

**U.S. Department of the Interior
Bureau of Land Management**

Environmental Assessment

**NEPA # DOI-BLM-NV-L000-2014-0002-EA
DECEMBER 2014 COMPETITIVE OIL AND GAS LEASE
SALE**

September 5, 2014

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DECEMBER 2014 COMPETITIVE OIL AND
GAS LEASE SALE

Prepared by
U.S. Department of the Interior
Bureau of Land Management
Ely District Office

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Chapter 1. Introduction

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1.1. Identifying Information:

December 2014 Competitive Oil And Gas Lease Sale

Ely District Office

NEPA# DOI-BLM-NV-L000-2014-0002-EA

1.1.1. Background Information

Areas available for fluid mineral leasing are identified through management determinations during the planning process. These determinations designate the land as closed or open to leasing, and if open, what resource protection stipulations should be applied to the lease. All leases are subject to the terms and conditions of the standard lease form which allows for up to 60-day timing deferrals and 200-meter (656 feet) displacements (Title 43 Code of Federal Regulations (CFR) Section 3101.1-2). Stipulations modify the lease rights beyond the standard lease terms. Constraints are considered to be either major, such as “No Surface Occupancy” (NSO), or moderate. Moderate constraints consist of timing limitations (seasonal restrictions) and controlled surface use restrictions. Timing limitations indicate that a leased area generally is open to development activities except during a specified period of time to protect identified resource values such as wildlife. Controlled surface use stipulations may require operating constraints to protect resources year round; for example, staying on existing roads (BLM 2008b, the Ely RMP page 92).

In addition to the above major and moderate constraints, a lease notice may be attached to the lease to inform potential lessees of important resource issues under existing laws and regulations that may result in delays associated with subsequent permitting, and appropriate mitigation of those resource concerns (Ely RMP, page 92).

Over 10 million acres (87%) of the Ely District are open to fluid mineral leasing (Table 1.1 below). Closed areas include designated wilderness and wilderness study areas. Discretionary closures (such as Areas of Critical Environmental Concern, ACEC) and no surface occupancy areas make up about 5% of the Ely District.

Resources are further protected during operational activities through the application of Best Management Practices (BMP), as contained in The Gold Book (BLM and U.S. Department of Agriculture, Forest Service 2006) and the development of site-specific conditions of approval (Ely RMP page 92).

Table 1.1. Summary of Fluid Mineral Leasing in Ely District

Ely District Office Area	Acres (approx.)
Open to Fluid Mineral Leasing	
Standard Lease Terms and Conditions	6,532,500
Moderate Restrictions (Timing/Surface Use Limitations)	3,277,200
Major Restrictions (No Surface Occupancy)	230,100
Open —Total:	10,039,800
Closed to Fluid Mineral Leasing	
Designated Wilderness/Wilderness Study Areas	1,153,500
Discretionary Closures	306,700
Closed —Total:	1,460,200
Total:	11,500,000

Note: There will be about 1,087,620 acres of lease notices that could apply to any of the above open categories.

Under certain conditions, waivers, exceptions, and modification to lease stipulations may be granted by the Authorized Officer (AO). The circumstances for granting an exception, waiver, or modification are attached to each stipulation.

Any lease stipulation may be waived or modified as per Title 43 CFR, Section 3101.1-4. A waiver or modification is allowable only if the AO determines that the factors leading to its inclusion in the lease have changed sufficiently to make requirements of the stipulation(s) no longer justified, or mitigation contained in individual permits will preclude unacceptable impacts. If the waiver or modification is of major concern to the public, such modification will be subject to a 30-day public review. This review can be held concurrent with the required 30-day posting of applications for permit to drill (APD). Ely RMP amendments are not required to waive, modify, or provide exception to lease stipulations.

A waiver eliminates a stipulation from the lease. The stipulation waiver can be considered concurrent with APD approvals and can be accomplished with the appropriate NEPA analysis.

A modification usually is considered a long-term change in the stipulation to fit the new conditions for which the stipulation was applied; however, it can be short term as well. Depending upon the site conditions, the stipulation may or may not apply to all actions or authorizations on the leasehold. Public notice is required only if the AO determines it is of major public concern.

An exception is a one-time exception to all or part of the stipulation for a particular action due to changed environmental conditions at the time and place of the action being considered. For example, a seasonal restriction on drilling in critical winter range could be excepted if the winter is mild and the target species have not moved onto the critical portions of the winter range (near the drilling location). In subsequent years, the conditions could change and preclude an exception being granted. Normally, exceptions are considered minor actions and, therefore, are not subject to a 30-day public review.

1.2. Geology of Oil and Gas in Eastern Nevada

Many of the rock formations found within the analysis area are indicative of a continental plate margin converging with an oceanic plate. A combination of depositional and orogenic (mountain building) events along this margin have resulted in the analysis area being generally prospective for hydrocarbon production.

The development of the Antler Orogeny in the Late Devonian to Early Mississippian period allowed the deposition of the organic-rich source rocks necessary for hydrocarbon development. Late Cretaceous Sevier Orogeny created stacked set of thrust sheets, which buried the mid-Paleozoic organic sediments beneath a thickened crust where they could pass into the oil and gas-generating temperature and pressure windows. The Sevier Orogeny in the Late Cretaceous period also placed locally prospective reservoir rocks above the Mississippian source rocks in potential oil and gas traps. In geologic time following the Sevier Orogeny, the analysis area experienced varying amounts of volcanism and the development of the present-day basin and range topography. The late Tertiary volcanic rocks constitute the main reservoir of the oil fields in the Railroad Valley petroleum province. However, the Chainman Shale and the Pilot Shale of Mississippian ages are the potentially oil-bearing formations mostly sought after in the majority of the analysis area. New directional drilling and hydraulic fracturing (HF) technology may allow for more extensive exploration into these tight formations not previously considered feasible.

1.3. History of Oil and Gas Exploration within the Ely District

The first oil discovery in Nevada occurred in 1954 in Railroad Valley. Railroad Valley is the predominant area of oil and gas production in Nevada. Nevada's only oil refinery is located here. Most of the valley lies in Nye County, but it crosses into White Pine County at its northern end. Since 1907, over 970 wells have been drilled in Nevada. This includes about 270 wells drilled since 1986 of which about 50 were producers.

Locally, numerous exploration or "wildcat" wells have been drilled throughout White Pine, northeast Nye, and Lincoln Counties. Even though many have had oil shows (evidence of oil or gas), there are currently only two producing wells within the Ely District boundary. New advancements in directional drilling and HF technology may increase this number in the next ten years.

The first well drilled in the Ely District was in 1920 when the Illipah Syndicate drilled a well in the Barrel Springs area of the White Pine Range in White Pine County. The well was drilled in Section 11, Township 17 North, Range 58 East MDM and reached a total depth of 929 feet with gas and oil shows (Garside et al. 1988). The Illipah Syndicate drilled three (3) more wells in the 1920s in the Barrel Springs area with numerous oil and gas shows, but with no commercial results.

Approximately 200 wells have been drilled in the District since the 1920s. Since 1950, slightly more than 170 wells have been drilled, and 90% of them were abandoned with only two wells currently in production. Many wells had evidence of the presence of hydrocarbons, but not in commercially producible quantities.

Drilling activity in the 1950s was sparse with only one well drilled in some years, and in other years, no drilling occurred. Since 1964, an average of about four (4) wells per year has been drilled in the district, with most of the wells being drilled in White Pine County (Hess 2001). However, approximately 68 wells have been drilled in the Nye County portion of the District, and most of those are in the Railroad Valley. Most of the drilling occurred on federal leases, and the federal government owns the overwhelming amount of leased minerals. More than one-third of the wells in the District were drilled to depths of between 2,500 and 5,000 feet.

A little more than 5% of the wells were drilled to more than 10,000 feet deep. The deepest well in the District, drilled in 1983, was the Commodore Resources Outlaw Federal #1 drilled to a total depth of 13,000 feet in White Pine County (Section 1, Township 10 North, Range 70 East MDM).

The well was drilled east of the Snake Range and had reported hydrocarbon shows, but tests on the oil were not conclusive of naturally occurring hydrocarbons (Poole and Claypool 1984).

The U.S. Geological Survey (Peterson and Grow 1995) estimated the potential undiscovered technically recoverable hydrocarbon resources for the Eastern Basin and Range area, of which the analysis area is part. Their estimates, when extrapolated to the Ely District, indicate that the potential hydrocarbon resource is nearly 98 million barrels of oil and almost 16 billion cubic feet of natural gas.

These estimates are the mean values presented by Peterson and Grow (1995). Low-grade coal (lignite) is present in the District, but mineable deposits have not been found. Therefore, there is very low or no potential for coalbed natural gas resources in the Ely District and coalbed natural gas is not included in the natural gas resource estimate.

Based on the foregoing, much of the analysis area has a high potential for hydrocarbons based on the following geologic characteristics:

- Presence of hydrocarbon source rocks
- Evidence of thermal maturation
- Presence of reservoir rocks with adequate porosity and permeability
- Potential for hydrocarbon traps to exist

There are places in the District where Precambrian-age metamorphic and volcanic rocks are the dominant surface rock types, but the presence of these rocks does not preclude the potential for the occurrence of deeper hydrocarbons in these areas. It is possible that hydrocarbon resources may have been buried by thrust faults or extrusive igneous rocks and that current exploration technique, exclusive of random drilling, cannot define the location or depth of these hidden potential resources.

1.4. Frequency of Oil and Gas Leasing within the Ely District

Based on 2002 to 2013 leasing numbers, federal lease sales average approximately 325,000 acres per year (see table below). The largest amount of acreage leased within the past 10 years was in 2005 where it surpassed 800,000 acres. However, since the new oil and gas leasing reform in 2011, the BLM state office put a limit of 200 parcels per sale and one sale per district office per year. At a maximum of 2,560 acres per parcel, this calculates the total leasable acreage per sale to 512,000. Taking on additional parcels and lease sales is optional to the District Office.

The Table of APDs Approved also demonstrates the constant turnover of leased parcels. Although the Ely District has leased over 4.2 million acres of public land for oil and gas development in the past 12 years, only 2.1 million acres remain active. The December 2014 lease sale could add another 407,000 leased acres.

Only 32 wells were authorized in the Ely District over the past 12 years, even though there are 936 active leases covering just over 2 million acres of public land, as of May 21, 2014, based on information obtained from BLM's Oracle® "Legacy Rehost System", or "LR2000 database". It provides reports on BLM land and mineral use authorizations for oil, gas, and geothermal leasing, rights-of-ways, coal and other mineral development, land and mineral title, mining

claims, withdrawals, classifications, and more on federal lands or on federal mineral estate (see Table below).

Table 1.2. Ely District APDs Approved

Year Leased	No. of Parcels Leased	Leased Acreage	Currently Active Leases	Current Acreage Leased	# of APDs Approved
2002	29	109,226	2	3,000	3
2003	56	77,916	13	13,825	2
2004	118	309,339	30	73,728	7
2005	344	826,686	71	135,145	1
2006	288	691,539	128	281,800	3
2007	92	165,955	27	41,531	3
2008	281	539,564	160	291,159	1
2009	138	263,519	76	150,153	1
2010	178	551,722	164	497,267	3
2011	131	325,637	118	288,237	0
2012	66	108,484	66	108,484	4
2013	81	260,401	81	260,401	4
Totals:	1,802	4,229,990	936	2,124,731	32

1.4.1. Current Leasing Review Guidelines

It is the policy of the BLM as derived from various laws, including the Mineral Leasing Act of 1920 and the Federal Land Policy and Management Act of 1976, to make mineral resources available and to encourage development of mineral resources to meet national, regional, and local needs. The Nevada State Office conducts a yearly competitive lease sale for oil and gas lease parcels in the Ely District.

The Nevada State Office publishes a Notice of Competitive Lease Sale (NCLS) that lists lease parcels offered at the auction at least 45 days before the auction is held. The BLM bases its decision as to which parcels to offer for this competitive lease sale on current information and the management framework developed in the land use plan. Surface management of non-BLM administered lands overlaying federal minerals is determined by BLM in consultation with the appropriate surface management agency or the private surface owner.

In the process of preparing a lease sale, the Nevada State Office sends a list of nominated parcels to each District Office where the parcels are located. The staff then reviews the parcels to determine:

- If they are in areas identified in the Ely RMP as open to fluid mineral leasing;
- If new information has become available which might change any analysis conducted during the planning process;
- If appropriate consultations have been conducted;
- What appropriate stipulations should be included; and
- If there are special resource conditions of which potential bidders should be made aware.

Once the draft parcel review is completed and returned to the Nevada State Office, a list of available lease parcels and stipulations is made available to the public through a NCLS. Lease

stipulations applicable to each parcel are specified in the Sale Notice. On rare occasions, additional information obtained after the publication of the NCLS may result in withdrawal of certain parcels prior to the day of the lease sale.

The Environmental Assessment (EA) verifies conformance with the approved land use plan and provides the rationale for deferring parcels from the lease sale. Additionally, it provides the rationale for any lease stipulations applied to specific parcels.

Resource specialists relied on historical data, assessed environmental impacts that might result from an oil and gas lease sale, and personal knowledge of the areas involved. They also conducted field inspections and reviewed existing databases and file information to determine the appropriate stipulations to attach to specific parcels. This complies with National Environmental Policy Act (NEPA) of 1969, as amended (Public law 91-90, 42 USC 4321 et seq.)

For the December 2014 lease sale, one out of the 193 parcels received pre-sale offers of \$2 an acre. Pre-sale offers can be submitted when submitting an Expression of Interest (EOI) under the BLM Instruction Memorandum (IM) No. 2010-117, Oil and Gas Leasing Reform. If no one else bids on these parcels on the day of the competitive lease sale, the parcels will be awarded to the person who submitted the pre-sale offer.

At the time of this review, it is not known whether all nominated parcels will receive bids, if leases will be issued, or if well sites or roads might be proposed in the future. Detailed site-specific analysis of individual wells or roads would occur when an APD is submitted. In accordance with The Gold Book, ground disturbance and drilling can only happen when the APD is authorized. As part of the APD authorization, analysis under NEPA will be conducted to determine the effects of the specific project actions. This NEPA analysis will examine all potentially affected resources. Appendix C and E list best management practices developed by the Ely District Office. These practices benefit or protect resources and could be applied during site development. Certain best management practices are also incorporated into the RMP as management actions. Best management practices would be implemented at the discretion of the Ely District Office on a project-specific basis, depending on the specific characteristics of the analysis area and the types of disturbance being proposed. They may not be appropriate to implement in all cases. It has been assumed for impact analysis that best management practices would be implemented wherever appropriate. Appendix E contains a list of best practices and possible stipulations which may be applied at the APD stage, to exploration and development activities as a result of site-specific NEPA analysis

1.5. Purpose and Need for Action

The purpose of the action is to offer nominated parcels for competitive oil and gas leasing in the December 2014 Competitive Oil and Gas Lease Sale. Offering nominated parcels for competitive oil and gas leasing allows private individuals or companies to explore the federal mineral estate of lands managed by the federal government for the development of oil and gas resources.

The sale of oil and gas leases is needed to allow continued exploration for additional petroleum reserves which would help the United States meet its growing energy needs and to enable the United States to become less dependent on foreign oil sources. This action is being initiated to facilitate the Ely District Office's implementation of the requirements in Executive Order 13212 (2001) and the National Energy Policy Act (2005).

1.6. Conformance with BLM Land Use Plan

The Proposed Action is in conformance with the Ely RMP which states, “*To provide for the responsible development of mineral resources to meet local, regional, and national needs, while providing for the protection of other resources and uses*” (page 92). The RMP also states in part, “*It is BLM policy to apply the least restrictive constraint to meet the resource protection objective.*” (page 97). In addition, “*Timing limitations indicate that a leased area generally is open to development activities except during a specified period of time to protect identified resource values such as wildlife*” (page 92).

This document is tiered to, and incorporates by reference, the Ely Proposed Resource Management Plan/Final Environmental Impact Statement (BLM 2007, the RMP/FEIS). Should a determination be made that implementation of the Proposed Action would not result in significant environmental impacts or significant environmental impacts beyond those already disclosed in the existing NEPA documents, a Finding of No Significant Impact (FONSI) would be prepared to document that determination and a Decision Record (DR) issued that provides a rationale for approving the selected alternative.

1.7. Relationship to Statutes, Regulations, or Other Plans

The Proposed Action complies with federal, state, and local laws, and regulations, and is consistent with federal, state, and local policies, and plans to maximum extent possible.

Purchasers of oil and gas leases are required to obey all applicable federal, state, and local laws and regulations including obtaining all required permits should lease development occur.

Federal regulations and policies require the BLM to make its public land and resources available based on the principle of multiple-use. At the same time, it is BLM policy to conserve special status species and their habitats, and ensure that actions authorized by the BLM comply with the Endangered Species Act (ESA) of 1973 (as amended). This includes protecting the species from becoming listed as threatened or endangered by the United States Fish and Wildlife Service (FWS).

Compliance with Section 106 responsibilities of the National Historic Preservation Act (NHPA) are adhered to by following the BLM – Nevada State Historical Preservation Office (SHPO) protocol agreement, which is authorized by the National Programmatic Agreement between the BLM, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers, and other applicable BLM handbooks. As the BLM reviews draft parcel locations, the cultural resource staff reviews the locations to determine if any are within known areas of cultural or archeological concern.

Native American consultation is conducted for each lease sale. If Traditional Cultural Properties (TCP) or heritage related issues are identified, such parcels are deferred from the sale while letters requesting information, comments, or concerns are sent to Native American representatives. If the same draft parcels appear in a future sale, a second request for information is sent to the same recipients and the parcels may be deferred again. If no response to the second letter is received, the parcels are allowed to be offered in the next sale.

If responses are received, BLM will discuss the information or issues of concern with the Native American representative to determine if all or only portions of a parcel need to be withdrawn from the sale or if special stipulations need be attached as lease stipulations.

