the APD and production levels, occurs.
Clean Air Act of 1963, as amended (CAA)	The CAA [42 U.S.C. § 1857 et seq.], as amended and recodified [42 U.S.C. § 7401 et seq.] is the primary Federal legislation and provides the framework for protecting and enhancing the quality of the Nation’s air resources to promote the public health and welfare and the productive capacity of its population (Section 101(b)(1) of the Act). The CAA’s General Conformity Rule mandates that Federal agencies evaluate reasonably foreseeable emissions that result from its actions in a nonattainment area to determine if they conform with the applicable regulatory agency implementation plans (40 CFR § 93.153). The rule considers air pollution emissions associated with Federal actions, and that “no department, agency or instrumentality of the Federal Government shall engage in, support in any way or provide financial assistance for, license or permit, or approve any activity which does not conform to an applicable implementation plan (40 CFR § 93.150).” General conformity refers to the process of evaluating plans, programs, and projects to determine and demonstrate they meet the requirements of the CAA and do not prevent achievement of state or federal air quality standards.

RELEVANT STATUTE, REGULATION, OR POLICY	RELATIONSHIP TO THE PROPOSED ACTION
Clean Water Act of 1972, as amended (CWA)	The CWA (33 U.S.C. § 1251 et seq.) establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters. The basis of the CWA was enacted in 1948 and was called the Federal Water Pollution Control Act, but the Act was significantly reorganized and expanded in 1972. The “Clean Water Act” became the Act’s common name with amendments in 1972 along with amendments in 1977. Considerations of the most recent definition of “Waters of the United States” along with interpretations, policy, and guidance as provided by the EPA and other jurisdictional federal agencies are followed as applicable. The BLM considered the CWA requirements in relationship with the effects of the Proposed Action at the Lease Sale level. Further consideration will occur with site specific NEPA when a parcel requests exploration or development.
43 CFR Part 3100 and 43 CFR Subpart 3120	The regulations at 43 CFR Part 3100 govern onshore oil and gas leasing, development, and production of federal minerals. The regulations at 43 CFR Subpart 3120 govern competitive oil and gas lease sales. The BLM considered the effects of the Proposed Action and regulations that govern onshore oil and gas leasing; development and production of federal minerals; and holding competitive oil and gas lease sales.
IM 2025-028 Oil and Gas Leasing – Land Use Planning and Lease Parcel Reviews	This Instruction Memorandum (IM) set the BLM’s policy for onshore oil and gas lease sales to ensure they are held in accordance with the Mineral Lease Act and other applicable laws. This policy addresses land use planning, lease parcel review, lease sales, and lease issuance. The BLM considered the effects of the Proposed Action and the guidance set forth in this IM to abide by the Mineral Leasing Act and other applicable laws.

1.5. Conformance with the Land Use Plan

Under FLPMA, the BLM must manage for multiple uses of public lands in a combination that will best meet the present and future needs of the public and the public lands various resources based on an approved land use plan or resource management plan (RMP).

The Proposed Action is in conformance with the 2008 Ely District Record of Decision and Approved Resource Management Plan (RMP), as amended (BLM 2008, 2015), and the 2015 Nevada and Northeastern California Greater Sage-Grouse Approved Resource Management Plan Amendment, as amended.

The nominated lease parcels are in areas that are open to leasing under the Ely RMP (decision MIN-6 and MIN-10). The 2008 Ely District RMP Appendix A.3 provides surface stipulations applicable to all surface-disturbing activities. Stipulations attached to the nominated lease parcels are identified and summarized in **Error! Reference source not found..**

2015 Nevada and Northeastern California Greater Approved Resource Management Plan Amendment (ARMPA), as amended (BLM, 2015, 2022, and 2025). The proposed parcels include some areas mapped as General Habitat Management Area (GHMA), or Other Habitat Management Area (OHMA).

GRSG Plan Amendment Section 2.2, Management Decisions (MD) for Mineral Resources (MR), Unleased Fluid Minerals include the following applicable MD:

- MD MR 1: Review Objective SSS 4 and apply MDs SSS 1 through SSS 4 when reviewing and analyzing projects and activities proposed in GRSG habitat. [These would be applied at the time of additional project-specific analysis.]
- MD MR 5: In GHMAs, manage oil and gas and geothermal fluid minerals with moderate constraints, timing limitations, and controlled surface use stipulations.
- MD SSS 20: Once a hard trigger has been reached, all responses in Table J-1 and Table J-2 in Appendix J will be implemented. This includes where soft triggers have been reached for both population and habitat.

GRSG Plan Amendment Appendix G, Fluid Mineral Stipulations, Waivers, Modifications, and Exceptions specifies the stipulations to apply to each habitat type. The stipulations have been applied to each part of a parcel with GRSG habitat, down to the 40-acre quarter-quarter of a section, using the highest applicable level of protection (e.g. if a quarter-quarter section includes PHMA and GHMA, stipulations for PHMA are applied), See Appendix C: Lease Notices and Stipulations).

2022 Plan Maintenance to the 2015 Nevada and Northeastern California Greater Sage-Grouse Approved Resource Management Plan Amendment (ARMPA)

On May 12, 2022, a Plan Maintenance Action to the Nevada and Northeastern California Sub-Region Greater Sage-Grouse Record of Decision and Approved Resource Management Plan Amendment (September 15, 2015) was signed. This Maintenance Action consisted of two parts, updating the Greater Sage-Grouse Habitat Management Area (HMA) Map with the latest data from USGS and the State of Nevada, and updating the Habitat Objectives for GRSG in line with the latest science.

The overall goal of the 2015 ARMPA is to conserve, enhance, and restore the sagebrush ecosystem upon which Greater Sage-Grouse populations depend, in an effort to maintain and/or increase their abundance and distribution in cooperation with other conservation partners. As the BLM implements the 2015 ARMPA, it sometimes becomes necessary to make minor changes, refinements, or clarifications of the plan. Potential minor changes, refinements, or clarifications in the plan may take the form of maintenance actions.

The updated 2021 HMA map that this Maintenance Action adopted includes additional areas in California that were not included in the 2016 map and removes some areas that no longer meet the definition of HMAs because they no longer support breeding GRSG, nor connect populations within HMAs. In addition, it adopts boundary modifications made by the State of Nevada to the 2016 map.

1.6. Scoping and Issues

1.6.1. Scoping

External scoping: In preparation for the lease sale, BLM released the current parcel list and map to the public for scoping comments from August 4 to September 3, 2025. Parcel scoping comments were received from four anonymous individuals, six named individuals, the Environmental Protection Agency (EPA), Friends of the Earth-US, [Nevada Wildlife Federation, National Wildlife Federation, and Trout Unlimited (the three parties commented in a single document)], Nevada Department of Wildlife (NDOW), Center for Biological Diversity, Friends of Nevada Wilderness, and Nevada Off-Road Association. The parcel scoping comments received included opposition to the lease sale; climate change concerns; general NEPA concerns; concerns about BLM management; the protection of the following resources: air, water, vegetation, wildlife, human health, cultural, visual, and recreation; sensitive species, NV regulatory statutes; environmental justice; and general wildlife concerns.

This Lease Sale EA will be made available for a public comment period from November 12 to December 12, 2025. All comments received will be reviewed and considered. Substantive comments will be responded to in an Appendix.

Internal scoping: In preparing the preliminary EA that would be released for public comment, the BFO ID Team conducted internal scoping on October 1, 2025, identified potential resource impacts, and proposed stipulations for each parcel.

Native American Coordination: The BFO initiated coordination regarding the proposed lease parcels with the following tribes via certified letters on October 3, 2025.

- Duckwater Shoshone Tribe
- Yomba Shoshone Tribe
- Ely Shoshone Tribe
- Confederated Tribes of the Goshute Reservation
- Moapa Band of Paiutes
- Paiute Indian Tribe of Utah
- Las Vegas Paiute Tribe

No comments were received from the above tribes following the public parcel scoping period; however, coordination with the Tribes is always ongoing. If any lease parcel is found to contain resources protected under the NHPA, American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, Executive Order 13007, or other statutes and executive orders, BLM will not approve ground-disturbing activities that may affect such resources until completing its tribal consultation obligations; and may require modification to exploration or development proposals or disapprove any activity that is likely to result in adverse effects that cannot be successfully avoided, minimized, or mitigated.

Public Comment Period: (Reserved)

1.6.2. Issues

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

- What quantities and types of air pollutants would be produced from potential development of the nominated lease parcels: How would air pollutant emissions affect air quality and air quality related values?
- How would potential development of the nominated lease parcels affect social and economic conditions?
- How would potential development of the nominated lease parcels affect potential and occupied habitat for BLM sensitive status species?
- How would potential development of the nominated lease parcels affect potential and occupied habitat for Threatened Endangered and Candidate species?
- How would potential development of the nominated lease parcels affect range improvements and livestock grazing?
- How would potential development of the nominated lease parcels affect historic, pre-historic, and cultural resources?
- How would potential development of the nominated lease parcels affect water resources?

1.7. Public Protest Period

In compliance with 43 CFR § 3120.42, the Notice of a Competitive Lease Sale (NCLS) will be made available for a 30-day protest period. If the BLM receives timely protests, it will resolve all protests prior to the sale related to those protests.

CHAPTER 2. ALTERNATIVES

Background

Oil and gas leases are issued for a 10-year period and continue for as long thereafter as oil or gas is produced in paying quantities. If a lessee fails to produce oil and gas, does not make annual rental payments, does not comply with the terms and conditions of the lease, or relinquishes the lease; ownership of the minerals revert to the federal government and the lease can be resold.

If leases are issued and lease operations are proposed in the future, BLM would conduct additional project specific NEPA analysis when an Application for Permit to Drill (APD) or other exploration, development, or production project application is submitted. In addition to the stipulations and notices attached to the parcel; requirements outlined in Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development (The Gold Book); and guidelines and Best Management Practices (US DOI and USDA, 2007) would be applied.

Stipulations and/or lease notices would be attached to each offered lease parcel. The stipulations for each alternative are shown under Appendix C, with the parcels to which each stipulation would apply.

2.1. Proposed Action

Under the Proposed Action, the BLM would offer for competitive leasing federal oil and gas resources associated with the 11 nominated lease parcels (Appendix A). Surface management, the legal land description of the nominated lease parcels (totaling 19,957.15 acres), lease stipulations and notices attached to the parcels are included in Appendix C. Best Management Practices for the District described in the RMP (BLM 2008) as amended are located in Appendix D.

Areas offered for oil and gas leasing would be subject to measures necessary to mitigate adverse impacts, according to the categories, terms, conditions, and stipulations identified in the land use plans, as amended. Under the Proposed Action, the BLM Authorized Officer also has the authority to selectively lease and subsequently issues leases, or to defer, in the light of the analysis of potential effects presented in this EA.

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 § 3107.23). The BLM has authority, according to the standard terms and conditions of the leases, to attach conditions of approval (COAs) to an APD that reduce or avoid impacts to BLM-managed public lands, resources, and/or resource values.

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

At the leasing stage it is uncertain whether development on all leased parcels will move forward; however, for the purposes of this analysis, and in order to disclose the effects, a Reasonably Foreseeable Development Scenario (RFDS) is assumed wherein all 11 nominated parcels will be developed.

2.2. No Action Alternative

In accordance with DOI NEPA guidelines in 516 DM 1 this EA evaluates a No Leasing Alternative which forms a baseline for assessing and comparing the potential impacts of the Proposed Action. Under this alternative, no parcels in the Ely District would be offered for lease in March 2026. Any new oil and gas development would take place on parcels that were leased in other lease sales. Surface management would remain the same and potential oil and gas development could occur on surrounding federal, private, and state leases.

2.3. Reasonably Foreseeable Future Development (RFDS) Scenario Summary

A Reasonably Foreseeable Future Development scenario (RFDS) for oil and gas is a long-term projection of oil and gas exploration, development, production, and reclamation activity. The RFDS covers oil and gas activity in a defined area for a specified period of time and provides the basis for the analysis of the environmental effects in Chapter 3 of this document. The RFDS scenario was developed based on past exploration activities and estimates of future exploration and development activity given the potential occurrence of resources (BLM 2007; page 4.18–3).

The RFDS projects a baseline scenario of activity assuming all potentially productive areas can be open under standard lease terms and conditions, except those areas designated as closed to leasing by law, regulation, or executive order. The RFDS provides the mechanism to analyze the effect that discretionary management decisions have on oil and gas activity. The RFDS also provides the basic information that is analyzed in the NEPA document. The RFDS discloses indirect future or potential impacts that could occur once the lands are leased. Prior to any future development, the BLM would require a site-specific NEPA analysis at the exploration and development stages.

Fluid mineral development potential in the analysis area is based on RFDS scenario for oil and gas developed in conformance with BLM Instruction Memorandum No. 2004–089 (BLM 2004)⁴ (BLM 2007). This analysis is based largely on the reasonably foreseeable development scenarios presented in detail in the fluid mineral report prepared for the RMP/FEIS (ENSR 2004)⁵, available at the Ely District Office. Various additional assumptions have been incorporated based on changes in the mineral markets in the recent past. It is impossible to predict with certainty how resource development would occur in the future. The interaction of prices, markets, technology, and environmental concerns all play a role.

The RFDS for the analysis area is based on the geology, oil and gas development history, oil and gas potential, BLM well data, and data from other EAs for oil and gas leases in eastern Nevada.

The RFDS scenario is made without respect to any existing or proposed leasing stipulations and conditions of approval in accordance with BLM guidance. The Proposed Action does not include any surface disturbance, such as exploration, development, production, or final reclamation of oil and gas resources. However, the authorization of oil and gas leasing does convey a right to subsequent exploration and production activities subject to stipulations, restrictions from non-discretionary statutes, Conditions of Approval (COAs), and other reasonable measures required to minimize adverse impacts (CFR 3101.1–2). Therefore, this EA would consider possible

⁴ Cited in the Ely District FEIS, 2007 (References Section).

⁵ Cited in the Ely District FEIS, 2007 (References Section).

impacts from potential indirect effects under the RFDS scenario. The following table summarizes the RFDS assumptions in comparison to this EA extrapolated from the RMP.

Table 2-1. Ely RMP Reasonably Foreseeable Development Scenarios (RFDS).

Facility Type	Number of Facilities	Short-term Disturbance (acres)	Long-term Disturbance (Acres)
Seismic Survey	30 miles/year	Less than 1,000	0
Exploration Well Disturbance	200 wells and 1,000 miles of road	5,600	590
Small Well Field Developments	40 wells	745	359
Abandoned Well pads (small field)	48 wells	178	0
Large well field Developments	100 wells	996	432
Abandoned well pads (large field)	60 wells	222	0
Refinery Facilities	1 refinery	65	20
Total		8,406	1401
Notes: Short-term applies to effects occurring in the immediate future and persisting for less than 10 years; long-term applies to effects occurring or lasting beyond 10 years (10-20 years). Summarized from table 4/18-2 in the Ely RMP/FEIS (2007, Page 4.18-5).			

2.3.1. General Assumptions for the RFDS Scenario

The following is a list of general assumptions upon which the reasonably foreseeable development scenarios is based (BLM 2007).

- The RFDS would occur over a span of 20 years.
- There would be no major regulatory changes in federal or state statutes, regulations, policy and guidance that govern the exploration and development of fluid minerals, including lease royalty provisions and lease rental fees.
- Oil prices would remain sufficiently high to stimulate continued exploration and drilling. Recent historic highs in the price of oil may stimulate exploration activity above levels of the recent past. It is possible that higher prices may persist for the next few years. The RFDS is a planning tool that was developed to accommodate the maximum development that could reasonably be expected to occur. However, actual activity levels, as with prices, cannot be predicted with certainty.
- It cannot be predicted at this time how much acreage eventually would be held by production, which is entirely dependent on the discovery of commercial oil and gas fields.
- New field discoveries would be similar in size and surface disturbance to the Trap Springs and Kate Springs oil fields within Railroad Valley.

- The RFDS scenario is made without respect to any existing or proposed leasing stipulations and conditions of approval in accordance with BLM guidance.
- Actual locations of potential exploration wells and field development are unknown. The impacts associated with these activities are likely to occur anywhere within the planning area that is of high, moderate, or even low potential for oil and gas resources.

2.3.2. Exploration Drilling and Production Assumption

Actual locations of potential exploration wells and field development are unknown. The impacts associated with these activities could occur anywhere within the leased parcels that are of high, moderate, or even low potential for oil and gas resources.

The RMP/FEIS assumes a total of 448 wells would be drilled, including small and large field developments and associated abandoned well pads, resulting in total short-term disturbance of approximately 8,400 acres and a long-term (greater than 10 years for producing wells) disturbance of approximately 1,400 acres. Short-term disturbance, as defined for the RFDS scenario, identifies potential dry wells to be plugged and abandoned that would be reclaimed immediately after drilling or construction, in accordance with COAs and BMPs. If 448 wells should occur over 20 years, then an average of 22 wells totaling 420 acres of short-term surface disturbance and 70 acres of long-term surface disturbance can be expected per year under the RFDS scenario. Therefore, it is expected that 352 wells should have been drilled since the RMP.

There have been 19 APDs approved by the Ely District over the past 10 years. Only 104 APDs have been approved in all of Nevada from 2012 to 2022. Most APDs in the Ely District propose a single well per pad. Additionally, not every APD approved is actually drilled; therefore, it would be highly speculative that the maximum number of wells in the RFDS scenario, 448 wells, would be drilled over the final four years of the RFDS scenario 20-year timeframe. This analysis will also include one exploration well moving into production. The subset of well numbers analyzed in this EA are only an estimate based on historical drilling, geologic data, resource expertise, and current development in the area.

Exploration Drilling

The RFDS scenario in the Ely District RMP/FEIS (2007) planned for 200 exploration wells over the life of the RMP that could result in 740 acres of short-term surface disturbance. This exploration well estimate does not include numbers for small and large field development or abandoned well pads. Under the RMP scenario, approximately 1,000 miles of new roads would be created to access the well pads. This would add another 4,800 acres of short-term surface disturbance (BLM 2007, Table 4.18–2). If this development and associated disturbance is expected over the course of 20 years, then average development and disturbance per year is expected to include 10 exploration wells and 50 miles of new roads resulting in 37 acres and 240 acres of short-term surface disturbance respectively. Typically, constructing the roads and pads, and drilling the well should take less than six months to complete. If the well is a dry hole, then it is plugged immediately before the drill rig leaves the site. Reclamation of the pad and access road takes place once conditions permit, typically within six months of abandoning the well. If the well becomes a producer, then the access road would remain until the well is no longer producing. The pad would be reclaimed to a smaller size necessary to accommodate production operations.

2.3.3. Production

The average geographic area for a producing oil and gas field in the United States is about 640 acres. Field sizes tend to be smaller in Nevada. There would be 40-acre spacing for wells less than 5,000 feet in depth and 160-acre spacing for wells deeper than 5,000 feet. Most wells drilled in Nevada are deeper than 5,000 feet, so well spacing would probably be 160 acres.

The RFDS scenario in the RMP/FEIS planned for six new production well fields within the Ely District; four small fields and two large fields. The four small well fields would be comprised of 88 wells, 40 being producing wells and the other 48 being plugged and abandoned. The two large well fields would be comprised of 160 wells, 100 being producing wells and the other 60 being plugged and abandoned. This RFDS also included a total of 56 miles of new access and service roads, and eight miles of new pipelines for the small well fields. The two large well fields would include an overall total of 55 miles of new access and service roads, and 10 miles of new pipelines. A projection of adding a new refinery to the area was also included in this RFDS (BLM 2007, Table 4.18–2). Well fields can take a number of years to develop and occupy various acreages. Therefore, it cannot be broken down into an average number of well field development per year. Furthermore, the Ely District only has one well field (located in Railroad Valley with only two producing wells). It is possible however, that some of the individual parcels nominated, individually or as adjacent leases, could support well field development.

2.3.4. Well Stimulation

Well stimulation may be used to enhance oil recovery of developed wells. Several methods of well stimulation could be used to increase the yield of a well. Hydraulic fracturing is the process of applying high pressure fluids to a subsurface formation via a wellbore, to the extent that the pressure induces fractures in the rock. These fractures allow the oil and gas to migrate, or flow, into the well. Without the fracturing of the formation, the oil and gas contained in the rock would be too tightly trapped to flow into the well. Development of hydraulic fracturing methods and the drilling technology in which it is applied (in particular, long wells drilled horizontally within zones of interest) have enabled production of oil and gas from tight formations formerly not economically feasible.

In order to mitigate potential environmental impacts from hydraulic fracturing methods, the following list of mitigation measures would be required. Additional NEPA review(s) would be conducted when an APD is submitted to determine the site-specific issues, the need for additional BMPs and COAs, and if hydraulic fracturing can be conducted without causing undue and unnecessary degradation per 43 CFR 3100.

Wells are cased multiple times and sealed with cement between the wellbore and the formation. Well integrity is tested throughout the process.

Drilling and hydraulic fracturing fluids would either be contained in a pit-less system (above ground tanks) or a lined pit. Cuttings could be contained in roll-off boxes for hauling to disposal or surface casing interval cuttings could be spread over the site during reclamation.

Hydraulic fracturing fluids may be returned to the surface as “flowback” or produced water when the well is tested or produced. All recovered fluids are generally handled by one of four methods:

(1) underground injection; (2) captured in steel tanks and disposed of in an approved disposal facility; (3) treatment and reuse; or (4) surface disposal pits.

A detailed discussion of hydraulic fracturing is found in Appendix G.

CHAPTER 3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL IMPACTS

3.1. Introduction

This chapter contains the effects analysis related to the issues (Section 1.6.2). Section 3.2 describes the analysis assumptions for the potential development of the nominated lease parcels. Section 3.3 presents the relevant past, present, and reasonably foreseeable actions. Section 3.4 presents the issues that are analyzed in detail. Appendix E presents the issues that are not analyzed in detail.

Lease stipulations and notices are referred to throughout the analysis in Section 3.5 in terms of their protective influence on resources that may be impacted by potential development of the nominated lease parcels. Lease stipulations “are conditions of lease issuance which provide protection for other resources values or land uses by establishing authority for substantial delay or site changes or the denial of operations within the terms of the lease contract” (BLM, 1990). Lease stipulations are enforceable terms of the lease contract and supersede any inconsistent provisions of the standard lease form. Lease notices (also referred to as Information Notices in BLM Handbook H-1624) provide “notice of existing requirements and may be attached to a lease by the AO at the time of lease issuance to convey certain operational, procedural, or administrative requirements relative to lease management within the terms and conditions of the standard lease form” (BLM, 1990). Lease notices may not serve as the basis for denial of lease operations. However, they offer resource protections because they result in information gathering and the identification of resource values and land uses that the BLM, based on its authority under section 6 of the lease form, can require protection for within the constraints enumerated in the lease form (e.g., terms and conditions that would be attached at the APD stage) (Section 2.1 discusses of the standard terms and conditions).

3.2. Analysis Assumptions

While issuance of a lease would not directly authorize any oil and gas exploration, development, or production, future oil and gas development and production is a reasonable outcome of a granted lease right. If a lease is sold, the lessee retains certain rights and is responsible for existing disturbance if present. Once a parcel is leased, the lessee has the right to explore for and develop oil and gas resources. There are currently no development proposals for the nominated lease parcels because they have not been leased; therefore, BLM does not have parcel specific information related to oil and gas development. 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. Potential development of the nominated lease parcels could include the following phases:

- Well Development [including exploration (e.g. wildcat wells)],
 - Vegetation and soil removal
 - Construction of Pads, roads, and pipelines
- Drilling,
 - Mud/cuttings
 - Well completion
 - Hydraulic Fracturing

- Production and Operation,
 - Production
 - Sale of Product
 - Hauling of produced fluids such as oil or produced water
 - Inspections
 - compression to move gas through pipeline systems
 - Well monitoring for the life of the well
 - Workover operations, and
- Well Reclamation
 - Plugging and abandonment
 - Reclamation of the Pad, roads, pipelines.

Appendix F provides a more in-depth summary of the phases of oil and gas development.

3.3. Reasonably Foreseeable Future Actions (RFFA) Common to all Issues

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

The parcels are located within three Hydrologic Unit Code (HUC) 10 watersheds. HUC10s provide an effective means of defining reasonably foreseeable future actions areas because they encompass areas of similar environmental conditions (Table 3-1).

Table 3-1. List of Hydrologic Unit Code (HUC 10) watersheds located in the Proposed Action area.

HUC10 Number	Watershed Name	Acres	Parcels
1501001105	Dacey Reservoir	230,277	Approximately 997 acres of Parcel NV-2026-03-2240, 1,015 acres of NV-2026-03-2243, and 1,146 acres of NV-2026-03-2237
1501001106	Ninemile Canyon-White River	83,802	Approximately 134 acres of Parcel NV-2026-03-2240, 220 acres of NV-2026-03-2243, and 219 acres of NV-2026-03-2237
1501001108	Big Spring Wash – White River	249,480	NV-2026-03-2271, NV-2026-03-2263, NV-2026-03-2259, NV-2026-03-2254, NV-2026-03-2249, NV-2026-03-2251, NV-2026-03-2269, NV-2026-03-2242

The reasonably foreseeable influences on the landscape that have occurred, and are likely to continue in the vicinity of the nominated lease parcels are the following:

- Oil and gas permitting and development has taken place in the past within the nominated lease parcels and will continue to be explored for economic development of these resources. It is reasonable that new mineral material resources, including but not limited

to sand and gravel, could be developed further in this area if oil and gas development continues and requires mineral materials for construction of roads and pads. It is also possible for future mining claims to be staked in the area of interest and for subsequent applications, including notices and plans of operation, to be received and processed by BLM. These exploration and development activities can occur simultaneously with the oil and gas development within the leases and would be managed under provisions of the Multiple Mineral Development Act (30 U.S.C. § 521 et seq.) and under the standard lease terms (Sec. 6). Therefore, exploration and development of the potential oil and gas resources on the leased lands should not impede nor hamper exploration and development of other mineral resources, including locatable minerals associated with mining claims and mineral material resources, such as sand and gravel. If oil and gas resources are discovered in economic quantities and are further developed within the leases, it may result in additional disturbances to the land in the form of additional oil and gas development-related disturbances or in the form of the permitting of mineral material sites, subject to applicable law, regulations, and policy.

- Livestock grazing has been ongoing in the White River Valley since the late 1800's. Four grazing allotments with four current grazing authorizations overlap with the nominated lease parcels. Future livestock grazing would be expected to continue but it may be limited in these overlapping areas, if oil and gas development occurs.
- Lands actions such as but not limited to the following: land sales, rights-of-way leases and grants (including transmission projects, fiber communications, etc.), and Recreation & Public Purposes Act (R&PPAs), etc. would continue to exist, and/or be granted in the future.
- ESR treatments have occurred in the vicinity of the nominated parcels in 2006 and 2007. Parcel NV-2026-03-2243 and NV-2026-03-2237 overlap with the Gubler Fire. Leasing of the nominated parcels would not impact any current, nor any future ESR treatments.

3.4. Issues Analyzed in Detail

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

3.4.1. Issue 1: What quantities and types of air pollutants would be produced from potential development of the nominated lease parcels: How would air pollutant emissions affect air quality and air quality related values?

Methodology and Assumptions

Assessment of potential effects will be based on an estimate of air pollutant emission related to the proposed action. BLM records indicate that 19 oil wells were drilled in the Ely District over the past 10 years, of which one well has been put into production. For purposes of analysis emission estimates will be based on the assumption that 19 wells will be drilled on parcels

offered for sale as a result of the Proposed Action over the 10-year lease term, and that one of those wells will be put into production.

Affected Environment and Current Effects

Under the authority of the Clean Air Act (CAA), the Environmental Protection Agency (EPA) has established nationwide air quality standards, known as the National Ambient Air Quality Standards (NAAQS) for six criteria air pollutants. Pollutants for which standards have been set are called criteria pollutants, and include carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃), particulate matter (PM₁₀ and PM_{2.5}), sulfur dioxide (SO₂) and lead (Pb). The effects of these pollutants are commonly referred to as smog or haze, and the NAAQS are protective of human health and the environment. Compliance with the NAAQS is typically demonstrated by monitoring ground-level atmospheric air pollutant concentrations. Areas where pollutant concentrations are below the NAAQS are designated as attainment or unclassifiable, and air quality is generally considered to be good and air quality related health risks are expected to be low. Locations where monitored pollutant concentrations are higher than the NAAQS are designated nonattainment, and air quality is considered unhealthy. Two additional pollutants of concern, nitrogen oxides (NO_x) and volatile organic compounds (VOCs) contribute to the formation of ozone in the atmosphere, which is a regulated criteria pollutant.

Air Quality Related Values (AQRVs) are resources sensitive to air quality and include visibility as well as biological and terrestrial resources such as vegetation, soils, water, and wildlife affected by deposition of air pollutants onto soil or water. Air pollution can impact AQRVs through exposure to elevated atmospheric concentrations of criteria pollutants and precursors including NO₂, SO₂, VOC, and PM_{2.5}. Examples of air pollution impacts to AQRVs include O₃ effects to vegetation; deposition of air pollutants on the earth's surface through precipitation or dry deposition; and impairment of scenic views by haze related to pollutant particles in the atmosphere. For purposes of this analysis increases criteria pollutant emissions represent the potential for increases in AQRV effects.

Table 3-1 presents 5-year average Ely District air quality as measured by the EPA Air Quality Index (AQI). On good and moderate days criteria pollutant concentrations are below the NAAQS and air quality health impacts are low.

Table 3-1. Ely District Air Quality as shown by AQI, 2020 – 2024.

5-Year Avg Good Days per year		5-Year Avg Moderate Days per year		Unhealthy for Sensitive Groups Days per year		5-Year Avg Unhealthy Days per year	
283.6	79.0%	73.2	20.4%	2.4	0.7%	0.0	0.0%

Source - AQI by County data downloaded from https://aqsweb.airdata/download_files.html#AQI.

Table 3-1 shows that air quality in Ely District is good, with criteria pollutant concentration below the NAAQS on 99% of days.

The CAA also regulates hazardous air pollutants (HAPs), chemicals that are known or suspected to cause cancer or other serious health effects such as reproductive effects or birth defects, or adverse environmental effects. The USEPA currently lists 189 compounds as HAPs, some of which can be emitted from oil and gas development operations (e.g. benzene, toluene, and

formaldehyde). EPA has not set NAAQS for HAPs; rather HAP emissions are controlled by source type or industrial sector-specific regulations through National Emission Standards for Hazardous Air Pollutants (NESHAP). Hydrogen sulfide (H₂S) gas is not regulated under the NAAQS or as a HAP. However, it is known to be hazardous and is monitored for worker health and safety at oil and gas sites. Additionally, greenhouse gases (GHGs, reported as CO₂e) became regulated pollutants on January 2, 2011, because of their contribution to global climate change.

While the EPA sets the NAAQS and established Federal regulations, many air quality permitting and State Implementation Plan regulatory activities under the CAA are delegated to the state. The Nevada Division of Environmental Protection (NDEP) Bureau of Air Pollution Control and Air Quality Planning (BAPC) is tasked with permitting and maintaining air quality data for Nevada, as well as long-term strategies for air quality improvement.

Future development of lease parcels under consideration could lead to emissions of carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O); the three most common greenhouse gases associated with oil and gas development. These GHG emissions would be emitted from activities occurring on the leased parcels and from the consumption of any fluid minerals produced. However, the BLM cannot reasonably determine at the leasing stage whether, when, and in what manner a lease would be explored or developed. The uncertainty that exists at the time the BLM offers a lease for sale includes crucial factors that would affect actual GHG emissions and associated impacts, including but not limited to the future feasibility of developing the lease, well density, geological conditions, development type (vertical, directional, or horizontal), hydrocarbon characteristics, specific equipment used during construction, drilling, and production, abandonment operations, product transportation, and potential regulatory changes over the 10-year primary lease term. Actual development on a lease is likely to vary from what is analyzed in this EA and will be evaluated through a site-specific NEPA analysis when an operator submits an APD or plan of development to the BLM.

For the purposes of this analysis, BLM has evaluated the projected potential GHG emissions from oil and gas development on the parcels. Projected emissions estimates are based on past actual oil and gas development analyses and any available information from existing development within the State.

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

The Earth's climate system is very complex as there are many factors that can influence atmospheric conditions at multiple scales. A discussion of past, current, and projected global, U.S. and state GHG emissions is described in Chapters 4 and 5 of the Annual GHG Report. The incremental contribution to global GHGs from a single proposed land management action cannot be accurately translated into any localized effects in the area specific to the action. Currently, global climate models are unable to forecast local or regional effects on resources resulting from a specific subset of emissions.

Table 3-2 shows the total estimated GHG emissions from fossil fuels at the 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 methodology and parameters for estimating emissions from BLM fossil fuel authorizations and GHG emissions are included in Chapters 5 and 6 of the Annual GHG Report.

Table 3-2. U.S. and State Fossil Fuel GHG Emissions 2018 - 2022 (Mt CO₂e/yr).