The Proposed Action and alternatives are in conformance with the National Environmental Policy Act (NEPA) of 1969, (P. L. 91-190 as amended (42 USC §4321 et. seq.); Mineral Leasing Act (MLA) of 1920 as amended and supplemented (30 USC 181 et seq.); the Federal Oil and Gas Leasing Reform Act of 1987, which includes the regulatory authority under 43 CFR 3100, Onshore Oil and Gas Leasing; General, and Title V of the Federal Land Policy and Management Act of 1976 (FLPMA); and 43 CFR 2800 for Rights-of-Way (ROWs).

1.8. Decision to be Made

The Ely District Office must determine whether or not to recommend leasing all or part of the nominated parcels in the upcoming December 2014 Oil and Gas Competitive Lease Sale to the Nevada BLM Deputy State Director for Minerals Management by August 15, 2014. The Ely District must also determine which notices and stipulations must be attached to the parcels at the leasing stage in order to help protect the resources. The BLM Deputy State Director of Minerals will make the final decision and sign the DR.

1.8.1. Identification of Issues

While many issues may arise during scoping and the public comment period, not all of the issues raised warrant analysis. Issues raised through scoping are analyzed if:

- Analysis of the issue is necessary to make a reasoned choice between alternatives.
- The issue is significant (an issue associated with a significant direct, indirect, or cumulative impact, or where analysis is necessary to determine the significance of impacts).
- There is a disagreement about the best way to use a resource, or resolve an unwanted resource condition, or potentially significant effects of a proposed action or alternative.

An interdisciplinary (ID) team discussed the potential consequences of the proposed action during internal scoping held on May 5, 2014. This was a combined Ely District scoping with staff from the Egan Field Office (FO), the Schell FO and the Caliente FO participating.

External scoping included a general press release notifying the public of the proposed action, a web based announcement and the means of providing input from May 6–27, 2014. Managers made presentations describing the proposed action to the White Pine Board of County Commissioners and the White Pine County Public Land Use Advisory Committee (PLUAC) on May 13th. The Ely District Manager presented this proposed action to the Lincoln County Board of Commissioners on June 2nd.

During scoping approximately 5000 identical and 9 individual responses were received through direct e-mail from the Wild Horse America Association (WHAA). All responses asked that the proposed action be modified by deferring fourteen parcels because they overlapped a Herd Management Area (HMA). They cited disruption to the animals and a concern over the quality of surface water. Surface water is addressed in this EA. HMAs are open to fluid mineral leasing

and other multiple uses per the Ely RMP, and no additional information was provided which would require a deferral or RMP amendment.

The PLUAC suggested that potential springs be investigated and pointed out potential inter-basin flow could be occurring between Spring Valley, the north end of Hamlin Valley and the south end of Snake Valley. PLUAC requested that potential impacts of both of these concerns be addressed in the EA. For leasing, these impacts are addressed in the water resources section of this EA, under cumulative impacts. Site specific development concerns will be addressed in the future if an APD is submitted.

Letters were received from and discussion occurred with the Nevada Department of Wildlife (NDOW) and the FWS. Useful information was received and both agencies asked that in order to protect threatened and endangered species, the proposed action be modified. Both agencies requested deferral of parcels within the White River Sub-basin to protect the following features: Key Pittman Wildlife Management Area (WMA), Ash Spring, Crystal Spring, and Hiko Spring. NDOW preferred that all parcels in this area be deferred because of concern over hydrologic connectivity. For leasing, these impacts are addressed in the water resources and wildlife sections of this EA under cumulative impacts. Site specific development concerns will be addressed in the future if an APD is submitted.

The FWS also asked that the proposed action be modified by closing critical desert tortoise habitat; this would require an RMP amendment and is outside the scope of this EA. This closure will be considered in an upcoming RMP Amendment. In the meantime, standard lease stipulations will be applied to desert tortoise habitat in order to protect this species.

The Triple Aught Foundation (TAF) identified parcels they believe would have an adverse impact to the visual integrity of a landscape scale art installation, known as “City”. They cite City’s artistic value and state that exploration will destabilize the ecosystem, import noxious weeds, affect grazing, and introduce structures which would degrade the relationship of the artwork to its environs. They have requested deferral of forty parcels which are located at the southern end of Garden Valley and Coal Valley.

The proposed action was modified to reflect portions of the Triple Aught, NDOW, and FWS deferral requests.

The BLM Ely District Office posted invitations by certified mail on May 9, 2014 to the following Tribes to consult and provide information concerning any known traditional religious sites and cultural sites of importance as required by the National Historical Preservation Act of 1966, as amended: Section 106.

The eight federally recognized Tribes that were notified are: Confederated Tribes of the Goshute Reservation, NV-UT; the Duckwater Shoshone Tribe of the Duckwater Reservation, NV; Ely Shoshone Tribe of Nevada; Las Vegas Paiute Tribe of the Las Vegas Indian Colony; Moapa Band of Paiute Indians of the Moapa River Indian Reservation, NV; Paiute Indian Tribe of Utah; Yomba Shoshone Tribe of the Yomba Reservation, NV; and Te-Moak Tribe of the Western Shoshone Indians of Nevada.

On April 4, 2014 the Egan Field Manager met with the Business Council of the Confederated Tribes of the Goshute Indian Reservation in Ibapah, Utah; on April 28, 2014 with the Duckwater Shoshone Tribe of the Duckwater Reservation, Nevada; and on May 13, 2014 with the Ely Shoshone Tribe of Nevada. No issues were raised during these meetings. A site visit with

the Duckwater Shoshone Tribe occurred on June 4, 2014. A site visit occurred with the Ely Shoshone Tribe on May 16, 2014. The Ely Shoshone Tribe of Nevada expressed concerns that two nominated parcels are immediately adjacent to the Tribe's Conservation District which is designated for traditional and cultural uses only. No other responses were received.

On June 11th the preliminary EA was placed on the BLM NEPA Register and websites for 30 days to receive public comments. Most comments expressed concerns about potential indirect effects from hydraulic fracturing, air quality, water consumption, and groundwater contamination.

The BLM received approximately one hundred twenty direct e-mail and 6 handwritten comments from WHAA. They were identical to the form letters WHAA generated during the external scoping period.

Eighteen additional comments were received from private individuals, nongovernmental organizations (NGOs), Native American Tribes, and governmental entities. Three private individuals preferred renewable energy and together with all NGOs, expressed concern about hydraulic fracturing, water consumption, and groundwater contamination. Others expressed concerns about the effectiveness of Nevada State regulations regarding operational well-drilling and potential harm to sage grouse habitat.

The Environmental Protection Agency offered comments including the NEPA process and air quality. FWS comments included a request to increase parcel deferrals in the vicinity of specific water sources. Six State of Nevada Agencies (including Southern Nevada Water Authority) supported the proposed action; NDOW supported the FWS deferral request, requested further inter-agency discussions and sought clarification of text. Two Lincoln County agencies supported the proposed action, and also expressed concerns about protection of the carbonate aquifer system.

The Ely Shoshone Tribe requested deferral of the two parcels immediately adjacent to the Tribal Conservation District. A subsequent meeting with Tribal representatives on September 4th, 2014 provided clarifications of and substantive comments to their deferral request. The South Fork Band Council (Western Shoshone) deferred its comments to the Tribal organizations listed previously.

As a result of public comments, the final EA was revised to include further details and clarifications in the following sections:

- 2.2.1 Clarification to deferral request by Ely Shoshone Tribe
- 2.5 Reasonably Foreseeable Development Scenario
- 3.3.1. Air Quality & Climate Change
- 3.3.3. and 4.4 Water Resources
- 3.3.7. Lands with Wilderness Characteristics (Table 3.3)
- 3.3.9. Visual Resource Management
- 3.3.11. and 4.12 Livestock Grazing (*Added*)
- 3.3.12. Wild Horses
- Appendices C, E, & F.

- *(Added)* Appendix I: Legal Descriptions of Deferrals

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Chapter 2. Proposed Action and Alternatives

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2.1. Introduction

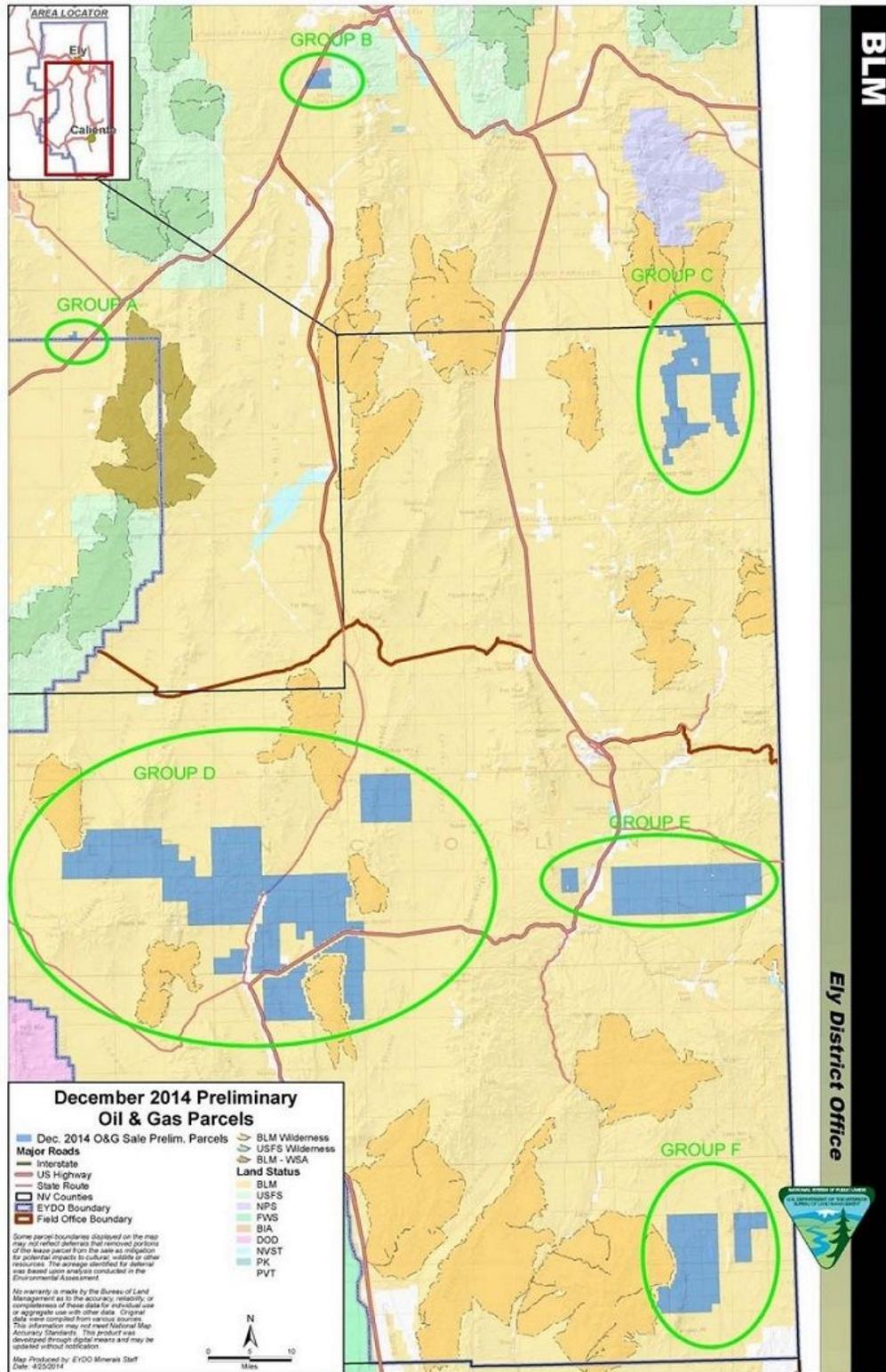
The previous chapter presented the Purpose and Need for the proposed project along with identified relevant issues (i.e., those elements that could be affected by the implementation of the proposed project). In order to meet the purpose and need of the proposed project in a way that resolves the issues, the BLM considered a range of action alternatives; however, only a proposed action alternative and no action alternative seemed feasible. No other alternatives to the proposed action were apparent which would meet the purpose and need. The potential environmental effects resulting from the implementation of each alternative are analyzed in Chapter 4 for each of the identified issues.

The Nevada State Office submitted a list of 193 nominated parcels totaling 406,653 acres of the Ely District on April 29, 2014 (see Map and Table below). This total acreage represents only 4.07% of the acres open to leasing in the Ely District. Lincoln County contains the majority of the parcels (190). Nye County has one parcel and White Pine County has two. Appendix A lists all 193 parcels, the parcel number, acreage, legal description, and Appendix B lists stipulations for all parcels.

Table 2.1. Map Key for Parcels with Acreage

Group	Group Name	Number of Parcels	Field Office	County	Acres *
A	North Railroad Valley	1	Egan	Nye	473
B	Southwest Ely	2	Schell	White Pine	3,500
C	Hamlin Valley	24	Schell	Lincoln	47,500
D	Hiko - Pahroc	111	Caliente	Lincoln	230,100
E	Panaca	30	Caliente	Lincoln	69,980
F	Tule Springs Hills	25	Caliente	Lincoln	55,100
Totals	* Acres are approximate	193			406,653

The Map below displays the grouping of parcels in the Ely District.



Map 2.1. Nominated Parcels Map

2.2. Description of the Proposed Action

The Proposed Action is to offer 193 parcels for competitive oil and gas leasing. Standard terms and conditions as well as special stipulations would apply. Lease stipulations (as required by Title 43 CFR 3131.3) would be added to those parcels offered for sale to address site-specific concerns or new information not identified in the land use planning process. Based on issues identified through scoping and public comments, 110 parcels in whole or in part, were recommended for deferral or removal from future lease sales.

Once sold, the lessee has the ability to develop the lease by exploring, drilling, and producing all of the oil and gas within the lease boundaries, subject to the stipulations attached to the lease (Title 43 CFR 3101.1-2). Drilling of wells on a lease is not permitted until the lease owner or operator secures approval of a drilling permit and a surface use plan specified under Onshore Oil and Gas Orders, Notice to Lessees (NTLs) listed in Title 43 CFR 3162. Oil and gas leases are issued for a 10-year period or may 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, the lease is terminated and all lessee rights revert back to the federal government and the lease may be resold.

Anyone submitting an “Expression of Interest” (EOI) that certain lands be offered in an oil and gas competitive lease auction, and that the EOI includes split-estate lands (private surface ownership/federal minerals ownership) must provide, with the EOI, the name and address of the current private surface owner(s). Whenever a split-estate parcel is included in an oil and gas Notice of Competitive Lease Sale, the Bureau of Land Management (BLM) will send a courtesy letter to the surface owner(s). The letter will provide the surface owner(s) notice of the scheduled auction as well as information about the BLM’s regulations and procedures for federal oil and gas leasing and development on split-estate lands. Any EOI including split-estate lands that is submitted in the future, or is now pending with a BLM State Office, that does not provide the name and address of the surface owner(s) will not be processed by the BLM. Such lands will not be placed on a list of lands included in a Notice of Competitive Lease Sale until the required information is provided.

All parcels contain a Cultural Resources Lease Notice stating that all development activities proposed under the authority of these leases are subject to compliance with Section 106 of the NHPA and Executive Order 13007. All parcels also contain an Endangered Species Act (ESA) Notice which requires compliance with Section 7 of the ESA. Standard terms and conditions as well as special stipulations listed in the RMP would also apply.

Many of the parcels have one or more of the stipulations which limit activity associated with the lease. See Appendix B for details of these stipulations. In addition, if any parcels are developed in the future, site-specific mitigation measures and BMPs (Appendices C and E) would be attached as Conditions of Approval (COA) for each proposed activity, which would be analyzed under future site-specific NEPA analysis. The level of further NEPA analysis will depend upon the results of scoping and the particulars of the proposed action.

2.2.1. Recommended Deferrals

It is the Ely District’s recommendation to approve leasing 105 (in whole or in part) of the 193 parcels identified in the Proposed Action, and analyzed in this EA.

The following portions of parcels are being recommended for removal from future lease sales:

- Portions of two parcels identified for disposal in the approved Ely District Resource Management Plan (BLM, 2008).
- Twelve parcels or portions of these parcels occupying the corridor defined by the Lincoln County Conservation Recreation Development Act (LCCRDA). P.L. 108–424 was signed into law in 2004 and designated the LCCRDA and Lincoln County Water District corridors.

During internal review, the interdisciplinary staff identified 110 parcels in whole or in part, that should be deferred or removed from leasing during this lease sale. Legal land descriptions of the whole and partial parcels, acreage, and the total numbers of effected parcels are contained in Appendix I, Deferral Table. In addition to the removals described previously, the following are recommended for deferral:

1) The Triple Aught Foundation has requested deferral of forty parcels that they believe would have an adverse impact to a landscape scale art installation, known as “City”.

2) All parcels or portions of parcels lying within the White River Watersheds (Hydrologic Unit Code (HUC) 15010011 - White). The BLM needs additional time to consult with FWS & NDOW on leasing lands for oil & gas development that could impact groundwater in this sub-basin because it provides habitat for endangered fish. In particular:

- Ash Springs and its associated outflow, which are designated critical habitat for endangered White River springfish. Habitat downstream from Ash Springs supports endangered Pahrangat roundtail chub.
- Key Pittman WMA which contains habitat for endangered southwestern willow flycatcher (SWFL). This area contains the largest breeding population of SWFL in Nevada. Key Pittman WMA also contains a refugia pond for endangered Pahrangat roundtail chub
- Crystal and Hiko Springs and their associated outflow, which are designated critical habitat for endangered Hiko White River springfish.

3) The BLM requires additional time to consult with FWS on leasing portions of two parcels that contain potential habitat for the special status species (candidate for listing) Las Vegas buckwheat.