Scale	2018	2019	2020	2021	2022
Nevada	44.59	45.89	46.76	42.07	45.06
U.S.	4,988.2	4,852.6	4,341.7	4,654.3	4,699.4

Source: Chap. 5, Table 5-1 (U.S.) and Table 5-2(2024)

Mt (megatonne) = 1 million metric tons

NA = Not Available

Effects of the Proposed Action

Table 3-3 presents BLM estimates of potential criteria pollutant and HAP emissions related to the proposed action based on the development assumptions described above. The table also presents EPA-estimated total emissions in the Ely District and the State of Nevada from the most recent National Emissions Inventory.

Table 3-3. Estimated Maximum Annual Emissions related to Well Development, Production Operations, Mid-stream, and End-use with context.

Activity	PM ₁₀	PM _{2.5}	VOC	NO _x	CO	SO ₂	HAPs
	tons per year	tons per year	tons per year	tons per year	tons per year	tons per year	tons per year
Well Development	12.1	2.0	3.2	21.7	15.0	1.7	0.2
Production Operations	1.3	0.2	31.4	1.1	1.7	0.0	3.7
Total	13.5	2.2	34.6	22.8	16.7	1.7	3.9
Context							
Ely District -2020 Totals ¹	10,884	3,911	51,853	4,364	43,502	304	10,331
State of Nevada - 2020 Totals ¹	113,484	26,720	262,929	68,269	403,228	981	56,532

1 - Total annual pollutant emissions for the Ely District (Lincoln and White Pine Counties), and the State of Nevada reported by EPA in the 2020 National Emission Inventory (<https://www.epa.gov/air-emissions-inventories/2020-national-emissions-inventory-nei-data>).

Table 3-3 shows that potential emissions related to the proposed action would be very small relative to ongoing emissions from other sources. Specifically, total criteria pollutant emissions from the proposed action could be as much as 91.4 tons per year and could represent a 0.08

percent increase over the 114,817 tons of total criteria pollutant emissions in Ely District counties in 2020. This small increase would not be enough to change current air quality or ARQV effects in the District in any discernable way.

The Table also shows that the potential increase in total HAP emissions, 3.9 tons per year, is likewise very small, 0.04 percent of 2020 District-wide emissions of 10,331 tons per year. This small increase is not likely to substantially increase health risks related to HAPs in the Ely District. Table 3-4 presents estimated releases of specific HAP compounds related to well development and oil production related to the Proposed Action.

Table 3-4. Estimated Maximum HAP Emissions from Well Development and Production Operations by Compound with Context (pounds)

HAP ¹	Well Development	Production Operations
	tons per year	tons per year
Acetaldehyde	0.0089	0.1773
Benzene	0.0416	0.8236
Ethylbenzene	0.0050	0.0997
Formaldehyde	0.0501	0.9935
Hexane	0.0043	0.0849
Methanol	0.0047	0.0923
Naphthalene	0.0004	0.0074
Toluene	0.0412	0.8162
Xylenes	0.0220	0.4358
Other	0.0082	0.1625
Total	0.2	3.7

¹ - for more information on the health effects of listed HAPs see: EPA. *Health Effects Notebook for Hazardous Air Pollutants*. <https://www.epa.gov/haps/health-effects-notebook-hazardous-air-pollutants>.

GHG Effects

While the leasing action does not directly result in development that would generate GHG emissions, emissions from future potential development of the leased parcels can be estimated for the purposes of this analysis. There are four general phases of post-lease development processes that would generate GHG emissions: 1) well development, including exploration, (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 authority over these activities, mid-stream and end-use emissions (phases 3 and 4) typically occur off-lease where the BLM has little to no authority.

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

amount of oil or gas that may be produced if the offered parcels are developed is unknown. For purposes of estimating production and end-use emissions, potential wells are assumed to produce oil and gas in similar amounts as existing nearby wells. While the BLM has no authority to direct or regulate the end-use of the products, for this analysis, the BLM assumes all produced oil or gas will be combusted (such as for domestic heating or energy production). 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 would be similar to the national level emissions identified by the Department of Energy's National Energy Technology Laboratory (NETL, 2009) (NETL, 2019). Section 5.5 of the Annual GHG Report includes a more detailed discussion of the methodology for estimating midstream emissions.

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

- Well development, including exploration, emissions occur over a short period and may include emissions from heavy equipment and vehicle exhaust, drill rig engines, completion equipment, pipe venting, and well treatments such as hydraulic fracturing.
- Well production operations, mid-stream, and end-use emissions occur over the entire production life of a well, which is assumed to be 30 years for this analysis based on the productive life of a typical oil/gas field. Production operation emissions may result from storage tank breathing and flashing, truck loading, pump engines, heaters and dehydrators, pneumatic instruments or controls, flaring, fugitives, and vehicle exhaust.
- Mid-stream emissions occur from the transport, refining, processing, storage, transmission, and distribution of produced oil and gas. Mid-stream emissions are estimated by multiplying the estimated ultimate recovery (EUR) of produced oil and gas with emissions factors from NETL life cycle analysis of U.S. oil and natural gas. Additional information on emission factors can be found in Chapter 5 of the Annual GHG Report.).
- 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 Chapter 5 of the Annual GHG Report.

Table 3-5 shows the estimated maximum year and average year GHG emissions over the life of the lease for both 100-yr and 20-yr CO₂e time scales.

Table 3-5. Estimated Emissions from the Lease Parcels on an annual and life of lease basis (Metric Tonnes).

	CO ₂	CH ₄	N ₂ O	CO ₂ e (100-yr)	CO ₂ e (20-yr)
Max Year	5,144	0.21	0.041	5,162	5,173
Average Year	328	0.01	0.003	329	330
Life of Lease	238,793	402.45	0.189	250,838	272,047

Source: BLM Lease Sale Emissions Tool

Table 3-6 lists the estimated well development and production operations and mid-stream and end-use GHG emissions in metric tonnes (t) for the subject leases over the average 30-year production life of the lease. In summary, potential GHG emissions from the Proposed Action could result in GHG emissions of 272,047t CO₂e over the life of the lease.

Table 3-6. Estimated Life of Lease Emissions from Well Development, Production Operations, Mid-stream, and End-use (metric tonnes).

Activity	CO ₂	CH ₄	N ₂ O	CO ₂ e (100-yr)	CO ₂ e (20-yr)
Well Development	27,385	244.11	0.162	34,704	47,568
Production Operations	11,297	158.34	0.027	16,023	24,368
Mid-Stream	1,189	0.00	0.000	1,189	1,189
End-Use	198,922	0.00	0.000	198,922	198,922
Total	238,793	402.45	0.189	250,838	272,047

Source: BLM Lease Sale Emissions Tool

GHG emissions vary annually over the production life of a well due to declining production rates over time. Figure 1 shows the estimated GHG emissions profile over the production life of a typical lease including the four phases of lease development processes: well development, well production operations, mid-stream, end-use, and gross (total of well development, well production, mid-stream, and end-use) emissions.

To put the estimated GHG emissions for this lease sale in a relatable context, potential emissions that could result from development of the lease parcels for this sale can be compared to other common activities that generate GHG emissions. The EPA GHG equivalency calculator (EPA , 2022) can be used to express the potential average year GHG emissions on a scale relatable to everyday life (<https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>). For instance, the projected average annual GHG emissions from potential development of the subject lease are equivalent to 71 gasoline-fueled passenger vehicles driven for one year or offset by the carbon sequestration of 392 acres of forest land. **Error! Reference source not found.**³⁻⁷ compares the estimated annual lease sale emissions to existing Federal fossil fuel (oil, gas, and coal) emissions, State, and U.S. total GHG emissions.

Table 3-7. Comparison of Lease Sale Annual Emissions to Other Sources (Mega Tonnes).

Reference	Mt CO ₂ e ¹ (per year)
RFDS Emissions (Average Year)	0.0003
NV Onshore Federal ²	0.11
Onshore Federal (O&G)	686.62
U.S. Federal-All (Oil & Gas) ²	1,092.94

U.S. Federal Onshore (Oil, Gas and Coal) ²	1,066.14
NV Fossil Fuel Emissions³	38.36
U.S. Total	7,213.47

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

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

³ - Total state emissions from all sectors are found in Table 5-2 of the BLM Specialist Report on Annual GHG Emissions.

Effects of the No Action Alternative

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

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

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

Reasonably Foreseeable Future Effects

Emission related to the proposed action would increase the total amount of air pollution in the District but many other sources of air pollution would continue whether or not the proposed action is approved. Table 3-8 presents total 2020 Criteria Pollutant emissions by source category, and Proposed Action emissions in order by amount.

Table 3-8. Sources of Criteria Air Pollution in Ely District, 2020.

Source	tons per year	Percent (%)
Biogenics	56,065	48.79%
Wildfire	45,385	39.50%
Industrial Processes other than Petroleum and Natural Gas	4,380	3.81%
Mobile Sources	4,098	3.57%
Fugitive Dust	2,684	2.34%
Agriculture	1,402	1.22%
Residential Fuel Combustion	383	0.33%
Solvent Use	162	0.14%
Waste Disposal	142	0.12%
Oil & Gas Midstream	96	0.08%
Proposed Action - Maximum per Year	91	0.08%
Commercial Cooking	19	0.02%
Commercial and Industrial Fuel Use	0	0.00%
Total	114,908	100%

Ely District includes NEI emissions from Lincoln and White Pine counties. Source: EPA. 2020 National Emissions Inventory (NEI) Online 2020 NEI Data Retrieval Tool. <https://www.epa.gov/air-emissions-inventories/2020-national-emissions-inventory-nei-data>.

Table 3-8 shows that reasonable foreseeable future emissions and related effects including the Proposed Action are only slightly (0.08 percent) higher with the proposed actions than they are without them.

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

The methodologies used in the Annual GHG Report provide estimates of foreseeable short-term and projected long-term GHG emissions from activities across the BLM's oil and gas portfolio. The foreseeable short-term methodology includes a trends analysis of (1) leased federal lands that are held-by-production⁶, (2) approved applications for permit to drill (APDs), and (3) leased lands from competitive lease sales projected to occur over the next annual reporting cycle (12 months). The data is used to provide a 30-year life-of-lease projection of potential emissions from all Federal oil and gas activities and potential lease actions over the next 12 months. The projected long-term methodology uses oil and gas production forecasts from the Energy Information Administration (EIA) to estimate GHG emissions out to 2050 that could occur from

⁶ [held-by-production](#) - A provision in an oil or natural gas property lease that allows the lessee to continue drilling activities on the property as long as it is economically producing a minimum amount of oil or gas. The held-by-production provision thereby extends the lessee's right to operate the property beyond the initial lease term.

past, present, and future development of Federal fluid minerals. For both methodologies, the emissions are calculated using life-cycle-assessment data and emission factors. These analyses are the basis for projecting GHG emissions from lease parcels that are likely to go into production during the analysis period of the Annual GHG Report and represent both a hard look at GHG emissions from oil and gas leasing and the best available estimate of reasonably foreseeable emissions related to any one lease sale or set of quarterly lease sales that could occur annually across the entire federal onshore mineral estate.

Table 3-9 presents the summation of the 30-year life-of-project emissions estimates for both the short and long-term as previously described for each state where federal mineral actions have been authorized. The differences between the short- and long-term emissions estimates can be thought of as an approximation of additional leasing that could occur on federal lands and does not take into consideration additional policies, technological advancements in production or end-use efficiency standards.

A detailed explanation of the short-term and long-term emissions estimate methodologies are provided in sections 5.6 and 5.7 of the Annual GHG Report.

Table 3-9. GHG Emissions from Past, Present, and Reasonably Foreseeable Federal Onshore Lease Development (Megatonnes CO₂e).

State	Existing Wells (Report Year)	Existing Wells (Projected)	Approved APDs	New Leasing	Short-Term Foreseeable Totals	Long-Term Projected Totals
AL	0.63	9.48	0.00	0.18	9.65	18.73
AK	1.27	19.11	30.07	43.96	93.14	35.64
AZ	0.00	0.00	0.00	0.00	0.00	0.00
AR	0.61	9.63	0.71	0.24	10.57	18.00
CA	4.92	68.59	0.32	2.26	71.18	124.75
CO	41.66	361.42	19.23	14.34	394.99	1,205.41
ID	0.00	0.00	0.00	0.29	0.30	0.00
IL	0.01	0.09	0.00	0.02	0.11	0.16
IN	0.00	0.00	0.00	0.02	0.02	0.00
KS	0.22	3.24	0.05	0.27	3.57	6.29
KY	0.01	0.07	0.00	0.03	0.10	0.24
LA	4.79	59.44	28.10	16.86	104.40	140.76
MD	0.00	0.00	0.00	0.00	0.00	0.00
MI	0.05	1.05	0.00	0.29	1.34	1.58
MS	0.19	2.57	0.19	0.38	3.14	4.80
MT	2.06	21.01	1.80	2.08	24.90	53.94
NE	0.01	0.21	0.00	0.03	0.24	0.35
NV	0.11	0.82	0.01	0.04	0.87	2.63

NM	463.78	3,298.82	795.77	89.69	4,184.28	12,321.64
NY	0.00	0.00	0.00	0.00	0.01	0.01
ND	37.69	315.95	24.48	7.14	347.56	985.07
OH	0.17	1.60	0.00	2.65	4.25	4.97
OK	1.09	10.74	1.66	1.18	13.58	30.83
OR	0.00	0.00	0.00	0.12	0.12	0.00
PA	0.00	0.03	0.00	0.67	0.70	0.07
SD	0.08	1.41	0.21	0.11	1.72	2.19
TN	0.00	0.00	0.00	0.00	0.00	0.00
TX	2.72	30.11	11.79	3.28	45.17	80.01
UT	17.54	220.02	17.98	2.35	240.35	493.60
VA	0.01	0.13	0.00	0.03	0.15	0.24
WV	0.00	0.04	0.00	0.59	0.62	0.08
WY	107.01	946.69	120.38	105.55	1,172.61	3,005.64
Total Onshore Federal	687	5,382	1,053	295	6,730	18,538

Source: BLM Annual GHG Report, Section 7

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

- U.S. liquid fuels consumption is projected to increase to 20.50 million barrels per day (b/d) in 2025 up from 20.31 million b/d in 2024 and decrease slightly in 2026 to 20.44 million b/d.
- U.S. crude oil production is expected to average 13.4 million b/d in 2025 and rise to 13.5 million b/d in 2026.
- Global liquid fuels consumption is expected to grow from 103.7 million barrels per day in 2025 and increase to 104.6 million barrels per day in 2026.
- U.S. LNG exports are expected to increase to 15 billion cubic feet/day in 2025 and 16Bcf/d in 2026.
- U.S. Coal production is expected to total 506 million short tons (MMst) in 2025, relatively unchanged from 2024 production levels.

The EIA 2023 Annual Energy Outlook projects energy consumption increases through 2050 as population and economic growth outweighs efficiency gains. As a result, U.S. production of

natural gas and petroleum and liquids will rise amid growing demand for exports and industrial uses. Further discussion of past, present and projected global and state GHG emissions can be found in Chapter 5 of the Annual GHG Report.

At present, no national or Federal agency carbon budgets have been established, primarily due to the lack of consensus on how to allocate the global budget to each nation, and as such the global budgets are not useful for BLM decision making, as it is unclear what portion of any such budget applies to emissions occurring in the United States.

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 carbon capture and sequestration can remove GHGs from the atmosphere.

The EPA is the Federal agency charged with regulation of air pollutants and establishing standards for protection of human health and the environment. The EPA has issued regulations that will reduce GHG emissions from any development related to the proposed leasing action. These regulations include the New Source Performance Standard for Crude Oil and Natural Gas Facilities (40 CFR Part 60 Subpart OOOOa), Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, and Modification or Reconstruction Commenced After December 6, 2022 (40 CFR Part 60 Subpart OOOOb). These regulations impose emission limits, equipment design standards, and monitoring requirements on oil and gas facilities and a waste emissions charge on methane emissions that exceed 25,000 metric tonnes of CO₂e for applicable petroleum and natural gas facilities currently required to report under the Greenhouse Gas Reporting Rule. In December of 2023, the EPA released a separate rule under the Clean Air Act (CAA) to reduce methane and other harmful air pollutants from new and existing oil and gas operations nationwide, which includes the Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced after December 6, 2022, 40 CFR 60, Subpart OOOOb; and Emissions Guidelines for Greenhouse Gas Emissions from Existing Crude Oil and Natural Gas Facilities, Subpart OOOOc. These regulations impose emission limits, equipment design standards, and monitoring requirements on oil and gas facilities and a waste emissions charge on CH₄ emissions that exceed 25,000 metric tonnes of CO₂e for applicable petroleum and natural gas facilities currently required to report under the GHG Reporting Rule. A detailed discussion of existing regulations and Executive Orders that apply to BLM management of federal lands as well as current federal and state regulations that apply to oil and gas development and production can be found in Chapter 2 of the Annual GHG Report.

The majority of GHG emissions resulting from federal fossil fuel authorizations occur outside of the BLM's authority and control. These emissions are referred to as downstream emissions and generally occur off-lease during the transport, distribution, refining, and end-use of the produced federal minerals. The BLM's regulatory authority is limited to those activities authorized under the terms of the lease, which primarily occur in the "upstream" portions of natural gas and petroleum systems (i.e., the well-development and well-production phases). This decision authority is applicable when development is proposed on public lands; and the BLM assesses the specific location, design, and plan of development. In carrying out its responsibilities under NEPA, BLM has developed Best Management Practices (BMPs) designed to reduce emissions from field production and operations. BMPs may include limiting emissions from stationary combustion sources, mobile combustion sources, fugitive sources, and process emissions that

may occur during development of the lease parcel. Additional measures proposed at the project development stage may be incorporated as applicant-committed measures by the project proponent or added to necessary air quality permits.

3.4.2. Issue 2: How would potential development of the nominated lease parcels affect social and economic conditions?

Methodology and Assumptions

The geographic scope of this analysis is Nye County, Nevada, as it includes the communities that could be affected by the Oil and Gas Lease sale. To provide broader context for the socioeconomic analysis, the state of Nevada (non-metro) was selected as the reference area for comparison. County-level and state reference data were obtained from the U.S. Department of Labor, Bureau of Labor Statistics, the U.S. Department of Commerce, the U.S. Census Bureau, the US Geological Survey, and local area unemployment reports as compiled by Headwaters Economics for the BLM.

Table 21 summarizes Reasonably Foreseeable Development Scenarios (RFDS) related to oil and gas development on the Ely District for long- and short-term durations. The temporal scope of analysis for this issue includes ten years to account for this Oil and Gas Lease sale, and subsequent economic effects.

The Project has the potential to impact socioeconomic values through the sale of 11 parcels for Oil and Gas Leasing, totaling 19,957.15 of public lands. Potential effects and changes to social and economic conditions in the analysis study area are discussed in the sections entitled Effects on Social and Economic Conditions and Reasonably Foreseeable Future Actions below.

Affected Environment

Demographics

Of the total study area, 11,289,591 acres – 96.9% percent of the total – are federally owned lands, and 6,558,097 of those acres are managed by BLM. 333,916 acres within the study area are privately owned, 9,372 are Tribal lands, and 881,171 are owned by state, county, city, or other non-federal agencies. Decisions made by public land managers may influence the local economy, particularly if public land represents a large portion of the land base. Agency management actions that affect water quality, access to recreation, scenery (as well as other quality-of-life amenities), and the extent and type of resource extraction are particularly important in areas where much of the land is managed by public agencies.

The total population in the study area was 54,738 in 2022, representing an increase of 28% from 2010 to 2022. The largest contributor to this change in total population between 2010 and 2022 was net migration. In 2023, the total population in the study area was 53,207. Out of all people living within the study area in 2023, 15,805 people, or 29.7%, self-identified as being a member of a minority group. Of those, 631, or 1.2% of the total population, self-identified as American Indians and Alaska Native alone. Population growth is generally an indication of a healthy economy. No growth or long-term decline generally occur when an area is struggling. Growth can benefit the general population of a place, especially by providing economic opportunities, but it can also stress communities and lead to income stratification.

Employment, Wealth, and living Conditions

The number of employed workers reported in the study area in 2022 was 19,069. Approximately 14,063 of the total 19,069 jobs in the study area were in services related industries. In the same year there were approximately 2,870 jobs in non-services related industries, and there were approximately 2,136 jobs in the government sector. This total includes federal, state, county, and local government jobs. Within the study area, the average annual wage for all reported jobs was \$68,158 in 2024. The highest paying industries, on average, were mining and Professional and Business Services.

Per capita income in the study area in 2022 was \$46,152. Per capita income is one of the most important measures of economic well-being. However, this measure can be misleading. Per capita income is total personal income divided by population. Because total personal income includes non-labor income sources (dividends, interest, rent and transfer payments), it is possible for per capita income to be relatively high due to the presence of retirees and people with investment income. 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. In 2022, total non-labor income within the study area represented 51.5% of all income. Where non-labor income is a relatively high percentage of all income, it is likely that there are a higher number of retirees and/or families receiving assistance, in comparison to other regions. The highest category of non-labor income was Age-Related Transfer Payments at 24.9% of total county income.

In 2024, the average annual unemployment rate was 7.5%. The change in average annual unemployment rate from 2010-2024 was -(minus)9.5%. The population for whom poverty status was determined by the U.S. Department of Commerce, Census Bureau, American Community Survey Office, in 2023 was 52,040. The total number of people living below poverty, as defined by the U.S. Census Bureau, was 15.5% of the population for whom poverty status was determined in the study area. The total number of housing units in 2023 was 25,186 of which 87.1% were occupied and 6.3% were seasonal, recreational, or occasionally occupied properties. Of those living within the study area aged 25 or older, 12.7% had earned a bachelor's degree or higher.

Effects on the Proposed Action

The sale of these parcels under the Proposed Action is expected to generate short-term economic benefits. 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 Nevada retains approximately half of the proceeds. These effects may help stabilize household incomes and support small businesses, particularly in communities with limited economic activity. Non-labor income is a relatively high percentage of all income in the study area. However, it is likely that positive economic gains generated by the lease sale would contribute a positive net gain for the economic conditions in the study area. The Proposed Action would not be expected to induce substantial growth or concentration of population, displace people, cause a substantial reduction or increase in employment, reduce or greatly increase wage and salary earnings, cause a substantial net increase in county expenditures, or create a substantial demand for public services. If the lease sale would not occur, loss of potential oil and

gas production is unlikely to have a positive effect on the social and economic conditions of the affected area.

The lease sale may temporarily disrupt common BLM-authorized land uses such as grazing practices and recreation. However, these effects are expected to be localized and not result in long-term changes to land use patterns. Under the BLM's multiple-use mandate, land management across the District will continue to balance energy development with other authorized uses and resource values. The socioeconomic impacts of the Proposed Action Alternative are not anticipated to have effects that meet the threshold of significance due to their context and intensity on the conditions described in the baseline analysis above.

Effects from Reasonably Foreseeable Future Actions

Reasonably foreseeable future actions in Nye County include transmission projects, Rights of Way grants, livestock grazing, land sales, emergency stabilization and rehabilitation, recreation, and mining activities. The Proposed Action would impact trends related to socioeconomic values as described in the Affected Environment. Impacts would include increases in temporary employment and demand for services, increased demand for temporary housing, increased opportunities for economic growth, increases in household wages, and disruption to other authorized land uses affecting social and economic values.

Over time, increased activity in oil and gas development and operations could have an impact on the demand for community services, as well as some effect on available housing and demand for goods and services within the affected county. Oil production from federal lands is subject to a 12.5% royalty payment to the federal government. Fiscal impacts could result from bonus bids, annual rent fees (for 10 years regardless of activity on a leased parcel), and royalties (if and when production occurs). All Federal oil and gas royalty, rental fees, and bonus bid revenue is split in about half between the U.S. Treasury and the state where development occurred. This may result in income allocated to the county government. Nye County experienced population growth between 2010 and 2022. Temporary increases in economic activity may be beneficial to support this trend.

Subsequent oil and gas exploration, development, and production could affect the local economy with additional jobs and increases in income and tax revenues. Temporary employment would be created during peak construction. This workforce would likely include equipment operators, general laborers, skilled tradespeople, technicians, electricians, foremen, supervisors, and construction management staff. Additional support professionals such as project managers, engineers, environmental monitors, surveyors, and construction inspectors would also likely be involved throughout the construction period. The temporary demand for a skilled and diverse labor force presents economic opportunities for residents and businesses in Nye County. A portion of the workforce may be sourced regionally or from outside the area. Subsequent oil and gas exploration and development activities could include road and drill pad construction, which could be contracted to local contractors. Wells would typically be drilled over a period of time and not at the same time. 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. Reasonably foreseeable post sale development could generate short-term increases in population during the construction phase.

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 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. Design features resulting from future project specific NEPA analyses would attempt to limit and minimize potential impacts to residents and the broader community.

Effects of the No Action Alternative

Under the No Action Alternative, the Proposed Action would not be approved by the BLM, and the land use in the lease sale parcels would not change the federal mineral acreage would remain open to future oil and gas leasing unless land use plan amendments are completed to close these areas to leasing. No natural gas or crude oil from the nominated lease parcels would be produced, and no royalties would accrue to federal or state treasuries. Selection of the No Action Alternative would forgo new oil and gas development opportunities on approximately 19,957.15 acres of federal minerals in the District. There would be no additional impact on the social and economic conditions of the study area. Baseline conditions would not be affected, and social and environmental trends as described in the section entitled Affected Environment above would be expected to continue. There would be no additional economic gain to the State, County, District, and local communities. The absence of the lease sales and associated tax revenues could impact or influence how the District and local governments plan and allocate their budgets.

3.4.3. Issue 3: How would potential development of the nominated lease parcels affect potential and occupied habitat for BLM sensitive status species?

Methodology and Assumptions

Impacts to threatened, endangered, or special status species from the Proposed Action could occur through leasing of BLM parcels for oil and gas exploration, development, and production, resulting in land use changes that alter the distribution or abundance of habitat for affected species. The impact indicator for this issue is the acres of fish, plant, and wildlife habitat that could be leased and percent change as compared to total acreage available. The analysis area for this issue comprises the HUC10 watershed basins where the parcels are located (threatened and special status plants analysis area). The threatened and special status plants analysis area was established because the habitats of species identified through publicly available data are widespread in the Mojave Desert and Great Basin, and population resiliency depends on connectivity of those populations. The species and habitats analyzed here have been observed within 5 miles of at least one of the parcel groups.

BLM records indicate that 19 oil wells have been drilled in the Ely District over the past 10 years, of which one well has been put into production. Based on this record, for the purpose of analysis the assumption is made that 19 wells would be drilled as a result of the Proposed Action over the 10-year lease term and that one of those wells would go into production. Potential impacts are analyzed in a general sense because information on components such as specific information is not available at this time. These types of site-specific elements would be analyzed under future NEPA following an application for permit to drill.

BLM Manual 6840 entitled Special Status Species Management states that special status species are those that 1) are listed or proposed for listing as endangered or threatened under the ESA, and 2) species requiring special management consideration to promote their conservation and reduce the likelihood and need for future listing under the ESA, which are designated as Bureau Sensitive by the State Director(s). Additionally, all federal candidate species, proposed species, and delisted species in the five years following delisting would be conserved as Bureau sensitive species. A GIS analysis was conducted using data from NDOW, BLM, USFWS, and the Nevada Natural Heritage Program to determine locations of special status species in relation to the lease parcels. The results of the analysis can be found in Appendix B. It also includes aquatic species within the hydrobasin that could be affected by groundwater changes. An additional review of special status species and their associated habitat would occur when an APD is submitted and may result in subsequent surveys of sensitive species.

Affected Environment

BLM sensitive species have been identified as those species that require additional conservation to prevent decline of populations to the point where they may be considered for listing under the Endangered Species Act. The BLM has several lease stipulations and lease notices that protect sensitive species statewide. As detailed below, certain leased parcels have been identified as having occurrence, or potential occurrence, of several species of plants or animals that may require modification of surface use plans at the APD stage to avoid disruptive or harmful activities. A table of applicable sensitive status species can be found in Appendix B, Table B-1.

According to the 2015 ARMPA as amended Greater sage grouse Habitat Management Area (HMA) maps, all of the nominated parcels contain General (GHMA) and/or Other (OHMA) habitat. There are zero documented leks within 4 miles of the nominated parcels.

Other sensitive status species with occurrence data in proximity to the nominated parcels include: White River speckled dace (*Rhinichthys osculus velifer*), White River desert sucker (*Catostomus clarki intermedius*), Moorman White River springfish (*Crenichthys baileyi thermophilus*), and Pygmy Rabbit (*Brachylagus idahoensis*).

Several BLM sensitive status plants occur within the hydrobasin where the nominated parcels occur. Tiehm's blazing star (*Mentzelia tiehmi*) is known to occur within parcel NV-2026-03-2249. Tiehm's blazing star and Hanging bladderpod (*Physaria pendula*) occurs within parcel NV-2026-03-2263. Several other populations of Tiehm's blazing star and Eastwood milkweed occur within approximately 2.0 miles of the nominated parcels.

Environmental Effects

Effects of the Proposed Action

In order to minimize and mitigate impacts to Greater sage grouse, all parcels are subject to Required Design Features listed in Appendix C of the ARMPA. The parcels that contain GHMA are NV-2026-03-2240, NV-2026-03-2243, NV-2026-03-2237, and NV-2026-03-2271. These parcels are subject to timing restrictions and stipulations described further in Appendix C of this EA. Lek clusters E-058 and E-057 have reached a hard trigger, parcel NV-2026-03-2240 is in both clusters requiring a no surface occupancy stipulation per Appendix J of the ARMPA (BLM, 2015) describing Adaptive Management Strategies. The other parcels occur within lek cluster E-052 which has reached a soft trigger.

Oil and gas exploration, development, and production activities have the potential to affect sensitive vegetation by reduction or loss in production, distribution, and vigor of sensitive plant species and/or communities due to oil and gas activities. Additionally, ground disturbance and activities associated with oil and gas have the potential to introduce invasive plant species to communities that currently lack invasive plants.

Oil and Gas production is likely to have adverse effects on all sensitive status species including loss of habitat from construction of production facilities as well as habitat fragmentation; increased noise and disturbance from human activities; and possible collisions with vehicles causing direct mortality. Further analysis and surveying would be required at the project (APD) level.

There would be no direct effects from issuing new oil and gas leases because leasing does not directly authorize oil and gas exploration and development activities. Direct impacts from these activities would be analyzed under additional, site-specific NEPA reviewed in response to APDs. General short-term and long-term impacts of oil and gas to special status species are discussed in the Ely RMP in Section 4.7 Special Status Species on pages 4.7-33 – 4.7-39 (BLM, 2008). Because of the highly specialized and endemic nature of some special status species, additional mitigation may be needed at the exploration and development stages. Notices and timing stipulations would minimize some effects to special status species. For example, the raptor nest site timing stipulation would minimize effects to Northern goshawk, golden eagle, western burrowing owl, ferruginous hawk, and peregrine falcon during the breeding season.

Effects from Reasonably Foreseeable Future Actions

Reasonably foreseeable future actions (RFFAs) in the analysis area are described in Section 3.3 above. Each of these activities would impose their individual effects to sensitive status species and/or their habitat as the actions listed have been occurring historically in the analysis area and would be expected to continue in the future.

Impacts to wildlife from RFFAs could result from recreation, livestock grazing, agricultural use, road construction and maintenance, exploration, aggregate operations, public land management activities, wild horses, and wildland fire. A cumulative indirect impact resulting from groundwater use and consumption for mining, oil and gas development, and agriculture can affect all wildlife species, in particular aquatic species.

Effects of the No Action Alternative

Under the No Action Alternative, BLM would not offer for lease the 11 nominated lease parcels in the Bristlecone Field Office and the existing conditions and trends related to each issue would continue.

Potential impacts associated with potential development of the nominated lease parcels would not occur under this alternative, current land and resource uses would continue, and the federal mineral acreage would remain open to future oil and gas leasing unless land use plan amendments are completed to close these areas to leasing. No natural gas or crude oil from the nominated lease parcels would be produced, and no royalties would accrue to federal or state treasuries. Selection of the No Action Alternative would forgo new oil and gas development opportunities on approximately 19,957.15 acres of federal minerals in the District.

3.4.4. Issue 4: How would potential development of the nominated lease parcels affect potential and occupied habitat for Threatened Endangered and Candidate species?

Methodology and Assumptions

Impacts to threatened, endangered, or special status species from the Proposed Action could occur through leasing of BLM parcels for oil and gas exploration, development, and production, resulting in land use changes that alter the distribution or abundance of habitat for affected species. The impact indicator for this issue is the acres of fish, plant, and wildlife habitat that could be leased and percent change as compared to total acreage available. The analysis area for this issue comprises the HUC10 watershed basins where the parcels are located (threatened and special status plants analysis area). The threatened and special status plants analysis area was established because the habitats of species identified through publicly available data are widespread in the Mojave Desert and Great Basin, and population resiliency depends on connectivity of those populations. The species and habitats analyzed here have been observed within 5 miles of at least one of the parcel groups.

BLM records indicate that 19 oil wells have been drilled in the Ely District over the past 10 years, of which one well has been put into production. Based on this record, for the purpose of analysis the assumption is made that 19 wells would be drilled as a result of the Proposed Action over the 10-year lease term and that one of those wells would go into production. Potential impacts are analyzed in a general sense because information on components such as specific information is not available at this time. These types of site-specific elements would be analyzed under future NEPA following an application for permit to drill.

BLM Manual 6840 entitled Special Status Species Management states that special status species are those that 1) are listed or proposed for listing as endangered or threatened under the ESA, and 2) species requiring special management consideration to promote their conservation and reduce the likelihood and need for future listing under the ESA, which are designated as Bureau Sensitive by the State Director(s). Additionally, all federal candidate species, proposed species, and delisted species in the five years following delisting would be conserved as Bureau sensitive species. A GIS analysis was conducted using data from NDOW, BLM, USFWS, and the Nevada Natural Heritage Program to determine locations of special status species in relation to the lease parcels. The results of the analysis can be found in Appendix B. It also includes aquatic species within the hydrobasin that could be affected by groundwater changes. An additional review of special status species and their associated habitat would occur when an APD is submitted and may result in subsequent surveys of sensitive species.

Affected Environment

There are no known federally threatened or endangered species within the proposed parcels, however the endangered White River spinedace (*Lepidomeda albivallis*) occurs on land managed by the Nevada Department of Wildlife in the Kirch Wildlife Management Area and on private land. The parcels proposed for the March 2026 lease sale occur approximately 11 miles from critical spinedace habitat. Additionally, known springsnail occupied springs and unsurveyed springs occur within the hydrobasin where the proposed parcels for the March 2026 oil and gas lease sale occur. Within the White River Valley hydrobasin, many springsnail species of concern occur, these include the White River Valley pyrg (*Pyrgulopsis sathos*), the Flag pyrg (*P. breviloba*), the Pahrangat pebblesnail (*P. merriami*), and the Butterfield pyrg (*P. lata*). Two insect species that have been petitioned for listing, the monarch butterfly (*Danaus plexippus*) and Suckley's cuckoo bumblebee (*Bombus suckleyi*), also have potential to occur in the nominated parcels.

Environmental Effects

Effects of the Proposed Action

As discussed in brief in Appendix E for groundwater, the likelihood of impacts to groundwater are anticipated to be remote. However, some species like the White River spinedace (*Lepidomeda albivallis*) are endemic to this hydrobasin. Oil and gas development could affect fish habitat by altering riparian vegetation, reducing water levels or flow by water consumption or disruption of the groundwater supply, and degrading the water quality from surface disturbance, runoff, and contaminant leaks or spills, depending on proximity of development to habitat. Further analysis would be needed of groundwater connectivity and flow in the basin to identify potential adverse impacts to the spinedace, its habitat, and its critical habitat.

White River Valley is also home to seven gastropods, all of which have been petitioned for listing under the Endangered Species Act and are undergoing further investigation. These gastropods are listed in the Sensitive Status Species Table in Appendix B. Spring-dependent taxa rely on spring discharge for habitat quality and quantity, alterations may impact the unique thermal and hydrological characteristics required of these aquatic species.

Impacts to the monarch butterfly and Suckley's cuckoo bumblebee during oil and gas development are anticipated to be minimal. Short-term and long-term impacts would be similar to those described in the Ely RMP.

There would be no effects from issuing new oil and gas leases because leasing does not directly authorize oil and gas exploration and development activities. Impacts from these activities would be analyzed under additional, site-specific NEPA reviewed in response to APDs. General short-term and long-term impacts of oil and gas to special status species are discussed in the Ely RMP in Section 4.7 Special Status Species on pages 4.7-33 – 4.7-39 (BLM 2008). Because of the highly specialized and endemic nature of some special status species, additional mitigation may be needed at the exploration and development stages. Notices and timing stipulations would minimize some effects to special status species. Section 7 consultation may be required at the project level.

Effects from Reasonably Foreseeable Future Actions

Reasonably foreseeable future actions (RFFAs) in the analysis area are described in Section 3.3 above. Each of these activities would impose their individual effects to special status species

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and/or their habitat as the actions listed have been occurring historically in the analysis area and would be expected to continue in the future.

Impacts to wildlife from RFFAs could result from recreation, livestock grazing, agricultural use, road construction and maintenance, exploration, aggregate operations, public land management activities, wild horses, and wildland fire. A cumulative indirect impact resulting from groundwater use and consumption for mining, oil and gas development, and agriculture can affect all wildlife species, in particular aquatic species.

Effects of the No Action Alternative

Under the No Action Alternative, BLM would not offer for lease the 11 nominated lease parcels in the Bristlecone Field Office and the existing conditions and trends related to each issue would continue. Potential impacts associated with potential development of the nominated lease parcels would not occur under this alternative, current land and resource uses would continue, and the federal mineral acreage would remain open to future oil and gas leasing unless land use plan amendments are completed to close these areas to leasing. No natural gas or crude oil from the nominated lease parcels would be produced, and no royalties would accrue to federal or state treasuries. Selection of the No Action Alternative would forgo new oil and gas development opportunities on approximately 19,957.15 acres of federal minerals in the district.

3.4.5. Issue 5: How would potential development of the nominated lease parcels affect riparian areas with Threatened and Endangered Species?

Methodology and Assumptions

BLM records indicate that 19 oil wells have been drilled in the Ely District over the past 10 years, of which one well has been put into production. Based on this record, for the purpose of analysis the assumption is made that 19 wells would be drilled as a result of the Proposed Action over the 10-year lease term and that one of those wells would go into production. Potential effects to riparian areas with Threatened and Endangered (T&E) Species are analyzed in a general sense because information on components such as specific well locations, quantity of water supply or method of obtainment, and method of exploration well drilling are not available at this time. These types of site-specific elements would be analyzed under future NEPA following an application for permit to drill.

Affected Environment

Approximately 13 acres of parcel NV-2026-03-2249 and 22 acres of parcel NV-2026-03-2269 overlap onto areas mapped as freshwater emergent wetland. Wetlands are supported by groundwater in White River Valley that is in some areas shallow enough to emerge at the surface to support wetland habitat. Areas in the Wayne E. Kirch Wildlife Refuge managed by the Nevada Department of Wildlife are known to have aquatic habitat that is home to aquatic Threatened and Endangered (T&E) Species (Section 3.4.4).

Environmental Effects

Effects of the Proposed Action

Executive Order 11990 – Protection of Wetlands requires Federal agencies to avoid to the extent possible the long-and short-term adverse impacts associated with the destruction of, modification of, or the support of new construction in floodplains and wetlands wherever there is a practicable alternative. Potential

impacts to wetlands from future fluid mineral development would include deposition of uncontrolled surface runoff-derived sediment and associated contaminants eroded from exposed construction surfaces entering riparian habitat zones. Other potential effects include alteration of the groundwater hydraulic gradient resulting in groundwater capture due to oil and gas exploration groundwater pumping. This can cause drying of T&E species habitat. Additional potential effects would include contamination of aquatic habitat from drilling fluid, hydrocarbon, and other chemicals entering the riparian area through groundwater transport.

Federal law also requires project proponents meet any state and local regulations and Best Management Practice (BMP) requirements to minimize environmental effects as a condition of the permitting process. Other safeguards include application of the 100-year floodplain stipulation as the mapped wetland areas closely follow the mapped 100-year floodplain boundaries. Proper BMP implementation would lessen potential impacts to wetlands and riparian areas by providing distance buffers, methods for erosion control, and chemical containment.

Effects from Reasonably Foreseeable Future Actions

Reasonably foreseeable future actions (RFFAs) in the analysis area are described in Section 3.3 above. Each of these activities would impose their individual effects to riparian areas and by extension aquatic T&E species habitat in a cumulative sense as the actions listed have been occurring historically in the analysis area and would be expected to continue in the future.

Potential effects to water resources from RFFAs would depend on the nature of the activity according to the level of surface disturbance each would entail. These could include contamination, erosion and deposition, and changes in groundwater levels similar to that described above in the Effects of the Proposed Action section.

Effects of the No Action Alternative

Under the No Action Alternative, BLM would not offer the parcels for lease. No development of the parcels would take place and thus no development-related impacts to water resources would occur. Activities and associated effects to water resources within the analysis area would remain on going as permitted on surrounding federal, state, and private lands.

3.4.6. Issue 6: How would potential development of the nominated lease parcels affect the potential spread and/or management of noxious and invasive weed species?

Methodology and Assumptions

The Proposed Action area consists of the 19 parcels available for lease with an additional 1-mile buffer to account for the potential spread of noxious and invasive weed species. New populations could be brought via seeds and/or propagules through or from the 1-mile buffer into the Proposed Action area.

The time frame for analysis is 10 years, the lease term, during which time the BLM estimates all parcels would be leased, and any development with the potential to impact noxious and invasive weeds across the parcels is expected to have already occurred or be actively occurring. These species are spread through ground disturbance activity such as: vehicle traffic; creation of new roads and trails or increased travel on the existing roads and trails; travel to and from each Proposed Action area; use of heavy equipment; and increased foot traffic from either inside the Proposed Action area or from within the one-mile buffer around the perimeter. By identifying

the weed species outside of the proposed action area, early detection rapid response (EDRR) would be used to eradicate these species in a reasonable amount of time. A weed management plan (WMP) would be created at the APD and production stages of oil and gas development. This WMP would be adhered to as described in the NEPA documentation accompanying an APD or converting a wildcat well to production.

Affected Environment

The Ely Proposed RMP/FEIS describes the existing conditions, trends, and current management of noxious and invasive weeds within the Ely District Planning Area (BLM 2007 pages 3.21-1 – 3.21-5). The following list of noxious weeds that have been inventoried within and adjacent to the Proposed Action area, which are common impediments to management objectives within the Great Basin as they cause economic and environmental hardship or harm to human health. These weed species populations range from a few widely scattered plants to large areas dominated by one particular weed species, such as dalmatian toadflax, (*Linaria dalmatica*), Canada thistle, (*Cirsium arvense*), or Russian knapweed, (*Rhaponticum repens*). These areas can also be dominated by two-to-three species growing together such as scotch thistle, (*Onopordum acanthium*), bull thistle, (*Cirsium vulgare*), and Canada thistle (*Cirsium arvense*). The Ely District has many locations with different species growing together, or in close proximity. The size and density of these populations vary with the type of growth form such as perennial versus annuals, geographic location on the landscape, type of soil, water availability, and the health of the native rangelands and its ability to compete for needed resources. Several species of noxious and invasive weeds are expanding throughout the Proposed Action Area, which has altered fire regimes, diminished forage for animals, and decreased productivity, resilience, and resistance of the native vegetation of the land. The Ely District adhered to the concept of integrated weed management (IWM) and uses the most current species lists developed by the Nevada Department of Agriculture.

BLM defines a weed as a non-native plant that disrupts or has the potential to disrupt or alter the natural ecosystem function, composition, and diversity of the site it occupies (BLM 2008). A weed's presence deteriorates the health of the site, makes efficient use of natural resources difficult, and may interfere with management objectives for that site. Invasive species require a concerted effort of manpower and resources to be eradicated from an area, if they can be at all. "Noxious" weeds refer to those plant species which have been legally designated as unwanted or undesirable. This includes national and state agencies.

Noxious and invasive weed infestations in the District typically range from a few, widely isolated plants scattered populations; and large areas dominated by weed species. The size and density of these infestations may vary depending on the type of weed species, annual, bi-annual, or perennial growth forms, geographic location, type of soil, water availability, and/or any previous control methods whether chemical or mechanical.

Invasive weed species are known to occur in the Proposed Action area. Invasive weed species can be just as detrimental to native rangeland and just as costly to treat as a noxious weed species and are of concern because of expanding distribution and adverse effects to native ecological systems. Species of highest concern include Russian thistle (*Salsola tragus*), Hoarycress (*Lepidium draba*), and cheatgrass (*Bromus inermis*) are three examples invasive weed species. Since 2022, Russian thistle, (*Salsola tragus*) have become a bigger problem on native rangeland

than most noxious weeds. Other weed species that are difficult to manage are the following: Russian knapweed (*Rhaponticum repens*), perennial pepperweed (*Lepidium latifolium*), tamarisk (*Tamarix spp*), dalmation toadflax (*Linaria dalmatica*), diffuse knapweed (*Centaurea diffusa*), Canada thistle (*Cirsium arvense*), and scotch thistle (*Onopordum ancanthium*). Several species of noxious and invasive weeds are expanding throughout the Proposed Action Area, which has altered fire regimes, diminished forage for animals, domestic livestock and wildlife, and decreased productivity, resilience, and resistance of the native vegetation of the land. The Ely District adhered to the concept of integrated weed management (IWM) and uses the most current species lists developed by the Nevada Department of Agriculture.

Environmental Effects

Effects of the Proposed Action

The Ely Proposed RMP/FEIS describes the environmental consequences of geology and mineral extraction on noxious and invasive weed management within the Ely District Planning Area (page 4.21- 4). The analysis discusses the introduction of noxious and invasive weeds as a function of vectors such as animals, domestic and wildlife, wind, and vehicles that transport plant material to and within the planning area, and ground disturbances that promote their establishment (BLM 2007, page 4.21-1). The analysis identifies 9,807 acres of potential disturbance from mineral extraction based on the RFDS, and states on pages 4.21-4 – 4.21-5, “Road construction, use, abandonment, and maintenance related to mineral development all provide the potential to transport and proliferate weeds.” There is moderate to low risk for the introduction and spread of noxious and invasive weeds due to current low levels of mineral development, assuming compliance with leases, permits, and BMPs contained within them.

Though in general it is known what sorts of disturbance contribute to noxious and invasive weed spread during oil and gas exploration and production activities (i.e., transport of seeds via wind, animals, and vehicles and ground disturbance from construction), impacts to vegetation from mineral extraction activities would be analyzed under additional site-specific NEPA analyses when an action is proposed and specifics such as location, well depth, water consumption needs, and area of disturbance are known. Through this process, a Weeds Risk Assessment (WRA) and area inventory or consultation of the District weeds’ database would occur and specific mitigation measures and BMPs would be attached as Conditions of Approval (COAs) for each proposed activity.

Based on the 9,807 acres of reasonably foreseeable mineral exploration and extraction in the Proposed Action area, of which are largely associated with surface mining not oil and gas extraction, and required implementation of COAs such as reclamation and BMPs (BLM 2007 Appendix E – Noxious and Invasive Weed Management) intended to offset effects, the effects of mineral extraction on noxious and invasive weed management are expected to be moderate to low (BLM 2007, page 4.21-5).

Past actions that have affected noxious and invasive weed management include historic mining activities, road construction, vehicle traffic, local agriculture, other human-caused surface disturbances, wildland fires, historic grazing practices, and drought. Present actions include agriculture, livestock grazing, wild horse management, mineral development and other construction activities, drought, wildland fires, insect infestations, vegetation and watershed treatments, land disposal actions, recreation, highway traffic, and off-highway vehicle use.

When combining the direct and indirect impacts to noxious and invasive weed management from oil and gas exploration and development with past, present, and reasonably foreseeable future actions such as those described above, impacts would be minimal due to the scale of development presented in the RFDS (less than 0.5 percent of the Proposed Action area) and COAs and BMPs that would further reduce impacts to noxious and invasive weed management.

Effects from Reasonably Foreseeable Future Actions

Effects of the No Action Alternative

Under the Proposed Action, the 11 lease parcels (approximately 19.957.45 acres) would be offered for competitive sale. Of this total, an estimated 16.3 acres (0.08% of the total parcel acreage and 0.4% of the weed analysis area) would have mapped invasive upland vegetation landcover. Following the lease sale, parcels would still be under BLM jurisdiction, and the noxious and invasive weed best management practices detailed in Appendix A of the 2008 Ely District RMP for livestock movement and the maintenance of unpaved roads would still apply. Any future ground-disturbing activities on the parcels could increase the potential for the introduction and spread of noxious weeds and invasive species through human activity, grading, and a loss of healthy, native vegetation communities. Ground disturbance on those parcels with existing invasive landcover would have a greater risk of invasive weed spread. Other impacts could include increased soil erosion, increased salinity, increased flood potential, decreased water quality, decreased forage and crop yields, increased displaced wildlife and native plants, reduced recreational potential, reduced aesthetic value, increased injury to humans or animals, and increased fire danger (Hefner and Kratsch 2018). Noxious weed control would still occur under NDA requirements; however, including NRS 555.130, which states, “Every person owning, controlling or occupying lands in this state shall cut destroy or eradicate all weeds declared and designated as noxious before such weeds propagate and spread and whenever required by the State Quarantine Officer.” The BLM Standard Lease Notices are applied to all parcels to reduce cumulative effects to noxious weeds and invasive species in riparian and wetlands vegetation communities.

3.4.7. Issue 7: How would potential development of the nominated lease parcels affect range improvements and livestock grazing?

Methodology and Assumptions

The area of analysis are the Cove, Fox Mountain, Sunnyside, and Wells Dee Gee grazing allotments. These allotments all contain two or more nominated lease parcels. This area of analysis was chosen because the grazing allotments are the scale at which livestock are managed and their impacts are assessed.

For purposes of this analysis the temporal scope is defined as 10 years because oil and gas leases are issued for 10-year periods. However, they may continue for as long thereafter as oil and gas is in paying quantities, and this is not possibly determinable at this time.

Loss of forage for livestock grazing through crushing, removal, or exclusion during potential future development could reduce availability of livestock to graze in the parcel areas. Land area, ecological site descriptions, annual production, utilization and actual use data and information

can be used to assess forage availability and potential and carrying capacities. Potential future development could also create disturbances resulting in avoidance or changes in movement of livestock. Locations of private property, range improvements, water resources, and recent livestock management practices and use can be used to assess impacts of disturbances from potential development.

Reasonably foreseeable future development scenarios for oil and gas have been developed for the Ely District (Section 2.3), and they provide the basis for the following analysis. However, a more realistic development scenario based upon actual past and recent oil and gas development in the Ely District is also being used for the following analysis.

Affected Environment

Livestock grazing has occurred in the analysis area since the late 1800's. Grazing came under management with the Grazing Service (a BLM predecessor) with the passage of the Taylor Grazing Act in 1934. The grazing allotments, as they are today, were established in the mid to late 1950's or early 1960's. Management of these allotments has changed throughout the years with changes in permitted use, season of use, and addition of range improvements. Past and present actions that have impacted livestock grazing include historic livestock grazing, mining and related activities, construction of transmission lines, issuance of other right of ways, construction of range improvements, implementation of vegetation treatments, and wildfire. These activities have impacted livestock grazing by removing land available for grazing, altering vegetation composition, or changing the overall management of the allotments.

Current livestock grazing use in the analysis area is summarized in Table 3-10. Both cattle and/or sheep grazing are currently permitted in the parcel areas. Current and historic range improvements exist across the nominated lease parcels. This includes approximately 5.5 miles of fence, one well, and one cattleguard.

Table 3-10. Permitted livestock use in the analysis area.

Allotment	Livestock Kind	Livestock #	Begin Date	End Date
Cove	Cattle	284	1-Nov	15-Apr
Wells Dee Gee	Cattle	650	1-Nov	15-Jun
Fox Mountain	Cattle	76	1-Nov	10-Apr
	Sheep	3525	1-Nov	10-Apr
	Sheep	2065	1-Nov	10-Apr
Sunnyside	Cattle	600	1-Jun	31-Oct
		600	1-Dec	31-Mar

The acreage of each grazing allotment and the associated animal unit months (AUM) permitted in each allotment is presented in Table 3-11. An AUM is defined as the amount of forage required to feed one 1,000-pound cow or 5 sheep or the equivalent of, for one month. For consideration's sake, a rough calculation of AUMs per acre of the Cove grazing allotment would be about 18 AUMs/ acre. However, not all areas of an allotment contain equivalent amounts or types of forage and livestock's ability to utilize the forage is directly tied to availability of water, topography, time of year, dietary needs, and livestock management.

Table 3-11. Grazing Allotments where lease parcels are located, associated animal unit months and acreages of the allotments and the lease parcels within them.

Allotment	Active Animal Unit Months	Allotment Acreage	Parcel Acreage in Allotment	Approximate % of Allotment Area
Cove	1,550	28,199	1,135	4
Fox Mountain	6,320	73,557	383	0.5
Sunnyside	5,405	226,959	15,107	7
Wells Dee Gee	1,327	31,204	3,740	12

Environmental Effects

Effects of the Proposed Action

The potential future development of oil and gas leases could remove or limit the use of available forage in grazing allotments. Oil and gas development may lead to alterations in the use or alignment of range improvement. Livestock grazing management in general would need to be adjusted around any development. Oil and gas development may cause increases in noise, traffic, and general activity which may discourage livestock use in adjacent areas. Livestock movement across allotments, between pastures within an allotment, or between public and private lands may need to be altered.

The proposed action would allow for the lease of upwards of 20,000 acres of land located within four grazing allotments (Table 3-11). These leases could be developed for oil and gas, which would remove or limit the use of available forage in those grazing allotments. Table 3-11 shows that this could represent between 0.5 and 12 percent of the total area of each of the affected grazing allotments. It is important to note that the entirety of the lease parcel area is not likely to be developed under the reasonably foreseeable future development scenarios for oil and gas (Section XX – 19-1 development), but the extent of potential development is currently unknown. Any future oil and gas development would be subject to further analysis at that time, and it would need to include any alteration to, removal, or addition of range improvements. Due to the conflicting nature of land uses, reductions to permitted AUMs may need to be considered if development is proposed. Following the cessation of potential oil and gas development, reclamation would be required, and availability of forage may be restored in the long term.

Effects from Reasonably Foreseeable Future Actions

RFFAs within the analysis area include development of oil and gas leases; mining and related activities; vegetation treatments; emergency stabilization and rehabilitation; and grazing term permit renewals. These RFFAs in combination with any past and present actions would further alter the amount of land and forage available for grazing, alter vegetation composition, and adjust the overall grazing management within these allotments.

Effects of the No Action Alternative

Under the No Action Alternative, BLM would not offer for lease the 11 nominated lease parcels in the Bristlecone Field Office and the existing conditions and trends related to livestock and grazing would continue under present management and current grazing authorizations. Potential March 2026 EYDO Oil and Gas Lease Sale DOI-BLM-NV-L060-2025-0016-EA March 2026

impacts associated with 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. Selection of the No Action Alternative would forgo new oil and gas development opportunities on approximately 19,957.15 acres of federal minerals in the District.

3.4.8. Issue 8: How would potential development of the nominated lease parcels affect historic, prehistoric, and cultural resources?

Methodology and Assumptions

The impact indicator for this issue is the number of historic properties affected by the oil and gas lease sale. As defined under Section 106 of the National Historic Preservation Act (NHPA), the areas of potential effects (APE) are a geographic area or areas within which impacts from an undertaking may adversely affect historic properties. The BLM defined the APEs for cultural resources by considering potential physical effects and visual, atmospheric, and auditory (VAA) effects from the oil and gas lease sale. Impacts to historic properties from the Proposed Action could occur through the sale of an oil and gas lease of the identified parcels and are discussed in terms of adverse direct and indirect effects. Any exploration or development on the parcel(s) would require a Class III Cultural Resource Inventory to account for any eligible historic properties within the physical APE. Development of the parcel(s) for the purposes of oil and gas access and drilling would require a VAA to account for direct effects precipitated by above ground development of oil and gas infrastructure. The visual APE would be a 3-mile viewshed from the height of the structures and shall encompass all above ground structures. Parcels not developed or that do not have above ground structures will not have visual adverse effects. Atmospheric and acoustic adverse effects would need to be accounted for should development of the parcels have an impact that outpaces naturally occurring atmospheric and acoustic qualities. The acoustic and atmospheric APE would be determined by the location of development activities and the geographic extent of potential adverse effects. An example would be terrestrial vibrations (not an earthquake) that could cause structural failure, prehistoric or historic. All eligible historic properties will have to be recorded and summarized in a Class III report and a VAA report that would be consulted on with the Tribes and the State Historic Preservation Office (SHPO). Any exploration or development of the parcel(s) cannot be authorized until the BLM has received concurrence from SHPO and adverse effects to eligible Historic properties within the APEs have been resolved. Mitigation is an adverse effect and all eligible historic properties that cannot be avoided must be mitigated prior to authorization of exploration or development. Mitigation measures will be accounted for through the development and execution of an Historic Properties Treatment Plan (HPTP). The HPTP will be consulted on with the Tribes and SHPO through the Section 106 process. Eligible historic properties impacted by the oil and gas development will have to be accounted for through the development of an HPTP that is developed in consultation with the Tribes and SHPO. Development activities may not proceed until adverse effects to eligible historic properties within the physical and VAA APEs are mitigated or avoided. Cultural sites may have spiritual or religious significance to the Tribes, if sites of this nature are identified, regardless of NRHP status, a management plan may be required and would be developed in consultation with the Tribes.

The analysis area for this issue comprises the physical APE and the VAA APE will encompass any ground disturbing activities proposed for exploration and development and any subsequent VAA qualities that could impact the eligibility of historic properties. The entirety of the parcels, approximately 19,957.15 acres that have the potential to contain historic properties. The APEs will not be known until construction plans are developed and submitted to the BLM for authorization by the lessee. The physical and VAA APEs account for all potential impacts from proposed exploration and development by the lessee that could result in adverse effects on historic properties. The time frame for analysis is 10 years as cultural resources are nonrenewable, and any impacts to cultural resources that may be present would be permanent unless measures are included in the oil and gas lease sale to protect historic properties, or historic properties are mitigated prior to the lease sale. Consistent with the BLM Guidelines and Standards for Archaeological Inventory; Sixth Edition any historic properties identified during Class III inventory shall be revisited and re-recorded after 10 years.

The parcels that have been identified for oil and gas lease sale have not previously been inventoried though Class III Cultural Resources Inventory. Given that absence of information, it is not currently possible to account for effects to historic properties. It is possible that culturally significant sites are known to the Tribes and may be identified through the Section 106 and government-to-government consultation processes. The Section 106 process has not been completed for the physical APE and the government-to-government process is ongoing. Site types within the parcels are likely to include historic mining, recreation, and transportation sites, and various manifestations of prehistoric and ethnohistoric habitation by the Tribes and their ancestors. The NHPA Section 106 review process is ongoing (see Chapter 4) and will conclude before BLM makes a final decision for the Lease Sale.

Affected Environment

Cultural resources include, but are not limited to, rock art; utilized rock shelters and caves; prehistoric habitation sites, camp sites, and specialized activity areas; and historic cemeteries, mines, town sites, and dwellings. The cultural landscape on the Ely District provides evidence of a long history of human occupation. The earliest commonly accepted time frame for human presence in Nevada is approximately 10,000 to 11,000 years before present. The region has been consistently populated up to the present day. Cultural resource sites are known within two miles of the parcels as well as within the parcels. In general, the prehistoric and historic cultural landscape in these valleys includes artifacts, features, and sites. These evidence classes relate to cultural affiliation; prehistoric technology, subsistence systems, and settlement patterns; and historic mining, ranching, and agriculture. The lease of the parcels and potential change in management would have adverse effects on eligible and undetermined historic properties. Historic properties are cultural resource sites that have been determined to be eligible for the National Register of Historic Places.

Any project has an effect on cultural resources if the project alters any of the characteristics or criteria that may qualify a cultural property for inclusion on the National Register of Historic Places (NRHP) or otherwise affects a cultural property's legally protected status. Impacts to cultural properties are considered adverse if the effect diminishes the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Negative or adverse effects can include, but are not limited to, the following: physical destruction of, or damage to, all or part of a property; alteration of a property (e.g., restoration, rehabilitation, stabilization);

removal of a property from its historic location; or, transfer, lease, or sale of property out of federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation (BLM, 2008). The lease of the parcels and potential change in management may have adverse effects on eligible and undetermined historic properties. Historic properties are cultural resource sites that have been determined to be eligible for the National Register of Historic Places.

Environmental Effects

Effects of the Proposed Action

The Proposed Action to lease oil and gas parcels does not entail ground disturbing activities as part of the undertaking. Therefore, this undertaking would not result in direct impacts to cultural resources. All Lease Sale parcels will come with a Notice of possible NRHP-eligible sites present and mandate an additional site-specific EA, including NHPA Section 106 compliance, before any ground disturbance is authorized. 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 (AIRFA), Native American Graves Protection and Repatriation Act (NAGPRA), Executive Order 13007, or other statutes and executive orders. The BLM will not approve any ground disturbing activities that may affect such properties or resources until it completes its obligations, including Tribal consultation and consultation with the State Historic Preservation Officer (SHPO). 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. The 19,957.15 acres would have a Class III Inventory completed, and all identified sites would be evaluated for the National Register of Historic Places. All cultural resources eligible or undetermined for the NRHP would have to be mitigated prior to the sale of the parcels and change in land management.

Effects from Reasonably Foreseeable Future Actions

The reasonably foreseeable future actions may have adverse effects on cultural resources. Ground disturbing as well as non-ground disturbing activities have the potential of adverse effects on cultural resources. The analysis in 3.4.7 addresses the reasonably foreseeable future actions.

Effects of the No Action Alternative

Under the No Action Alternative, BLM would not offer for lease the 11 nominated lease parcels in the Bristlecone Field Office and the existing conditions and trends related to each issue would continue. Potential impacts associated with potential development of the nominated lease parcels would not occur under this alternative, current land and resource uses would continue, and the federal mineral acreage would remain open to future oil and gas leasing unless land use plan amendments are completed to close these areas to leasing. No natural gas or crude oil from the nominated lease parcels would be produced, and no royalties would accrue to federal or state treasuries. Selection of the No Action Alternative would forgo new oil and gas development opportunities on approximately 19,957.15 acres of federal minerals in the District.

3.4.9. Issue 9: How would potential development of the nominated lease parcels affect water resources?

Methodology and Assumptions

BLM records indicate that 19 oil wells have been drilled in the Ely District over the past 10 years, of which one well has been put into production. Based on this record, for the purpose of analysis the assumption is made that 19 wells would be drilled as a result of the Proposed Action over the 10-year lease term and that one of those wells would go into production. Potential effects to water resources are analyzed in a general sense because information on components such as specific well locations, quantity of water supply or method of obtainment, and method of hydrocarbon well drilling are not available at this time. These types of site-specific elements would be analyzed under future NEPA following an application for permit to drill.

Affected Environment

The parcels are located within the central and southern portions of the 1.02 million-acre White River Valley Hydrographic Basin. White River Valley is a down-dropped structural basin bounded by approximately north-south trending fault-block mountains owing to the extensional tectonic setting characteristic of the Basin and Range Province. Most of the water in the project area consists of groundwater, which also expresses at the surface within areas such as the Wayne Kirsch Wildlife Refuge to the north of the southern parcel group. Regional groundwater flows in a southerly direction through White River Valley from source areas in the Egan Range (Welch, et al., 2007). Groundwater in the project area is stored in aquifers of various depths and compositions ranging from shallower alluvium aquifers and fractured volcanic rock aquifers to deeper carbonate rock aquifers. Groundwater is most frequently accessed from wells installed in alluvium aquifers because of their shallower depths and greater productivity compared to aquifers composed of volcanic material.

In 2012, the State Engineer (SE) of the Nevada Division of Water Resources (NDWR) issued Order 1219 which changed the status of much of Basin 207 to Designated, meaning the SE found conditions warranted the need for additional administration (NDWR, 2025a). Basin designations can occur when the rate of water withdrawal from the basin begins to approach or exceed the perennial yield, which is 37,000 acre-feet for White River Valley. Based on the 2023 NDWR Basin Status Assessment, groundwater level trends for the period 1984 - 2021 in Basin 207 indicate a moderate decline of 0.31 to 0.9 feet per year (NDWR, 2025b). The areas of the basin contained in Order 1219 include all of the parcels of the Proposed Action.

Numerous wells, reservoirs and springs are situated around the parcel groups with nearly all of the springs located on private land. The BLM has no water rights in the area of the parcels. Depths to groundwater in wells in the project area are shallow, ranging from 0 to 20 feet below ground surface for both parcel groups (NDWR, 2025c). No perennial streams flow through any of the lease parcels. Numerous ephemeral channels drain storm water in directions radiating from northwest to southwest through the southern parcels off the South Egan Range bounding the parcels to the east. Several ephemeral channels flow through the northern parcels in a southerly direction draining stormwater through the White River Valley lowlands. Principal among these is the ephemeral White River channel that separates two of the northern parcels into two sections.

Environmental Effects

Effects of the Proposed Action

The sale of lease parcels under the Proposed Action would lead to potential effects from future development to water resources. For surface water, these effects could follow from events such as increased sediment loads during runoff events, increased erosion during construction phases, and alteration of overland flow patterns from clearing, grading, and soil stockpiling activities. Hydrocarbons and mobile chemicals on the surface associated with development projects could be delivered along with sediments into natural drainage channels and delivered downstream.