4) Defer two parcels located immediately adjacent to the Ely Shoshone Tribal Conservation District ("parcel 3"). In accordance with H.R. 6111-121, Subtitle F, Section 361. H.R. 6111-122, Subtitle G, Section 371 in 2006, “parcel 3” was designated for traditional and cultural uses. All forms of economic development are prohibited within "parcel 3". The Ward Mountain area is of great significance to Tribal members living in the area. The Tribe's Seven Generations Plan for the Conservation District depends upon the area's natural characteristics and seclusion. Activities in the Conservation District include both traditional cultural and religious activities, such as: a private Sun Dance (religious) ongoing for the next several years, establishment of a cemetery, native plant species restoration, and an interpretive walking/meditation trail. As a result, the Tribe has identified concerns regarding indirect impacts to their "parcel 3" activities, such as visual, traffic and noise, as well as overarching environmental concerns. Deferral is requested until such time as the Tribe's concerns and potential disproportionate impacts to a minority population can be further analyzed and resolved.

5) Three split-estate parcels because current owner information (name and address) was not provided with the Expression of Interest (43 CFR 3120, see http://www.blm.gov/nv/st/en/prog/minerals/leasable_minerals/oil_gas/oil_and_gas_leasing.html).

2.3. No Action Alternative

In accordance with BLM NEPA Handbook H-1790-1, Chapter V (BLM 2008a), this EA evaluates the No Action Alternative. The objective of the No Action Alternative is to describe the environmental consequences that would result if the Proposed Action were not implemented. The No Action Alternative forms the baseline from which the impacts of all other alternatives can be measured. In the case of a lease sale, this would mean that all expressions of interest to lease (parcel nominations) would be denied or rejected.

Under the No Action Alternative, the BLM would not offer any parcels and there would be no December 2014 lease sale. Surface management would remain the same and ongoing oil and gas development would continue on surrounding leased federal, private, and state lands.

If the BLM does not lease these federal mineral resources, demand would likely be addressed through imports or production elsewhere.

2.4. Alternatives Considered but not Analyzed in Detail

No other alternatives to the proposed action were apparent that would meet the purpose and need of the Proposed Action. No other alternatives were submitted or proposed during the public comment period.

2.5. Reasonably Foreseeable Development Scenario for Oil and Gas Resources

A Reasonably Foreseeable Development scenario (RFD) for oil and gas is a long-term projection of oil and gas exploration, development, production, and reclamation activity. The RFD 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 4 of this document. The RFD scenarios were developed based on past exploration activities and estimates of future exploration and development activity given the potential occurrence of the resources (RMP/FEIS, page 4.18-3). The RFD 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 RFD provides the mechanism to analyze the effects that discretionary management decisions have on oil and gas activity. The RFD also provides the basic information that is analyzed in the NEPA document. The RFD 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 RFD scenarios for oil and gas and geothermal energy and was developed in conformance with BLM Instruction Memorandum No. 2004-089 (BLM 2004). This analysis is based largely on the reasonably foreseeable development scenarios presented in detail in the fluid mineral report prepared for the RMP/EIS (ENSR 2004), 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 RFD 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 RFD 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, COAs, and other reasonable measures required to minimize adverse impacts (CFR 3101.1–2). Therefore, this EA will consider possible impacts from potential indirect effects under RFD scenarios. The following table summarizes the RFD assumptions in comparison to this EA extrapolated from the RMP.

Table 2.2. RFD Assumptions

Facility Type	RMP RFD			Lease Sale EA RFD		
	Number of Facilities	Short-term Disturbance (acres)	Long-term Disturbance (acres)	Number of Facilities	Short-term Disturbance (acres)	Long-term Disturbance (acres)
Seismic Survey	60 acres/yr	<1,000	0	2.4 acres/yr	24	0
Exploratory Well	200 wells and 1,000 miles of road	5600	590	8 wells and 40 miles of road	230	0
Small Well Field	4	745	359	1	185	90
Large Well Field	2	996	432	0	0	0
Refinery Facilities	1	65	20	0	0	0
Total		8,406	1,401		439	90
Short-term applies to effects occurring in the immediate future and persisting for less than 10 years; long-term applies to effects lasting or occurring beyond 10 years.						

General Assumptions for the Reasonably Foreseeable Development Scenario

The following is a list of general assumptions upon which the reasonably foreseeable development scenario is based (RMP/FEIS).

- 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 RFD 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 reasonably foreseeable development scenario is made without respect to any existing or proposed leasing stipulations and conditions of approval in accordance with BLM guidance.

Geophysical Exploration Assumptions

Within the Ely District, the subsurface geology is not always accurately represented by the surface outcrop and it is for this reason exploration geologists use geophysical methods to help locate oil and gas traps. Geophysical exploration includes a variety of instruments and techniques, but all geophysical exploration is based on the measurement of one of three physical properties: A) gravitational field, B) magnetic field, and C) seismic reflection characteristics. Of these types, only seismic reflection surveys result in any detectable surface disturbance. Initial geophysical surveys may cross tens of miles in what appear to be a random pattern. These surveys attempt to piece together the local subsurface geology or confirm geologic inference. If real or perceived geologic structures of interest are located, surveys of specific areas will be intense and may be repeated frequently.

The Ely RMP projected that 30 miles of seismic surveys per year at a surface disturbance rate of 2 acres per mile would be conducted in the Ely District. Therefore in this EA, one can assume that there is a potential for 1.2 miles of seismic exploration per year on these 406,653 acres. At a rate of 2 acres per mile, this would equate to 2.4 acres of surface disturbance per year from geophysical exploration.

Exploration Drilling and Production Assumptions

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 or moderate, or even low potential for oil and gas resources.

The RMP/FEIS assumes a total of 448 wells would be drilled resulting in total short-term disturbance of approximately 8,400 acres and a long-term (about 20 years for producing wells) disturbance of approximately 1,400 acres. Short-term disturbance as defined for the RFD scenario identifies wells in the plugged and abandoned category that would be reclaimed immediately after drilling or construction, in accordance with the COAs and BMPs.

There have been 32 APDs approved by the Ely District over the past 12 years and only 12 have been approved since the Ely RMP was approved. It would be highly speculative that 448 wells would be drilled over the next 15 years, even with advancements in well stimulation techniques. For the purposes of this EA, approximately 4% of the total district is subject to lease, this percentage indicates that approximately 30 exploration and production wells should be expected as a result of this sale. Short-term and long-term disturbance associated with wells for this EA would be approximately 415 acres and 90 acres, respectively.

Exploration Drilling

The RFD scenario in the Ely District RMP/EIS planned for 200 exploration wells over the life of the RMP that could result in 740 acres of short-term surface disturbance. 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 (RMP/FEIS Table 4.18-2). Short-term disturbance for this EA results in approximately 230 acres. Under this EA's Proposed

Action scenario, one could then assume that up to eight exploration well pads and 40 miles of new roads could be constructed within the analysis area.

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.

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 RFD 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 RFD also included 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 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 RFD (RMP/FEIS Table 4.18-2).

Under the RFD for this EA, based on the RMP assumptions, only one small well field would be developed within the proposed 406,653 lease acres. This could result in 10 producing wells and 12 other wells being plugged and abandoned. In addition, 14 miles of new access roads and two miles of pipeline could be developed. Total short- and long-term disturbance would be approximately 185 acres and 90 acres, respectively.

Well Stimulation

Well Stimulation may be used to enhance oil recovery. Several methods of well stimulation could be used. Hydraulic Fracturing is one of these methods that may be considered for leases proposed for sale in Nevada. 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. The process can increase the yield of a well, and 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:

- 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 will either be contained in a pitless 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: underground injection; captured in steel tanks and disposed of in an approved disposal facility; treatment and reuse; surface disposal pits.

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

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Chapter 3. Affected Environment:

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3.1. Introduction

This chapter describes the existing environment in the analysis area including physical, biological, social, and economic resources.

3.2. General Setting

There are no known oil reserves within any of the proposed parcel areas. The oil-bearing formations sought in White Pine, Lincoln, and Nye Counties are the Chainman and Pilot shales, as well as, Devonian age subthrust structures thought to be present in some valleys within the analysis areas. The nominated parcels have been segregated into five groups for analysis (see Chapter 2 Table and Map). The total acreage is approximately 406,653 acres.

Group A or North Railroad Valley contains one parcel administered by the Egan Field Office and is 473 acres in size. It is entirely in Nye County. It is located near Highway 6, west of Current. This parcel occurs within the Great Basin Desert. Exploration wells have been drilled within 25 miles to the south and west. The Duckwater Reservation lies 20 miles to the northwest.

Group B or Southwest Ely contains two parcels administered by the Schell Field Office (SFO) and is 3,500 acres in size. This area is sometimes described as the “Ward Mountain Bench”, adjacent to Highway 6, and 18 miles southwest of Ely. It lies within the Great Basin Desert and is adjacent to Ely Shoshone Tribal lands.

Group C or Hamlin Valley contains 24 parcels administered by the SFO and is 47,500 Acres in size. The Great Basin National Park lies to the north and the Atlanta Mine lies to the south. These parcels are located within the Great Basin Desert.

Group D or Hiko-Pahroc is the largest area (230,100 acres) comprised of 111 parcels administered by the Caliente Field Office (CFO) and roughly surrounding the town of Hiko. The bulk of this group occurs within Pahrangat, Coal, and Garden Valleys. This area transitions from Great Basin Desert to Mojave Desert.

Group "E" or Panaca contains 30 parcels administered by the CFO and is 69,980 acres in size. The parcels lie predominately on the east side of Highway 93, with three on the west side, near the town of Caliente and near Cathedral Gorge State Park. This area transitions from Great Basin Desert to Mojave Desert.

Group "F" or Tule Springs Hills lies in the southern portion of an area known as “Tule Desert” and the area is part of the Mojave Desert. It is approximately 25 miles west of Interstate-15 and contains 25 parcels administered by the CFO. It is 55,100 acres in size.

3.3. Resources/Concerns Analyzed

The following sections evaluate resources for the potential for significant impacts to occur, either directly or indirectly, due to implementation of the proposed action. Potential impacts were evaluated to determine if detailed analysis was required. Consideration of some of these items is to ensure compliance with laws, statutes or Executive Orders that impose certain requirements upon all federal actions. Other items are relevant to the management of public lands in general, and to the Ely District in particular.

The NEPA Supplemental Authorities and Ely District additional resources to consider are listed in the Table below. Elements that may be affected are analyzed in this EA. A rationale for elements that may or may not be adversely affected is also included in the Table.

At the time of this review, it is not known whether all nominated parcels will be offered for lease, will receive bids, if leases will be issued, or if well sites or roads might be proposed in the future. Detailed site-specific analysis of individual wells or roads would occur when an APD is submitted.

Table 3.1. Supplemental Authorities and Ely District Additional Resources to Consider.

Resource/Concern	Issues (Y/N)	Rationale for Dismissal from Detailed Analysis or Issue(s) Requiring Detailed Analysis
Air Quality & Climate Change	Y	Analyzed in this EA.
Cultural Resources including Heritage Special Designations	Y	Analyzed in Potentially Affected Resources and Environmental Effects sections due to potential impacts.
Native American Religious and Other Concerns	N	Tribal consultation is described in Section 1.8.1. Ely Shoshone concerns regarding Group B are addressed in Visual Resources. No further analysis is necessary.
Water Resources and Water Rights	Y	Analyzed in Potentially Affected Resources and Environmental Effects sections due to potential impacts.
Water Quality, Drinking/ Groundwater	Y	Analyzed in Potentially Affected Resources and Environmental Effects sections.
Fish and Wildlife	Y	Analyzed in Potentially Affected Resources and Environmental Effects sections due to potential impacts.
Federally listed or proposed for listing Threatened or Endangered Species or critical habitat.	Y	Analyzed in Potentially Affected Resources and Environmental Effects sections due to potential impacts.
Special Status Animal & Plant Species, other than those listed or proposed by the FWS as Threatened or Endangered	Y	Analyzed in Potentially Affected Resources and Environmental Effects sections due to potential impacts.
Environmental Justice	N	There are no minority populations disproportionately at risk that will be affected by this lease sale. No further analysis is necessary.
Socioeconomics	Y	Analyzed in Potentially Affected Resources and Environmental Effects sections due to potential impacts.
Noxious and Invasive Weeds	Y	Analyzed in Potentially Affected Resources and Environmental Effects sections due to potential impacts.
Lands with Wilderness Characteristics (LWC)	Y	59 proposed oil and gas lease sale parcels overlap 13 units which were found to possess lands with wilderness characteristics.
Soil Resources	Y	Analyzed in Potentially Affected Resources and Environmental Effects sections due to potential impacts.
Visual Resources Management (VRM)	Y	Analyzed in Potentially Affected Resources and Environmental Effects sections due to potential impacts.
Recreation Uses	N	No potential direct or indirect impacts to recreation uses would occur as a result of the lease sale. Impacts to recreation uses would be considered in subsequent NEPA, should parcel development be proposed.
Vegetative Resources (including Riparian/Wetland vegetation)	Y	Analyzed in Potentially Affected Resources and Environmental Effects sections due to potential impacts.
Wastes, Hazardous or Solid	Y	Analyzed in Potentially Affected Resources and Environmental Effects sections due to potential impacts.

Resource/Concern	Issues (Y/N)	Rationale for Dismissal from Detailed Analysis or Issue(s) Requiring Detailed Analysis
Floodplains	N	Some parcels are within flood areas on GIS flood maps. Any concerns during development of parcels subsequent to lease sales would be handled through design features, mitigation measures, and/or project stipulations during the APD.
Farm Lands (Prime or Unique)	N	Resource not present.
Human Health and Safety	N	Human Health and Safety is not an issue for lease sales since no activities are associated with lease sales. A detailed analysis is not required.
Wild and Scenic Rivers	N	Resource is not present.
Wild Horses	Y	Analyzed in Potentially Affected Resources and Environmental Effects sections due to potential impacts.
Wilderness/ WSA	N	None of the proposed parcels are within designated wilderness or WSA boundaries. A detailed analysis is not required.
Paleontological Resource	N	A BLM records search was conducted to ensure that no known paleontological resources were present in the parcels that have special interest or importance to the general public. A detailed analysis is not required.
Migratory Birds	N	Long-term population trends of migratory birds would not be affected by the leasing of parcels. If drilling were to occur during the nesting season, parcels would be surveyed prior to exploration, to prevent potential effects to nesting migratory birds. This will comply with the provisions of the Migratory Bird Treaty Act (MBTA). A detailed analysis is not required.
Livestock Grazing	Y	Analyzed in Potentially Affected Resources and Environmental Effects sections due to potential impacts.
Land Use & Access	Y	Analyzed in Potentially Affected Resources and Environmental Effects sections due to potential impacts.
Forest and Woodland Products	N	No direct impacts to forest and woodland products from leasing activities. Potential indirect impacts if parcels are developed would be attributed to parcels in Groups C, D, E and F where commercial pine nut units overlap. Pine nut loss is estimated to be minimal based on the infrequent production of pine nuts (one good crop approximately every five years). A detailed analysis is not required.

3.3.1. Air Quality & Climate Change

The U.S. Environmental Protection Agency (EPA) has established national ambient air quality standards (NAAQS) for criteria pollutants, such as carbon monoxide (CO). Exposure to air pollutant concentrations greater than the NAAQS has been shown to have a detrimental impact on human health and the environment. The EPA has delegated regulation of air quality under the federal Clean Air Act to the State of Nevada. In addition to the criteria pollutants, regulations also exist to control the release of hazardous air pollutants (HAPs). HAPs are 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. EPA currently lists 188 identified compounds as hazardous air pollutants, some of which can be emitted from oil and gas development operations, such as benzene, toluene, and formaldehyde. Ambient air quality standards for HAPs do not exist; rather these emissions are regulated by the source type, or specific industrial sector responsible for the emissions.

Ambient air quality in the affected environment is demonstrated by monitoring for ground level atmospheric air pollutant concentrations. In general, the ambient air measurements show that existing air quality in the region is good. Concentrations for all the criteria pollutants are

below the applicable state and federal ambient air quality standards. However, recent ozone monitoring data (shown below) suggests ambient concentrations are approaching the 8 hour air quality standard of 0.075 ppm during the summer ozone season (3 year average of the annual 4th highest 8-hour average). Ozone has the potential to be transported across long ranges. For more information on pollutant monitoring values, including the other criteria pollutants not shown below, please visit the EPA's Air Data website at www.epa.gov/airdata.

There is broad scientific consensus that humans are changing the chemical composition of our atmosphere. Activities such as fossil fuel combustion, deforestation, and other changes in land use are resulting in the accelerated accumulation of greenhouse gasses (GHGs) such as carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), water vapor, and several industrial gases in our atmosphere. An increase in GHG emissions is said to result in an increase in the earth's average surface temperature, primarily by trapping and decreasing the amount of heat energy radiated by the earth back into space. The phenomenon is commonly referred to as global warming. Global warming is expected, in turn, to affect weather patterns, average sea level, ocean acidification, chemical reaction rates, precipitation rates, etc., which is commonly referred to as climate change. Climate is the composite of generally prevailing weather conditions of a particular region throughout the year, averaged over a series of years. Climate change includes both historic and predicted climate shifts that are beyond normal weather variations.

3.3.2. Cultural Resources (including Heritage Special Designations)

A Cultural Resources Inventory Needs Assessment (8111 NANV040FY14-043) was completed for all parcels and was completed with current information on inventories and sites within the nominated parcels.

The cultural landscape on the Ely District has evidence of a long history of human occupation. The earliest commonly accepted date for human prehistoric presence in the Eastern Great Basin is approximately 10,000 to 11,000 years before present and the area has been consistently, though not densely populated up to the present day (Aikens and Madsen 1986). The historic cultural landscape encompasses artifacts, features, and sites related to mining, ranching, agriculture, and the settlement of Nevada. A literature review (Class I) was conducted to ensure that previously recorded cultural sites with significance or importance in accordance with National Register of Historic Places criteria were identified within the parcels. Data for the assessment of cultural resources was reviewed from the Nevada Cultural Resource Inventory System (NVCRIS), Government Land Office (GLO) records, and BLM Ely District Office cultural resource files and is located in Appendix G. Less than 10% of the Ely District has been adequately inventoried for cultural resources.