Impacts to groundwater resources that could occur during future development include introduction of drilling fluids into groundwater, contamination of groundwater from petroleum and other chemicals through spills, well casing leaks, pipeline leaks, and loss of hydraulic fracturing (HF) fluids into groundwater during HF operations. Similarly, improper construction and management of evaporation pits can impact ground water quality through leakage and leaching. Lowering of the groundwater table from groundwater pumping for exploration and production can impact local groundwater wells and associated water rights and can impact groundwater-dependent ecosystems that support a wide range of wildlife and aquatic species.

Any water wells proposed for development would need a right of way grant from the BLM in addition to a water right from NDWR. Water rights obtained for water wells for the purpose of oil and gas development cannot be used as a source of potable water and is valid only for one year at which point the well must be plugged and abandoned. Wells that are properly plugged, abandoned, and sealed under Nevada Department of Environmental Protection regulations would be safeguarded against potential water contamination. Federal law also requires project proponents meet any state and local regulations and Best Management Practice requirements to minimize environmental effects aimed at protecting ground and surface water quality as a condition of the permitting process.

Effects from Reasonably Foreseeable Future Actions

Reasonably foreseeable future actions (RFFAs) in the analysis area are described in Section 3.3 above. Each of these activities would impose their individual effects to water resources in a cumulative sense as the actions listed have been occurring historically in the analysis area and would be expected to continue in the future.

Potential effects to water resources from RFFAs would depend on the nature of the activity according to the level of surface disturbance each would entail. These could include contamination, erosion and deposition, and changes in groundwater levels similar to that described above in the Effects of the Proposed Action section. Actions involving the consumptive use of water would contribute incrementally to the moderate decline trend occurring in Basin 207 as described in the Affected Environment section above.

Effects of the No Action Alternative

Under the No Action Alternative, BLM would not offer the parcels for lease. No development of the parcels would take place and thus no development-related impacts to water resources would

occur. Activities and associated effects to water resources within the analysis area would remain on going as permitted on surrounding federal, state, and private lands.

CHAPTER 4. CONSULTATION AND COORDINATION

4.1. Endangered Species Act Consultation

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 jeopardize the species listed as T&E by the USFWS. When, or if, an APD is submitted to develop these parcels, further evaluation and Section 7 consultation with the USFWS will occur as necessary.

4.2. Tribal Consultation

Tribal consultation for leasing actions is done on a government-to-government basis. On October 03, 2025, the BLM provided project information and an invitation to consult on resources of concern to potentially affected Tribes for the Lease Sale as provided for by the NEPA, the NHPA, the American Indian Religious Freedom Act (AIRFA), and Executive Order 13007. The BLM contacted the Confederated Tribes of the Goshute Reservation, Paiute Indian Tribe of Utah, Yomba Shoshone Tribe, Las Vegas Paiute Tribe, Duckwater Shoshone Tribe, Moapa Band of Paiutes, and Ely Shoshone Tribe.

As of October 21, 2025, the BLM has not received any other correspondence from Tribes regarding the Lease Sale. The BLM will remain available to engage with Tribes and respond to any consultation requests until the Lease Sale date. If the nominated parcels are leased, future potential development would be subject to additional Tribal consultation NEPA, NHPA, AIRFA, NAGPRA, Secretarial Order 3403, and Executive Orders 13007 and 13175, as directed by regulation and current policy.

4.3. National Historic Preservation Act Consultation

The BLM prepared a literature review and analysis of cultural resources for the parcels nominated for the Lease Sale as part of its reasonable and good faith effort to identify historic properties and any potential adverse effects this undertaking may have on historic properties, as required by the National Historic Preservation Act of 1966, 54 U.S.C. 306108 and its implementing regulations at 36 CFR 800, commonly referred to as Section 106.

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

- Prior to beginning the identification stage in the Section 106 process, the regulations (at 36 CFR § 800.4) require the federal agency to do the following:
 - Determine and document the APE [Area of Potential Effect] in order to define where the agency will look for historic properties that may be directly or indirectly affected by the undertaking;
 - Review existing information on known and potential historic properties within the APE, so the agency will have current data on what can be expected, or may be encountered, within the APE;

- Seek information from others who may have knowledge of historic properties in the area. This includes the State Historic Preservation Officer/Tribal Historic Preservation Officer and as appropriate, Indian tribes or Native Hawaiian organizations who may have concerns about historic properties of religious and cultural significance to them within the APE.

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

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

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

As part of the Section 106 process, the BLM provided project information and an invitation to consult on resources of concern to potentially affected Tribes via certified letter sent October 3, 2025: the Confederated Tribes of the Goshute Reservation, Paiute Indian Tribe of Utah, Yomba Shoshone Tribe, Las Vegas Paiute Tribe, Duckwater Shoshone Tribe, Moapa Band of Paiutes, and Ely Shoshone Tribe.

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APPENDIX A. MARCH 2026 OIL AND GAS PRELIMINARY PARCEL LIST
TOTAL PARCEL COUNT: 11 TOTAL ACRES: 19957.15

NV-2026-03-2242

NV, Ely District Office, Bureau of Land Management, PD
Mount Diablo Meridian, Nevada

T. 4 N., R. 61 E.,
 Sec. 2 LOTS 1 thru 4;
 Sec. 2 S1/2NE1/4, S1/2NW1/4, S1/2;
 Sec. 3 LOTS 1 thru 4;
 Sec. 3 S1/2NE1/4, S1/2NW1/4, S1/2.

Mount Diablo Meridian, Nevada

T. 5 N., R. 61 E.,
 Sec. 35 ALL.

Nye County
1919.24 Acres
12.50% Royalty Rate
EOI# NV00020290, NV00020297

NV-2026-03-2269

NV, Ely District Office, Bureau of Land Management, PD
Mount Diablo Meridian, Nevada

T. 4 N., R. 61 E.,
 Sec. 4 LOTS 1 thru 4;
 Sec. 4 S1/2NE1/4, S1/2NW1/4, S1/2;
 Sec. 5 LOTS 1 thru 4;
 Sec. 5 S1/2NE1/4, S1/2NW1/4, S1/2;
 Sec. 6 LOTS 1, 2;
 Sec. 6 S1/2NE1/4, NE1/4SE1/4.

Nye County
1480.89 Acres
2.50% Royalty Rate
EOI# NV00020290, NV00020292

NV-2026-03-2271

NV, Ely District Office, Bureau of Land Management, PD
Mount Diablo Meridian, Nevada

T. 5 N., R. 61 E.,
 Sec. 7 LOTS 1 thru 4;
 Sec. 7 E1/2, E1/2NW1/4, E1/2SW1/4;
 Sec. 8 ALL;
 Sec. 9 ALL.

Nye County
1903.08 Acres

12.50% Royalty Rate
EOI# NV00020292

NV-2026-03-2263

NV, Ely District Office, Bureau of Land Management, PD
Mount Diablo Meridian, Nevada
T. 5 N., R. 61 E.,
 Sec. 16 ALL;
 Sec. 17 ALL;
 Sec. 18 LOTS 1 thru 4;
 Sec. 18 E1/2, E1/2NW1/4, E1/2SW1/4;
 Sec. 19 LOTS 1 thru 4;
 Sec. 19 E1/2, E1/2NW1/4, E1/2SW1/4.

Nye County
2522.64 Acres
12.50% Royalty Rate
EOI# NV00020293

NV-2026-03-2259

NV, Ely District Office, Bureau of Land Management, PD
Mount Diablo Meridian, Nevada
T. 5 N., R. 61 E.,
 Sec. 20 ALL;
 Sec. 21 ALL;
 Sec. 22 ALL.

Nye County
1920 Acres
12.50% Royalty Rate
EOI# NV00020294

NV-2026-03-2254

NV, Ely District Office, Bureau of Land Management, PD
Mount Diablo Meridian, Nevada
T. 5 N., R. 61 E.,
 Sec. 26 ALL;
 Sec. 27 ALL;
 Sec. 28 ALL.

Nye County
1920 Acres
12.50% Royalty Rate
EOI# NV00020294, NV00020295

NV-2026-03-2249

NV, Ely District Office, Bureau of Land Management, PD
Mount Diablo Meridian, Nevada

T. 5 N., R. 61 E.,

Sec. 29 ALL;
Sec. 30 LOTS 1 thru 4;
Sec. E1/2, E1/2NW1/4, E1/2SW1/4;
Sec. 31 LOTS 1, 2;
Sec. 31 E1/2, E1/2NW1/4, E1/2SW1/4.

Nye County

1810.74 Acres

12.50% Royalty Rate

EOI# NV00020295, NV00020296

NV-2026-03-2251

NV, Ely District Office, Bureau of Land Management, PD
Mount Diablo Meridian, Nevada

T. 5 N., R. 61 E.,

Sec. 32 ALL;
Sec. 33 ALL;
Sec. 34 ALL.

Nye County

1920 Acres

12.50% Royalty Rate

EOI# NV00020296

NV-2026-03-2243

NV, Ely District Office, Bureau of Land Management, PD
Mount Diablo Meridian, Nevada

T. 9 N., R. 61 E.,

Sec. 2 LOTS 1, 2;
Sec. 2 S1/2NE1/4, SE1/4NW1/4, E1/2SW1/4, SE1/4;
Sec. 3 LOTS 2 thru 4;
Sec. 3 S1/2NE1/4, S1/2NW1/4, S1/2;
Sec. 4 LOTS 1 thru 4;
Sec. 4 S1/2NE1/4, S1/2NW1/4, S1/2.

Nye County

1680.56 Acres

12.50% Royalty Rate

EOI# NV00020297

NV-2026-03-2237

NV, Ely District Office, Bureau of Land Management, PD
Mount Diablo Meridian, Nevada

T. 9 N., R. 61 E.,

Sec. 9 ALL;

Sec. 10 ALL;

Sec. 11 NE1/4, E1/2NW1/4, W1/2SW1/4, SE1/4.

Nye County

1760 Acres

12.50% Royalty Rate

EOI# NV00020298, NV00020299

NV-2026-03-2240

NV, Ely District Office, Bureau of Land Management, PD
Mount Diablo Meridian, Nevada

T. 10 N., R. 61 E.,

Sec. 33 ALL;

Sec. 34 W1/2NE1/4, W1/2, W1/2SE1/4.

Nye County

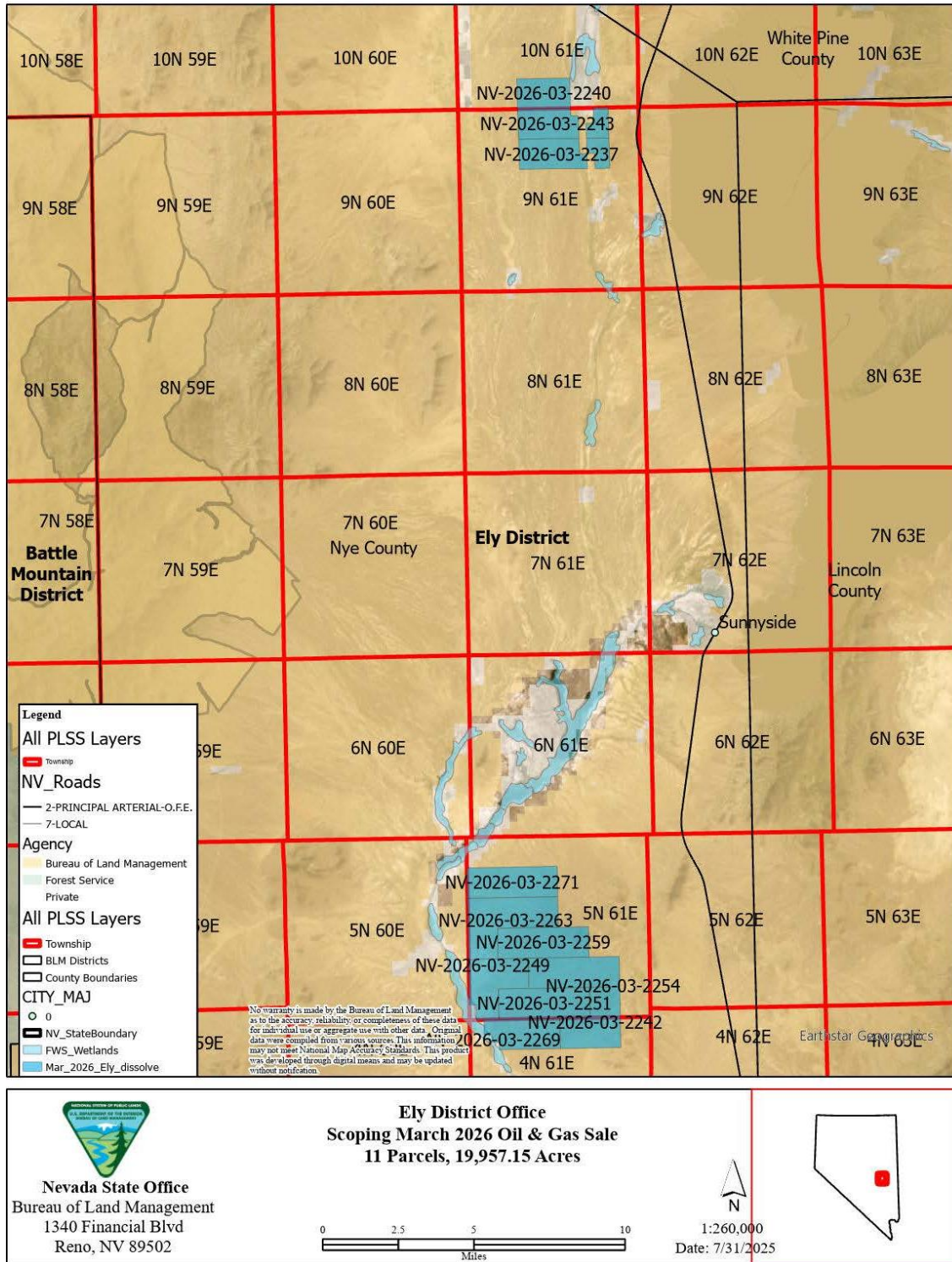
1120 Acres

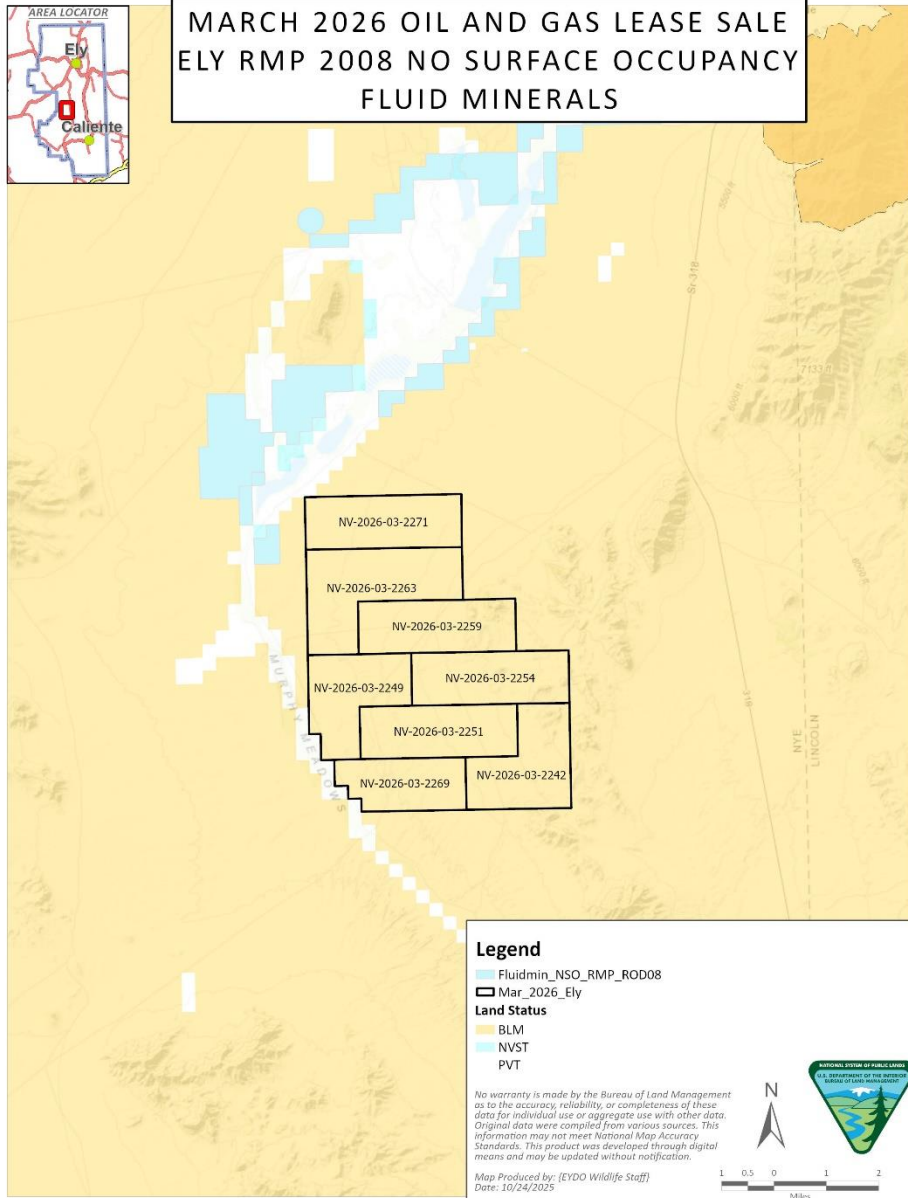
12.50% Royalty Rate

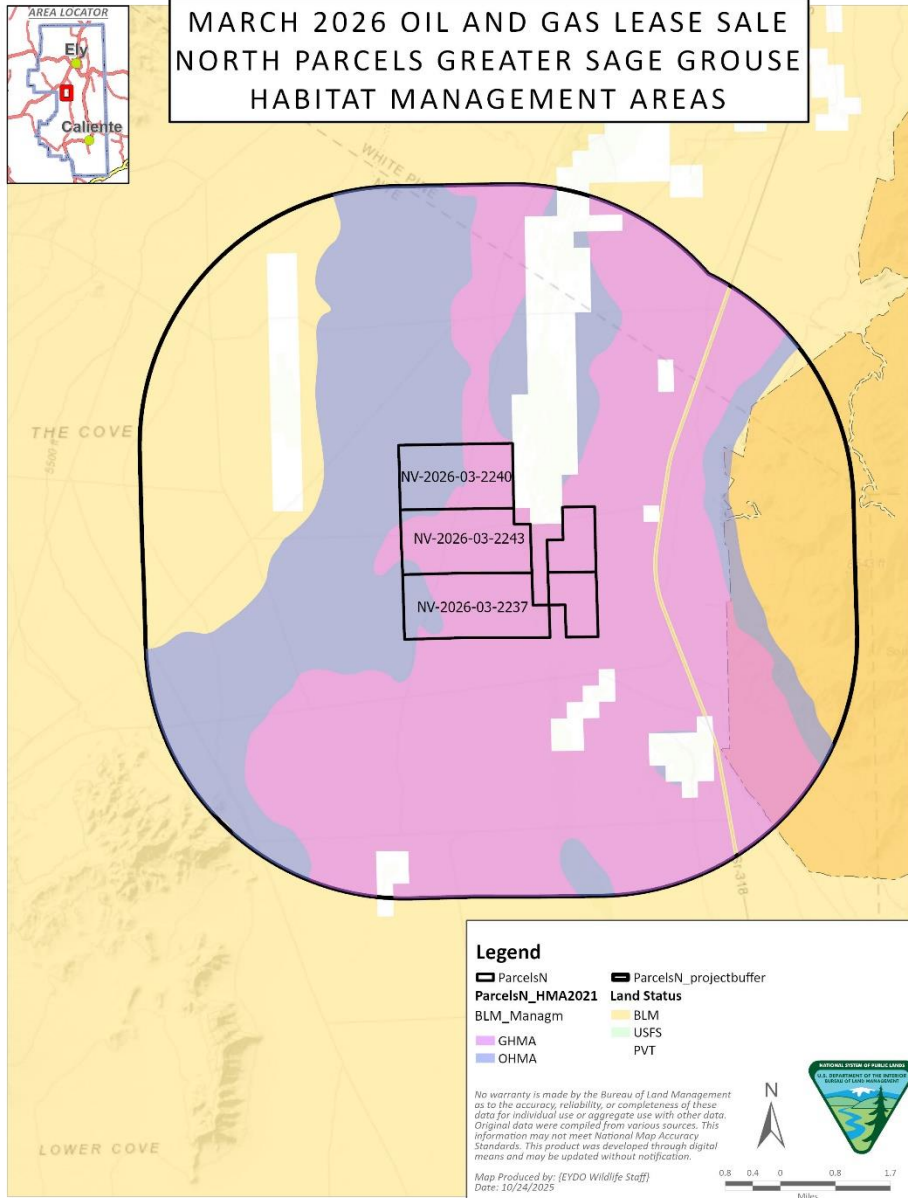
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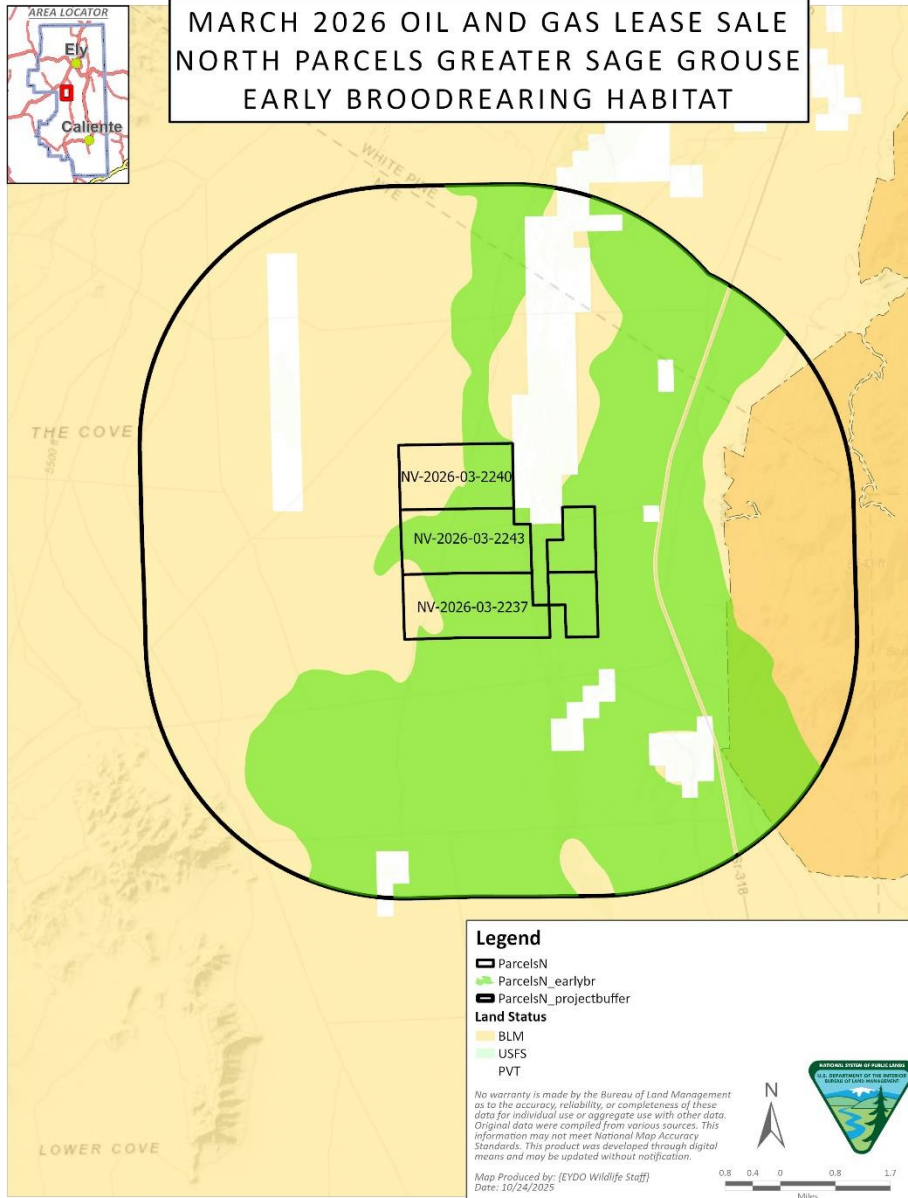
APPENDIX B. MAPS AND LARGE TABLES

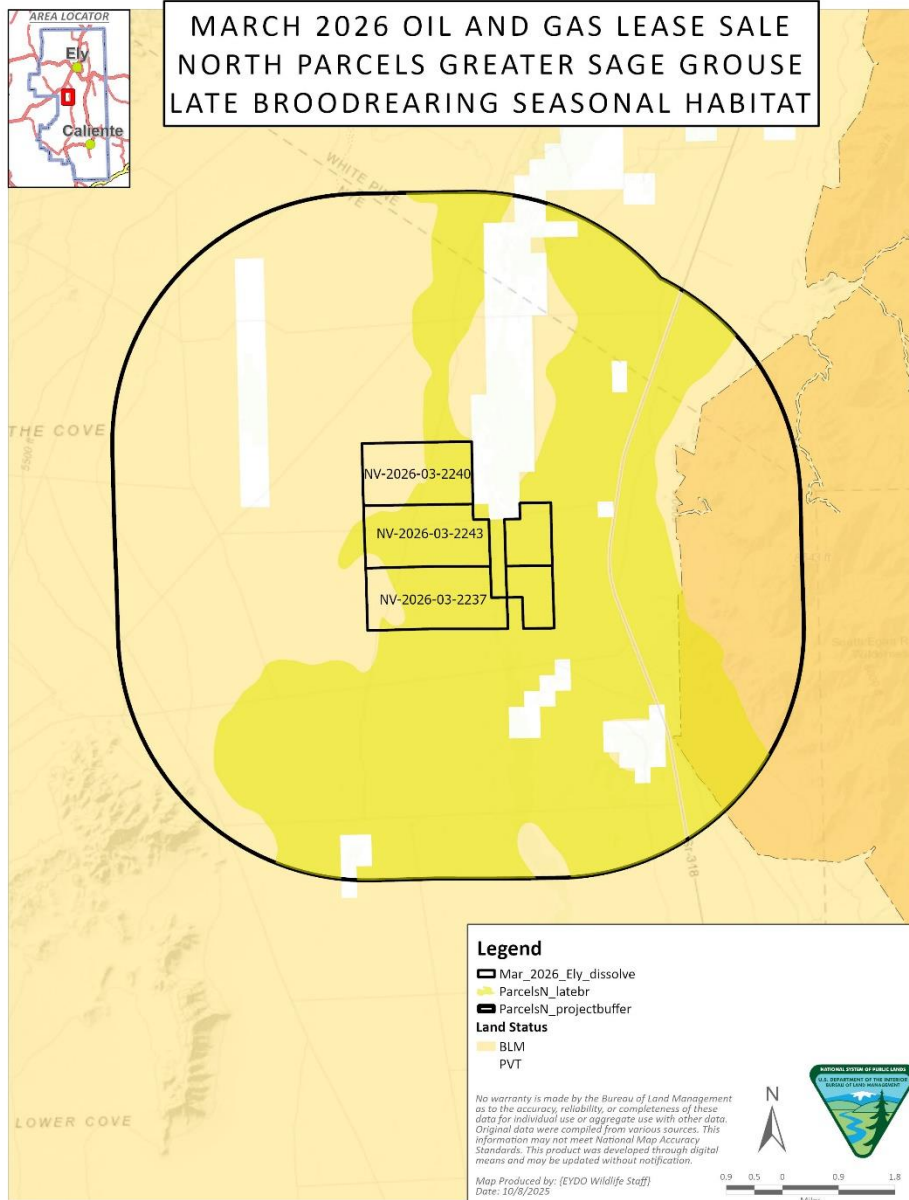
March 2026 Oil & Gas Scoping Sale Parcels

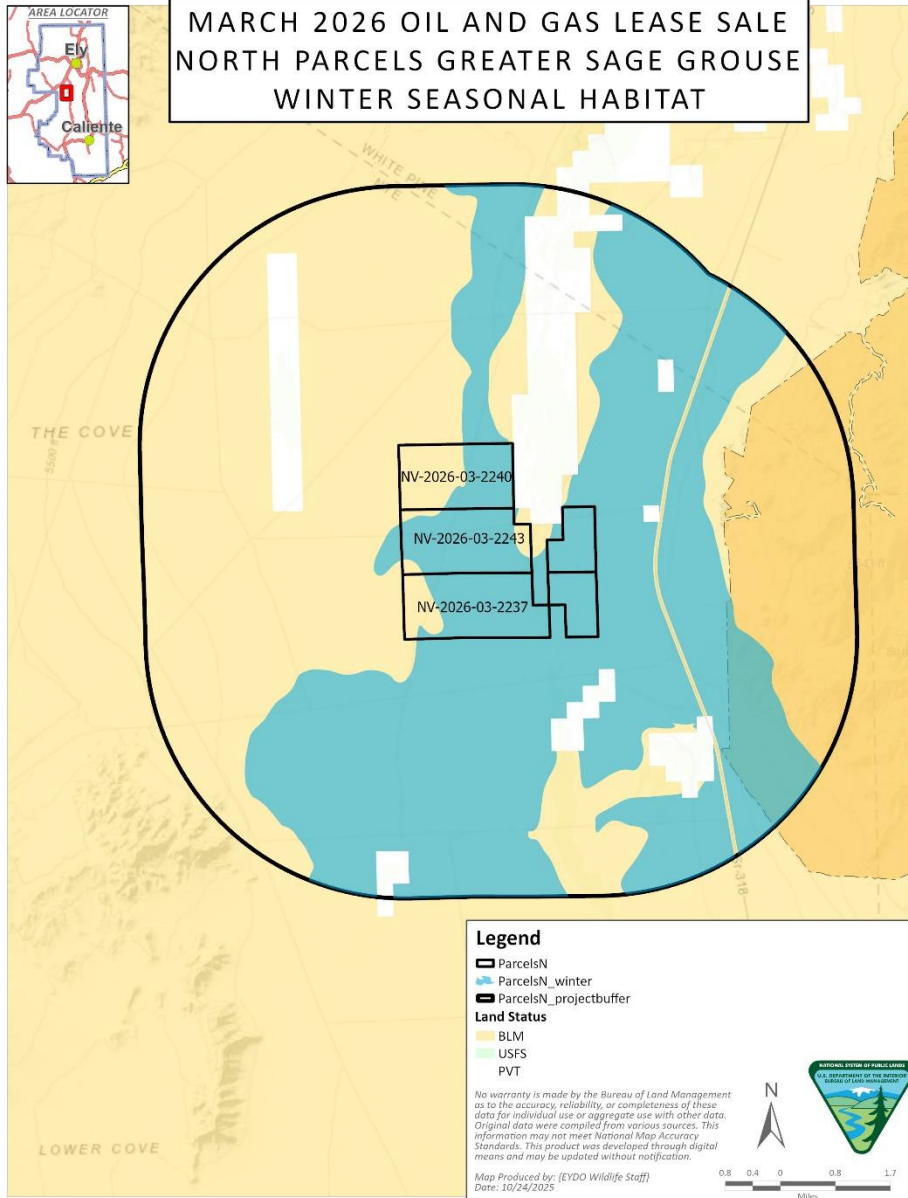


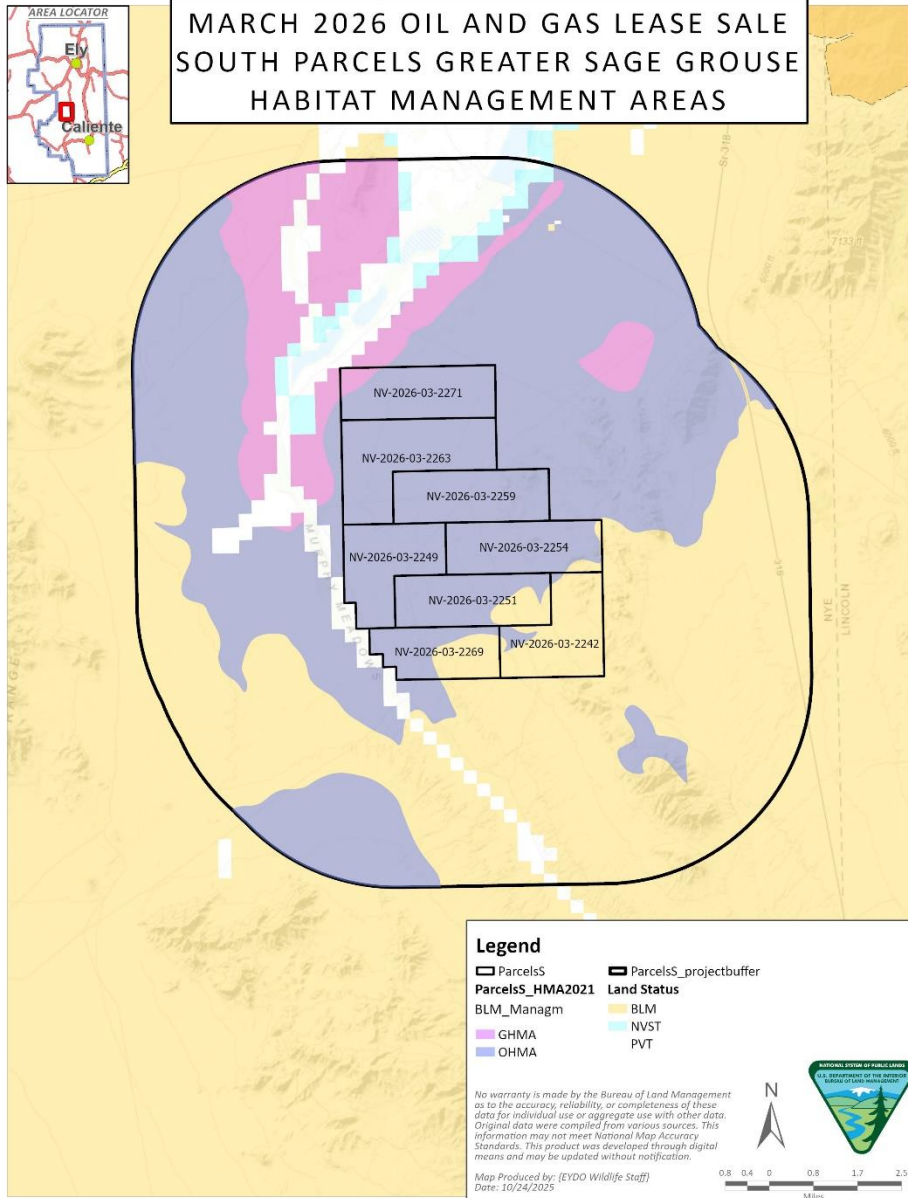


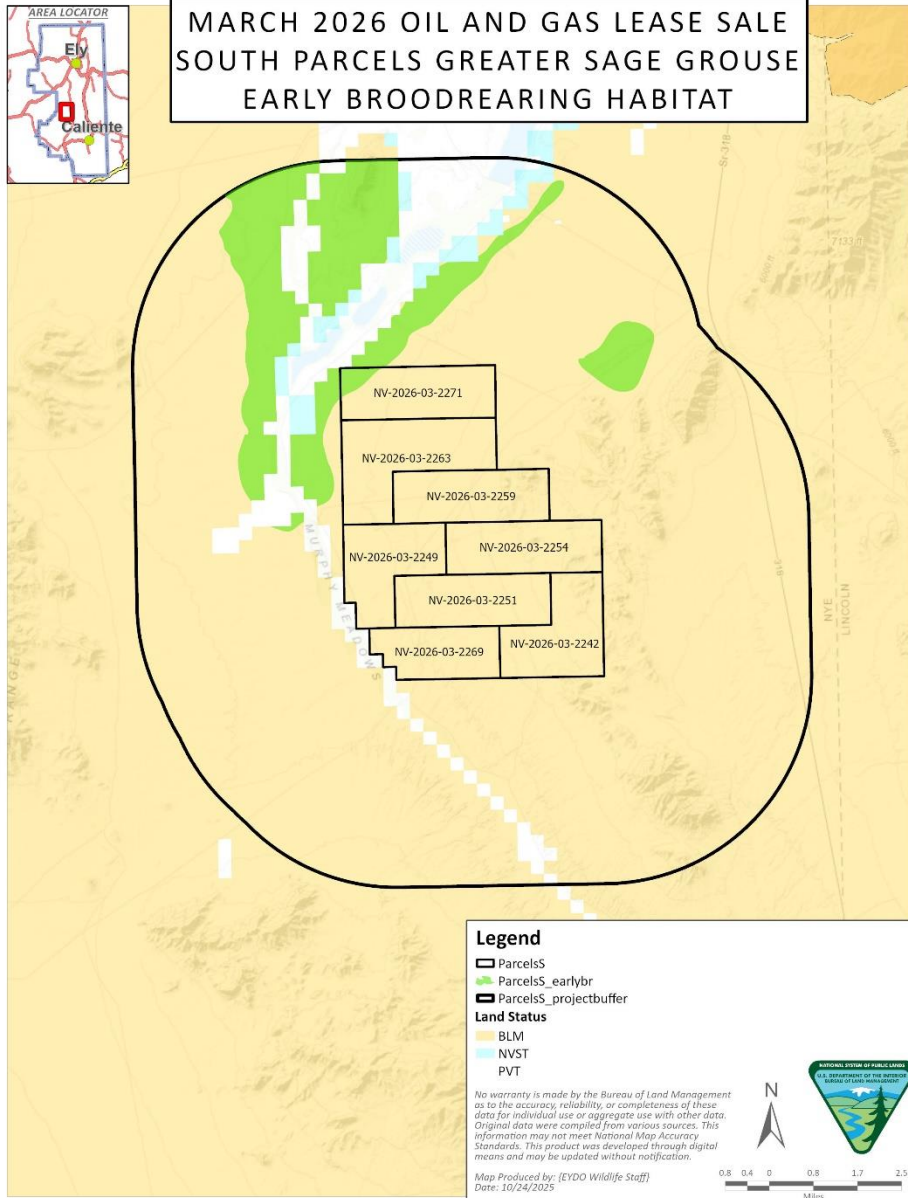


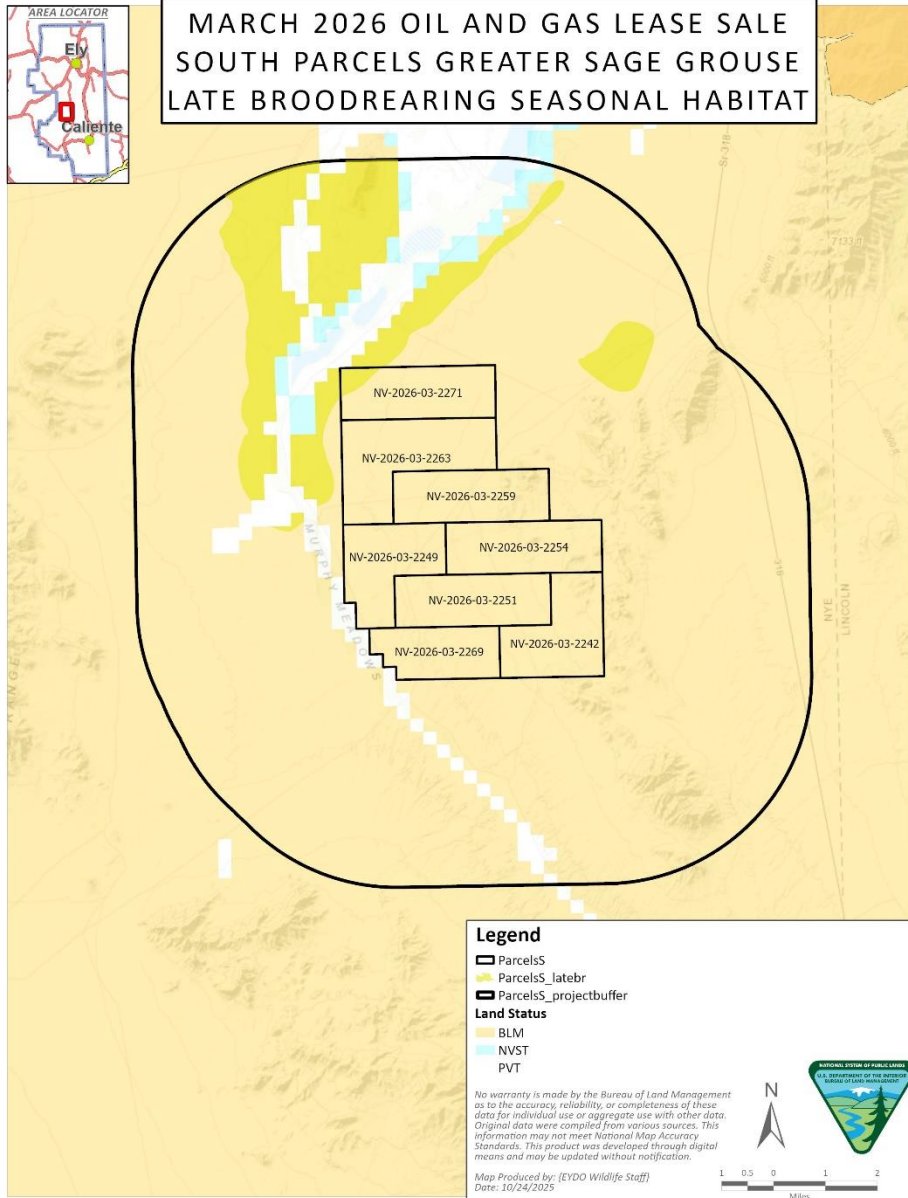


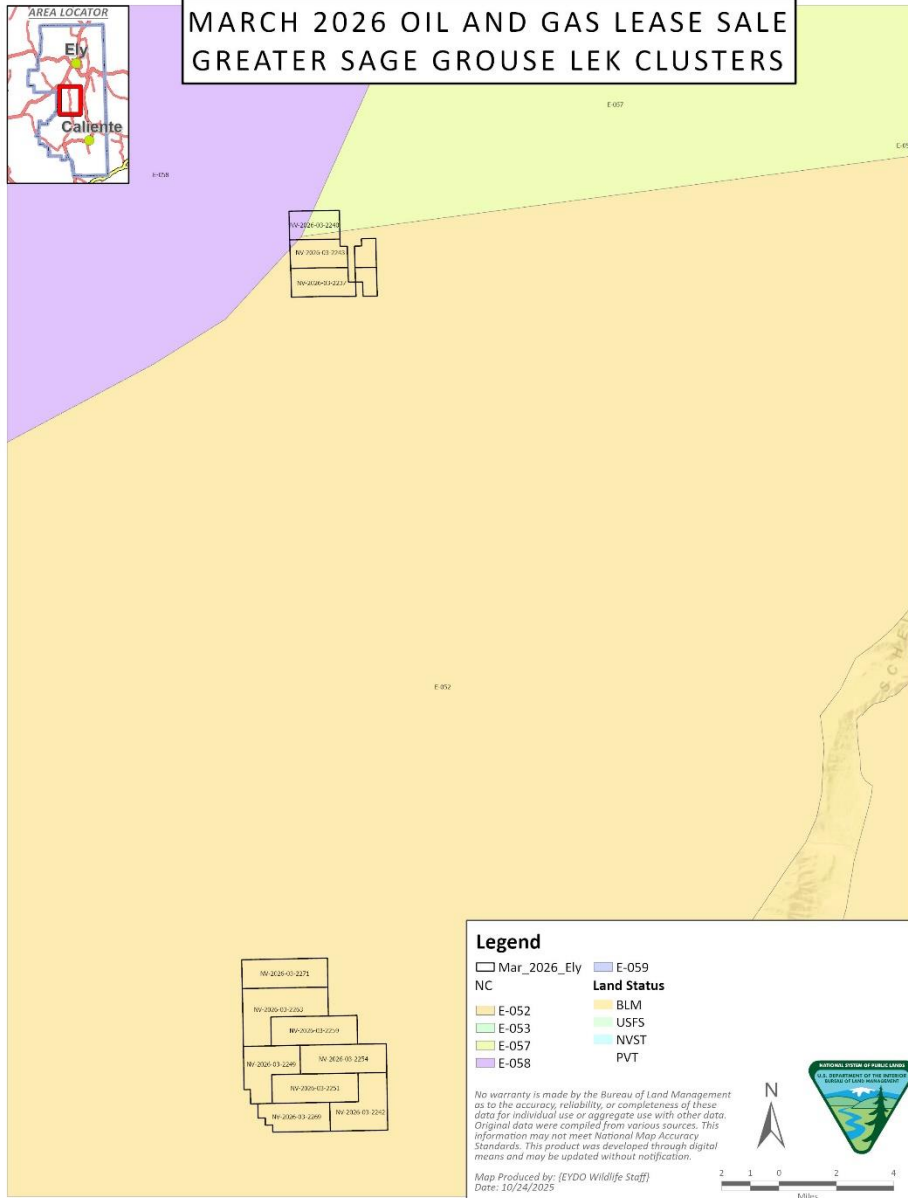












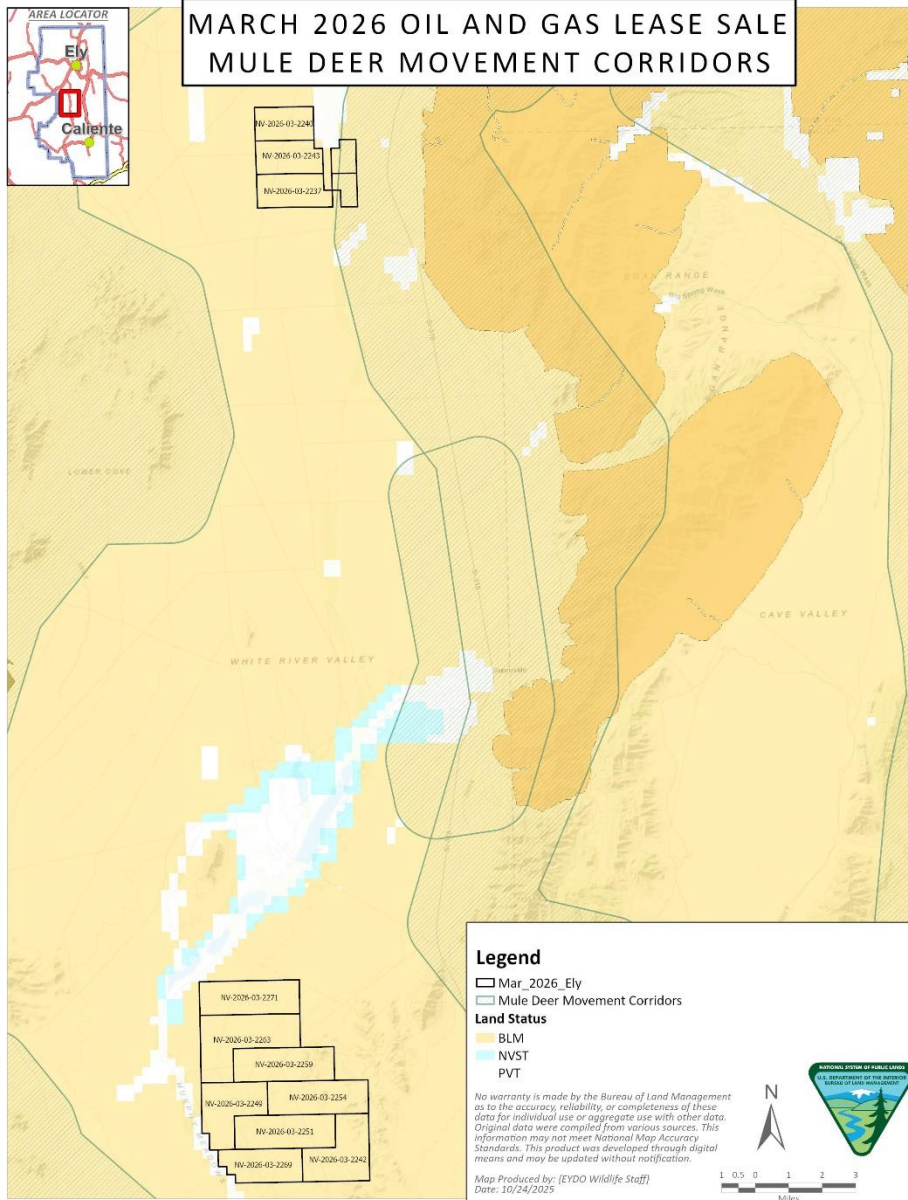


Table B-1 1. Sensitive Status Species found in the Proposed Action area (Section 3.5.3 and 3.5.4).

Common Name	Scientific Name
Northern leopard frog*	<i>Lithobates pipiens</i>
Western toad	<i>Anaxyrus boreas</i>
Bald eagle	<i>Haliaeetus leucocephalus</i>
Bank swallow	<i>Riparia riparia</i>
Black-chinned sparrow	<i>Spizella atrogularis</i>
Black-rosy finch	<i>Leucosticte atrata</i>
Black-throated grey warbler	<i>Setophaga nigrescens</i>
Brewer's sparrow	<i>Spizella breweri</i>
Broad-tailed hummingbird	<i>Selasphorus platycercus</i>
Burrowing owl	<i>Athene cunicularia hypugaea</i>
Cassin's finch	<i>Haemorhous cassinii</i>
Common nighthawk	<i>Chordeiles minor</i>
Ferruginous hawk	<i>Buteo regalis</i>
Flammulated owl	<i>Psilosops flammeolus</i>
Golden eagle	<i>Aquila chrysaetos</i>
Gray-crowned rosy-finch	<i>Leucosticte tephrocotis</i>
Great Basin willow flycatcher	<i>Empidonax traillii adastus</i>
Greater sage-grouse	<i>Centrocercus urophasianus</i>
Loggerhead shrike	<i>Lanius ludovicianus</i>
Long-billed curlew	<i>Numenius americanus</i>
Long-eared owl	<i>Asio otus</i>
Northern goshawk	<i>Accipiter gentilis</i>
Olive-sided flycatcher	<i>Contopus cooperi</i>
Peregrine falcon	<i>Falco peregrinus</i>
Pinyon jay*	<i>Gymnorhinus cyanocephalus</i>
Sage thrasher	<i>Oreoscoptes montanus</i>
Sagebrush sparrow	<i>Artemisiospiza nevadensis</i>
Short-eared owl	<i>Asio flammeus</i>
Swainson's hawk	<i>Buteo swainsoni</i>
Virginia's warbler	<i>Leiothlypis virginiae</i>
Wilson's phalarope*	<i>Phalaropus tricolor</i>
Monarch butterfly*	<i>Danaus plexippus</i>
Suckley cuckoo bumblebee*	<i>Bombus suckleyi</i>
Western bumble bee	<i>Bombus occidentalis</i>
Big free-tailed bat	<i>Nyctinomops macrotis</i>
California myotis	<i>Myotis californicus</i>
Canyon bat	<i>Parastrellus hesperus</i>
Dark kangaroo mouse	<i>Microdipodops megacephalus</i>
Fringed myotis	<i>Myotis thysanodes</i>
Hoary bat	<i>Lasiurus cinereus</i>
Little brown bat	<i>Myotis lucifugus</i>
Long-eared myotis	<i>Myotis evotis</i>

Long-legged myotis	<i>Myotis volans</i>
Merriam's shrew	<i>Sorex merriami</i>
Mexican free-tailed bat	<i>Tadarida brasiliensis</i>
Pallid bat	<i>Antrozous pallidus</i>
Pygmy rabbit	<i>Brachylagus idahoensis</i>
Silver-haired bat	<i>Lasionycteris noctivagans</i>
Spotted bat	<i>Euderma maculatum</i>
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>
Yuma myotis	<i>Myotis yumanensis</i>
Greater short-horned lizard	<i>Phrynosoma hernandesi</i>
Sonoran mountain kingsnake	<i>Lampropeltis pyromelana</i>
White River speckled dace	<i>Rhinichthys osculus velifer</i>
White River spinedace*	<i>Lepidomeda albivallis</i>
White River desert sucker	<i>Catostomus clarki intermedius</i>
Moorman White River springfish	<i>Crenichthys baileyi thermophilus</i>
Preston White River springfish	<i>Crenichthys baileyi albivallis</i>
Sculpin	<i>Cottus sp.</i>
Grated tyronia*	<i>Tyronia clathrate</i>
Emigrant pyrg	<i>Pyrgulopsis gracilis</i>
Flag pyrg*	<i>Pyrgulopsis breviloba</i>
Butterfield pyrg	<i>Pyrgulopsis lata</i>
Hardy pyrg	<i>Pyrgulopsis marcida</i>
Pahranagat pebblesnail*	<i>Pyrgulopsis merriami</i>
White River Valley pyrg*	<i>Pyrgulopsis sathos</i>
White River catseye	<i>Oreocarya welshii</i>
Dwarf peppergrass	<i>Lepidium nanum</i>
Tiehms blazingstar	<i>Mentzelia tiehmii</i>
Hanging bladderpod	<i>Physaria pendula</i>

*Petitioned for listing or listed under the Endangered Species Act

APPENDIX C. LEASE STIPULATIONS AND NOTICES BY PARCEL

Stipulations are restrictions that are included in the Ely District RMP 2008, as amended.

Lease Notices serve to inform prospective lessees of other regulatory authorities that may apply to a parcel.

BLM Nevada Standard Lease Notices

(#NV-L-00-A-LN)

These stipulations and notices apply to all parcels all lands and represent standard Best Management Practices for ensuring compliance with extant Federal Laws and resource protection.

T&E, Sensitive and Special Status Species

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 will contribute to a need to list such a 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 that may affect any such species or critical habitat until it completes its obligations under applicable requirements of the Endangered Species Act as amended, 16 U.S.C. §1531 et seq., including completion of any required procedure for conference or consultation.

Migratory Birds

The Operator is responsible for compliance with provisions of the Migratory Bird Treaty Act by implementing measures to prevent take of migratory birds. Operators should be aware that any ground clearing or other disturbance (such as creating cross-country access to sites, drilling, and/or construction) during the migratory bird (including raptors) nesting season (March 1 - July 31) risks a violation of the Migratory Bird Treaty Act. Disturbance to nesting migratory birds should be avoided by conducting surface disturbing activities outside the migratory bird nesting season.

If surface disturbing activities must be implemented during the nesting season, a preconstruction survey for nesting migratory birds should be performed by a qualified wildlife biologist, during the breeding season (if work is not completed within a specified time frame, then additional surveys may be needed). If active nests are found, an appropriately sized no surface disturbance buffer determined in coordination with the BLM biologist should be placed on the active nest until the nesting attempt has been completed.

If no active nests are found, construction activities must occur within the survey validity time frame specified in the conditions of approval.

Cultural Resources and Tribal Consultation

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, Executive Order 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 (e.g., State Historic Preservation Officer (SHPO) and tribal consultation) 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.

Fossils/Paleontology

This area has low to moderate potential for vertebrate paleontological resources, unless noted to have higher potential in a separate stipulation. This area may contain vertebrate paleontological resources. Inventory and/or on-site monitoring during disturbance or spot checking may be required of the operator. In the event that previously undiscovered paleontological resources are discovered in the performance of any surface disturbing activities, the item(s) or condition(s) will be left intact and immediately brought to the attention of the authorized officer of the BLM. Operations within 250 feet of any such discovery will not be resumed until written authorization to proceed is issued by the Authorized Officer. The lessee will bear the cost of any required paleontological appraisals, surface collection of fossils, or salvage of any large conspicuous fossils of significant scientific interest discovered during the operations.

Water

The Operator is responsible for compliance with provisions of the Clean Water Act, Safe Drinking Water Act, and applicable State laws and regulations regarding protection of state water resources. Operators should contact Nevada Division of Water Resources and Nevada Division of Environmental Protection regarding necessary permits and compliance measures for any construction or other activities.

Mining Claims

This parcel may contain existing mining claims and/or mill sites located under the 1872 Mining Law. To the extent it does, the oil and gas lessee must conduct its operations, so far as reasonably practicable, to avoid damage to any known deposit of any mineral for which any mining claim on this parcel is located, and should not endanger or unreasonably or materially interfere with the mining claimant's operations, including any existing surface or underground improvements, workings, or facilities which may have been made for the purpose of mining operations. The provisions of the Multiple Mineral Development Act (30 U.S.C. 521 et seq.) shall apply on the leased lands.

Fire

The following precautionary measures should be taken to prevent wildland fires. In the event your operations should start a fire, you could be held liable for all suppression costs.

- All vehicles should carry fire extinguishers and a minimum of 10 gallons of water.

- Adequate fire-fighting equipment i.e. shovel, Pulaski, extinguisher(s) and a minimum 10 gallons of water should be kept at the drill site(s).
- Vehicle catalytic converters should be inspected often and cleaned of all brush and grass debris.
- When conducting welding operations, they should be conducted in an area free from or mostly free from vegetation. A minimum of 10 gallons water and a shovel should be on hand to extinguish any fires created from the sparks. Extra personnel should be at the welding site to watch for fires created by welding sparks.
- Report wildland fires immediately to the BLM Eastern Nevada Interagency Dispatch Center at (775) 289-1925. Helpful information to report is location (latitude and longitude if possible), what's burning, time started, who/what is near the fire and direction of fire spread.
- When conducting operations during the months of June through September, the operator must contact the BLM Ely District Office, Division of Fire and Aviation at (775 289-1925) to find out about any fire restrictions in place for the area of operation and to advise this office of approximate beginning and ending dates for your activities.

HQ-MLA-1 Notice to Lessee Concerning 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 that is not producing coal in commercial quantities from each such lease cannot qualify for the issuance of any other lease granted under the MLA. 43 CFR 3472 explains coal lessee compliance with Section 2(a)(2)(A).

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; (2) the initial lessee as assignor or as transferor is no longer in compliance with Section 2(a)(2)(A); or (3) 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).

The lease case file, as well as in other Bureau of Land Management (BLM) records available through the State Office issuing this lease, contains information regarding assignor or transferor compliance with Section 2(a)(2)(A).

Parcel #Number	Legal Land Description
ALL	ALL LANDS

HQ-CR-1 Cultural Resource Protection

This lease may be found to contain historic properties and/or resources protected under 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.

Parcel Number	Legal Land Description
ALL	ALL LANDS

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. The 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 a species or their habitat. The BLM may require modifications to or disapprove proposed activity that is likely to result in jeopardy to the continued existence of a proposed or listed threatened or endangered species or result in the destruction or adverse modification of a designated or proposed critical habitat. The 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.

Parcel Number	Legal Land Description
ALL	ALL LANDS

Wild Horse and Burro

(NV-L-05-A-LN)

Wild horse or burro herds are known to use some or all of the proposed lease areas. If proposed fluid mineral activities are to occur in a Herd Management Area (HMA) or a Herd Area (HA) the BLM Authorized Officer may identify mitigation measures necessary for reducing adverse impacts to wild horses and/or burros. These measures would be designed so as to not hinder the wild and free-roaming behavior of the horses and burros and may include, but are not limited to, providing alternative water sources for horses of equal quality and quantity as well as fencing to prevent access to project area.

2242

NV-2026-03-2242

NV, Ely District Office, Bureau of Land Management, PD

Mount Diablo Meridian, Nevada

T. 4 N., R. 61 E.,

Sec. 2 LOTS 1 thru 4;

Sec. 2 S1/2NE1/4, S1/2NW1/4, S1/2;

Sec. 3 LOTS 1 thru 4;

Sec. 3 S1/2NE1/4, S1/2NW1/4, S1/2.

Mount Diablo Meridian, Nevada

T. 5 N., R. 61 E.,

Sec. 35 ALL.

Nye County

1,919.24 Acres

12.50% Royalty Rate

EOI# NV00020290, NV00020297

Parcel Specific Stipulations (Ely District RMP)
None

2269

NV-2026-03-2269

NV, Ely District Office, Bureau of Land Management, PD

Mount Diablo Meridian, Nevada

T. 4 N., R. 61 E.,

Sec. 4 LOTS 1 thru 4;

Sec. 4 S1/2NE1/4, S1/2NW1/4, S1/2;

Sec. 5 LOTS 1 thru 4;

Sec. 5 S1/2NE1/4, S1/2NW1/4, S1/2;

Sec. 6 LOTS 1, 2;

Sec. 6 S1/2NE1/4, NE1/4SE1/4.

Nye County

1,480.89 Acres

12.50% Royalty Rate
EOI# NV00020290, NV00020292

Parcel Specific Stipulations (Ely District RMP)
Mount Diablo Meridian, Nevada T. 4 N., R. 61 E., Sec. 6 LOT 2; Sec. 6 SW1/4NE1/4, NE1/4SE1/4. 100-year Flood Plains (#NV-L-10-C-NSO) Stipulation: No Surface Occupancy (NSO) on 100-year flood plains of major rivers that have a one percent chance of flooding in any given year. Objective [Purpose]: To protect the unique biological and hydrological features associated with 100-year flood plains of major rivers. Exception: The Authorized Officer may grant an exception if an environmental review determines that the action, as proposed or otherwise restricted, does not affect the resource. An exception may also be granted if the proponent, BLM, and other affected interests (e.g. NDOW) negotiate mitigation that would satisfactorily offset the anticipated negative impacts. Actions designed to enhance the long-term utility or availability of the protected resource may be exempted from the otherwise applicable restriction. Modification: The Authorized Officer may modify the size and shape of the restricted area if an environmental analysis indicates the actual suitability of the land for the resource differs from that in the otherwise applicable restriction. Waiver: The restriction may be waived if it is determined that the described lands do not contain the subject resource or are incapable of serving the requirements of the resource and therefore no longer warrant consideration as a component necessary for protection of the resource.

2271

NV-2026-03-2271
NV, Ely District Office, Bureau of Land Management, PD
Mount Diablo Meridian, Nevada
T. 5 N., R. 61 E.,
Sec. 7 LOTS 1 thru 4;
Sec. 7 E1/2, E1/2NW1/4, E1/2SW1/4;
Sec. 8 ALL;
Sec. 9 ALL.
Nye County
1,903.08 Acres
12.50% Royalty Rate
EOI# NV00020292

Parcel Specific Stipulations (Ely District RMP)
T. 5 N., R. 61 E., Sec. 7 LOTS 1 thru 3; Sec. N1/2NE1/4, SW1/4NE1/4, E1/2NW1/4.

**Greater Sage Grouse (GRSG) Late Brood-rearing Habitat – General Habitat
Management Area (GHMA)
(SG-06-TL)**

Stipulation: Timing Limitation (TL) -No surface occupancy would be allowed in GRSG late brood-rearing habitat from June 15 through September 15 in GHMA.

Objective [Purpose]: To protect GRSG late brood rearing habitat.

Exception: The Authorized Officer may grant an exception where an environmental review and consultation with the appropriate state agency (Nevada Department of Wildlife, Sagebrush Ecosystem Technical Team, California Department of Fish and Wildlife) determines that the action, as proposed or otherwise restricted, does not adversely affect GRSG or its habitat. An exception may also be granted if the proponent, the BLM, and the appropriate state agency negotiate mitigation that would provide a clear net conservation gain to GRSG and its habitat.

Modification: The Authorized Officer may modify the size and shape of the restricted area or the period of limitation where an environmental review and consultation with the appropriate state agency (Nevada Department of Wildlife, Sagebrush Ecosystem Technical Team, California Department of Fish and Wildlife) determines that the action, as proposed or otherwise restricted, does not adversely affect GRSG or its habitat.

Waiver: The Authorized Officer may wave the stipulation where an environmental review and consultation with the appropriate state agency (Nevada Department of Wildlife, Sagebrush Ecosystem Technical Team, California Department of Fish and Wildlife) determines that the described lands do not contain GRSG or suitable habitat or are otherwise incapable of serving the requirements of GRSG and therefore no longer warrant consideration as a component necessary for their protection.

2263

NV-2026-03-2263

NV, Ely District Office, Bureau of Land Management, PD

Mount Diablo Meridian, Nevada

T. 5 N., R. 61 E.,

Sec. 16 ALL;

Sec. 17 ALL;

Sec. 18 LOTS 1 thru 4;

Sec. 18 E1/2, E1/2NW1/4, E1/2SW1/4;

Sec. 19 LOTS 1 thru 4;

Sec. 19 E1/2, E1/2NW1/4, E1/2SW1/4.

Nye County

2,522.64 Acres

12.50% Royalty Rate

EOI# NV00020293

Rights-of-Way: N-085210 has valid existing rights on this parcel.

Parcel Specific Stipulations (Ely District RMP)
None

2259

NV-2026-03-2259

NV, Ely District Office, Bureau of Land Management, PD
Mount Diablo Meridian, Nevada

T. 5 N., R. 61 E.,
 Sec. 20 ALL;
 Sec. 21 ALL;
 Sec. 22 ALL.

Nye County

1,920 Acres

12.50% Royalty Rate

EOI# NV00020294

Rights-of-Way: N-085210 has valid existing rights on this parcel.

Parcel Specific Stipulations (Ely District RMP)
None

2254**NV-2026-03-2254**

NV, Ely District Office, Bureau of Land Management, PD
Mount Diablo Meridian, Nevada

T. 5 N., R. 61 E.,
 Sec. 26 ALL;
 Sec. 27 ALL;
 Sec. 28 ALL.

Nye County

1,920 Acres

12.50% Royalty Rate

EOI# NV00020294, NV00020295

Rights-of-Way: N-085210 has valid existing rights on this parcel.

Parcel Specific Stipulations (Ely District RMP)
None

2249**NV-2026-03-2249**

NV, Ely District Office, Bureau of Land Management, PD
Mount Diablo Meridian, Nevada

T. 5 N., R. 61 E.,
 Sec. 29 ALL;
 Sec. 30 LOTS 1 thru 4;
 Sec. 30 E1/2, E1/2NW1/4, E1/2SW1/4;
 Sec. 31 LOTS 1, 2;
 Sec. 31 E1/2, E1/2NW1/4, E1/2SW1/4.