The leasing of oil and gas parcels does not entail ground-disturbing activities as part of the undertaking. Furthermore, all subsequent activities on leased parcels shall be subject to Section 106 of the NHPA and further NEPA study. Therefore, this lease undertaking will not result in impacts to cultural resources in and of itself; however, ground disturbance from lease development may result in substantial impacts to cultural resources and will require cultural (Class III) inventory and potential consultation/mitigation. Avoidance is the preferred measure of mitigation in order to preserve and protect the resource. Lands within a lease may contain areas of known high potential for cultural resources. The lease parcels may also contain historic

properties, TCP, and/or sacred sites currently unknown to the BLM that were not identified during the lease parcel review process.

Heritage Special Designations (Historic Trails, ACEC's designated for Cultural Resources)

No Heritage Special Designations fall within the nominated parcels.

The National Scenic and Historic Trails (NSHT) are formally designated through Congressional and Presidential process in conjunction with the National Landscape Conservation System (NLCS). The Ely District has three such trails: The Pony Express NSHT, the California Trail NSHT and the Old Spanish Trail NSHT. None of these trails fall within the proposed oil and gas lease parcels.

Within the Ely Resource Management Plan there is a special designation cultural area known as the White River Narrows Archaeological District (WRN). WRN is approximately two miles distance from nominated parcels. There are two ACECs to consider within the oil and gas lease areas/parcels. Parcels NV-14-12-085 & 088 are outside of, but immediately adjacent to the Pahroc Rock Art ACEC. Parcels NV-14-12-027,029 & 030 are outside of, but immediately adjacent to the Mt. Irish ACEC.

3.3.3. Water Resources

Ground water and surface water conditions are described in Section 3.3 of the RMP/FEIS. Table 3.3-1 of the RMP/FEIS, is reprinted below. Trends and current management of ground water, surface water, water rights, and water quality are indicated. It also shows the groundwater demands and estimated perennial yield in the analysis area (per hydrographic areas). Many of these hydrographic areas are designated basins, indicating that the Nevada Division of Water Resources would closely monitor future groundwater use and may not issue new groundwater permits.

Table 3.2. Water Availability in Shallow Alluvial Aquifers

Hydrographic Area ¹	Basin Number	Perennial Yield (acre-feet/year)	Committed Resources (acre-feet/year)	Designated Groundwater Basin ²
White Pine County				
Humboldt River Basin				
Huntington Valley	47	25,000	9,758	Yes
Central Region				
Newark Valley	154	18,000	27,644	No
Little Smokey Valley-north	155A	5,000	5,074	No
Railroad Valley-north	173B	75,000	26,367	No
Jakes Valley	174	12,000	48	No
Long Valley	175	6,000	4,749	No
Ruby Valley	176	53,000	28,891	Yes
Butte Valley-south	178B	14,000	321	No
Steptoe Valley	179	70,000	106,985 ³	Yes
Cave Valley	180	5,000	5,285	No
Lake Valley	183	12,000	17,061 ³	Yes
Spring Valley	184	84,000	83,134	No
Tippett Valley	185	3,500	475	No
Antelope Valley-south	186A	800	1,523	No

Hydrographic Area ¹	Basin Number	Perennial Yield (acre-feet/year)	Committed Resources (acre-feet/year)	Designated Groundwater Basin ²
Antelope Valley-north	186B	1,700	2,695	No
Great Salt Lake Basin				
Deep Creek Valley	193	2,000	0	No
Pleasant Valley	194	1,500	1,296	No
Snake Valley	195	25,000	10,954	No
Hamlin Valley	196	5,000	387	No
Colorado River Basin				
White River Valley	207	37,000	35,444	Yes
Lincoln County				
Central Region				
Emigrant Valley-Groom Lake	158A	2,800	12	No
Emigrant Valley-Papoose	158B	10	0	No
Frenchman Flat	160	100	0	No
Three Lakes Valley-north	168	3,700	3,700	No
Tikapoo Valley-north	169A	2,600	2,594	No
Tikapoo Valley-south	169B	1,700	1,700	No
Penoyer Valley	170	4,000	15,083 ³	Yes
Coal Valley	171	6,000	88	No
Garden Valley	172	6,000	1,043	No
Railroad Valley-north	173B	75,000	26,367	No
Cave Valley	180	5,000	5,285	No
Dry Lake Valley	181	12,700	12,631	No
Delamar Valley	182	3,000	7	No
Lake Valley	183	12,000	17,062 ³	Yes
Spring Valley	184	100,000	83,134	No
Great Salt Lake Basin				
Hamlin Valley	196	5,000	387	No
Escalante Desert Basin				
Escalante Desert	197	1,000	71	No
Colorado River Basin				
Dry Valley	198	25,000	6,212 ³	No
Rose Valley	199	25,000	1,396 ³	No
Eagle Valley	200	25,000	379	No
Spring Valley	201	25,000	1,112	No
Patterson Valley	202	25,000	5,481 ³	No
Panaca Valley	203	25,000	28,674 ³	Yes
Clover Valley	204	25,000	2,768 ³	No
Lower Meadow Valley Wash	205	25,000	21,005 ³	Yes
Kane Springs Valley	206	1000	1,000	No
White River Valley	207	37,000	35,444	Yes
Pahroc Valley	208	21,000	39	Yes
Pahranagat Valley	209	25,000	10,858	Yes
Coyote Springs Valley	210	19,000	16,200	Yes
Muddy River Springs	219	36,000	14,528	Yes
Lower Moapa Valley	220	50	5,776	Yes
Tule Desert	221	2,500	5,004	No
Virgin River Valley	222	3,600	12,798 ³	Yes
Nye County				
Central Region				
Little Smokey Valley-north	155A	5,000	5,074	No
Little Smokey Valley-central	155B	100	20	No

Hydrographic Area ¹	Basin Number	Perennial Yield (acre-feet/year)	Committed Resources (acre-feet/year)	Designated Groundwater Basin ²
Little Smokey Valley-south	155C	1,000	52	No
Hot Creek Valley	156	5,500	3,229	No
Coal Valley	171	6,000	88	No
Garden Valley	172	6,000	1,043	No
Railroad Valley-north	173B	75,000	26,367	No
Colorado River Basin				
White River Valley	207	37,000	35,444	Yes
Pahroc Valley	208	21,000	39	No
<p>1 Source: Nevada Division of Water Resources 2003. The information is as published as of August 2003, but may be revised by the Division as necessary in ongoing water resources administration. Information from other sources or studies may differ.</p> <p>2 Designated groundwater basins are basins where permitted ground water rights approach or exceed the average annual recharge and the water resources are being depleted or require additional administration. State-declared preferred uses may include, among others, municipal and industrial, domestic, and/or agriculture. The Nevada State Engineer has additional authority to administer water resources in a designated groundwater basin.</p> <p>3 The shallow alluvial groundwater resource currently is fully allocated by the Nevada Division of Water Resources.</p>				

Regulatory Background

Objectives for Water Resources and Water Quality are listed in the Ely RMP. The Ely RMP requires that authorized activities on public lands do not degrade water quality. This includes compliance with the Clean Water Act and Nevada Water Pollution Control Regulations (Nevada Revised Statute 445A) and compliance with the Memorandum of Understanding between the BLM and Nevada Division of Environmental Protection, dated September 2004. RMP objective WR-2 also requires the integration of land health standards, best management practices, and appropriate mitigation measures into authorized activities to ensure water quality meets state requirements and BLM resource management objectives in BLM Manual 7240 Nevada Supplement.

Groundwater

Groundwater conditions are described in Section 3.3 of the RMP/FEIS. Precipitation moves from areas of recharge to surface waters via alluvial aquifers and on the surface during spring melt and rain storms. A portion of annual precipitation infiltrates to deeper bedrock aquifers that may contribute to springs. Springs and groundwater inputs generally occur in both bedrock and alluvial aquifers along valley bottoms. Many of the drainages have interrupted flow characteristics (i.e., some reaches are ephemeral with water moving in the alluvium and other reaches there is surface expression) as a result of groundwater recharge characteristics. There is groundwater stored in both the Carbonate Rock Aquifer Province and Basin-Fill (alluvial) Aquifers within the District. Carbonate Aquifer Systems are not extensively utilized.

The RMP/FEIS summarizes water availability in the shallow alluvial aquifers (Basins) of the analysis area. The perennial yield values shown in Table 3.3-1 of the RMP/FEIS were derived by the State of Nevada to estimate the water in shallow alluvial aquifers that can be withdrawn without creating substantial drawdown in the water table. Perennial yield is a hydrologic concept; it generally is about equal to the estimated net annual recharge. It should be noted that values for perennial yields are subject to change, and represent estimates from Nevada Division of Water Resources which are periodically updated. Other values exist from other sources. Additional

investigations of perennial yield and potential pumping effects were undertaken for water development projects and NEPA actions involving the analysis area (BLM, 2012).

The committed resources represent the total volume of permitted, certificated, and vested groundwater rights recognized by the Nevada Division of Water Resources in each basin. Groundwater quality in shallow alluvial aquifers of the analysis area is highly variable. Evapotranspiration by phreatophytic plant communities accounts for a significant consumption of groundwater recharge resources. Consumptive use of soil moisture and groundwater by plant transpiration is one of the major factors affecting water availability in the analysis area (BLM 2007).

Surface Water

Group A: The Duckwater Creek drainage bisects the parcel. This stream is perennial. The soil within the parcel is a very strongly-alkaline sandy loam which drains moderately well.

Group B: The soils in the parcels are shallow calcareous loam to a loamy fan which drains well.

Group C: Most of the soils are shallow calcareous loam, calcareous slope, or calcareous hill. There is a small percentage of coarse silty to coarse gravelly loam. All these soil types drain well. The Snake and Spring Valley aquifers are underneath these parcels.

Group D: The soils within these parcels range from a shallow calcareous loam to droughty loam. All these types of soils drain well. White River Valley is located in a shallow alluvial aquifer; it has parcels within proximity to numerous private agricultural uses, springs (such as Ash, Hiko, and Crystal), and Key Pittman WMA. The Pahranaagat water system flows south into the Pahranaagat National Wildlife Refuge.

Group E: The soils range from a loamy to a shallow calcareous loam to a cobbly claypan. All these types of soils drain well.

Group F: The soils within the parcels range from a shallow limestone slope to a limy soil to a clay pan. These types of soils drain well.

Surface water resources in the eastern Great Basin include perennial, intermittent, and ephemeral streams, marshlands and small lakes, intermittently inundated playas, and manmade impoundments. The RMP/FEIS describes surface water conditions in some detail. Soil salinity management, tamarisk control, and soil erosion is also discussed. Most streams in the analysis area are ephemeral and flow from the mountains to seep into unconsolidated deposits or are diverted for irrigation. Map 3.3-1 in the RMP/FEIS shows the approximate location of perennial streams and mapped springs within the overall boundary of the analysis area. The classification of waters in White Pine, northeastern Nye, and Lincoln counties (Nevada Administrative Code 445A.124 to 445A.127) are presented in Table 3.3-2 of the RMP/FEIS. This table shows that many reservoirs are Class B or Class C waters, while most streams in the analysis area are Class A waters. See the RMP/FEIS for definitions.

3.3.4. Fish and Wildlife

The analysis area includes 6 groups of parcels across the Ely District. These parcels are expected to provide habitat for a large number of wildlife species. Many species of birds, mammals, reptiles, amphibians, fish and invertebrates may find any one of the proposed lease areas suitable

habitat. A number of parcels proposed for leasing fall in areas of special importance to one or more wildlife species, such as crucial winter range for mule deer. These areas may have special stipulations concerning drilling activities, which will have to be followed by anyone proposing to develop specific sites (Appendix B).

3.3.4.1. FWS Listed or Proposed for Listing Threatened, Endangered Species, and their Critical Habitat

- Desert Tortoise (Federally Threatened) –Agassiz’s desert tortoise (*Gopherus agassizii*), habitat occurs throughout the Tule Desert in all Group F parcels. A portion of the tortoise habitat in this area has been designated as critical habitat for the desert tortoise and occurs in the Tule Desert. Parcels NV-14-12-192 and 193 contain U.S. Fish and Wildlife Service (FWS)-designated desert tortoise critical habitat within the Beaver Dam Slope Critical Habitat Unit. The Revised Recovery Plan for the Mojave Population of the Desert Tortoise recommends withdrawal of critical habitat units from mineral entry (FWS 2011).
- Southwestern Willow Flycatcher (Federally Endangered) (SWFL)(*Empidonax traillii extimus*) – The range of this subspecies in Nevada is confined to the southern portion of the state (in areas such as the Virgin River, Meadow Valley Wash, and Pahranaagat Valley). The SWFL breeds in dense patches of riparian habitat along streams or other wetland areas, near or adjacent to surface water or saturated soils. Nesting habitat in Nevada includes willow species like coyote willow (*Salix exigua*), Gooding’s willow (*Salix gooddingii*), and seep willow (*Baccharis salicifolia*). The birds also nest in other tree species including ash (*Fraxinus* spp.) and Russian olive (*Eleagnus angustifolia*). Critical habitat for the SWFL was proposed for the Key Pittman WMA. This area contains the largest breeding population of SWFL in Nevada.
- Key Pittman also contains a refugia pond for the Pahranaagat roundtail chub (*Gila robusta jordani*) (endangered) near Nesbitt Lake.
- Ash Springs located on BLM public land, and its associated outflow are FWS-designated critical habitat for White River springfish (*Crenichthys baileyi baileyi*) (endangered) and the habitat downstream from Ash Springs contains Pahranaagat roundtail chub (endangered).
- Crystal and Hiko Springs contain critical habitat for endangered Hiko White River springfish (*Crenichthys baileyi grandis*). These two springs are located on private land, and proposed lease parcels are adjacent to the critical habitat.
- The Railroad Valley springfish (*Crenichthys nevadae*), is federally threatened under the Endangered Species Act. This species inhabits Big Warm Springs and Little Warm Springs on Duckwater Tribal Land in the Railroad Valley hydrobasin. Both springs are designated critical habitat for the Railroad Valley springfish. Threats to this species include habitat alteration, non-native aquatic species introductions, and ground water depletion (FWS 1996). The parcel in Group A is approximately 12 to 16 miles from critical habitat for this species. Parcels in Group B are approximately 36 miles from critical habitat for this species.
- The White River spinedace (*Lepidomeda albivallis*) is listed as endangered. Flag Springs and its associated outflows are designated as critical habitat for this species as well as the historically occupied Preston Big Spring and Lund Spring. Parcels in Group A are approximately 33 miles from critical habitat for this species; parcels in Group B are approximately 12 miles from critical habitat for this species.

See Appendix B for the general notice (for all parcels) of the requirement of ESA Section 7 consultation due to the presence of a federally threatened or endangered species.

3.3.4.2. Special Status plant and animal species other than those listed as Threatened or Endangered

BLM Manual 6840 entitled Special Status Species Management states BLM special status species are those that 1) are listed or proposed for listing as endangered or threatened under the Endangered Species Act (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 5 years following delisting will be conserved as Bureau sensitive species. See Appendix D for a complete list of all Special Status Species that have the potential to be affected indirectly by oil and gas leasing.

- Parcels NV-14-12-168 and 171 contain occupied Las Vegas buckwheat (*Eriogonum corymbosum* var. *nilesii*) habitat. This is a BLM sensitive plant species as well as a federal candidate. Recent genetic studies have shown this particular population to be unique. This Toquop population of Las Vegas buckwheat is being looked at very closely by FWS and may be proposed to be federally listed under the ESA, based upon BLM regulatory actions in this area. Per the BLM Manual 6840, Special Status Species Management, BLM shall, “implement measures to conserve these species ... promote their conservation and reduce the likelihood and need for such species to be listed pursuant to ESA.” The current RMP says these lands are open to leasing, but recent science shows concern for this population due to its unique genetics. One of the threats identified by FWS for this species is inadequacy of existing regulatory mechanisms to protect this species.
- The Greater Sage-Grouse (*Centrocercus urophasianus*) has recently been determined by the FWS to be “warranted for listing but precluded by species of higher priority” and it was categorized as a Candidate species. The BLM is emphasizing conservation measures to promote sustainable Greater Sage-Grouse populations and conservation of its habitat. As a result, all lands within Preliminary Primary Habitat (PPH) and Preliminary General Habitat (PGH) have been removed from consideration for the December 2014 Oil and Gas Lease Sale. It is worth noting that there are no parcels that are within four miles of any currently known Greater Sage-Grouse leks.
- Parcels NV-14-12-147, 148, 149, 150, 151, 153 and 154 contain or are within one mile of populations of the Great Basin fishhook cactus (*Sclerocactus pubispinus*) which, in addition to being a BLM sensitive species in Nevada, is also a cactus species and thus subject to Nevada state regulation NRS 527.060.
- Parcels NV-14-12-120 and 123 contain or are within one mile of populations of Needle Mountain milkvetch (*Astragalus eurylobus*).
- Parcel NV-14-12-031 contains a population of Watson’s goldenbush (*Ericameria watsonii*).
- Parcels or portions of parcels in Group D may contain the following BLM special status species: sheep fleabane (*Erigeron ovinus*), rock purpusia (*Ivesia arizonica* var. *saxosa*), dark kangaroo mouse (*Microdipodops megacephalus*), St. George blue-eyed grass (*Sisyrinchium radicum*), golden eagle (*Aquila chrysaetos*), and western pipistelle (*Pipistrellus hesperus*).

Numerous parcels in Group D overlap the Hiko Range, which contains year-round desert bighorn sheep (*Ovis canadensis nelsoni*) habitat.