Nye County

1,810.74 Acres
12.50% Royalty Rate
EOI# NV00020295, NV00020296

Parcel Specific Stipulations (Ely District RMP)
Mount Diablo Meridian, Nevada T. 5 N., R. 61 E., Sec. 31 LOT 2; Sec. 31 NE1/4SW1/4, SE1/4SW1/4. 100-year Flood Plains (#NV-L-10-C-NSO) Stipulation: No Surface Occupancy (NSO) on 100-year flood plains of major rivers that have a one percent chance of flooding in any given year. Objective [Purpose]: To protect the unique biological and hydrological features associated with 100-year flood plains of major rivers. Exception: The Authorized Officer may grant an exception if an environmental review determines that the action, as proposed or otherwise restricted, does not affect the resource. An exception may also be granted if the proponent, BLM, and other affected interests (e.g. NDOW) negotiate mitigation that would satisfactorily offset the anticipated negative impacts. Actions designed to enhance the long-term utility or availability of the protected resource may be exempted from the otherwise applicable restriction. Modification: The Authorized Officer may modify the size and shape of the restricted area if an environmental analysis indicates the actual suitability of the land for the resource differs from that in the otherwise applicable restriction. Waiver: The restriction may be waived if it is determined that the described lands do not contain the subject resource or are incapable of serving the requirements of the resource and therefore no longer warrant consideration as a component necessary for protection of the resource.

2251

NV-2026-03-2251

NV, Ely District Office, Bureau of Land Management, PD
Mount Diablo Meridian, Nevada

T. 5 N., R. 61 E.,
Sec. 32 ALL;
Sec. 33 ALL;
Sec. 34 ALL.

Nye County

1,920 Acres
12.50% Royalty Rate
EOI# NV00020296

Parcel Specific Stipulations (Ely District RMP)
None

2243

NV-2026-03-2243

NV, Ely District Office, Bureau of Land Management, PD
Mount Diablo Meridian, Nevada

T. 9 N., R. 61 E.,

Sec. 2 LOTS 1, 2;

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

Sec. 3 LOTS 2 thru 4;

Sec. 3 S1/2NE1/4, S1/2NW1/4, S1/2;

Sec. 4 LOTS 1 thru 4;

Sec. 4 S1/2NE1/4, S1/2NW1/4, S1/2.

Nye County

1,680.56 Acres

12.50% Royalty Rate

EOI# NV00020297

Parcel Specific Stipulations (Ely District RMP)

T. 9 N., R. 61 E.,

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

Sec. 3 SE1/4NE1/4, E1/2SE1/4.

**100-year Flood Plains
(#NV-L-10-C-NSO)**

Stipulation: No Surface Occupancy (NSO) on 100-year flood plains of major rivers that have a one percent chance of flooding in any given year.

Objective [Purpose]: To protect the unique biological and hydrological features associated with 100-year flood plains of major rivers.

Exception: The Authorized Officer may grant an exception if an environmental review determines that the action, as proposed or otherwise restricted, does not affect the resource. An exception may also be granted if the proponent, BLM, and other affected interests (e.g. NDOW) negotiate mitigation that would satisfactorily offset the anticipated negative impacts. Actions designed to enhance the long-term utility or availability of the protected resource may be exempted from the otherwise applicable restriction.

Modification: The Authorized Officer may modify the size and shape of the restricted area if an environmental analysis indicates the actual suitability of the land for the resource differs from that in the otherwise applicable restriction.

Waiver: The restriction may be waived if it is determined that the described lands do not contain the subject resource or are incapable of serving the requirements of the resource and therefore no longer warrant consideration as a component necessary for protection of the resource.

T. 9 N., R. 61 E.,

Sec. 2 LOTS 1, 2;

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

Sec. 3 LOTS 2 thru 4;

Sec. 3 S1/2NE1/4, S1/2NW1/4, S1/2;

Sec. 4 LOTS 1 thru 4;

Sec. 4 S1/2NE1/4, S1/2NW1/4, S1/2.

**Greater Sage Grouse (GRSG) Winter Habitat – General Habitat Management Area
(GHMA)**

(SG-04-TL)

Stipulation: Timing Limitation (TL) – No surface occupancy would be allowed in GRSG winter habitat from November 1 through February 28 in GHMA.

Objective [Purpose]: To protect GRSG winter habitat.

Exception: The Authorized Officer may grant an exception where an environmental review and consultation with the appropriate state agency (Nevada Department of Wildlife, Sagebrush Ecosystem Technical Team, California Department of Fish and Wildlife) determines that the action, as proposed or otherwise restricted, does not adversely affect GRSG or its habitat. An exception may also be granted if the proponent, the BLM, and the appropriate state agency negotiate mitigation that would provide a clear net conservation gain to GRSG and its habitat.

Modification: The Authorized Officer may modify the size and shape of the restricted area or the period of limitation where an environmental review and consultation with the appropriate state agency (Nevada Department of Wildlife, Sagebrush Ecosystem Technical Team, California Department of Fish and Wildlife) determines that the action, as proposed or otherwise restricted, does not adversely affect GRSG or its habitat.

Waiver: The Authorized Officer may wave the stipulation where an environmental review and consultation with the appropriate state agency (Nevada Department of Wildlife, Sagebrush Ecosystem Technical Team, California Department of Fish and Wildlife) determines that the described lands do not contain GRSG or suitable habitat or are otherwise incapable of serving the requirements of GRSG and therefore no longer warrant consideration as a component necessary for their protection.

T. 9 N., R. 61 E.,
Sec. 2 LOTS 1, 2;
Sec. 2 S1/2NE1/4, SE1/4NW1/4, E1/2SW1/4, SE1/4;
Sec. 3 LOTS 2 thru 4;
Sec. 3 S1/2NE1/4, S1/2NW1/4, S1/2;
Sec. 4 LOTS 1 thru 4;
Sec. 4 S1/2NE1/4, S1/2NW1/4, S1/2.

**Greater Sage Grouse (GRSG) Early Brood-rearing Habitat – General Habitat
Management Area (GHMA)
(NV-L-16-D-TL)**

Stipulation: Timing Limitation (TL) - No surface occupancy would be allowed in GRSG early brood-rearing habitat from May 15 through June 15 in GHMA.

Objective [Purpose]: To protect GRSG early brood rearing habitat.

Exception: The Authorized Officer may grant an exception where an environmental review and consultation with the appropriate state agency (Nevada Department of Wildlife, Sagebrush Ecosystem Technical Team, California Department of Fish and Wildlife) determines that the action, as proposed or otherwise restricted, does not adversely affect GRSG or its habitat. An exception may also be granted if the proponent, the BLM, and the appropriate state agency negotiate mitigation that would provide a clear net conservation gain to GRSG and its habitat.

Modification: The Authorized Officer may modify the size and shape of the restricted area or the period of limitation where an environmental review and consultation with the appropriate state agency (Nevada Department of Wildlife, Sagebrush Ecosystem Technical Team, California Department of Fish and Wildlife) determines that the action, as proposed or otherwise restricted, does not adversely affect GRSG or its habitat.

Waiver: The Authorized Officer may wave the stipulation where an environmental review and consultation with the appropriate state agency (Nevada Department of Wildlife, Sagebrush Ecosystem Technical Team, California Department of Fish and Wildlife) determines that the described lands do not contain GRSG or suitable habitat or

are otherwise incapable of serving the requirements of GRSG and therefore no longer warrant consideration as a component necessary for their protection

T. 9 N., R. 61 E.,
Sec. 2 LOTS 1, 2;
Sec. 2 S1/2NE1/4, SE1/4NW1/4, E1/2SW1/4, SE1/4;
Sec. 3 LOTS 2 thru 4;
Sec. 3 S1/2NE1/4, S1/2NW1/4, S1/2;
Sec. 4 LOTS 1 thru 4;
Sec. 4 S1/2NE1/4, S1/2NW1/4, S1/2.

**Greater Sage Grouse (GRSG) Late Brood-rearing Habitat – General Habitat
Management Area (GHMA)
(SG-06-TL)**

Stipulation: Timing Limitation (TL) -No surface occupancy would be allowed in GRSG late brood-rearing habitat from June 15 through September 15 in GHMA.

Objective [Purpose]: To protect GRSG late brood rearing habitat.

Exception: The Authorized Officer may grant an exception where an environmental review and consultation with the appropriate state agency (Nevada Department of Wildlife, Sagebrush Ecosystem Technical Team, California Department of Fish and Wildlife) determines that the action, as proposed or otherwise restricted, does not adversely affect GRSG or its habitat. An exception may also be granted if the proponent, the BLM, and the appropriate state agency negotiate mitigation that would provide a clear net conservation gain to GRSG and its habitat.

Modification: The Authorized Officer may modify the size and shape of the restricted area or the period of limitation where an environmental review and consultation with the appropriate state agency (Nevada Department of Wildlife, Sagebrush Ecosystem Technical Team, California Department of Fish and Wildlife) determines that the action, as proposed or otherwise restricted, does not adversely affect GRSG or its habitat.

Waiver: The Authorized Officer may wave the stipulation where an environmental review and consultation with the appropriate state agency (Nevada Department of Wildlife, Sagebrush Ecosystem Technical Team, California Department of Fish and Wildlife) determines that the described lands do not contain GRSG or suitable habitat or are otherwise incapable of serving the requirements of GRSG and therefore no longer warrant consideration as a component necessary for their protection.

T. 9 N., R. 61 E.,
Sec. 2 LOTS 1, 2;
Sec. 2 S1/2NE1/4, E1/2SW1/4, SE1/4.

**Mule Deer Migration Corridors
(#NV-L-02-B-TL)**

Stipulation: Timing Limitation (TL) No surface activity within Mule Deer migration corridors from November 1 through April 30.

Objective: To protect mule deer migration corridors necessary to maintaining the critical life stage of Mule Deer wildlife populations.

Exception: The Authorized Officer may grant an exception if an environmental review determines that the action, as proposed or otherwise restricted, does not adversely affect the Mule Deer and its habitat. An exception may also be granted if the proponent, BLM, and other affected interests negotiate mitigation that would satisfactorily offset the anticipated impacts the Mule Deer and its habitat. An exception may be granted for actions designed to enhance the long-term utility or availability of the habitat.

Modification: The boundaries of the stipulated area may be modified if the authorized officer, in consultation with Nevada Department of Wildlife, determines that portions of the area no longer contain the seasonal migration corridor or that the proposed action would not affect the species and habitat. The dates for the timing restriction may also be modified by the Authorized Officer if new information indicates the dates are not valid for the leasehold. Any modification authorized by this stipulation is subject to 43 C.F.R. 3101.1--4, including provisions requiring public review for issues of major public concern, or substantial modifications.

Waiver: No Waiver

2237

NV-2026-03-2237

NV, Ely District Office, Bureau of Land Management, PD
Mount Diablo Meridian, Nevada

T. 9 N., R. 61 E.,
 Sec. 9 ALL;
 Sec. 10 ALL;
 Sec. 11 NE1/4, E1/2NW1/4, W1/2SW1/4, SE1/4.

Nye County

1,760 Acres

12.50% Royalty Rate

EOI# NV00020298, NV00020299

Parcel Specific Stipulations (Ely District RMP)

T. 9 N., R. 61 E.,
 Sec. 10 NE1/4NE1/4, SE1/4NE1/4, NE1/4SE1/4, SE1/4SE1/4;
 Sec. 11 NE1/4NW1/4, SE1/4NW1/4.

**100-year Flood Plains
(#NV-L-10-C-NSO)**

Stipulation: No Surface Occupancy (NSO) on 100-year flood plains of major rivers that have a one percent chance of flooding in any given year.

Objective [Purpose]: To protect the unique biological and hydrological features associated with 100-year flood plains of major rivers.

Exception: The Authorized Officer may grant an exception if an environmental review determines that the action, as proposed or otherwise restricted, does not affect the resource. An exception may also be granted if the proponent, BLM, and other affected interests (e.g. NDOW) negotiate mitigation that would satisfactorily offset the anticipated negative impacts. Actions designed to enhance the long-term utility or availability of the protected resource may be exempted from the otherwise applicable restriction.

Modification: The Authorized Officer may modify the size and shape of the restricted area if an environmental analysis indicates the actual suitability of the land for the resource differs from that in the otherwise applicable restriction.

Waiver: The restriction may be waived if it is determined that the described lands do not contain the subject resource or are incapable of serving the requirements of the resource and therefore no longer warrant consideration as a component necessary for protection of the resource.

T. 9 N., R. 61 E.,
 Sec. 9 NE1/4, E1/2NW1/4, S1/2SW1/4, SE1/4;

Sec. 10 ALL;
Sec. 11 NE1/4, E1/2NW1/4, W1/2SW1/4, SE1/4.

**Greater Sage Grouse (GRSG) Winter Habitat – General Habitat Management Area
(GHMA)
(SG-04-TL)**

Stipulation: Timing Limitation (TL) – No surface occupancy would be allowed in GRSG winter habitat from November 1 through February 28 in GHMA.

Objective [Purpose]: To protect GRSG winter habitat.

Exception: The Authorized Officer may grant an exception where an environmental review and consultation with the appropriate state agency (Nevada Department of Wildlife, Sagebrush Ecosystem Technical Team, California Department of Fish and Wildlife) determines that the action, as proposed or otherwise restricted, does not adversely affect GRSG or its habitat. An exception may also be granted if the proponent, the BLM, and the appropriate state agency negotiate mitigation that would provide a clear net conservation gain to GRSG and its habitat.

Modification: The Authorized Officer may modify the size and shape of the restricted area or the period of limitation where an environmental review and consultation with the appropriate state agency (Nevada Department of Wildlife, Sagebrush Ecosystem Technical Team, California Department of Fish and Wildlife) determines that the action, as proposed or otherwise restricted, does not adversely affect GRSG or its habitat.

Waiver: The Authorized Officer may wave the stipulation where an environmental review and consultation with the appropriate state agency (Nevada Department of Wildlife, Sagebrush Ecosystem Technical Team, California Department of Fish and Wildlife) determines that the described lands do not contain GRSG or suitable habitat or are otherwise incapable of serving the requirements of GRSG and therefore no longer warrant consideration as a component necessary for their protection.

T. 9 N., R. 61 E.,
Sec. 9 NE1/4, E1/2NW1/4, S1/2SW1/4, SE1/4;
Sec. 10 ALL;
Sec. 11 NE1/4, E1/2NW1/4, W1/2SW1/4, SE1/4.

**Greater Sage Grouse (GRSG) Early Brood-rearing Habitat – General Habitat
Management Area (GHMA)
(NV-L-16-D-TL)**

Stipulation: Timing Limitation (TL) - No surface occupancy would be allowed in GRSG early brood-rearing habitat from May 15 through June 15 in GHMA.

Objective [Purpose]: To protect GRSG early brood rearing habitat.

Exception: The Authorized Officer may grant an exception where an environmental review and consultation with the appropriate state agency (Nevada Department of Wildlife, Sagebrush Ecosystem Technical Team, California Department of Fish and Wildlife) determines that the action, as proposed or otherwise restricted, does not adversely affect GRSG or its habitat. An exception may also be granted if the proponent, the BLM, and the appropriate state agency negotiate mitigation that would provide a clear net conservation gain to GRSG and its habitat.

Modification: The Authorized Officer may modify the size and shape of the restricted area or the period of limitation where an environmental review and consultation with the appropriate state agency (Nevada Department of Wildlife, Sagebrush Ecosystem Technical Team, California Department of Fish and Wildlife) determines that the action, as proposed or otherwise restricted, does not adversely affect GRSG or its habitat.

Waiver: The Authorized Officer may wave the stipulation where an environmental review and consultation with the appropriate state agency (Nevada Department of Wildlife, Sagebrush Ecosystem Technical Team, California Department of Fish and Wildlife) determines that the described lands do not contain GRSG or suitable habitat or are otherwise incapable of serving the requirements of GRSG and therefore no longer warrant consideration as a component necessary for their protection.

T. 9 N., R. 61 E.,
Sec. 9 NE1/4, E1/2NW1/4, S1/2SW1/4, SE1/4;
Sec. 10 ALL;
Sec. 11 NE1/4, E1/2NW1/4, W1/2SW1/4, SE1/4.

**Greater Sage Grouse (GRSG) Late Brood-rearing Habitat – General Habitat
Management Area (GHMA)
(SG-06-TL)**

Stipulation: Timing Limitation (TL) -No surface occupancy would be allowed in GRSG late brood-rearing habitat from June 15 through September 15 in GHMA.

Objective [Purpose]: To protect GRSG late brood rearing habitat.

Exception: The Authorized Officer may grant an exception where an environmental review and consultation with the appropriate state agency (Nevada Department of Wildlife, Sagebrush Ecosystem Technical Team, California Department of Fish and Wildlife) determines that the action, as proposed or otherwise restricted, does not adversely affect GRSG or its habitat. An exception may also be granted if the proponent, the BLM, and the appropriate state agency negotiate mitigation that would provide a clear net conservation gain to GRSG and its habitat.

Modification: The Authorized Officer may modify the size and shape of the restricted area or the period of limitation where an environmental review and consultation with the appropriate state agency (Nevada Department of Wildlife, Sagebrush Ecosystem Technical Team, California Department of Fish and Wildlife) determines that the action, as proposed or otherwise restricted, does not adversely affect GRSG or its habitat.

Waiver: The Authorized Officer may wave the stipulation where an environmental review and consultation with the appropriate state agency (Nevada Department of Wildlife, Sagebrush Ecosystem Technical Team, California Department of Fish and Wildlife) determines that the described lands do not contain GRSG or suitable habitat or are otherwise incapable of serving the requirements of GRSG and therefore no longer warrant consideration as a component necessary for their protection.

T. 9 N., R. 61 E.,
Sec. 11 NE1/4, E1/2NW1/4, SE1/4.

**Mule Deer Migration Corridors
(#NV-L-02-B-TL)**

Stipulation: Timing Limitation (TL) No surface activity within Mule Deer migration corridors from November 1 through April 30.

Objective: To protect mule deer migration corridors necessary to maintaining the critical life stage of Mule Deer wildlife populations.

Exception: The Authorized Officer may grant an exception if an environmental review determines that the action, as proposed or otherwise restricted, does not adversely affect the Mule Deer and its habitat. An exception may also be granted if the proponent, BLM, and other affected interests negotiate mitigation that would satisfactorily offset the anticipated impacts the Mule Deer and its habitat. An exception may be granted for actions designed to enhance the long-term utility or availability of the habitat.

Modification: The boundaries of the stipulated area may be modified if the authorized officer, in consultation with Nevada Department of Wildlife, determines that portions of the area no longer contain the seasonal migration corridor or that the proposed action would not affect the species and habitat. The dates for the timing restriction may also be modified by the Authorized Officer if new information indicates the dates are not valid for the leasehold. Any modification authorized by this stipulation is subject to 43 C.F.R. 3101.1--4, including provisions requiring public review for issues of major public concern, or substantial modifications.

Waiver: No Waiver

2240

NV-2026-03-2240

NV, Ely District Office, Bureau of Land Management, PD

Mount Diablo Meridian, Nevada

T. 10 N., R. 61 E.,

Sec. 33 ALL;

Sec. 34 W1/2NE1/4, W1/2, W1/2SE1/4.

Nye County

1,120 Acres

12.50% Royalty Rate

EOI# NV00020298

Parcel Specific Stipulations (Ely District RMP)

Mount Diablo Meridian, Nevada

T. 10 N., R. 61 E.,

Sec. 34 NW1/4NE1/4.

100-year Flood Plains (#NV-L-10-C-NSO)

Stipulation: No Surface Occupancy (NSO) on 100-year flood plains of major rivers that have a one percent chance of flooding in any given year.

Objective [Purpose]: To protect the unique biological and hydrological features associated with 100-year flood plains of major rivers.

Exception: The Authorized Officer may grant an exception if an environmental review determines that the action, as proposed or otherwise restricted, does not affect the resource. An exception may also be granted if the proponent, BLM, and other affected interests (e.g. NDOW) negotiate mitigation that would satisfactorily offset the anticipated negative impacts. Actions designed to enhance the long-term utility or availability of the protected resource may be exempted from the otherwise applicable restriction.

Modification: The Authorized Officer may modify the size and shape of the restricted area if an environmental analysis indicates the actual suitability of the land for the resource differs from that in the otherwise applicable restriction.

Waiver: The restriction may be waived if it is determined that the described lands do not contain the subject resource or are incapable of serving the requirements of the resource and therefore no longer warrant consideration as a component necessary for protection of the resource.

T. 10 N., R. 61 E.,

Sec. 33 ALL;

Sec. 34 W1/2NE1/4, W1/2, W1/2SE1/4.

Greater Sage Grouse Adaptive Management Strategy (522 DM 1)

Stipulation: No Surface Occupancy. Lek Cluster Hard Trigger Response -Manage oil and gas resources in Nevada as No Surface Occupancy (NSO), with limited exceptions.

Objective [Purpose]: To protect Greater Sage Grouse (GRSG) in a lek cluster that has reached a hard trigger.

Exception: The State Director may grant an exception to the allocations and stipulations if one of the following applies (in coordination with NDOW, SETT):

- i. The location of the proposed authorization is determined to be unsuitable (by a biologist with GRSG experience using methods such as Stiver et al 2015) and lacks the ecological potential to become marginal or suitable habitat; and would not result in direct, indirect, or impacts on GRSG and its habitat. Management allocation decisions would not apply to those areas determined to be unsuitable because the area lacks the ecological potential to become marginal or suitable habitat, and/or
- ii. The proposed activity's impacts could be offset to result in no adverse impacts on GRSG or its habitat, through use of the mitigation hierarchy consistent with Federal law and the state's mitigation policies and programs, such as the State of Nevada's Executive Order 2018-32 (and any future regulations developed to implement this order). In cases where exceptions may be granted for projects with a residual impact, voluntary compensatory mitigation consistent with the State's mitigation policies and programs, such as the State of Nevada's Executive Order 2018-32 (and any future regulations developed to implement this order) would be one mechanism by which a proponent achieves the Approved RMP Amendment goals, objectives, and exception criteria. When a proponent volunteers compensatory mitigation as their chosen approach to address residual impacts, the BLM can incorporate those actions into the rationale used to grant an exception. The final decision to grant a waiver, exception, or modification would be based, in part, on criteria consistent with the State's GRSG management plans and policies.

Modification: The Authorized Officer may modify the size and shape of the restricted area or the period of limitation where an environmental review and consultation with the appropriate state agency (Nevada Department of Wildlife, Sagebrush Ecosystem Technical Team, California Department of Fish and Wildlife) determines that the action, as proposed or otherwise restricted, does not adversely affect GRSG or its habitat.

Waiver: The stipulation may be waived if the authorized officer, in consultation with the appropriate state wildlife agency (NDOW), determines that the entire leasehold is within unsuitable habitat (see exceptions above) and would not result in direct, indirect, or impacts to GRSG and/or its habitat.

T. 10 N., R. 61 E.,
Sec. 33 E1/2NE1/4, NE1/4SE1/4, S1/2SE1/4;
Sec. 34 W1/2NE1/4, W1/2, W1/2SE1/4.

Greater Sage Grouse (GRSG) Winter Habitat – General Habitat Management Area (GHMA) (SG-04-TL)

Stipulation: Timing Limitation (TL) – No surface occupancy would be allowed in GRSG winter habitat from November 1 through February 28 in GHMA.

Objective [Purpose]: To protect GRSG winter habitat.

Exception: The Authorized Officer may grant an exception where an environmental review and consultation with the appropriate state agency (Nevada Department of Wildlife, Sagebrush Ecosystem Technical Team, California Department of Fish and Wildlife) determines that the action, as proposed or otherwise restricted, does not adversely affect GRSG or its habitat. An exception may also be granted if the proponent, the BLM, and the appropriate state agency negotiate mitigation that would provide a clear net conservation gain to GRSG and its habitat.

Modification: The Authorized Officer may modify the size and shape of the restricted area or the period of limitation where an environmental review and consultation with the appropriate state agency (Nevada

Department of Wildlife, Sagebrush Ecosystem Technical Team, California Department of Fish and Wildlife) determines that the action, as proposed or otherwise restricted, does not adversely affect GRSG or its habitat.

Waiver: The Authorized Officer may wave the stipulation where an environmental review and consultation with the appropriate state agency (Nevada Department of Wildlife, Sagebrush Ecosystem Technical Team, California Department of Fish and Wildlife) determines that the described lands do not contain GRSG or suitable habitat or are otherwise incapable of serving the requirements of GRSG and therefore no longer warrant consideration as a component necessary for their protection.

T. 10 N., R. 61 E.,

Sec. 33 E1/2NE1/4, NE1/4SE1/4, S1/2SE1/4;

Sec. 34 W1/2NE1/4, W1/2, W1/2SE1/4.

**Greater Sage Grouse (GRSG) Early Brood-rearing Habitat – General Habitat
Management Area (GHMA)
(NV-L-16-D-TL)**

Stipulation: Timing Limitation (TL) - No surface occupancy would be allowed in GRSG early brood-rearing habitat from May 15 through June 15 in GHMA.

Objective [Purpose]: To protect GRSG early brood rearing habitat.

Exception: The Authorized Officer may grant an exception where an environmental review and consultation with the appropriate state agency (Nevada Department of Wildlife, Sagebrush Ecosystem Technical Team, California Department of Fish and Wildlife) determines that the action, as proposed or otherwise restricted, does not adversely affect GRSG or its habitat. An exception may also be granted if the proponent, the BLM, and the appropriate state agency negotiate mitigation that would provide a clear net conservation gain to GRSG and its habitat.

Modification: The Authorized Officer may modify the size and shape of the restricted area or the period of limitation where an environmental review and consultation with the appropriate state agency (Nevada Department of Wildlife, Sagebrush Ecosystem Technical Team, California Department of Fish and Wildlife) determines that the action, as proposed or otherwise restricted, does not adversely affect GRSG or its habitat.

Waiver: The Authorized Officer may wave the stipulation where an environmental review and consultation with the appropriate state agency (Nevada Department of Wildlife, Sagebrush Ecosystem Technical Team, California Department of Fish and Wildlife) determines that the described lands do not contain GRSG or suitable habitat or are otherwise incapable of serving the requirements of GRSG and therefore no longer warrant consideration as a component necessary for their protection.

T. 10 N., R. 61 E.,

Sec. 33 E1/2NE1/4, NE1/4SE1/4, S1/2SE1/4;

Sec. 34 W1/2NE1/4, W1/2, W1/2SE1/4.

**Greater Sage Grouse (GRSG) Late Brood-rearing Habitat – General Habitat
Management Area (GHMA)
(SG-06-TL)**

Stipulation: Timing Limitation (TL) -No surface occupancy would be allowed in GRSG late brood-rearing habitat from June 15 through September 15 in GHMA.

Objective [Purpose]: To protect GRSG late brood rearing habitat.

Exception: The Authorized Officer may grant an exception where an environmental review and consultation with the appropriate state agency (Nevada Department of Wildlife, Sagebrush Ecosystem Technical Team, California Department of Fish and Wildlife) determines that the action, as proposed or otherwise restricted, does not adversely affect GRSG or its habitat. An exception may also be granted if the proponent, the BLM, and the

appropriate state agency negotiate mitigation that would provide a clear net conservation gain to GRSG and its habitat.

Modification: The Authorized Officer may modify the size and shape of the restricted area or the period of limitation where an environmental review and consultation with the appropriate state agency (Nevada Department of Wildlife, Sagebrush Ecosystem Technical Team, California Department of Fish and Wildlife) determines that the action, as proposed or otherwise restricted, does not adversely affect GRSG or its habitat.

Waiver: The Authorized Officer may wave the stipulation where an environmental review and consultation with the appropriate state agency (Nevada Department of Wildlife, Sagebrush Ecosystem Technical Team, California Department of Fish and Wildlife) determines that the described lands do not contain GRSG or suitable habitat or are otherwise incapable of serving the requirements of GRSG and therefore no longer warrant consideration as a component necessary for their protection.

APPENDIX D. ELY DISTRICT BEST MANAGEMENT PRACTICES FOR OIL AND GAS

Air Resources

- Use dust abatement techniques on unpaved, un-vegetated surfaces to minimize airborne dust.
- Post and enforce speed limits (e.g., 25 miles per hour) to reduce airborne fugitive dust.
- Cover construction materials and stockpiled soils if they are a source of fugitive dust.
- Use dust abatement techniques before and during surface clearing, excavation, or blasting activities.

Water Resources

- Avoid the application of fire retardant or foam within 300 feet of a stream channel or waterway, when possible, except for the protection of life and property. Aerial application and use of retardants and foams would be consistent with national policy guidelines established by the National Office of Fire and Aviation, as amended.
- Fire engines that have surfactant foam mixes in tanks must be fitted with an anti-siphon (back flow protection valve) if filled directly from a stream channel.
- Construct a containment barrier around all pumps and fuel containers utilized within 100 feet (30.5 meters) of a stream channel. The containment barrier would be of sufficient size to contain all fuel being stored or used on site.
- Prior to use on lands administered by the Ely Field Office, all fire suppression equipment from outside the planning area utilized to extract water from lakes, streams, ponds, or spring sources (e.g., helicopter buckets, draft hoses, and screens) will be thoroughly rinsed to remove mud and debris and then disinfected to prevent the spread of invasive aquatic species. Rinsing equipment with disinfectant solution will not occur within 100 feet of natural water sources (i.e., lakes, streams, or springs). Ely suppression equipment utilized to extract water from water sources known to be contaminated with invasive aquatic species, as identified by the U.S. Fish and Wildlife Service and Nevada Department of Wildlife, also will be disinfected prior to use elsewhere on lands administered by the Ely Field Office.
- Do not dump surfactant foam mixes from fire engines within 600 feet of a stream channel.
- Do not conduct fire retardant mixing operations within 600 feet of a stream channel.
- Remove all modifications made to impound or divert stream flow by mechanical or other means to facilitate extraction of water from a stream for fire suppression efforts when suppression efforts are completed.
- When drafting or dipping water during fire operations, continuously monitor water levels at the site that water is being removed from. Do not allow water extraction to exceed the ability of the recharge inflow to maintain the water levels that exist at the time initial attack efforts began. If the water level drops below this predetermined level, all water removal would cease immediately until water levels are recharged.
- When possible, do not cross or terminate fire control lines at the stream channel. Terminate control lines at the edge of the riparian zone at a location determined appropriate to meet fire suppression objectives based on fire behavior, vegetation/fuel types, and fire fighter safety.
- Construct access roads and fords that cross stream channels to BLM road standards.
- Do not construct new roads or mechanical fire control lines or improve existing roads within 300 feet of a stream channel unless authorized by the BLM Field Manager or Authorized Officer.
- Limit stream crossings on travel routes and trails to the minimal number necessary to minimize sedimentation and compaction. The BLM Authorized Officer will determine if any impacts need to be rehabilitated by the permittee.

- Conduct mixing of herbicides and rinsing of herbicide containers and spray equipment only in areas that are a safe distance from environmentally sensitive areas and points of entry to bodies of water (storm drains, irrigation ditches, streams, lakes, or wells).
- A water well may be accepted by the BLM Ely Field Office upon completion of operations. The BLM authorized officer will make the determination whether to accept the well based upon the submission of the well completion forms and relevant hydrogeologic data reports. The well must be installed by drillers licensed by the state of Nevada according to specifications in Nevada Revised Statutes Title 48, Chapter 534.

Soil Resources

- Require the use of specialized low-surface impact equipment (e.g., balloon-tired vehicles) or helicopters, as determined by the BLM Authorized Officer, for activities in off-road areas where it is deemed necessary to protect fragile soils and other resource values.
- During periods of adverse soil moisture conditions caused by climatic factors such as thawing, heavy rains, snow, flooding, or drought, suspend activities on existing roads that could create excessive surface rutting. When adverse conditions exist, the operator would contact the BLM Authorized Officer for an evaluation and decision based on soil types, soil moisture, slope, vegetation, and cover.
- When preparing the site for reclamation, include contour furrowing, terracing, reduction of steep cut and fill slopes, and the installation of water bars, as determined appropriate for site-specific conditions.
- Upon completion or temporary suspension of mining operations, backfill all holes and trenches and re-contour the pit to the natural slope, if possible, with pit walls greater than 3 feet in height knocked down and sloped at 3 horizontal to 1 vertical or to the original topography, whichever is less.
- Restoration requirements include reshaping, re-contouring, and/or resurfacing with topsoil, installation of water bars, and seeding on the contour. Removal of structures such as culverts, concrete pads, cattle guards, and signs would usually be required. Fertilization and/or fencing of the disturbance may be required. Additional erosion control measures (e.g., fiber matting and barriers) to discourage road travel may be required.

Vegetation Resources

- Where seeding is required, use appropriate seed mixture and seeding techniques approved by the BLM Authorized Officer.
- The BLM Authorized Officer will specify required special handling and recovery techniques for Joshua trees, yucca, and some cactus in the southern part of the planning area on a site-specific basis.
- Keep removal and disturbance of vegetation to a minimum through construction site management (e.g., using previously disturbed areas and existing easements, limiting equipment/materials storage and staging area sites, etc.).
- Generally, conduct reclamation with native seeds that are representative of the indigenous species present in the adjacent habitat. Document rationale for potential seeding with selected nonnative species. Possible exceptions would include use of nonnative species for a temporary cover crop to out-complete weeds. In all cases, ensure seed mixes are approved by the BLM Authorized Officer prior to planting.
- Certify that all interim and final seed mixes, hay, straw, and hay/straw products are free of plant species listed on the Nevada noxious weed list.
- An area is considered to be satisfactorily reclaimed when all disturbed areas have been recontoured to blend with the natural topography, erosion has been stabilized, and an acceptable vegetative cover has been established. Use the Nevada Guidelines for Successful Revegetation

prepared by the Nevada Division of Environmental Protection, the BLM, and the U.S. Department of Agriculture Forest Service (or most current revision or replacement of this document) to determine if revegetation is successful.

- Reclamation bond release criteria would include the following:
 - The perennial plant cover of the reclaimed area would equal or exceed perennial cover of selected comparison areas (normally adjacent habitat). If the adjacent habitat is severely disturbed, an ecological site description may be used as a cover standard. Cover is normally crown cover as estimated by the point intercept method. Selected cover can be determined using a method as described in Sampling Vegetation Attributes, Interagency Technical Reference, 1996, BLM/RS/ST-96/002+1730. The reclamation plan for the area project would identify the site-specific release criteria and associated statistical methods in the reclamation plan or permit.
- Utility companies will manage vegetation in their rights-of-way for safe and reliable operation while maintaining vegetation and wildlife habitat.
- Re-spread weed-free vegetation removed from the right-of-way to provide protection, nutrient recycling, and seed source.

Fish and Wildlife

- Install wildlife escape ramps in all watering troughs, including temporary water haul facilities, and open storage tanks. Pipe the overflow away from the last water trough on an open system to provide water at ground level.
- As appropriate, mark certain trees on BLM-administered lands for protection as wildlife trees.
- Consider seasonal distribution of large wildlife species when determining methods used to accomplish weed and insect control objectives.
- Protect active raptor nests in undisturbed areas within 0.25 mile of areas proposed for vegetation conversion using species-specific protection measures. Inventory areas containing suitable nesting habitat for active raptor nests prior to the initiation of any project.
- When used to pump water from any pond or stream, screen the intake end of the draft hose to prevent fish from being ingested. Screen opening size would be a maximum of 3/16 inch (4.7 millimeters).
- Special recreation use permittees will take action to ensure that race participants and spectators do not harass wildlife.

Special Status Species

- Avoid line-of-sight views between the power poles along powerlines and sage grouse leks, whenever feasible.
- Use current science, guidelines, and methodologies (Avian Power Line Interaction Committee 1994, 1996, 2005) for all new and existing powerlines to minimize raptor and other bird electrocution and collision potential.
- When managing weeds in areas of special status species, carefully consider the impacts of the treatment on such species. Wherever possible, hand spraying of herbicides is preferred over other methods.
- Do not conduct noxious and invasive weed control within 0.5 mile of nesting and brood rearing areas for special status species during the nesting and brood rearing season.
- To the greatest extent possible, survey all mine adits and shafts slated for closure for bat presence and use prior to being closed. Minimize impacts to bat roosts and bat habitat through the use of current science, guidelines, and methodologies when closing and abandoning mine adits.
- Develop grazing systems to minimize conflicts with special status species habitat.

- For streams currently occupied by any special status species, do not allow extraction of water from ponds or pools if stream inflow is minimal (i.e., during drought situations) and extraction of water would lower the existing pond or pool level.
- When new spring developments are constructed on BLM lands and BLM has the authority to design the project, the source and surrounding riparian area will be fenced, the spring will be developed in a manner that leaves surface water at the source and maintains the associated riparian area, water will be provided outside the enclosure in a manner that provides drinking water for large ungulates, wild horses, and/or livestock so they are less likely to break into the enclosure.
 - Salt and mineral supplements:
 - Base placement of salt and mineral supplements on site-specific assessment.
 - Normally place salt and mineral supplements at least 0.5 mile away from riparian areas, sensitive sites, populations of special status plant species, cultural resource sites.
 - Place salt at least 0.5 mile from any water source including troughs.
 - Place salt and mineral supplements at least 1 mile from sage grouse leks.
 - Water hauling:
 - Place water haul sites at least 0.5 mile away from riparian areas, cultural sites, and special status species locations.
 - Limit water hauling to existing roads when possible.

Wild Horses

- To protect wild horses and wildlife flag all new fences every 16 feet with white flagging that is at least 1 inch wide and has at least 12 inches hanging free from the top wire of the fence.
- If a project involves heavy or sustained traffic; require road signs for safety and protection of wild horses and wildlife.

Cultural Resources

- Ensure that all activities associated with the undertaking, within 100 meters of the discovery, are halted and the discovery is appropriately protected, until the BLM authorized officer issues a Notice to Proceed. A Notice to Proceed may be issued by the BLM under any of the following conditions:
 - Evaluation of potentially eligible resource(s) results in a determination that the resource(s) are not eligible;
 - The fieldwork phase of the treatment option has been completed; and
 - The BLM has accepted a summary description of the fieldwork performed and a reporting schedule for that work.
- The operator will inform all persons associated with the project that knowingly disturbing cultural resources (historic or archaeological) or collecting artifacts is illegal.
- The BLM may approve cross-country operations of seismic trucks and support vehicles on bare frozen ground or over sufficient snow depth (vehicle traffic does not reveal the ground) so as to prevent surface disturbance.
- Perform viewshed reclamation when the setting of a site contributes to the significance of the property.

Paleontological Resources

When paleontological resources of potential scientific interest are encountered (including all vertebrate fossils and deposits of petrified wood), leave them intact and immediately bring them to the attention of the BLM Authorized Officer.

Visual Resources

- On industrial facilities authorized by the Ely Field Office, utilize anti-glare light fixtures to limit light pollution.
- During the implementation of vegetation treatments, create irregular margins around treatment areas to better maintain the existing scenic character of the landscape.
- When feasible, bury utility lines on public land when in the viewshed of residential or community development.

Travel Management and Off-highway Vehicle Use

- Design access roads requiring construction with cut and fill to minimize surface disturbance and take into account the character of the landform, natural contours, cut material, depth of cut, where the fill material would be deposited, resource concerns, and visual contrast. Avoid construction of access roads on steep hillsides and near watercourses where alternate routes provide adequate access.
- Where adverse impacts or safety considerations warrant, limit or prohibit public access when authorizing specific routes to areas or sites under permit or lease.

Recreation

- Do not allow surface or underground disturbance to occur within 100 yards (horizontally or vertically) of known cave resources.
- Where appropriate, do not allow ground disturbing activities within 100 yards of cave entrances, drainage areas, subsurface passages, and developed recreation sites. Do not dispose of waste material or chemicals in sinkholes or gates by cave entrances. If during construction activities any sinkholes or cave openings are discovered, cease construction activities and notify the BLM authorized officer.

Livestock Grazing

- Water troughs
 - Place troughs connected with spring developments outside of riparian and wetland habitats to reduce livestock trampling damage to wet areas.
 - Control trough overflow at springs with float valves or deliver the overflow back into the native channel.
- Based on allotment situations and circumstances associated with livestock grazing and multiple use management, implement any or all of the following appropriate management practices on winterfat dominated ecological sites.
 - Develop grazing systems to control or rest grazing use on winterfat sites after March 1 or when the critical growing season begins. Allow spring grazing use during the critical growing period if a grazing rotation system that provides rest from grazing during the critical growing period at least every other year for all areas is in place. Utilization during the critical growth period should not exceed 35 percent under any circumstances.
 - Place salt and supplements at least 0.5 mile away from winterfat dominated sites. Base placement on site-specific assessment and characteristics such as riparian, topography, cultural, special status species, etc.
 - Locate sheep bedding grounds and camps at least 0.5 mile away from winterfat dominated sites. Base placement on site-specific assessment and characteristics such as riparian, topography, cultural, special status species, etc.
 - Locate water haul sites at least 0.5 mile away from winterfat dominated sites. Base placement on site-specific assessment and characteristics such as riparian, topography, cultural, special status species, etc.

- Construct livestock reservoirs away from winterfat dominated sites. Base placement on site-specific assessment and characteristics such as riparian, topography, cultural, special status species, etc.
- If water wells are approved to be drilled in winterfat dominated sites, strive to pipe the water at least 0.5 mile away from winterfat dominated sites. Base placement on site-specific assessment and characteristics such as riparian, topography, cultural, special status species, etc.

Mineral Extraction

- Applications for permit to drill would follow the best management practices as outlined in the BLM oil and gas Gold <https://www.blm.gov/programs/energy-and-minerals/oil-and-gas/operations-and-production/the-gold-book>, as well as on-shore regulations, individual surface use plans, and conditions of approval that may be part of the Record of Decision for EISs or Decision Records for Environmental Assessments/Findings of No Significant Impacts, Documentation of NEPA Adequacy, and Categorical Exclusions prepared for site-specific projects.
- Do not permit blasting if it would be detrimental to the significant characteristics of archeological or historical values, recreation areas, known caves, water wells, or springs.
- Notify the BLM authorized officer within 5 days of completion of reclamation work so that timely compliance inspections can be completed.

Watershed Management

Manage activities, uses, and authorizations on burned areas to best meet resource management objectives established for the area in specific stabilization, restoration, or activity plans. The BLM authorized officer may open areas to livestock grazing based upon those considerations.

Fire Management

- Notify valid existing land users (such as mine claimants, holders of rights-of-way, and livestock permittees) prior to implementation of prescribed fires that may affect their investments.
- Remove vegetation, where appropriate, to protect facilities (e.g., range improvements, communication sites, and recreation sites).
- Within the area of operation, every effort will be made to prevent, control, or suppress any fire. Fire-fighting equipment may be required to be on site while operations are in progress, depending on hazards inherent in the type of operation and fire hazard levels. Report uncontrolled fires immediately to the BLM Ely Field Office Manager or Authorized Officer. The BLM Fire Dispatch telephone number is (775) 289-1925 or 1-800-633-6092. After working hours, call 911 or the White Pine County Sheriff's Office at (775) 289-8801, the Lincoln County Sheriff's Office at (775) 962-5151, or the Nye County Sheriff's Office at (775) 482-8101.

Noxious and Invasive Weed Management

- Control or restrict the timing of livestock movement to minimize the transport of livestock-borne noxious weed seeds, roots, or rhizomes between weed-infested and weed-free areas.
- When maintaining unpaved roads on BLM-administered lands, avoid the unnecessary disturbance of adjacent native vegetation and the spread of weeds. Grade road shoulders or barrow ditches only when necessary to provide for adequate drainage. Minimize the width of grading operations. The BLM Authorized Officer will meet with equipment operators to ensure that they understand this objective.

Health and Safety

- Consider nozzle type, nozzle size, boom pressure, and adjuvant use and take appropriate measures for each herbicide application project to reduce the chance of chemical drift.
- All applications of approved pesticides will be conducted only by certified pesticide applicators or by personnel under the direct supervision of a certified applicator.
- Prior to commencing any chemical control program, and on a daily basis for the duration of the project, the certified applicator will provide a suitable safety briefing to all personnel working with or in the vicinity of the herbicide application. This briefing will include safe handling, spill prevention, cleanup, and first aid procedures
- Store all pesticides in areas where access can be controlled to prevent unauthorized/untrained people from gaining access to the chemicals.
- Do not apply pesticides within 440 yards (0.25 mile) of residences without prior notification of the resident.
- Areas treated with pesticides will be adequately posted to notify the public of the activity and of safe reentry dates, if a public notification requirement is specified on the label of the product applied. The public notice signs will be at least 8 1/2" x 11" in size and will contain the date of application and the date of safe re-entry.
- The permittee will post warning signs at all known mine shafts and other hazardous areas that occur within 100 feet of a race course or pit/spectator area and will verbally inform race participants of all hazards at the pre-race meeting.
- The permittee will assume liability for and cleanup of any and all releases of hazardous substances or oil (more than one quart) disposed on public land as defined in the National Oil and Hazardous Substances Contingency Plan (Title 40 Code of Federal Regulations Subpart 300).
- The permittee will immediately notify the BLM Authorized Officer of any and all releases of hazardous substances or oil (more than one quart) on public land.
- Properly dispose of all tailings, dumps, and deleterious materials or substances. Take measures to isolate, control, and properly dispose of toxic and hazardous materials.
- Remove and properly dispose of all trash, garbage, debris, and foreign matter. Maintain the disposal site and leave it in a clean and safe condition. Do not allow burning at the site.
- Do not drain oil or lubricants onto the ground surface. Immediately clean up any spills under 25 gallons; clean up spills over 25 gallons as soon as possible and report the incident to the BLM Authorized Officer and Nevada Division of Environmental Protection.
- The operator will work with the BLM Authorized Officer on the containment of drilling fluids and drillhole cuttings. Adequately fence, post, or cover mud and separation pits, and hazardous material storage areas.
- Locate powder magazines at least 0.25 mile from traveled roads. Attend loaded shot holes and charges at all times. Use explosives according to applicable federal and state regulations.
- Containerize petroleum products such as gasoline, diesel fuel, helicopter fuel, and lubricants in approved containers. Properly store hazardous materials in separate containers to prevent mixing, drainage, or accidents.

APPENDIX E. ISSUES NOT ANALYZED IN DETAIL IN THIS ENVIRONMENTAL ASSESSMENT

Issues not Analyzed in Further Detail in the Environmental Assessment

ISSUE STATEMENT	RATIONALE FOR NOT FURTHER DISCUSSING IN DETAIL IN THE EA*
How would potential development of the nominated lease parcels affect floodplains ?	Several of the parcels in both the northern and southern parcel groups contain portions overlapping areas mapped as 100-year floodplains (FEMA, 2025). Executive Order 11998 – Floodplain Management requires Federal agencies to avoid to the extent possible the long-and short-term adverse impacts associated with the destruction of, modification of, or the support of new construction in floodplains wherever there is a practicable alternative. To comply with these orders the BLM would apply the No Surface Occupancy (NSO) Lease Stipulation #NV-L-10-C-NSO to parcel sections containing the portions overlapping the 100-year floodplain boundary. These parcels are listed in Appendix C and provide the legal land descriptions to which the NSO Stipulation would be applied. Potential impacts to floodplains from future fluid mineral development would include deposition of uncontrolled surface runoff-derived sediment and associated contaminants eroded from exposed construction surfaces, chemical spills, and fluid leaks. These would have implications for water quality and aquatic species including any threatened and endangered species present. Federal law also requires project proponents meet any state and local regulations and Best Management Practice (BMP) requirements to minimize environmental effects as a condition of the permitting process. Application of the NSO stipulation and BMPs would lessen potential impacts to floodplain and wetland/riparian zones by providing distance buffers, methods for erosion control, and chemical containment. Additional project specific NEPA analyses for impacts to floodplains would occur following an application for permit to drill. For the purposes of this current assessment, floodplains and wetlands/riparian zones will not be analyzed further.
How would potential development of the nominated lease parcels affect soils and prime and unique farmlands?	There are no Prime and Unique Farmlands, as defined by 7 CFR § 657.5, found within the project analysis area. None of the soils coincident or surrounding the lease parcels are mapped as prime and unique farmland (USDA, 2025). Surfaces within the northern parcel group consist of well-drained soils with moderate infiltration capacity and moderate to high runoff potential composed of the weathering products of sedimentary parent rocks. Surfaces within the southern parcel group consist of well drained soils with moderate infiltration capacity with a

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	comparatively higher runoff capacity composed of the weathering products of predominantly sedimentary rocks and lesser limestone and volcanic parent rocks (NRCS, 2025). Future exploration and development on any leased parcels could affect soils. These would include activities such as seismic studies, exploratory drilling, production well development, production infrastructures, road construction, and gravel pit expansion. These actions would remove vegetation, potentially increasing wind and water erosion; cause soil compaction; and disturb microbiotic crusts and topsoil. Chemical spills and fluid leaks would also affect soils. Removal of topsoil would change soil texture and structure by mixing soil horizons and breaking up soil aggregates. The effects of surface disturbance would include changes in nutrient and water cycling, bulk density, water holding capacity, percent organic matter, and microbial activity. These effects would have implications for water quality and aquatic species in areas adjacent to the mapped riparian/wetland zones including any threatened and endangered species present. Federal law requires project proponents meet any state and local regulations and Best Management Practice (BMP) requirements aimed at minimizing environmental effects as a condition of the permitting process. Application of BMPs and compliance with required stockpiling, recontouring, chemical containment, and restorative ripping requirements would lessen potential impacts to soils. Additional project specific NEPA analyses for impacts to soils and prime and unique farmlands would occur following an application for permit to drill. For the purposes of this current assessment, soils and prime and unique farmlands will not be analyzed further.
How would potential development of the nominated lease parcels impact mineral resources and energy production?	Oil and gas exploration could lead to an increased understanding of the geologic setting, as subsurface data obtained through lease operations may become public record. This information promotes a better understanding of mineral resources as well as geologic interpretation which could potentially help further energy production. While conflicts could arise between oil and gas operations and other mineral operations such as locatables or mineral materials, these could generally be mitigated under 43 CFR § 3101.12, the Multiple Mineral Development Act (30 U.S.C. § 521 et seq.) and under standard lease terms (Sec. 6) where the design of facilities may be adjusted to protect other resources. Acres from this lease sale that fall within the Kirch Wildlife Refuge are restricted from surface occupancy, further reducing the likelihood of mineral resource conflicts (Min-6, Table 18, Ely RMP FEIS). Depending on the success of oil and gas drilling, natural gas and/or oil would be extracted and delivered to market. The RFDSs are documented in Section 3.5.1. The Proposed Action would not exceed, nor likely significantly contribute to, the level of development predicted in the

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How would potential development of nominated lease parcels affect migratory birds?	RFDS in table 4.18-5 of the Ely District Resource Management Plan Final Environmental Impact Statement. Any oil and gas development can be managed to avoid or work within the potential development of other mineral resources. Mining claims and Mineral Materials permits were checked on October 1, 2025, and at this time no active claims or Mineral Material sites were found within the nominated lease parcels. If the lease parcels are developed, wells within the parcels may be completed using hydraulic fracturing techniques. Additional information on this process is provided in Appendix G. Production of oil or gas would result in the irretrievable loss of these resources (i.e., they would no longer be available for future development). The 2008 Ely RMP committed these resources for oil and gas leasing. There are no current estimates on the future estimated production from the nominated lease parcels. In 2024, total production from Federal lands in Nevada was 186,508 barrels of oil and 3,607 Mcf of gas (ONRR (Office of Natural Resources Revenue). Approximately 126,981.70 acres of Federal mineral estate within the Ely District are currently leased. This nominated parcel would lease an additional 19,957.15 acres of Federal mineral estate (representing an increase of 0.0014% to the nationwide total federal mineral estate). There would be no negative effects to mineral resources besides a potential increase in the amount of fluid minerals available for extraction. No Lease Notices or Stipulations are required. Any new oil and gas development would take place on parcels that were leased in other lease sales. Surface management would remain the same and potential oil and gas development could continue on surrounding federal, private, and state leases.
	The Migratory Bird Treaty Act (MBTA) protects migratory birds by not allowing take, this includes not harming them or their nests. The BLM Instructional Memorandum No. 2008-050 requires the BLM to address the potential effects of ground-disturbing activities on migratory bird populations and their habitat and implement best management practices to avoid or minimize the possibility of impacts. These include the BLM conducting or requiring surveys for nests, applying timing limitations during nesting seasons, and conducting monitoring post-project implementation. Effects from these activities would be analyzed under additional, site-specific NEPA review once an APD is submitted. Additional effects may occur during the

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How would potential development of the nominated lease parcels affect big game animals and their habitat?	exploration and development phase. These effects would be analyzed at the time these activities are proposed. Impacts to migratory birds may include temporary, individual or population displacement from preferred habitat, decreased clutch survival increased potential for animal mortality or behavior changes, and physiological stress that negatively affects fitness. The BLM would apply stipulations during migratory bird nesting to minimize the effects.
How would potential development of the nominated lease parcels affect other fish and wildlife species and their habitat?	The Nevada Department of Wildlife classifies habitats based on season of use. All of the nominated parcels contain year-round habitat for pronghorn antelope, parcels NV-2026-03-2271, NV-2026-03-2263, NV-2026-03-2249, NV-2026-03-2251, and NV-2026-03-2269 contain agricultural habitat for mule deer. Two nominated parcels cross a seasonal use migration corridor for mule deer, those being NV-2026-03-2243 and NV-2026-03-2237 with approximately 317 and 342 acres respectively of corridor. NV-2026-03-2237 also contains approximately 165 acres of pronghorn migration corridor. Stipulations would be added to parcels containing migration corridors. Oil and Gas production is likely to have adverse effects on big game species including loss of habitat from construction of roads and production facilities including usable habitat near roads, habitat fragmentation, increased noise and disturbance from human activities, and possible collisions causing direct mortality. These impacts are analyzed in brief and not detail because of the notices and stipulations attached to parcels and impacts may harm animals and their populations may decline at the project (APD) level but are unlikely to have herd management unit level impacts. Other wildlife species that inhabit this parcel include coyotes, jackrabbits, badgers, and numerous bird, reptile, and small mammal species. There would be no direct effects from issuing new oil and gas leases because leasing does not directly authorize oil and gas exploration and development activities. Direct impacts from these activities would be analyzed under additional, site-specific NEPA review. General short term and long-term impacts of oil and gas to general wildlife species are discussed in the Ely RMP in Section 4.6 Fish and Wildlife on pages 4.6-14 – 4.6-15. Short term impacts analyzed in the Ely District RMP include vegetation loss, habitat fragmentation, wildlife displacement, and increased noise and human presence. Long term impacts analyzed in the Ely District RMP include irretrievable loss of habitat, change in vegetation composition, and habitat fragmentation and wildlife displacement. These impacts are analyzed in brief and not detail because of the notices and stipulations

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How would potential development of the nominated lease parcels affect recreation opportunities and activities?	attached to parcels and impacts may harm animals and their populations may decline at the project (APD) level but are unlikely to have heard management unit level impacts. Recreational opportunities and activities within the nominated lease parcels consist mainly of dispersed types of recreation such as operation of Off Highway Vehicles (OHVs), camping, equestrian riding, hunting, target shooting, and wildlife viewing. There are no designated BLM Special Recreation Management Areas or developed recreation sites located within or adjacent to the parcels. The northern parcels are located just south of the town of Lund and Preston. The southern parcels are located just south of the Wayne E. Kirch Wildlife Management Area managed by the State of Nevada Department of wildlife. Lease parcel 2271 abuts the management area. The management area is a popular recreation area for camping, hunting, boating and fishing. It may be reasonable to assume that the recreationist that use the Kirch Wildlife Management Area would be opposed to leasing these parcels or at a minimum remove parcels 2271 and possibly 2263 that are closest to the management area. 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 from the possibility of 19 exploration drill rigs and possibility of one production well with ancillary facilities, would be localized and would not substantially impact recreational access and dispersed recreation opportunities within the parcels as alternative travel routes and other public lands would still be available for dispersed recreational opportunities in the vicinity.
How would potential development of the nominated lease parcels affect Human Health and Safety?	Within Nye County, which encompasses the BFO nominated parcels, there are no existing active wells or exploration activity. See the air quality analysis in Section 3.4.1 for projected levels of CAPs and HAPs, their effects on air quality, and the air quality notices and stipulations that may impact human health and safety. HAPs are known or suspected to cause cancer or other serious health effects, such as compromises to immune and reproductive systems, birth defects, developmental disorders, or adverse environmental effects resulting from either chronic (long-term) and/or acute (short-term) exposure, and/or adverse environmental effects. Breathing ground-level ozone (O₃) can

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	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 (PM_{2.5} or smaller) are associated with more negative health effects, including respiratory and cardiovascular problems, because they can become more deeply embedded in the lungs and may even get into the bloodstream. The following sources provide additional information on air pollution health effects from the six criteria air pollutants and HAPs: • Ozone (EPA, 2023a) • Particulates (EPA, 2023b) • Nitrogen dioxide (EPA, 2023c) • Carbon monoxide (EPA, 2023d) • Lead (EPA, 2023e) • Sulfur dioxide (EPA, 2023f) • Hazardous air pollutants (HAP) (EPA, 2023g) The air quality analysis in Section 3.4.1 estimates the risk of cancer from Hazardous Air Pollutants (HAPs) and the risk of other health impacts based on exposure to CAPs. In addition to HAP and Criteria Air Pollutants (CAP) levels, economic or social indicators can also influence the general health risks of a population, such as poverty status, educational attainment, or language proficiency. Human health risk assessments cannot be performed until project-specific details are known so that frequency, timing, and levels of contact with potential stressors may be identified (EPA, 2023h). However, each of the reasonably foreseeable environmental trends and planned actions have been, or will be, subject to relevant rules and regulations regarding public health and safety. Ongoing and potential development would continue to present aggregate risks to human health as detailed above. When wells reach the end of their useful life and are properly plugged and reclaimed, they would no longer contribute to health and safety effects; however, depending on the level and duration of individual's exposure during well operation, some of the public

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How would potential development of the nominated lease parcels affect Wild Horse and Burros?	health effects from air pollution may endure beyond the life of the wells (e.g., chronic respiratory problems such as asthma). Hazardous materials are not known to exist on any lease parcel. Hazardous materials associated with oil and gas operations, if not handled properly, have the potential to be spilled at the lease/drill site and would be handled during that stage of development. Such materials could include methanol, diesel fuel, unrefined petroleum, produced water, and acid. Spills during operation would be contained, reported, and cleaned up by the operator as written in the Spill Prevention, Control, and Countermeasure (SPCC) rule for wells. Analysis at the leasing stage is based off the RFDS due to uncertainty regarding future development that would occur. See Appendix D for EYDO Best Management Practices. There are no burros on the land within the Ely BLM District. Wild horses would not be impacted by the oil and gas leasing. All of the parcels are outside of Herd Management Areas (HMAs). Portions of parcels NV-2026-03-2259, NV-2026-03-2254, NV-2026-03-2242, NV-2026-03-2251 are within the Seaman Herd Area (HA), but they are in a portion of the HA where wild horses generally do not reside due to rugged terrain and lack of forage and water. The most recent census flight was conducted in 2024, 24 wild horses were counted. The current estimated wild horse population of the Seaman HA is 29. The most recent gather was conducted in 2014, 22 wild horses were gathered and removed.
How would potential development of the nominated lease parcels affect paleontological resources?	Leasing oil and gas parcels does not result in direct impacts to paleontological resources. Analysis at the leasing stage is based off the RFDS due to uncertainty regarding future development (e.g., surface-disturbing activities) that would occur. Geologic formations within the parcels identified range in paleontological potential from very low to moderate, high, and unknown (Potential Fossil Yield Classification [PFYC] 1, 3,4, and U). Low potential geologic units are mapped within a portion of three parcels (NV-2026-03-2242, -2259, and -2263). Alluvial deposits, which have unknown potential (PFYC U), are mapped in of all 11 parcels. Six of the 11 parcels (NV-2026-03-2237, -2240, -2243, -2249, -2269, and -2271) are entirely mapped as alluvial deposits, while four (NV-2026-03-2242, -2251, -2254, and -2259) are partially mapped as the PFYC U geological unit, undivided Shingle Pass Tuff and Needles Range Formation. In addition, Parcel NV-2026-03-2242 is partially mapped as Simonson Dolomite (PFYC 3) and Chainman Shale of the Diamond Peak Formation (PFYC 4), in addition to the PFYC 1 and U geologic units.

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	A lease notice (NV-L-00-A-LN) applies to the lease parcels to provide the mitigation deemed necessary to avoid or minimize environmental harm to potential fossil resources. Thus, any potential impacts from subsequent exploration and development activities would be analyzed in additional, site-specific analysis. During APD review, the BLM may add COAs if additional mitigation is determined necessary to avoid or minimize impacts to paleontological resources.
How would potential development of the nominated lease parcels affect the visual landscape?	Lease parcels 2240, 2243, and 2237 are located within Visual Resource Management (VRM) Class 3. Lease parcels 2271, 2263, 2259, 2249, 2254, 2251, 2269, and 2242 are within VRM Class 3&4. Management goals and objectives for VRM Class 3 allow for a moderate degree of change or visual contrast with the landscape. Management activities may attract the attention of the casual observer but should not dominate the view of the casual observer. The management objective for VRM class 4 is to provide for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. Management activities may dominate the view and may be the major focus of viewer attention. However, in all VRM Classes, the impact of these activities should be minimized through careful siting, minimal disturbance, and repeating the basic elements of form, line, color, and texture within the existing setting (BLM 2024). These lease parcels are located within an area that has variations in the topographic relief and landform, line, texture, and color. The majority of the parcels have minor linear disturbances such as roads, fencelines and powerlines. For these reasons, potential changes or visible contrast with the form, line, texture, and color of the characteristic landscape are likely to be low for these lease parcels and would meet the prescribed objectives for VRM management. VRM resources will also be analyzed at the APD stage. If resources are discovered VRM resources will also be analyzed at the RFD stage. Given the RFFA of the possibility of 19 exploration drill rigs, there would be temporary impacts to VRM. The exploration drill rigs would be visible day and night, usually operating 24 hours a day until desired depth is reached. Stipulations for paint color on exploration drilling is not required and the impact to VRM is considered temporary in nature and will be less apparent once the exploration drill rigs have left and the associated roads and pads have been reclaimed. The possibility of one production well, and ancillary facilities will require mitigation to minimize visual impacts. Mitigation could include properly chosen Standard Environmental Color (Covert Green) and low-profile equipment that allows long-term facilities to blend in with

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	the natural landscape. However, these mitigations would be decided at the time an APD is approved. For these reasons, potential changes or visible contrast with the form, line, texture, and color of the characteristic landscape are likely to be low with the RFD for lease parcels and would meet the prescribed objectives of the VRM Classes in which they reside.
How would potential development of the nominated lease parcels affect Wilderness, Wilderness Study Areas (WSA) and Land with Wilderness Characteristics (LWC).	Wilderness, Wilderness Study Areas (WSA) and Land with Wilderness Characteristics (LWC) resources are not present. The nearest WSA is Riordan’s Well WSA at approximately 10 miles. The nearest Wilderness is the South Egan and Far South Egan Wilderness at approximately 2.5 and 9 miles. The Lease Parcels lie within LWC Units – 227-3, 227-4, 241-3, 241-1, 163-2, and 162-1 which were determined to not possess wilderness characteristics.
How would potential development of the nominated lease parcels affect the geographic distribution and/or abundance of existing vegetation types?	There are potentially 35 individual ecological site descriptions overlapping the nominated lease parcel areas representing variability and diversity across the landscape. The majority of ecological site descriptions are dominated by black sagebrush, Wyoming big sagebrush, saltbush, and black greasewood vegetative communities. These vegetative communities are very common in the surrounding areas and are not under immediate threat. The lease parcels also contain some more sensitive vegetative communities such as saline meadows, wet meadows, and pygmy sagebrush. These communities represent less than one percent of the parcel area, but they may call for further attention if development is proposed in the future. Appendix D provides Best Management Practices for reducing impacts on vegetative resources. Any development on the lease parcels would require reclamation plans for reseeding the disturbed areas relative to the site’s potential vegetation. Any future development would undergo subsequent environmental analysis. Sensitive plant species, noxious and invasive plants, and riparian areas are addressed as separate resources in this document. * Supporting documentation for these statements are included in the Decision File.

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

INTRODUCTION

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

Well Development

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

Next, heavy equipment, including but not limited to, bulldozers, graders, front-end loaders, and/or track hoes are used to construct the pad, along with other features, as needed for development. Other features may include, but are not limited to, an access road, reserve pit, pipeline, and/or fracturing pond. Cut and fills may be required to level the pad or road surfaces. Reserve pits⁷, if authorized, are lined using an impermeable liner or other lining mechanism (i.e., bentonite or clay) to prevent fluids from leaching into the soil. Access roads may have cattle guards, gates, drainage control, or pull-outs installed, among a host of other features that may be necessary based on the site-specific situation. Long-term surface disturbances such as pads and roads are typically surfaced with a layer of crushed rock. Areas not needed for long-term development are reclaimed by recontouring the surface and re-establishing vegetation.

Throughout the drilling operation phase, equipment is moved on site and used to install the drill rig and other associated infrastructure. At this stage, the well is drilled and completed. Well completion includes setting the casing to depth, cementing the casing,⁸ and perforating the casing in target zones. If a well is

⁷ 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).

⁸ According to BLM regulations from 43 CFR 3160: 43 CFR 3170: Subpart 3172, casing and cementing programs are conducted to protect and/or isolate all usable water zones, lost circulation zones, abnormally pressured zones, and any prospectively valuable deposits of minerals. The casing setting depth is calculated to position the casing seat opposite a competent formation which will contain the maximum pressure to which it will be exposed during normal drilling operations. Determination of casing setting depth is based on all relevant factors, including presence/absence of hydrocarbons; fracture gradients; usable water zones; formation pressures; lost circulation zones; other minerals; or other unusual characteristics. Any isolating medium other than cement shall receive approval prior to use. The deepest casing may not be cemented and may remain open hole depending on the type of formation it is located in.

going to be drilled directionally,⁹ horizontally,¹⁰ or vertically¹¹ this phase may be followed by hydraulic fracturing which involves pumping fracturing fluid into a formation at a calculated, predetermined rate and pressure to generate fractures or cracks in the target formation.