- Parcels or portions of parcels in Group F may contain the following BLM special status species: desert bighorn sheep (*Ovis canadensis nelsoni*), banded Gila monster (*Heloderma suspectum cinctum*), and golden eagle (*Aquila chrysaetos*).
- Parcels NV-14-12-001, 006, 007, 010, 011, 013, 014, 017, 019, 020, 022, 027, 030, 031, 032, 036, 039, 040, 041, 042, 044, 046, 050, 053, 056, 059, 060, 063, 066, 068, 072, 074, 076, 077, 083, 084, 085, 086, 087, 090, 093, 094, 096, 097, 098, 101, 102, 106, 109, 110, 112, 113, 127, 128, 138, 139, 140, 143, 144, 145, 146, 148, 149, 151, 153, 154, 167, 170, 173, 176 and 177 have known raptor nests within one half mile. Some raptor species such as the golden eagle (*Aquila chrysaetos*), western burrowing owl (*Athene cunicularia*), and ferruginous hawk (*Buteo regalis*) are BLM Sensitive but all are protected under the Bald and Golden Eagle Protection Act and/or the Migratory Bird Treaty Act. This information has been obtained from NDOW and the Great Basin Bird Observatory (GBBO) and is subject to change at any time.
- Numerous groundwater dependent springs are scattered throughout the valleys and provide habitat for sensitive springsnails, such as Pahrnagat pebblesnail (*Pyrgulopsis merriami*), and Hubb's pyrg (*Pyrgulopsis hubbsi*).
- Pygmy Rabbit (*Brachylagus idahoensis*) - Generally, pygmy rabbits burrow in areas of tall dense sagebrush, with loamy soils that are deep and friable enough to hold their shape. Pygmy rabbits may be found in habitats of this type in many locations throughout the District.
- Additionally there are numerous other sensitive species of birds, bats, amphibians small mammals and invertebrates inhabiting the area.

3.3.5. Socioeconomics

The proposed lease parcels are located within White Pine County, Lincoln County, and Nye County. The vast majority of land area in all three counties is managed by the federal government. White Pine County's total population, according to the 2010 Census, is approximately 10,030 with a population density of approximately 1.1 persons per square mile.

Lincoln County's total population, according to the 2010 Census, is approximately 5,345, with a population density of approximately 0.5 persons per square mile.

Nye County has experienced considerable population growth in the last few decades: the population of Nye County was about 9,000 people in 1980; 18,000 people in 1990; 32,000 people in 2000, and about 44,000 people in 2010 (US Census Bureau 1995, 2000, 2010). Nye County is the third-largest county in the continental United States in terms of land area. Of the 11,560,960 acres that comprise Nye County, 822,711 acres, or just over 7% of the total, is private land (Nye County 1994). As of 1990, 18% of Nye County residents made their living in mining, which includes oil and gas extraction (Nye County 1994).

The following Table demonstrates unemployment, income and poverty data for residents of the three counties. Nye and Lincoln Counties exceed Nevada poverty levels.

Table 3.3. Nevada 2013 Annual Not Adjusted Unemployment Rate

Area	Unemployment Rate		
Nevada	9.0		
Lincoln	12.3		
Nye	11.9		
White Pine	7.2		
2012 Persons below Poverty Level		2012 Median Household Income	
Nevada	14.2%	\$54,083	Nevada
Lincoln	15.9%	\$39,293	Lincoln
Nye	20.1%	\$39,150	Nye
White Pine	13.9%	\$46,505	White Pine
<i>U.S. Census</i>			

3.3.6. Noxious and Invasive Weeds

Noxious and invasive species are documented within the parcel areas. See the attached Weed Risk Assessment in Appendix H for a list of specific species in these areas.

3.3.7. Lands with Wilderness Characteristics

On June 1, 2011, the Secretary of the Department of the Interior issued a memorandum to the BLM Director that in part affirms BLM's obligations relating to wilderness characteristics under Sections 201 and 202 of the FLPMA. The BLM released Manuals 6310 and 6320 in March 2012, which provide direction on how to conduct and maintain wilderness characteristics inventories and provides guidance on how to consider whether to update a wilderness characteristics inventory.

The primary function of an inventory is to determine the presence or absence of wilderness characteristics. An area having wilderness characteristics is defined by:

- Size - at least 5,000 acres of contiguous, roadless federal land,
- Naturalness, and
- Outstanding opportunities for solitude or primitive and unconfined types of recreation.
- The area may also contain supplemental values (ecological, geological, or other features of scientific, educational, scenic, or historical values).

The Nevada BLM published the original draft wilderness review in 1979, and issued the intensive wilderness inventory decision in 1980. At that time, the inventory found wilderness characteristics present in five units that overlap the proposed oil and gas parcels: Mormon Mountains (inventory unit number NV-050-0161), Table Mountain (NV-040-197), East Pahrnatag (NV-050-0131), South Pahroc/Hiko (NV-050-0132) and Worthington Mountain (NV-040-242). Portions of each became Wilderness Study Areas in 1980. Later, in 2004, the Mormon Mountains, South Pahroc Range, and Worthington Mountains were designated as wilderness. At that time, Table Mountain WSA was released.

In 2011, the Ely District Office BLM began updating the lands with wilderness characteristics (LWC) inventory on a project-by-project basis until there is a land use plan revision. The analysis area has had an inventory update. The one exception is oil and gas parcel NV-14-12-018 which

overlaps about 80 acres at the far northeastern corner of inventory unit NV-040-0112. Inventory unit NV-040-0112 (approximately 79,500 acres) did not receive an inventory update at this time. The original inventory found wilderness characteristics lacking in the unit. If wilderness characteristics were to be found present in the unit today, full development of the oil and gas parcel would only affect a very small portion of the unit.

Of the 193 proposed Oil & Gas lease parcels, 59 proposed parcels overlap 13 units of lands with wilderness characteristics. Of this, 11 of the inventory units were found to possess wilderness characteristics on their own merits. The other two units inherited the outstanding opportunities of the adjacent wilderness (Mt. Irish and Mormon Mountains Wildernesses, see table below). There has not been a land use plan amendment to determine if or how these LWC units would be preserved to protect the wilderness characteristics. Lands with wilderness characteristics are not managed as wilderness. The following LWC units cover a total of 32,694 acres. Parcel areas C, D, E and F lie within these units.

Table 3.4. Units containing LWC which overlap oil and gas parcels

Wilderness characteristics inventory unit number	Acres	Naturalness	Solitude	Primitive Recreation	Supplemental Value	LWC present?	Overlapping Oil & Gas Parcels
NV-040-242-2	Yes 32,694	Yes	Yes	Yes	No	Yes	<ul style="list-style-type: none"> ● NV-14-12-002 ● NV-14-12-003 ● NV-14-12-004 ● NV-14-12-005 ● NV-14-12-007 ● NV-14-12-008
NV-040-243-3-2013	Yes 72,228	Yes	Yes	Yes	Yes	Yes	<ul style="list-style-type: none"> ● NV-14-12-010 ● NV-14-12-011 ● NV-14-12-012
NV-040-197-2-2011	Yes 56,709	Yes	Yes	Yes	many canyons, vistas, geologic features	Yes	<ul style="list-style-type: none"> ● NV-14-12-142
NV-040-0180-1-2011	Yes 35,519	Yes	Yes	No	yes - geologic formations, arch, scenic hills	Yes	<ul style="list-style-type: none"> ● NV-14-12-155 ● NV-14-12-156 ● NV-14-12-157 ● NV-14-12-159 ● NV-14-12-160 ● NV-14-12-162 ● NV-14-12-165 ● NV-14-12-191 ● NV-14-12-192 ● NV-14-12-193
NV-040-184A-1-2012	Yes 11,498	Yes	Yes	Yes	scenic	Yes	<ul style="list-style-type: none"> ● NV-14-12-149 ● NV-14-12-148 ● NV-14-12-147 ● NV-14-12-151
NV-040-184A-2-2012	Yes 6,687	Yes	Yes	Yes	scenic	Yes	<ul style="list-style-type: none"> ● NV-14-12-149
NV-040-0120-1-2012	Yes 9,106	Yes	Yes	Yes	Yes — historic	Yes	<ul style="list-style-type: none"> ● NV-14-12-174 ● NV-14-12-178
NV-040-0161-4-2012	Yes 416	Yes	Yes	Yes	No	Yes	<ul style="list-style-type: none"> ● NV-14-12-127

Wilderness characteristics inventory unit number	Acres	Naturalness	Solitude	Primitive Recreation	Supplemental Value	LWC present?	Overlapping Oil & Gas Parcels
NV-040-0122-2-2012	Yes 19,870	Yes	Yes	Yes	No	Yes	<ul style="list-style-type: none"> ● NV-14-12-118 ● NV-14-12-121 ● NV-14-12-122 ● NV-14-12-124 ● NV-14-12-125 ● NV-14-12-132 ● NV-14-12-133 ● NV-14-12-134 ● NV-14-12-135 ● NV-14-12-136 ● NV-14-12-137
NV-040-0161-3-2012	Yes 7,232	Yes	Yes	Yes	No	Yes	<ul style="list-style-type: none"> ● NV-14-12-127 ● NV-14-12-128
NV-040-249D-1-2013	Yes 16,570	Yes	Yes	Yes	No	Yes*	<ul style="list-style-type: none"> ● NV-14-12-054 ● NV-14-12-057 ● NV-14-12-055
NV-040-0121-3b-2012	Yes 11,521	Yes	Yes	Yes	Yes – Cultural, educational & scientific value	Yes	<ul style="list-style-type: none"> ● NV-14-12-129 ● NV-14-12-132 ● NV-14-12-135 ● NV-14-12-176 ● NV-14-12-177 ● NV-14-12-179 ● NV-14-12-180 ● NV-14-12-181 ● NV-14-12-182
NV-040-0107-1	Yes 33,205	Yes	Yes	Yes	Archaeological	Yes	<ul style="list-style-type: none"> ● NV-14-12-105 ● NV-14-12-106 ● NV-14-12-107 ● NV-14-12-108 ● NV-14-12-109 ● NV-14-12-110 ● NV-14-12-111 ● NV-14-12-112 ● NV-14-12-113 ● NV-14-12-114

3.3.8. Soil Resources

For the purposes of this EA the Affected Environment for the proposed oil and gas leasing area is the same as that described in Section 3.4 of the RMP/FEIS).

3.3.9. Visual Resource Management

The proposed parcels nominated for lease fall within Visual Resource Management (VRM) Classes II, III, and IV. Visual resources are identified through the Visual Resource Management inventory. This inventory consists of a scenic quality evaluation, sensitivity level analysis and a delineation of distance zones. Based on these factors, BLM-administered lands are placed into four visual resource inventory classes: VRM Class I, II, III and IV. Class I and II are the most sensitive, Class III represents a moderate sensitivity and Class IV is of the least sensitivity (see table below). VRM classes serve two purposes: (1) as an inventory tool that portrays the relative

value of visual resources in the area, and (2) as a management tool that provides an objective for managing visual resources.

Group A parcels are located within VRM Class III. The Blue Eagle Wilderness Study Area is located to the southeast.

Group B consists of VRM Class II and III with the majority of parcels located within Class III. This area is located adjacent to Ely Shoshone Tribal lands.

Group C consists of VRM Classes II, III, and IV with the majority of parcels located within Class IV. Mt. Wheeler, located in Great Basin National Park, can be viewed from the southwest parcels. The Highland Ridge Wilderness is to the north and the Fortification Range Wilderness is to the west.

Group D consists of VRM Classes II, III, and IV with the majority located within Class III. Coal Valley and south Garden Valley can be seen looking north from the west side of this area. Weepah Spring Wilderness lies to the north of this Group. Big Rocks Wilderness and South Pahroc Wilderness are in the eastern half of this group. The middle portion of this area lies in Pahranaagat Valley which includes the Key Pittman WMA. The west side parcels are bound by the Mt. Irish Wilderness and Worthington Mountains Wilderness to the northwest. “City”, a landscape-scale art form on private land, is approximately 12 miles north of the western parcels in this Group.

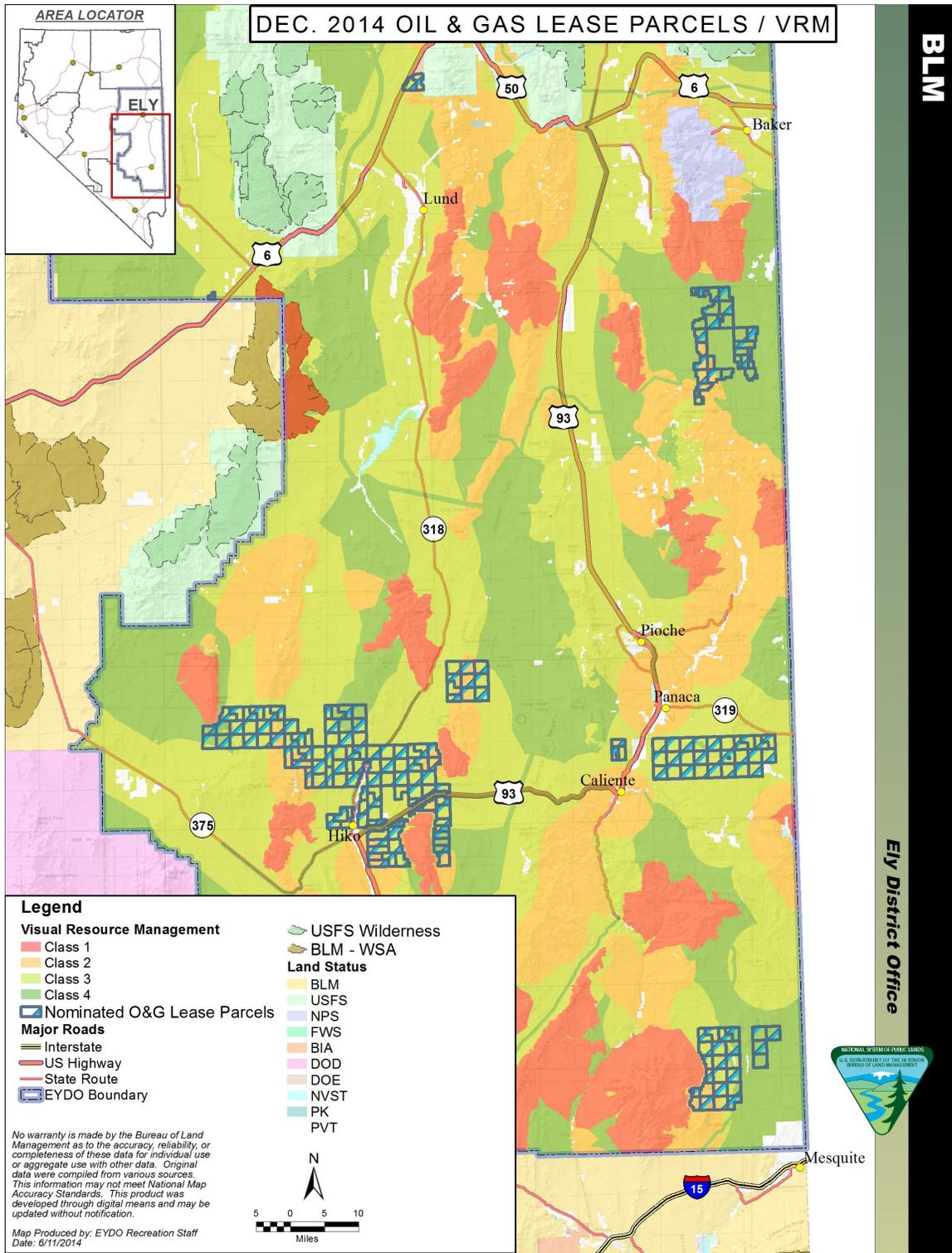
Group E consists of VRM Classes III and IV with the majority of parcels located within VRM Class III. The parcels lie predominately on the east side of Highway 93, with three parcels located on the west side. The town of Caliente is to the west and the town of Panaca is to the north, with Cathedral Gorge State Park also being to the north. Tunnel Spring Wilderness is to the southeast.

Group F consists of VRM Classes II, III, and IV somewhat evenly spread between each of the classes. These parcels are located in the remote southeastern edge of the District, the Clover Mountains Wilderness is to the north and Mormon Mountains Wilderness to located to the west.

Table 3.5. VRM Classification Objectives

VRM CLASS	Visual Resource Objective	Change Allowed (Relative Level)	Relationship to the Casual Observer
Class I	Preserve the existing character of the landscape. Provide for natural ecological changes; however it does not preclude very limited management activity.	Very Low	Activities must not attract attention.
Class II	Retain the existing character of the landscape. The level of change to the characteristic landscape should be low.	Low	Activities may be seen, but should not dominate the view.
Class III	Partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate	Moderate	Activities may attract attention, but should not dominate the view.
Class IV	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.	High	Activities may attract attention, may dominate the view.

The Map below “VRM Classes for the Lease Sale”, provides the location of the VRM Classes, relative to the proposed parcels.



Map 3.1. VRM Classes for the Lease Sale

3.3.10. Vegetative Resources (including Wetland/Riparian Vegetation)

For the purposes of this EA the Affected Environment for the proposed oil and gas leasing area is the same as that described in Section 3.5 of the RMP/FEIS .