A pipeline, if needed, is laid within a right-of-way that is first cleared of vegetation. A backhoe, or similar piece of equipment, digs a trench to a depth at least 36 inches below ground surface. After the trench is dug, the pipeline is assembled by welding pieces of pipe together to fit the contour of the pipeline's path. Once inspected, the pipe can be lowered into the trench and covered with stockpiled subsoil originally removed from the trench. Each pipeline undergoes hydrostatic testing prior to natural gas being pumped through the pipeline. This ensures the pipeline is strong enough and absent any leaks. Table 1 (in this Appendix) includes some of the common wastes (hazardous and nonhazardous) that are produced during construction.

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

Production, Operations

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

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

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

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

⁹ 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).

¹⁰ 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).

¹¹ Directional drilling is the process of controlling the direction and deviation of drilling a well from the surface to a subsurface location without disturbing the land directly above the target oil or gas reservoir (U.S. Department of Energy 2015).

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

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

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

Hydraulic Fracturing

Hydraulic Fracturing Overview

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

The Hydraulic Fracturing Process

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

Composition of Fracturing Fluids

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

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

Pre-Fracturing Preparations

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

Fracturing Stages in Horizontal Wells

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

Naturally Occurring Radioactive Material (NORM)

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

Production Operations

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

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

Reclamation and Abandonment

Well abandonment (whether dry hole or depleted producer) and reclamation of location, access road, and other facilities requires BLM approval. After approval, wellbores are plugged with cement as necessary to prevent fluid or pressure mitigation and to protect and isolate mineral and water resources. Wellheads are removed, and both the surface casing and the production casing are cut off below ground in compliance with federal and state regulations. (BLM, 2007) The well pad, reserve pit and access are reclaimed according to BLM guidelines. This may include backfilling the pit, recontouring the surface to blend with natural surroundings and redistributing topsoil. All surfaces are then reseeded per BLM and state requirements specified in the Application for Permit to Drill (APD) approval.

Common Wastes

Error! Reference source not found. includes some of the common wastes (hazardous and nonhazardous) that are produced during oil and gas development.

Table 4-1 Common Wastes Produced during Oil and Gas Development

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

LITERATURE CITED IN APPENDIX E

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APPENDIX G. HYDRAULIC FRACTURING TECHNOLOGY PAPER

This discussion on hydraulic fracturing is derived from the Hydraulic Fracturing (BLM 2013) written and developed by the Bureau of Land Management, Wyoming State Office. It has been modified to meet the criteria for the State of Nevada.

I. BACKGROUND

Hydraulic fracturing (HF) is a well stimulation process used to efficiently maximize the extraction of underground resources – groundwater, oil, natural gas, and geothermal energy. The HF process includes the acquisition of water, mixing of chemicals, surface pressure pumps, production zone fracturing, and HF flowback disposal.

In the United States, HF has been used since the 1940's. Early on, the HF process utilized pressures that are of a much smaller magnitude than those used today.

The HF process involves the injection of a fracturing fluid and propping agent into the hydrocarbon bearing formation under sufficient pressure to widen existing fractures and/or create new fractures. This allows the trapped hydrocarbons an avenue to flow to the wellbore. HF has gained interest recently as hydrocarbons trapped in low permeability or "tight" sand and shale formations are now technically and economically recoverable. As a result, oil and gas production has increased significantly in the United States.

Prior to the development of HF in hydrocarbon bearing tight gas and shale formations, domestic production of conventional resources had been declining. In response to this decline, the federal government in the 1970's through 1992, passed tax credits to encourage the development of unconventional resources. It was during this time that the HF process was further advanced to include the high-pressure multi-stage HF operations being conducted today.

Generally, HF can be described as follows:

- i. Water, proppant, and chemical additives are pumped at extremely high pressures down the wellbore.
- ii. The fracturing fluid is pumped through perforated sections of the wellbore and into the surrounding formation, creating fractures in the rock. The proppant holds the fractures open during well production.
- iii. Company personnel continuously monitor and gauge pressures, fluids and proppants, studying how the proppants reacts when it hits the bottom of the wellbore, slowly increasing the density of proppants to water as HF progresses.
- iv. This process may be repeated multiple times, in "stages" to reach maximum areas of the formation(s). The wellbore is temporarily plugged between each stage to maintain the highest fluid pressure possible for the drill casing and to get maximum fracturing results in the rock.
- v. The plugs are drilled or removed from the wellbore and the well is tested for results.
- vi. The pressure is reduced and the fracturing fluids are returned up the wellbore for disposal or treatment and re-use, leaving the proppant in place to prop open the fractures and allow the oil/gas to flow.

II. OPERATIONAL ISSUES

Wells that undergo HF may be drilled vertically, horizontally, or directionally and the resultant fractures induced by HF can be vertical, horizontal, or both. Wells in Nevada (NV) may extend to depths greater than 10,000 feet or less than 1,000 feet, and horizontal sections of a well may extend several thousand feet from the production pad on the surface. Prior to initiating HF, a cement bond log and pressure test is

required and evaluated to ensure the integrity of the cement and its bond to both the well casing and the rock facies around the annulus within the geologic formation.

The total volume of fracturing fluids is generally 95-99% water. The amount of water needed to fracture a well in NV depends on the geologic basin, the formation, and depth and type of well (vertical, horizontal, directional), and the proposed completion process.

In general, approximately 25,000 to 350,000 gallons may be used to fracture shallow vertical wells in NV, while approximately 800,000 to 10 million gallons may be used to fracture deep horizontal or directionally drilled wells in NV.

Proppant, consisting of synthetic or natural silica sand, may be used in quantities of a few hundred tons for a vertical well to a few thousand tons for a horizontal well.

Drilling muds, drilling fluids, water, proppant, and HF fluids are stored in onsite tanks or lined pits during the drilling and/or completion process. Equipment transport and setup can take several days, and the actual HF and flowback process can occur in a few days up to a few weeks. For oil wells, the flowback fluid from the HF operations is treated in an oil-water separator before it is stored in a lined pit or tank located on the surface. Where gas wells are flowed back using a “green completion process” fluids are run through a multi-phase separator, which are then piped directly to enclosed tanks or to a production unit. Nevada currently does not have any gas production, but this may change, if gas rich formations are discovered.

Gas emissions associated with the HF process, such as methane, carbon dioxide, and volatile organic compounds (VOCs), are captured when the operator utilizes a green completion process. A “green completion process” is where the operator captures gases at the well head immediately after the well is completed. Where a green completion process is not utilized, gas emissions associated with the well may be vented and/or flared until “saleable quality” product is obtained in accordance with federal and state rules and regulations. The total volume of emissions from the equipment used (trucks, engines) will vary based on the pressures needed to fracture the well, and the number of zones to be fractured.

Under either completion process, wastewaters from HF may be disposed in several ways. For example, the flowback fluids may be stored in tanks pending reuse; the resultant waste may be re-injected using a permitted injection well, or the waste may be hauled to a licensed facility for treatment, disposal and/or reuse.

Disposal of the waste stream following establishment of “sale-quality” product, would be handled in accordance with Onshore Order #7 regulations and other state/federal rules and regulations.

Fracturing Fluids

As indicated above, the fluid used in the HF process is approximately 95 to 99 percent water and proppants, and 1-5 percent of special-purpose chemical additives. There is a broad array of chemicals that can be used as additives in a fracture treatment including, but not limited to, hydrochloric acid, anti-bacterial agents, corrosion inhibitors, gelling agents (polymers), surfactants, and scale inhibitors. The 1 to 5 percent of chemical additives translates to a minimum of 15,000 gallons of chemicals for every 1.5 million gallons of water used to fracture a well (Paschke, Dr. Suzanne. USGS, Denver, Colorado. September 2011). Water used in the HF process is generally acquired from surface water or groundwater in the local area. Information on obtaining water and water rights is discussed below.

The Nevada Division of Minerals (NDOM) has regulations that require the reporting of the amount and type of chemicals used in a HF operation in “FracFocus” within 60 days of HF completion for public disclosure. For more information concerning FracFocus and HF, refer to the FracFocus website at www.fracfoc.org and the NDOM website at minerals.state.nv.us.

Re-Fracturing

Re-fracturing of wells (RHF) may be performed after a period of time to restore declining production rates. RHF success can be attributed to enlarging and reorienting existing fractures while restoring conductivity due to proppant degradation and fines plugging. Prior to RHF, the wellbore may be cleaned out. Cleaning out the wellbore may recover over 50% of the initial proppant sand. Once cleaned, the process of RHF is the same as the initial HF. The need for RHF cannot be predicted.

Water Availability and Consumption Estimates

According to the Nevada State Water Plan (March 1999), total statewide water withdrawals for NV are forecasted to increase about 9 percent from 4,041,000 acre-feet (af) in 1995 to 4,391,000 acre-feet in 2020, assuming current levels of conservation. Approximately one-half of these withdrawals are consumptively used. This projected increase in water use is directly attributable to Nevada's increasing population and related increases in economic endeavors.

The anticipated rise in total statewide water withdrawals primarily reflects expected increases in public supply for municipal and industrial (M&I) water usage to meet the needs of a growing urban population, with expanding commercial and industrial activities. Nevada's population is projected to reach about 3,047,000 by the year 2020, with about 95 percent of these residents served by public water systems (NDWP, March 1999).

M&I withdrawals currently account for about 13 percent of the water used in NV. About 77 percent of water withdrawals are currently for agricultural use. Annual M&I water use is projected to increase from 525,000 af in 1995 to 1,034,000 af in 2020 (24 percent of total water withdrawals) based upon existing water use patterns and conservation measures. Approximately 6 to 7 percent of statewide water withdrawals occur in the mining industry (NDWP, March 1999).

Interest in obtaining the necessary water supplies for wildlife and environmental needs is increasing. Additionally, the popularity of water-based outdoor recreation continues to grow. It is anticipated that these trends will continue, resulting in increased water supply demands for wildlife, environmental and recreational purposes.

Currently, surface water supplies are virtually fully appropriated. The increase in total statewide demand, particularly M&I water use, is expected to be met via better demand management (conservation), use of alternative sources (reused water, reclaimed water and gray water), purchases, leases or other transfers from existing water users, and by new groundwater appropriations. Much of the state's unappropriated groundwater is located in basins at a distance from urban centers. Thus, increasing attention will be placed on interbasin and intercounty transfers, and implementation of underutilized water management tools such as water marketing and water banking. Water for instream flow purposes, wildlife protection, environmental purposes and recreation will likely be generated by increased conservation and the acquisition of existing water rights (NDWP, March 1999).

Comparison Figures:

- Olympic-sized swimming pool - **660,430 gallons** of water.
- Typical golf course requires **100,000 to 1,000,000 gallons** of water per week in summer to maintain healthy vegetation.
- Average car wash of fresh water uses **9 to 15 gallons** during any given wash cycle.
- Average household in Southern Nevada uses about **222 gallons** of water per day (**81,000 gallons** per year).

Potential Sources of Water for Hydraulic Fracturing

Quality freshwater is required to drill the surface-casing section of the wellbore per Federal regulations; other sections of the wellbore (intermediate and/or production strings) would be drilled with appropriate quality makeup water as necessary. This is done to protect usable water zones from contamination, to prevent mixing of zones containing different water quality/use classifications, and to minimize total

freshwater volumes. With detailed geologic well logging during drilling operations, geologists/mud loggers on location identify the bottoms of these usable water zones, which aids in the proper setting of casing depths. Usable water is defined as having less than 10,000 mg/l of Total Dissolved Solids (TDS). Drinking or potable water is defined as having less than 1,000 mg/l of TDS.

Several sources of water are available for drilling and/or HF in NV. Nevada's water rights system is based on the prior appropriation doctrine; therefore, all use of water, with the exception of domestic wells, requires a permit from the State Engineer (NRS 534.180). Like any other water user, companies that drill or hydraulically fracture oil and gas wells must adhere to NV water laws when obtaining and using specific sources of water.

Below is a discussion of the sources of water that could potentially be used for HF. The decision to use any specific source is dependent on BLM authorization at the APD stage and the ability to obtain water rights. From an operators' standpoint, the decision regarding which water source will be used is primarily driven by the economics associated with procuring a specific water source.

Water transported from outside the state. The operator may transport water from outside the state. As long as the transport and use of the water carries no legal obligation to NV, this is an allowable source of water from a water rights perspective.

Irrigation water leased or purchased from a landowner. The landowner may have rights to surface water, delivered by a ditch or canal that is used to irrigate land. The operator may choose to enter into an agreement with the landowner to purchase or lease a portion of that water. This is allowable, however, in nearly every case, the use of an irrigation water right is likely limited to irrigation uses and cannot be used for well drilling and HF operations. To allow its use for drilling and HF, the owner of the water right and the operator must apply to change the water right through a formal process.

Treated water or raw water leased or purchased from a water provider or municipality. The operator may choose to enter into an agreement with a water provider to purchase or lease water from the water provider's system. Municipalities and other water providers may have a surplus of water in their system before it is treated (raw water) or after treatment that can be used for drilling and HF operations. Such an arrangement would be allowed only if the operator's use were compliant with the water provider's water rights.

Water treated at a waste water treatment plant leased or purchased from a water provider. The operator may choose to enter into an agreement with a water provider to purchase or lease water that has been used by the public and then treated as wastewater. Municipalities and other water providers discharge their treated waste water into the streams where it becomes part of the public resource, ready to be appropriated once again in the priority system. But for many municipalities a portion of the water that is discharged has the character of being "reusable." As a result, it is possible that after having been discharged to the stream, it could be diverted by the operator to be used for drilling and HF operations. Such an arrangement would only be appropriate with the approval of the Nevada Division of Water Resources, State Engineer's Office (NDWR) and would be allowed only if the water provider's water rights include uses for drilling and HF operations.

New diversion of surface water flowing in streams and rivers. New diversion of surface waters in most parts of the state are rare because the surface streams are already fully appropriated, meaning that there is no water available for appropriation. Given the variability of surface water flows in the State, this may not be the most reliable water source even if there is water available for appropriation.

Produced Water. The operator may choose to use water produced in conjunction with oil or gas production at an existing oil or gas well. The water that is produced from an oil or gas well is under the administrative purview of the NDEP, Underground Injection Control Program (UIC) and is either non-tributary, in which case, it is administered independent of the prior appropriation doctrine; or is tributary, in which case, the depletions from its withdrawal must be fully augmented if the depletions occur in an

over-appropriated basin. The result in either case is that the produced water is available for consumption for other purposes, not just oil and gas operations. The water must not be encumbered by other needs and the operator must obtain a proper well permit from the NDWR before the water can be used for drilling and HF operations.

Reused or Recycled Drilling Water. Water that is used for drilling of one well may be recovered and reused in the construction of subsequent wells. The BLM encourages reuse and recycling of both the water used in well drilling and the water produced in conjunction with oil or gas production. However, as described above, the operator must obtain the right to use the water for this purpose.

On-Location Water Supply Wells. Operators may apply for, and receive, permission from the NDWR to drill and use a new water supply well. These wells are usually drilled on location to provide an on-demand supply. The proper construction, operation and maintenance, backflow prevention and security of these water supply wells are critical considerations at the time they are proposed to minimize impacts to the well and/or the waters in the well, water right holders and water-dependent resources. Plugging these wells is under the jurisdiction of the NDWR and BLM.

Authorization of any future proposed projects would require full compliance with local, state, and federal regulations and laws that relate to surface and groundwater protection and would be subject to routine inspections by the BLM and the State of Nevada Commission on Mineral Resources, Division of Minerals Memorandum of Understanding dated January 9, 2006, prior to approval.

III. Potential Impacts to Usable Water Zones

Impacts to freshwater supplies can originate from point sources, such as chemical spills, chemical storage tanks (aboveground and underground), industrial sites, landfills, household septic tanks, and mining activities. Impacts to usable waters may also occur through a variety of oil and gas operational sources which may include, but are not limited to, pipeline and well casing failure, and well (gas, oil and/or water) drilling and construction of related facilities. Similarly, improper construction and management of open fluids pits and production facilities could degrade ground water quality through leakage and leaching.

Should hydrocarbons or associated chemicals for oil and gas development, including HF, exceeding US Environmental Protection Agency (EPA)/NDEP standards for minimum concentration levels migrate into potable water supply wells, springs, or usable water systems, it could result in these water sources becoming non-potable and killing off aquatic species. Water wells developed for oil and gas drilling could also result in a drawdown in the quantity of water in nearby residential areas depending upon the geology and volumes of water extracted.

Usable groundwater aquifers are most susceptible to pollution where the aquifer is shallow (within 100 feet of the surface depending on surface geology) or perched, are very permeable, or connected directly to a surface water system, such as through floodplains and/or alluvial valleys or where operations occur in geologic zones which are highly fractured and/or lack a sealing formation between the production zone and the usable water zones. If an impact to usable waters were to occur, a greater number of people could be affected in densely populated areas versus sparsely populated areas characteristic of NV. Pollution could also impact usable waters in remote basins where interbasin transfer projects can pump and transport water through pipelines to urban areas, like Las Vegas and Reno. The BLM is also required to analyze potential impacts to aquatic species from groundwater contamination.

Potential impacts on usable groundwater resources from fluid mineral extraction activities could result from the following scenarios:

- i. Contamination of aquifers through the introduction of drilling and/or completion fluids through spills or drilling problems, such as lost circulation zones.

- ii. Communication of the induced hydraulic fractures with existing fractures potentially allows for HF fluid migration into usable water zones/supplies. The potential for this impact is likely dependent on the local hydraulic gradients where those fluids are dissolved in the water column.
- iii. Cross-contamination of aquifers/formations may result when fluids from a deeper aquifer/formation migrate into a shallower aquifer/formation due to improperly cemented well casings.
- iv. Localized depletion of perched aquifer or drawdown of unconfined groundwater aquifer. Progressive contamination of deep confined, shallow confined, and unconfined aquifers if the deep confined aquifers are not completely cased off, and geologically isolated, from deeper oil bearing units. An example of this would be salt water intrusion resulting from sustained drawdown associated with the pumping of groundwater.
- v. Casing failure (casing ruptures in low pressure formations, casing corrosion)
- vi. Communication through old abandoned wells nearby
- vii. Transportation of fluids to and from site (accidents)
- viii. Wastewater disposal

The impacts above could occur as a result of the following processes:

Improper casing and cementing.

A well casing design that is not set at the proper depths or a cementing program that does not properly isolate necessary formations could allow oil, gas or HF fluids to contaminate other teaquifers/formations. In addition, old well casing and casing cement that has corroded over time can fail allowing contaminates to migrate into the well formation.

Natural fractures, faults, and abandoned wells.

If HF of oil and gas wells result in new fractures connecting with established natural fractures, faults, or improperly plugged dry or abandoned wells, a pathway for gas or contaminants to migrate underground may be created posing a risk to water quality. The potential for this impact is currently unknown but it is generally accepted that the potential decreases with increasing distance between the production zone and usable water zones. This potential again is dependent upon the site specific conditions at the well location.

Fracture growth.

A number of studies and publications report that the risk of induced fractures extending out of the target formation into an aquifer allowing hydrocarbons or other fluids to contaminate the aquifer may depend, in part, on the formation thickness separating the targeted fractured formation and the aquifer. According to a 2012 Bipartisan Policy Center report, the fracturing process itself is unlikely to directly affect freshwater aquifers because in Nevada fracturing typically takes place at a depth of 6,000 to 10,000 feet, while drinking water aquifers are typically less than 1,000 feet deep. However, some areas of Nevada, the deep carbonate aquifer can extend to 6,000 feet below ground surface. Recent studies have shown that induced fractures created during HF growing more than 350 meters vertically is less than 1% (Lacazette and Geiser). If a parcel is sold and development is proposed in usable water zones, those operations would have to comply with federal and/or state water quality standards or receive a Class II designation from the NDEP.

Fracture growth and the potential for upward fluid migration, through volcanic, sedimentary and other geologic formations depend on site-specific factors such as the following:

- i. Physical properties, types, thicknesses, and depths of the targeted formation as well as those of the overlying geologic formations.

- ii. Presence of existing natural fracture systems and their orientation in the target formation and surrounding formations.
- iii. Amount and distribution of stress (i.e., in-situ stress), and the stress contrasts between the targeted formation and the surrounding formations.

Hydraulic fracture stimulation designs include the volume of fracturing fluid injected into the formation as well as the fluid injection rate and fluid viscosity; this information is evaluated against the above site specific considerations.

Fluid leak and recovery (flowback) of HF fluids.

Not all fracturing fluids injected into the formation during the HF process are recovered at the surface. Estimates of the fluids recovered range from 15-80% of the volume injected depending on the site (EPA 2010). Fluid movement into smaller fractures or other geologic substructures can be to a point where flowback efforts will not recover all the fluid or that the pressure reduction caused by pumping during subsequent production operations may not be sufficient to recover all the fluid that has leaked into the formation. Fracturing fluids can remain in the formation due to adsorption and chemical reactions, movement out of the capture zone, inadequate mixing, or from fracture collapse. It is noted that the fluid loss due to leakage into small fractures and pores is minimized by the use of cross-linked gels.

Willberg et al. (1998) analyzed HF flowback and described the effect of pumping rates on cleanup efficiency in initially dry, very low permeability (0.001 millidarcy) shale. Some wells in this study were pumped at low flowback rates (less than 3 barrels per minute (bbl/min)). Other wells were pumped more aggressively at greater than 3 bbl/min. Thirty-one percent of the injected HF fluids were recovered when low flowback rates were applied over a 5-day period. Forty-six percent of the fluids were recovered when aggressive flowback rates were applied in other wells over a 2-day period. In both cases, additional fluid recovery (10 percent to 13 percent) was achieved during the subsequent gas production phase, resulting in a total recovery rate of 41 percent to 59 percent of the initial volume of injected HF fluid. Ultimate recovery rate however, is dependent on the permeability of the rocks, fracture configuration, and the surface area of the fracture(s).

The ability of HF chemicals to migrate in an undissolved or dissolved phase into a usable water zone is likely dependent upon the location of the sealing formation (if any), the geology of the sealing formation, hydraulic gradients and production pressures.

HF fluids can remain in the subsurface unrecovered, due to “leak off” into connected fractures and the pores of rocks. Fracturing fluids injected into the primary hydraulically induced fracture can intersect and flow (leak off) into preexisting smaller natural fractures. Some of the fluids lost in this way may occur very close to the well bore after traveling minimal distances in the hydraulically induced fracture before being diverted into other fractures and pores. Once “mixed” with the native water, local and regional vertical and horizontal gradients may influence where and if these fluids will come in contact with usable water zones, assuming that there is inadequate recovery either through the initial flowback or over the productive life of the well. Faults, folds, joints, etc., could also alter localized flow patterns as discussed below.

The following processes can influence effective recovery of the fracture fluids:

Check-Valve Effect

A check-valve effect occurs when natural and/or newly created fractures open and HF fluid is forced into the fractures when fracturing pressures are high, but the fluids are subsequently prevented from flowing back toward the wellbore as the fractures close when the fracturing pressure is decreased (Warpinski et al., 1988; Palmer et al., 1991a).

A long fracture can be pinched-off at some distance from the wellbore. This reduces the effective fracture length. HF fluids trapped beyond the “pinch point” are unlikely to be recovered during flowback and oil/gas is unlikely to be recovered during production.

In most cases, when the fracturing pressure is reduced, the fracture closes in response to natural subsurface compressive stresses. Because the primary purpose of HF is to increase the effective permeability of the target formation and connect new or widened fractures to the wellbore, a closed fracture is of little use. Therefore, a component of HF is to “prop” the fracture open, so that the enhanced permeability from the pressure-induced fracturing persists even after fracturing pressure is terminated. To this end, operators use a system of fluids and “proppants” to create and preserve a high-permeability fracture-channel from the wellbore deep into the formation.

The check-valve effect takes place in locations beyond the zone where proppants have been placed (or in smaller secondary fractures that have not received any proppant). It is possible that some volume of stimulation fluid cannot be recovered due to its movement into zones that were not completely “propped” open.

Adsorption and Chemical Reactions

Adsorption and chemical reactions can also prevent HF fluids from being recovered. Adsorption is the process by which fluid constituents adhere to a solid surface and are thereby unavailable to flow with groundwater. Adsorption to coal is likely; however, adsorption to other geologic material (e.g., shale, sandstone) is likely to be minimal. Another possible reaction affecting the recovery of fracturing fluid constituents is the neutralization of acids (in the fracturing fluids) by carbonates in the subsurface.

Movement of Fluids outside the Capture Zone

Fracturing fluids injected into the target zone flow into fractures under very high pressure. The hydraulic gradients driving fluid flow away from the wellbore during injection are much greater than the hydraulic gradients pulling fluid flow back toward the wellbore during flowback and production (pumping) of the well. Some portion of the fracturing fluids could be forced along the hydraulically induced fracture to a point beyond the capture zone of the production well. The size of the capture zone will be affected by the regional groundwater gradients, and by the drawdown caused by producing the well. Site-specific geologic and hydrogeologic characteristics, injection pressure, and production pumping details should provide the information needed to estimate the dimension of the production well capture zone and the extent to which the fracturing fluids might disperse and dilute.

Incomplete Mixing of Fracturing Fluids with Water

Steidl (1993) documented the occurrence of a gelling agent that did not dissolve completely and actually formed clumps at 15 times the injected concentration in an induced fracture. Steidl also directly observed gel hanging in stringy clumps in many other induced fractures. As Willberg et al. (1997) noted, laboratory studies indicate that fingered flow of water past residual gel may impede fluid recovery. Therefore, some fracturing fluid gels appear not to flow with groundwater during production pumping and remain in the subsurface unrecovered. Such gels are unlikely to flow with groundwater during production, but may present a source of gel constituents to flowing groundwater during and after production.

IV. Geologic Hazards (including seismic/landslides)

Nevada is the 3rd most tectonically active state in the union. Since the 1850s there have been 63 earthquakes with a magnitude greater than 5.5, the cutoff for a destructive earthquake. Potential geologic hazards caused by HF include induced seismic activity in addition to the tectonic activity already occurring in the state. Induced seismic activity could indirectly cause a surficial landslide where soils/slopes are susceptible to failure. Landslides involve the mass movement of earth materials down slopes and can include debris flows, soil creep, and slumping of large blocks of material. Any destructive earthquake also has the potential to induce liquefaction in saturated soils.

Earthquakes occur when energy is released due to blocks of the earth's crust moving along areas of weakness or faults. Earthquakes attributable to human activities are called "induced seismic events" or "induced earthquakes." In the past several years induced seismic events related to energy development projects have drawn heightened public attention. Although only a very small fraction of injection and extraction activities at hundreds of thousands of energy development sites in the United States have induced seismicity at levels that are noticeable to the public, seismic events caused by or likely related to energy development have been measured and felt in Alabama, Arkansas, California, Colorado, Illinois, Louisiana, Mississippi, Nebraska, Nevada, New Mexico, Ohio, Oklahoma, and Texas.

A study conducted by the National Academy of Sciences (Induced Seismicity Potential in Energy Technologies, National Academy of Sciences, 2012) studied the issue of induced seismic activity from energy development. As a result of the study, they found that:

- The process of hydraulic fracturing a well as presently implemented for shale gas recovery does not pose a high risk for inducing felt seismic events; and
- Injection for disposal of waste water derived from energy technologies into the subsurface does pose some risk for induced seismicity, but very few events have been documented over the past several decades relative to the large number of disposal wells in operation.

However, a more recent study by the U.S. Geological Service has found that at some locations the increase in seismicity coincides with the injection of wastewater in deep disposal wells. Wastewater injection increases the underground pore pressure, which may, in effect, lubricate nearby faults thereby weakening them. If the pore pressure increases enough, the weakened fault will slip, releasing stored tectonic stress in the form of an earthquake. Even faults that have not moved in millions of years can be made to slip and cause an earthquake if conditions underground are appropriate (USGS 2014).

The potential for induced seismicity cannot be made at the leasing stage; as such, it will be evaluated at the APD stage should the parcel be sold/issued, and a development proposal submitted.

V. Spill Response and Reporting

Spill Prevention, Control, and Countermeasure (SPCC) Plans – EPA's rules include requirements for oil spill prevention, preparedness, and response to prevent oil discharges to navigable waters and adjoining shorelines. The rule requires that operators of specific facilities prepare, amend, and implement SPCC Plans. The SPCC rule is part of the Oil Pollution Prevention regulation, which also includes the Facility Response Plan (FRP) rule. Originally published in 1973 under the authority of §311 of the Clean Water Act, the Oil Pollution Prevention regulation sets forth requirements for prevention of, preparedness for, and response to oil discharges at specific non-transportation-related facilities. To prevent oil from reaching navigable waters and adjoining shorelines, and to contain discharges of oil, the regulation requires the operator of these facilities to develop and implement SPCC Plans and establishes procedures, methods, and equipment requirements (Subparts A, B, and C). In 1990, the Oil Pollution Act amended the Clean Water Act to require some oil storage facilities to prepare FRPs. On July 1, 1994, EPA finalized the revisions that direct facility owners or operators to prepare and submit plans for responding to a worst-case discharge of oil.

In addition to EPA's requirements, operators must provide a plan for managing waste materials, and for the safe containment of hazardous materials, per Onshore Order #1 with their APD proposal. All spills and/or undesirable events are managed in accordance with Notice to Lessee (NTL) 3-A for responding to all spills and/or undesirable events related to HF operations.

Certain oil and gas exploration and production wastes occurring at or near wellheads are exempt from the Clean Water Act, such as: drilling fluids, produced water, drill cuttings, well completion, and treatment and stimulations fluids. In general, the exempt status of exploration and production waste depends on how the material was used or generated as waste, not necessarily whether the material is hazardous or toxic.

VI. Public Health and Safety

The intensity, and likelihood, of potential impacts to public health and safety, and to the quality of usable water aquifers is directly related to proximity of the proposed action to domestic and/or community water supplies (wells, reservoirs, lakes, rivers, etc.) and/or agricultural developments. The potential impacts are also dependent on the extent of the production well's capture zone and well integrity. Nevada's Standard Lease Stipulations and Lease Notices specify that oil and gas development is generally restricted within 500 feet of riparian habitats and wetlands, perennial water sources (rivers, springs, water wells, etc.) and/or floodplains. Intensity of impact is likely dependent on the density of development.

VII. Hydraulic Frac Job Data for Nevada.

Operator	Noble Energy	Noble Energy	Noble Energy	Makoil	Grant Canyon
Well	Humboldt M2C-M2-21	Huntington K1L-1V	Humboldt M10C-M10-11	Portuguese Mountain 14A	Blackburn #16
Total Base Water Volume (gal)	250,057	300,537	343,919	29,949	209,600
2% KCL Water	88.5614	0	86.45119	0	0
Fresh Water	0	88.9968	0	53.90215	85.2039
Water	1.57645	0.61826	0.81892	0.78169	0.53354
2-bromo-2-nitro-1, 3-propanediol	0.00202	0.00213	0.00358	0.00129	0.00171
Crystalline Silica, quartz	0.65036	8.59936	10.49356	32.39228	14.4277
Ethylene glycol monobutyl ether	0.02379	0.00537	0.01688	0.09718	0.02695
Isopropanol	0.00311	0.00351	0.00221	0.04926	0.00353
Methanol	0.00311	0.00353	0.00226	0.05782	0.00361

* Values are based on the percent of the total mass. These are the most common additives in all the jobs.

VIII. References [for the Hydraulic Fracturing Technology Paper]

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APPENDIX H. LEASING PREFERENCE RATINGS FOR NOMINATED LEASE PARCELS

Table 1, Appendix H. Leasing Preference Table for the EYDO March 2026 Oil and Gas Lease Sale EA.

Leasing Preference Rating Based on the Following Criteria								
Parcel Information		Preference Criteria 1	Preference Criteria 2	Preference Criteria 3	Preference Criteria 4	Preference Criteria 5	Preference for Leasing	
Office	Parcel	Proximity to Existing Development	Habitat	Cultural Resources	Recreation/Other Resources	Potential	High	Low
EYDO	NV-2026-03-2242	Low	High	High	High	Low		X
EYDO	NV-2026-03-2269	Low	High	High	High	Low		X
EYDO	NV-2026-03-2271	Low	High	High	High	High		X
EYDO	NV-2026-03-2263	Low	High	High	High	Low		X
EYDO	NV-2026-03-2259	Low	High	High	High	Low		X
EYDO	NV-2026-03-2254	Low	High	High	High	Low		X
EYDO	NV-2026-03-2249	Low	High	High	High	Low		X
EYDO	NV-2026-03-2251	Low	High	High	High	Low		X
EYDO	NV-2026-03-2243	Low	High	High	High	High		X
EYDO	NV-2026-03-2237	Low	High	High	High	High		X
EYDO	NV-2026-03-2240	Low	High	High	High	High		X