3.3.11. Livestock Grazing

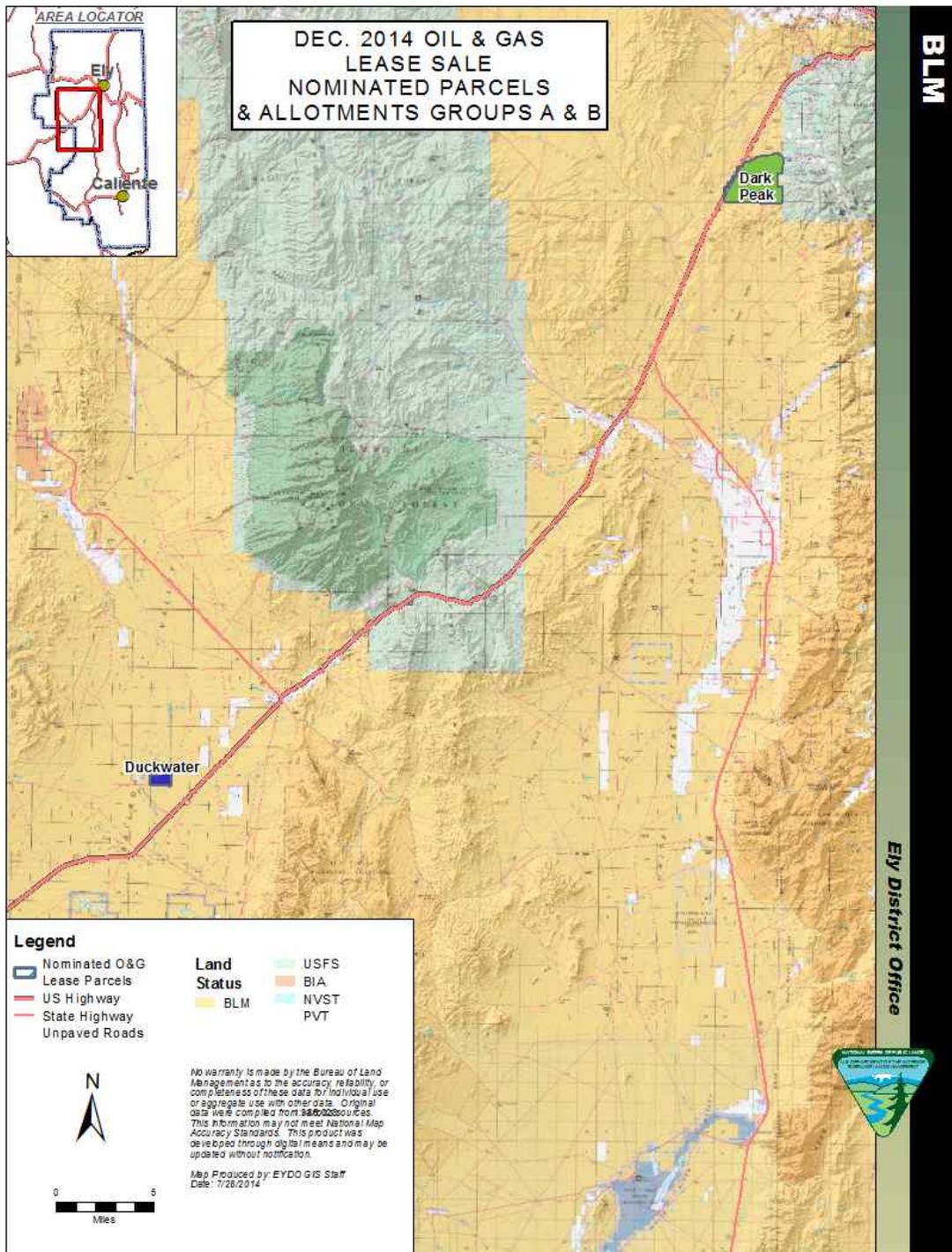
The Ely District BLM authorizes livestock grazing use on all allotments which overlap the proposed oil and gas leasing area. Relevant information for the allotments is presented in the Table below.

Table 3.6. Allotments & Nominated Parcels

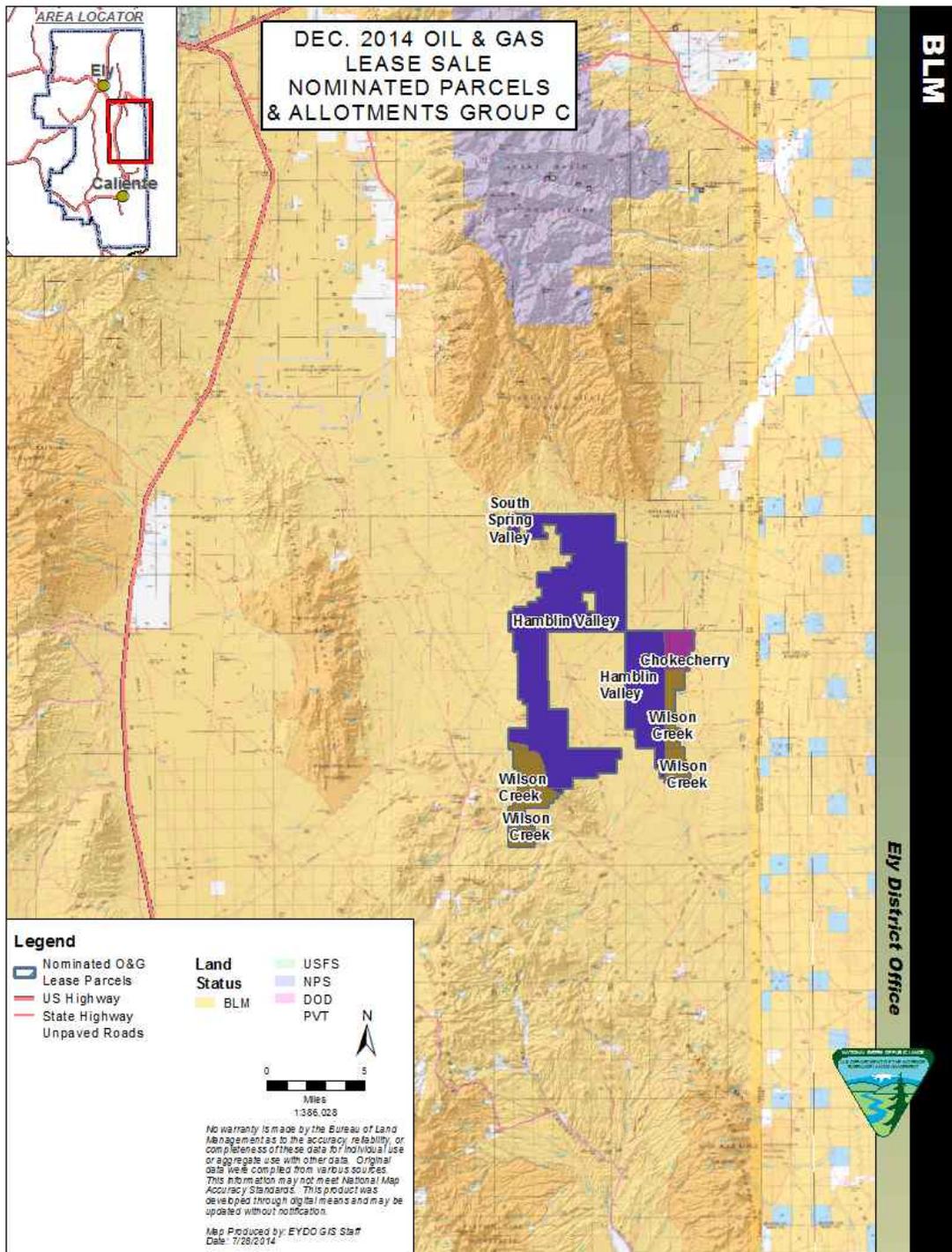
O&G Group	Allotment Name	Number of Acres	Total # Active AUMs	Allotment # Acres within Project Area	Season of Use & Type of Livestock
A	Duckwater	807,662	237	.1%	C-03/01-06/15 C-11/01-02/28
B	Dark Peak	19,473	1,826	.1%	S-04/01-11/01 C-04/01-11/01
C	Chokecherry	32,334	3,327	5%	C-10/16-6/5
	Cottonwood (132)	49,975	2,248	.05%	C-11/1-6/15
	Hamblin Valley	105,831	8,177	1%	C-11/1-5/31 S-11/1-5/31
	South Spring Valley	79,477	6,329	.2%	C-2/1-6/15 S-5/1-6/15 S-9/1-9/30
	Wilson Creek	1,077,994	48,250	.2%	C-3/1-2/28 S-3/1-2/28
D	Black Horse	15,394	510	14%	C-3/1-2/28
	Black Bluff	32,200	1,668	.2%	C-9/1-5/15 S-9/1-4/15
	Crescent N-4	61,502	951	.3%	C-3/1-2/28 S-10/1-2/28
	Crescent N-5	36,689	1,540	2%	C-11/1-4/30
	Crystal Springs	7,596	437	4%	C-8/1-5/31
	Irish Mountain	83,465	3,141	.2%	C-3/1-2/28 S-10/1-2/28
	Murphy Gap	35,210	1,951	5%	C-10/1-4/15 S-10/1-4/15
	Narrows	6,909	535	.0001%	S-12/1-2/28
	Pahroc	117,443	4,783	2%	C-3/1-2/28
	Pahranagat East	34,146	511	.003%	C-8/1-5/31
	Rattlesnake	28,426	1,180	5%	C-10/16-5/30

O&G Group	Allotment Name	Number of Acres	Total # Active AUMs	Allotment # Acres within Project Area	Season of Use & Type of Livestock
	Shadow Wells	17,862	577	6%	C-11/1-4/30
	Six Mile	34,531	859	3%	C-3/1-2/28
	South Coal Valley	46,701	2,205	.9%	C-9/1-5/15 S-12/1-4/15
	SouthHiko-6 Mile	33,018	858	3%	C-12/1-4/11
D	Wild Horse	18,014	315	2%	C-3/1-2/28
	Wilson Creek	1,077,994	48,250	.2%	C-3/1-2/28 S-3/1-2/28
	Worthington Mountain	77,798	5,641	3%	C-1/13-5/31 S-12/15-4/10
E	Bennett Spring	48,264	3,498	2%	S-10/16-4/30
	Buckboard	10,842	264	12%	C-3/1-2/28
	Crestline	2,415	60	7%	C-3/1-2/28
	Highway	4,251	120	7%	C-3/1-2/28
	Little Mountain	18,575	Relinquished		-
	Oak Wells	29,139	511	9%	C-3/1-2/28
	Panaca Cattle	16,275	453	8%	C-3/1-2/28
	Peck	17,741	397	.04%	C-3/1-2/28
	Rabbit Spring	20,975	884	.01%	C-6/1-3/15 S-6/1-3/15
	Rocky Hills	4,375	Relinquished		-
	Sheep Springs	31,077	409	8%	C-6/1-3/15
	Uvada	13,608	460	12%	C-5/31-10/31
F	Garden Spring	38,823	2,809	.9%	C-11/1-4/30 H-11/1-4/30
	Gourd Spring	57,700	3,458	2%	C-10/1-5/31 H-10/1-5/31
	Snow Springs	44,042	3,567	.1%	C-10/1-5/15
	Summit Spring	18,035	715	6%	C-11/1-2/28
	*Terry (Administered from UT)	30,163	698	4% within Nevada	C-11/16-03/15

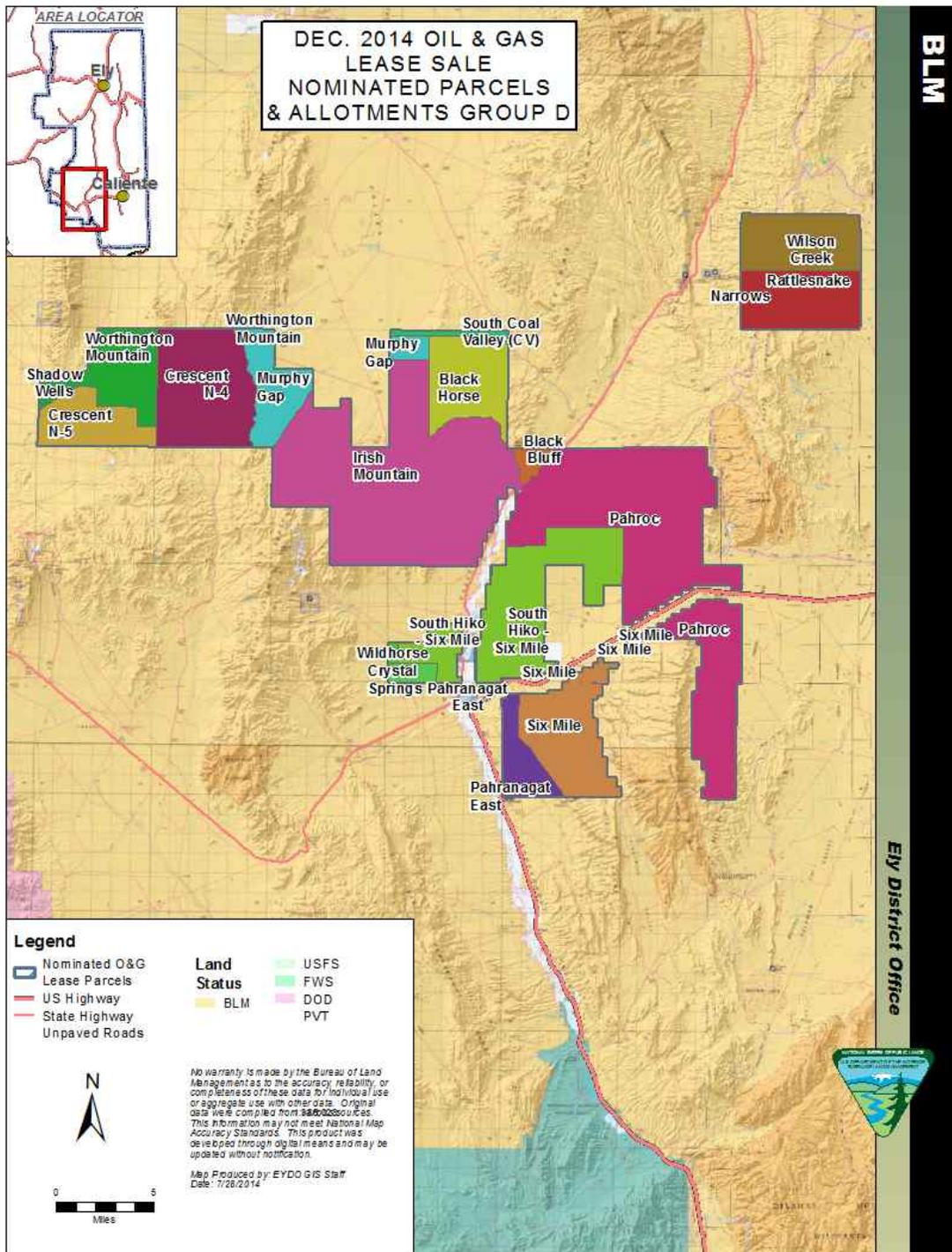
Allotments overlapping each of the six parcel groups are shown on four Maps below.



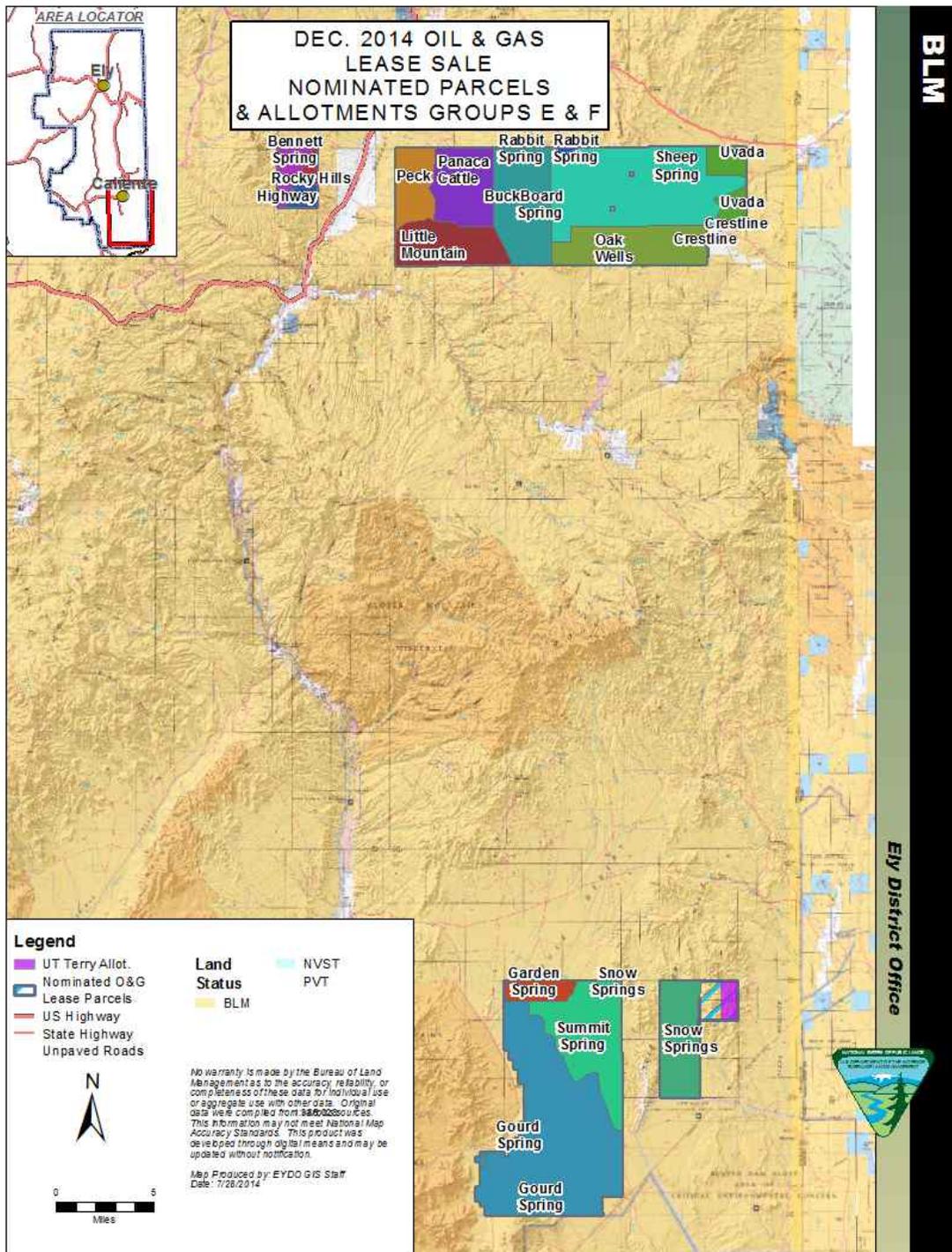
Map 3.2. Allotments overlapping Parcel Groups A and B



Map 3.3. Allotments overlapping Parcel Group C



Map 3.4. Allotments overlapping Parcel Group D



Map 3.5. Allotments overlapping Parcel Groups E and F

All livestock grazing allotments within the project area are classified as perennial allotments. Term permits authorize grazing use based on perennial vegetation. Authorized grazing use includes both cattle and sheep. The majority of livestock grazing authorized is for cattle grazing. Allotment grazing periods of use vary and include both seasonal and yearlong. Seasons

include fall/winter/spring period and spring/summer/fall period. Grazing systems may include rest-rotation, deferred rotation, and deferred rest rotation. Allotments that are grazed both yearlong and seasonally include herding of cattle and sheep between public land allotments, base property, other leased or private pasture and U.S. Forest Service-administered lands. Some allotments are grazed in common by two or more livestock permittees. Livestock are either mixed together in the same use area or graze in separate use areas of the allotment. Authorized grazing use is in accordance with established use periods or seasons of use for the allotment.

Livestock grazing allotments within parcel groups A, C, D, E and F are all in Lincoln County and are within the Mojave desert ecological system. The Mojave – Southern Great Basin Area Standards and Guidelines for grazing administration apply to livestock grazing for these groups.

Livestock grazing allotments within group B are all in White Pine County and are within the Great Basin ecological system. The Northeastern Great Basin Area Standards and Guidelines for grazing administration apply to livestock grazing for Group B.

Rangeland Health Standards for all allotments continue to be conducted to determine if the standards and fundamentals for rangeland health are being achieved, primarily with the grazing term permit renewal process.

3.3.12. Wild Horses

The Ely District Office administers 6 HMAs, land areas designated through the Land Use planning process for the long term management of wild horses.

The Ely District Office also manages 16 Herd Areas (HAs). No wild horses are to be managed within any Herd Areas based on analysis of habitat suitability and monitoring data, which indicates insufficient forage, water, space, cover, and reproductive viability to maintain healthy wild horses and rangelands over the long-term, (Ely RMP, page 47).

Parcels NV-14-12-105-114 are within the Silver King HMA, Parcels NV-14-12-140-142 and 146 are partially or completely within the Eagle HMA.

Parcels NV-14-12-118, 119, 121-126, 134, and 137 are partially or completely within the Little Mountain HA; parcels NV-14-12-129, 130, 132, 133, 135, 136, 174—182 are within the Miller Flat HA; and parcels NV-14-12-115, 116, and 117 are partially or completely within the Highland Peak HA.

3.3.13. Land Uses & Access

Three of the proposed lease parcels overlap private property and are considered split-estates (Parcels NV-14-12-159, 162 and 165, totaling 7,700 acres in Lincoln County). This is a case where the subsurface minerals are federally owned and the private ownership is limited to the surface of the land. Many of the parcels would require a right-of-way (ROW) in order to access the lease parcels.

Some parcels include pre-existing land use authorizations such as grants, leases, permits, and withdrawals. The table below provides a summary of the land use authorizations in the lease area.

Table 3.7. Land Use Authorization Summary

Lease Parcel	ROW Case File	ROW Holder	ROW Description
NV-14-12-009	N-4874	Mt Wheeler Power	25ft Distribution
NV-14-12-011	N-88977	Lincoln County Water District	Water Monitoring
NV-14-12-012	N-88977	Lincoln County Water District	Water Monitoring
NV-14-12-017	N-88977	Lincoln County Water District	Water Monitoring
NV-14-12-020	N-88977	Lincoln County Water District	Water Monitoring
NV-14-12-023	N-88977	Lincoln County Water District	Water Monitoring
NV-14-12-027	N-88977	Lincoln County Water District	Water Monitoring
NV-14-12-029	N-88977	Lincoln County Water District	Water Monitoring
NV-14-12-032	N-57490	Lincoln County	60 ft. Road ROW
NV-14-12-045	N-35536	Lincoln County Commissioners	60 ft. Road ROW
NV-14-12-047	N-35536	Lincoln County Commissioners	60 ft. Road ROW
NV-14-12-046	N-74959	Lincoln County Telephone Co	Buried Fiber Optic
	N-88046	Bureau of Land Management	Disposal Lands
	N-88294	BLM	LCWD Corridor
NV-14-12-048	N-35536	Lincoln County Commissioners	Road ROW
NV-14-12-050	N-35536	Lincoln County Commissioners	Road ROW
	N-88046	Bureau of Land Management	Disposal Lands
	N-88294	BLM	LCWD Corridor
	CC-23426	NDOT	200ft Federal Aid Highway ROW
NV-14-12-055	N-88294	BLM	LCWD Corridor
	N-11748	NDOT	200ft Federal Aid Highway ROW
NV-14-12-059	N-88294	BLM	LCWD Corridor
	N-11748	NDOT	200ft Federal Aid Highway ROW
NV-14-12-060	N-88294	BLM	LCWD Corridor
	N-11748	NDOT	200ft Federal Aid Highway ROW
	N-74959	Lincoln County Telephone District	Buried Fiber Line
NV-14-12-063	N-88294	BLM	LCWD Corridor
	N-11748	NDOT	200ft Federal Aid HighwayROW
	N-74959	Lincoln County Telephone District	Buried Fiber Line

Lease Parcel	ROW Case File	ROW Holder	ROW Description
NV-14-12-090	N-6956	NDOT	Material Site & 60ft Access Road
	N-12182	Lincoln County Power District 1	40ft Powerline ROW
NV-14-12-099	N-49861	Nellis AFB	Communication Facility
NV-14-12-103	N-61326	Mt. Wheeler Power	24ft Powerline ROW
NV-14-12-104	N-18286	NDOT	Federal Aid Highway ROW
	N-7769	Forest Service	60 Ft. Access Road
	N-45076	NDOT	Federal Aid Highway ROW
	N-66758	SBC/NV Bell	20ft Communication Cable
	N-17924	Mt Wheeler Power	60ft Powerline ROW
	N-61326	Mt Wheeler Power	24ft Powerline ROW
NV-14-12-105	N-77880	DOE	100ft Corridor
NV-14-12-108	N-77880	DOE	100ft Corridor
NV-14-12-118	N-77880	DOE	100ft Corridor
NV-14-12-123	N-77880	DOE	100ft Corridor
NV-14-12-126	N-77880	DOE	100ft Corridor
NV-14-12-130	N-77880	DOE	100ft Corridor
NV-14-12-131	N-77880	DOE	100ft Corridor
NV-14-12-132	N-77880	DOE	100ft Corridor
NV-14-12-133	N-77880	DOE	100ft Corridor
NV-14-12-136	N-61494	Nellis AFB	Communication Facility
NV-14-12-147	N-84333	SNWA	Water Monitoring Well
NV-14-12-151	N-84333	SNWA	Water Monitoring Well
NV-14-12-154	N-40106	GS	Water Monitoring Well
NV-14-12-156	N-88294	BLM	LCWD Corridor
NV-14-12-157	N-88294	BLM	LCWD Corridor
	N-66087	LCWD	Water Monitoring Well
	N-83110	LCWD	Water Monitoring Well
	N-77486	Toquop	30ft Powerline ROW
NV-14-12-158	N-80825	LCWD	Water Monitoring Well
	N-83110	LCWD	Water Monitoring Well
NV-14-12-159	N-88294	BLM	LCWD Corridor
NV-14-12-161	N-77486	Toquop	30ft Powerline ROW
NV-14-12-162	N-88294	BLM	LCWD Corridor
NV-14-12-163	N-77486	Toquop	30ft Powerline ROW
NV-14-12-164	N-88294	BLM	LCWD Corridor
	N-77486	Toquop	30ft Powerline ROW
	N-78413	Lincoln County Commissioners	Monitoring Well
	N-83110	LCWD	Water Monitoring Well
NV-14-12-165	N-88294	BLM	LCWD Corridor
	N-79734	LCWD	Water Collection/ Transmission
NV-14-12-166	N-79734	LCWD	Water Collection/ Transmission
	N-77486	Toquop	30ft Powerline ROW
NV-14-12-167	N-42723	Nellis AFB	Communication Facility
NV-14-12-168	N-88294	BLM	LCWD Corridor
	N-77486	Toquop	30ft Powerline ROW
	N-79734	LCWD	Water Collection/ Transmission

Lease Parcel	ROW Case File	ROW Holder	ROW Description
NV-14-12-169	N-79734	LCWD	Water Collection/ Transmission
	N-77486	Toquop	30ft Powerline ROW
NV-14-12-170	N-79734	LCWD	Water Collection/ Transmission
NV-14-12-171	N-79734	LCWD	Water Collection/ Transmission
NV-14-12-174	N-63221	Level 3 Communications	15ft buried fiber cable
	N-77880	DOE	100ft Corridor
NV-14-12-175	N-77880	DOE	100ft Corridor
NV-14-12-176	N-77880	DOE	100ft Corridor
NV-14-12-177	N-77880	DOE	100ft Corridor
NV-14-12-178	N-77880	DOE	100ft Corridor
	N-42771 A	UPRR	100ft Railroad Corridor
	CC-0360	LA & SLRR Co	100ft Railroad Corridor
NV-14-12-179	N-77880	DOE	100ft Corridor
NV-14-12-180	N-77880	DOE	100ft Corridor
NV-14-12-184	N-90903	LCRD	60ft Road ROW
NV-14-12-185	N-90903	LCRD	60ft Road ROW

Chapter 4. Environmental Effects:

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4.1. Introduction

Approximately 2 million of the 10 million acres open to fluid mineral leasing in the Ely District are currently leased. This leaves 80% of the land available for leasing. Therefore, based on current leasing and development trends for the Ely District, it is expected that only 1,680 acres of the 8,400 acres (20%) potential disturbance estimated in the RFD scenario for oil and gas would be disturbed. Extrapolating an increase in possible oil and gas production potential by the advancements made in formation stimulation, then there could be the potential for an additional 10% to 25% increase in surface disturbance over the next ten years associated with additional well fields, additional equipment and water needed to perform such operations. A 25% increase in surface disturbance would increase the potential surface disturbance from 1,680 acres to 3,780 acres, which is still within the RFD scenario described in the RMP/FEIS.

In many cases, environmental impacts would be mitigated through the use of management actions and best management practices and other conditions of approval imposed during the permitting process on a specific site-by-site basis.

4.2. Air Quality & Climate Change Environmental Effects

4.2.1. Proposed Action

There are no impacts to air quality associated with leasing, since there isn't any surface disturbance. However, there is a potential for indirect impacts associated with lease development activities that could potentially affect air quality. Those potential indirect impacts are analyzed in this EA. Air resources include air quality, air quality related values (AQRVs), and climate change.

The EPA air quality index (AQI) is an index used for reporting daily air quality (<http://www.epa.gov/oar/data/geosel.html>) to the public. The following website explains how to interpret the AQI information: http://www.epa.gov/airquality/airdata/ad_basic.html.

The basic reason for monitoring air quality is if the region is in “non-attainment”; only Washoe and Clark Counties are considered “NA” in Nevada. The analysis area is considered “in attainment”, i.e., there is no problem; there is little risk to the general public from air quality in the analysis area. The airports in White Pine and Nye County both monitor particulates only and indicate 90% or more days are good. There is no monitoring in Lincoln County, because there is no airport instrumentation, (<http://www.epa.gov/airdata/> accessed July 28, 2014).

While the act of leasing the parcels would produce no substantial air quality effects, potential future development of the lease could lead to increases in area and regional emissions. Further, the timing, construction and production equipment specifications and configurations, and specific locations of activities are also unforeseeable at this time. Additional air effects will be addressed in a subsequent analysis when lessees file an APD. All proposed activities including, but not limited to, exploratory drilling activities would be subject to applicable local, state, tribal and federal air quality laws and regulations.

Any subsequent activity authorized after APD approval could include soil disturbances resulting from the construction of well pads, access roads, pipelines, power lines, and drilling. Any disturbance is expected to cause increases in fugitive dust and potentially inhalable particulate matter in the analysis area and immediate vicinity. Particulate matter, mainly dust, may become

airborne when drill rigs and other vehicles travel on dirt roads to drilling locations. Air quality may also be affected by exhaust emissions from engines used for drilling, transportation, gas processing, compression for transport in pipelines, and other uses. These sources will contribute to potential short and long term increases in the following criteria pollutants: carbon monoxide, ozone, nitrogen dioxide, and sulfur dioxide. Non-criteria pollutants (for which no national standards have been set) such as carbon dioxide, methane, nitrous oxide, air toxics (e.g., benzene), and total suspended particulates (TSP) could also be emitted.

During exploration and development, 'natural gas' may at times be flared and/or vented from conventional, coal bed methane, and shale wells. The gas is likely to contain volatile organic compounds that could also be emitted from reserve pits, produced water disposal facilities, and/or tanks located at the site.

Mitigation

The BLM encourages industry to incorporate and implement BMPs to reduce impacts to air quality by reducing emissions, surface disturbances, and dust from field production and operations. Measures may also be required as COAs on permits by either the BLM or the applicable state air quality regulatory agency. The BLM also manages venting and flaring of gas from federal wells as described in the provisions of Notice to Lessees (NTL) 4A, Royalty or Compensation for Oil and Gas Lost.

Some of the following measures could be imposed at the development stage:

- flaring or incinerating hydrocarbon gases at high temperatures to reduce emissions of incomplete combustion;
- emission control equipment of a minimum 95 percent efficiency on all condensate storage batteries, dehydration units, pneumatic pumps, produced water tanks;
- vapor recovery systems where petroleum liquids are stored;
- tier II or greater, natural gas or electric drill rig engines;
- secondary controls on drill rig engines;
- no-bleed pneumatic controllers (most effective and cost effective technologies available for reducing VOCs);
- gas or electric turbines rather than internal combustion engines for compressors;
- NOx emission controls for all new and replaced internal combustion oil and gas field engines;
- water dirt and gravel roads during periods of high use and control speed limits to reduce fugitive dust emissions;
- interim reclamation to re-vegetate areas of the pad not required for production facilities and to reduce the amount of dust from the pads.
- co-locate wells and production facilities to reduce new surface disturbance;
- directional drilling and horizontal completion technologies whereby one well provides access to petroleum resources that would normally require the drilling of several vertical wellbores;

- gas-fired or electrified pump jack engines;
- velocity tubing strings;
- cleaner technologies on completion activities (i.e. green completions), and other ancillary sources;
- centralized tank batteries and multi-phase gathering systems to reduce truck traffic;
- forward looking infrared (FLIR) technology to detect fugitive emissions;
- air monitoring for NO_x and ozone; and
- methane emission reduction using the EPA Natural Gas STAR Program.

In the context of the oil sector, additional mitigation measures to reduce GHG emissions include methane reinjection and CO₂ injection. Furthermore, the EPA is expected to promulgate new federal air quality regulations that would require GHG emission reductions from many oil and gas sources.

4.2.2. No Action Alternative

The No Action Alternative would not impact air quality or climate change in the area. Activities on current leased parcels adjacent to the proposed parcels would still be permitted.

4.3. Cultural Resources (including Heritage Special Designations) Environmental Effects

4.3.1. Proposed Action

The potential direct impacts from reasonably foreseeable oil and gas exploration/development would be prevented through the Section 106 process. Ground disturbing activity requires compliance with Section 106 of NHPA and the State Protocol. The aforementioned documents require Class III (30 meter transects) inventory of all proposed analysis areas, recordation and evaluation of sites and evaluation of project effects on National Register eligible sites. Avoidance of eligible sites (those meeting the National Register of Historic Places criteria), Traditional Cultural Properties, or sacred sites is the preferred mitigation choice. If avoidance is not possible, then the most common form of mitigation is through data collection and excavation. The BLM may require modification to exploration or development to protect such properties, or disapprove any activity that is likely to result in adverse effects that cannot be successfully avoided, minimized, or mitigated.

Subsequent activities on leased parcels may additionally be subject to Section 106 of the NHPA. Any party proposing oil and gas exploration or development on leased parcels shall be responsible for all costs related to conducting Section 106 of the NHPA. The successful leasing of a parcel does not guarantee the feasibility of future oil and gas exploration or development because of those costs.

Although the White River Narrows Archaeological District (Group D) does not have nominated parcels contained within its borders, access roads to and from parcels that intersect with WRN

will only be allowed if it is determined that maintenance will not have an effect on the setting and features that placed this site on the National Register of Historic Places. New roads will not be permitted. These stipulations are within the Ely RMP SD-7(1).

Mt. Irish ACEC borders nominated parcels NV-14-12-027, 029 & 030 (Group D) and will not be directly affected by exploration/development. However, the indirect effect of exploration/development would potentially be a visual impact and adverse effect. The visual characteristics (Class II & III visual rating) that contribute to the uniqueness of the ACEC may be affected and would need to be assessed during the Section 106 process for any exploration/development.

Pahroc Rock Art ACEC borders nominated parcels NV-14-12-085 & 088 (Group D) and will not be directly affected by exploration/development. However, the indirect effect of exploration/development would potentially be a visual impact and adverse effect. The visual characteristics (Class II & III visual rating) that contribute to the uniqueness of the ACEC may be affected and would need to be assessed during the Section 106 process for any exploration/development.

Section 800.5 of the 36 CFR Part 800 specifically addresses an adverse effect as “introduction of visual, atmospheric or audible elements that diminish the integrity of the property’s significant historic features”. This tenet may be applicable to any eligible property.

4.3.2. No Action Alternative Effects on Cultural Resources

The No Action Alternative would not impact cultural resources in the area. Under the No Action Alternative, the parcels would not be leased. The cultural resources would continue to be managed as they currently are, mitigation would not be required and visual impacts would not occur.

4.4. Water Resources Environmental Effects

4.4.1. Proposed Action

As previously stated, the sale of parcels and issuance of oil and gas leases is strictly an administrative action. The act of offering, selling, and issuing federal oil and gas leases does not produce impacts to water quality and surface water. Nominated lease parcels will be reviewed against the Ely RMP, and stipulations are attached to mitigate any known environmental or resource conflicts that may occur on a given lease parcel. Potential on-the-ground impacts would not occur until a lessee applies for and receives approval of their APD on the lease. Environmental consequences for water resources are discussed in Section 4.36 of the RMP/FEIS). Water for any development activity would either come from private sources or would have to be permitted by the State of Nevada since water rights are exclusively managed by the Nevada State Engineer.

The BLM cannot determine at the leasing stage whether or not a proposed parcel will actually be sold, or if it is sold and issued, whether or not the lease would be explored and developed. Consequently, the BLM cannot determine exactly where a well or wells may be drilled or what technologies that may be used to drill and produce wells, so the impacts listed below are general, rather than site-specific.

Additional NEPA analysis would be conducted prior to approval of an APD and would provide site-specific analysis for the well location, exploration and development activities. Appropriate stipulations in compliance with the Ely RMP and specifically Objective WR-2 will be applied to leases to address determined vulnerability.

For the purposes of this EA, approximately 4% of the total District is subject to this lease sale. This percentage indicates that no more than 30 exploration and production wells should be expected as a result of this sale.

Potential Effects, Surface Water: Subsequent development of a lease may result in long-and short term alterations to the hydrologic regime depending upon the intensity of development. Clearing, grading, and soil stockpiling activities associated with exploration and development actions could alter short term overland flow and natural groundwater recharge patterns resulting in *de minimis* risk. In risk assessment, it refers to a level of risk that is too small to be concerned with.

Runoff associated with storm events could increase sediment/salt loads in surface waters down gradient of the disturbed areas. Sediment may be deposited and stored in minor drainages where it could be readily moved downstream (within closed basins) during heavy storms. Sediment from future development activity may be carried into contained basins and sloughs where water quality classifications could be exceeded. The land-locked nature of most lease parcels and distance of other parcels to potentially impacted surface waters would restrict effect on the amount of sediment and salt contributed by lease exploration and development activities. Surface erosion may be greatest during the construction and would be controlled through integrated measures, BMPs, and appropriate mitigation measures.

The magnitude of the impacts to surface water resources from future development activities depends on the proximity of disturbances to drainage channels, slope aspect and gradient, degree and area of soil disturbance, soil character, duration of construction activities, and the timely implementation and success/failure of mitigation measures. Natural factors which attenuate the transport of sediment and salts into susceptible water bodies include water available for overland flow; the texture of the eroded material; the amount and kind of ground cover; the slope shape, gradient, and length; and surface roughness. Impacts could likely be greatest shortly after the start of construction activities and would likely decrease in time due to stabilization, reclamation, and revegetation efforts. Potential minor long-term impacts to the watershed and hydrology could continue for the life of surface disturbance from water discharge from roads, road ditches, and well pads, but would decrease once all well pads and road surfacing material has been removed and reclamation of well pads, access roads, pipelines, and powerlines has taken place. Potential short-term impacts to the watershed and hydrology from access roads that are not surfaced with impervious materials may occur and would likely decrease in time due to reclamation efforts. Limiting factors include the small area affected and implementation of integrated measures, BMPs, and appropriate mitigation measures.

Although there is a low potential for oil and gas development to contribute sediment loads to aquatic systems, there is no reasonable likelihood that siting adjustments, State and federally-imposed sedimentation and storm-control measures, and reclamation strategies would fail to provide adequate means to effectively prevent substantive off-site transport and delivery of sediments or fluids that may impair downstream riparian or aquatic conditions in the closed basins. Moreover, deferral within the most sensitive areas (i.e. Ash, Hiko, and Crystal Springs, and the Key Pittman WMA) would further mitigate impacts.

Potential Effects, Groundwater:

HF is designed to change the producing formations' physical properties by increasing the flow of water and gas around the well bore. Well stimulation may also introduce chemical additives into the producing formations. This change in physical properties may open up new fractures or enhance existing fractures that could result in freshwater aquifers being contaminated with natural gas, condensate and/or chemicals used in drilling, completion and HF. Impacts to groundwater resources could occur due to failure of well integrity, failed cement, surface spills, and/or the loss of drilling, completion and hydraulic fracturing fluids into groundwater. Types of chemical additives used in drilling activities may include acids, hydrocarbons, thickening agents, lubricants, and other additives that are operator and location specific. Concentrations of these additives also vary considerably and are not always known since different mixtures can be used for different purposes in gas development and even in the same well bore. Known production zones in Nevada are generally below 3,000 feet and do not contain freshwater.

Loss of drilling fluids may occur during the drilling process due to changes in porosity or other properties of the rock being drilled through. When this occurs, drilling fluids may be introduced into the surrounding formations which could include freshwater aquifers, if it occurs when drilling the surface casing. Some or all of the produced water from these leases is likely to be injected in wells for disposal. Petroleum products and other chemicals could result in groundwater contamination through sources such as pipeline and well casing failure, well (gas and water) construction, and spills. Similarly, improper construction and management of reserve and evaporation pits could degrade ground water quality through leakage and leaching. The potential for negative impacts to groundwater caused from HF, are currently being investigated by the EPA. Authorization of the proposed projects would require full compliance with local, state, and federal directives, regulations, permitting, and stipulations that relate to surface and groundwater protection.

If contamination of freshwater aquifers from oil and gas development occurs, changes in groundwater quality could impact springs and residential wells if these springs and residential wells are sourced from the same aquifers that have been affected. Potential impacts to surface water would likely be greatest shortly after the start of construction activities and would likely decrease in time due to natural stabilization, and reclamation efforts. Impacts to groundwater would be less evident and occur on a longer time scale. Construction activities would occur over a relatively short period (commonly less than a month); however, natural stabilization of the soil can sometimes takes years to establish to the degree that will adequately prevent accelerated erosion caused by compaction and removal of vegetation. Spills or produced fluids (e.g., saltwater, oil, hydrofracturing chemicals, and/or condensate in the event of a breach, overflow, or spill from storage tanks) could result in contamination of the soil onsite, or offsite, and may potentially impact surface and groundwater resources in the long term (BLM 2013).

Not all wells resulting from APD will employ fracturing and water consumption will be temporary. Oil and gas wells are cased and cemented at a depth below all usable water zones; consequently impacts to water quality at springs and residential wells are not expected. Additional specific COAs will be utilized to reduce the risks to groundwater. These mitigations would be identified at the APD stage.

4.4.2. No Action Alternative

There would be no direct, indirect or cumulative impacts to surface or groundwater under the No Action Alternative.

4.5. Fish and Wildlife Environmental Effects

4.5.1. Proposed Action General

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 a separate site-specific NEPA analysis. The RFD scenario is the basis for indirect future or potential impacts that could occur once the parcels are leased.

Oil and gas exploration, and production activities, as outlined in the RFD scenario, have the potential to affect individuals but not populations in the following ways:

- Any ground disturbance has the potential to injure or kill individual slow moving and/or ground dwelling animals.
- Noise and other elements of human presence in wildlife habitats could effect various wildlife species, through causing animals to move away from the areas of disturbance. Such movement could bring animals into territories already occupied, increasing competition of available resources.
- Reduction or degradation of habitat quantity and/or quality (including food sources and cover), due to the possible establishment and spread of noxious weeds from exploration and development. Failure to reestablish native vegetation during required rehabilitation following cessation of activities could increase this possibility.
- The potential of groundwater contamination from spills or evaporation pond runoff and/or overflow could change the water chemistry at springs, altering aquatic habitat. This could possibly alter survivorship and reproduction of aquatic species.
- Pumping of groundwater in the general vicinity of springs could possibly cause reduced water quantity or possible de-watering of riparian areas. Reduction of water could also alter water chemistry or temperature, affecting aquatic or riparian species. Changes in water quantity and quality could alter the survivorship and reproduction of aquatic species; the effects would be analyzed in the APD.

Timing and other stipulations outlined in Appendix B have been designed to minimize these potential effects to fish and wildlife.

4.5.2. Proposed Action Effects on Federally Listed or Proposed for Listing Threatened, Endangered Species, or Critical Habitat

There would be no direct effects from issuing new oil and gas leases because leasing does not directly authorize surface disturbance such as oil and gas exploration, development, production, or final reclamation. However, the authorization of oil and gas leasing does convey a right to

subsequent exploration and production activities. Therefore, there could be indirect effects from leasing under the RFD scenario.

Future exploration activities in desert tortoise habitat would be subject to section 7 consultation as activities associated with exploration, such as driving in desert tortoise habitat and seismic testing, could result in take of a listed species. Phases that may follow exploration (such as development and production) in desert tortoise habitat would also require subsequent section 7 consultation. The BLM and FWS are in agreement that section 7 consultation on leasing parcels within desert tortoise habitat (both critical and non-critical) was adequate per the Programmatic Biological Opinion (RMP BO) for the BLM's Ely District Resource Management Plan (Service File No. 84320-2008-F-0078). Leasing for oil and gas in desert tortoise habitat is within the scope of the Programmatic Biological Opinion. The timing stipulation of No Surface Activity (NSA) within desert tortoise habitat from March 1 to October 31 will be applied to all parcels in desert tortoise habitat in order to mitigate potential effects. Lessees may explore for or exploit the fluid minerals under leases restricted by this stipulation by using directional drilling from sites outside the NSA area. However, directional drilling outside the NSA area would also be subject to section 7 consultation because it could result in take of desert tortoise.

Indirect impacts from the Proposed Action on the SWFL and the aforementioned listed fish species are difficult to determine.

The pumping of groundwater in the same hydrographic basin or a connected hydrographic basin as a federally listed aquatic or riparian species could potentially alter the quantity, quality or temperature of spring water or riparian areas, thereby negatively affecting survivorship and reproduction. There is also the potential of groundwater contamination from spills, or evaporation pond runoff and/or overflow which could change the water chemistry at springs, altering aquatic and riparian habitat. Changes in water quality/quantity and groundwater contamination may affect the survivorship and reproduction of federally threatened or endangered species.

Both FWS and NDOW expressed concern about uncertainty regarding effects to sensitive areas and hydrology. Many riparian and aquatic species in Pahrangat Valley are highly dependent on groundwater and could potentially be indirectly impacted by effects to water in future phases, such as exploration, development, and production.

Discussions between BLM, FWS, and NDOW resulted in the recommended deferral of all parcels or portions of parcels encompassing the White River Watersheds (HUC-11). This HUC is the common basin of several identified water sources containing critical habitat for endangered species including Key Pittman WMA, Ash Springs and its associated outflow, and Crystal and Hiko Springs.

Where these species or habitat exist, Section 7 consultation with FWS would be required prior to any surface disturbance as part of the site specific analysis. The Ely RMP BO did not address these species to the extent it did for desert tortoise. The level of formal consultation would be determined based upon the proposed action. Specific measures would be enforced to prevent or minimize the take of a listed species as a result of drilling. See Appendix C for details. Specific measures would be enforced to prevent or minimize the take of a listed species as a result of drilling. See Appendix C for details.

4.5.3. Proposed Action Effects on Special Status species other than those listed as Threatened or Endangered

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 a separate site-specific NEPA analysis. Stipulations from the Ely RMP, such as a seasonal stipulation applied to parcels that contain desert bighorn sheep habitat, have been applied to the parcels to minimize impacts to special status species. The RFD scenario is the basis for indirect future or potential impacts that could occur once the parcels are leased.

Potential effects to special status animal species if development were to occur would be similar to those outlined for fish and wildlife above. Additionally, a site-specific NEPA analysis would include measures to mitigate effects.

4.5.4. No Action Alternative

There would be no effects to fish & wildlife, listed species, or critical habitat, or special status species, as no leases would be issued for the parcels covered in this EA.

4.6. Socioeconomics Environmental Effects

4.6.1. Proposed Action

A direct effect of issuing new oil and gas leases on socioeconomics within the three counties would be the generation of revenue from the sale of the leases. The State of Nevada would receive 49 percent of the proceeds from the initial sale of each lease parcel.

Subsequent oil and gas exploration, development, and production could create additional positive impacts. During the exploration phase, oil and gas companies typically provide in-house scientists and technicians to do the majority of the work. After initial surveys have been completed, road building, drill pad, and other construction, operation, and reclamation activities could occur as a result of oil and gas exploration and development activities. Much of this work could be contracted to local contractors, producing a potentially positive economic impact to the local area through additional jobs, income, and added demand for additional services. Any oil exploration or development on these parcels may provide these counties with positive financial gains.

4.6.2. No Action Alternative

The No Action Alternative would not impact the current socioeconomic climate in the area.

4.7. Noxious and Invasive Weeds Environmental Effects

4.7.1. Proposed Action

The act of offering, selling, and issuing federal oil and gas leases does not produce invasive/non-native species impacts. Each APD could result in additional disturbance throughout the future project areas creating opportunity for noxious weeds to spread. Cheatgrass and other weedy annuals are common along roadsides and other disturbed areas. These and the other species of noxious weeds are spread by vehicle traffic, livestock, wind, water, recreational vehicles, and wildlife. There would also be potential for new weeds to be transported onto the site on equipment used for construction activities. Any disturbance of soil or removal of vegetation has the potential to create opportunity for weeds to establish or spread into the surrounding plant community. In disturbed areas, bare soils and the lack of competition from an established perennial plant community would allow weed species opportunity to grow and produce seed. However, successful reclamation using a seed mix adapted to the site in conjunction with integrated weed management would create an opportunity to improve vegetative communities and reduce the amount of weedy species in the project area.

Subsequent development produces impacts in the form of ground disturbance. The construction of an access road and well pad could unintentionally contribute to the establishment and spread of noxious weeds. Noxious weed seed could be carried to and from the project areas by numerous methods, including construction equipment, the drilling rig and transport vehicles. The main mechanism for seed dispersion on the road and well pad is by equipment and vehicles that were previously used and or driven across or through noxious weed infested areas. The potential for the dissemination of invasive and noxious weed seed may be elevated by the use of construction equipment typically contracted out to companies that may be from other areas.

Prior to any ground disturbing activities, further analysis addressing the potential effects related to noxious, non-native species would be conducted, and BMPs including Appendix C, would be applied.

4.7.2. No Action Alternative

The lease sale and subsequent development of the parcels would not occur; thereby no further impact to non-native invasive species would occur.

4.8. Lands with Wilderness Characteristics Environmental Effects

4.8.1. Proposed Action

The proposed action to authorize oil and gas leasing could impact, and potentially eliminate, wilderness characteristics in the 13 inventory units when and if exploration and production activities occur. Short-term disturbances would have a negative effect on the inventory units by reducing and possibly eliminating the wilderness characteristics. Depending on the location and density of exploration wells, the inventory units may be reduced to areas of less than 5,000 acres; naturalness would be eliminated across the developed portions of the units; and opportunities for solitude or a primitive and unconfined type of recreation may be eliminated throughout the unit.

If exploration wells are plugged and abandoned, they would be reclaimed immediately after drilling or construction. Therefore, in the long term, it is possible that all disturbances would be reclaimed allowing the area to return to a natural state; and opportunities for solitude or a primitive and unconfined type of recreation would return. Impacts to size may also be reclaimed after exploration, but depending on the extent of wells and associated facilities (roads, gravel pits, etc.) impacts may remain should any of the supporting facilities continue to be used that could continue to eliminate wilderness characteristics based on size. For any producing wells, the impacts would be long term. At that point, the impacts to wilderness characteristics would be considered permanent.

4.8.2. No Action Alternative

Under the No Action Alternative, the lease sale would not occur. Therefore, there would be no human-caused alterations to the existing landscape and there would be no impacts to the wilderness characteristics.

4.9. Soil Resources Environmental Effects

4.9.1. Proposed Action

The act of offering, selling, and issuing federal oil and gas lease does not create impacts to soil. Impacts to soil, both direct and indirect, would occur when the lease is developed in the future. The potential impacts would be analyzed on a site-specific basis prior to oil and gas development.

Oil exploration and production activities involve the potential for soil compaction, erosion, excavation, and losses of soil quality in these areas. The effects of surface disturbance on soils vary based on soil type, texture, moisture content, depth, and slope. Vegetation removal for roads and well pad construction can alter existing drainage patterns and contribute to accelerated gully and rill erosion, especially on steeper slopes. Soil compaction would be expected on areas utilized by heavy equipment for oil and gas exploration, development, and production. Compaction typically is greatest when soil moisture is high and where heavy equipment activities are concentrated. Soil compaction reduces vegetation productivity because it decreases root penetration and water infiltration.

Within the State of Nevada, a MOU for exploration and mining reclamation exists between the BLM and the Nevada Division of Environmental Protection. Reclamation permits are supported by site-specific reclamation plans which are submitted and maintained according to an agency review and approval process. If approved, a permit defines post-project land uses, growth media salvage and replacement, seedbed amendments and erosion controls, site drainage, public safety provisions, roads, recontouring and revegetation practices, post-treatment monitoring, and other site restoration considerations according to best management practices. As a result, and given the comparatively small extent of mineral exploration and extraction acreage in the analysis area, the effects of these activities on soil resources are expected to be minimal.

If oil and gas development were to occur in the proposed area(s) for leasing, impacts would occur due to ground disturbance and potential reduction of water resources. Most of the disturbance would be in the form of well pad construction, roads to access the well pad, road spurs off of the main well pad access road and the large amount of water resources needed to extract the

petroleum resources. The soil resources that would primarily be affected would be the areas dominated by soil types sensitive to ground disturbance and water table reduction.

If oil and gas development were to occur in the proposed area(s) for leasing, the magnitude and extent this would affect the soil resources in the area is directly proportional to the amount of oil and gas development that would occur in the given area. One could extrapolate the potential magnitude and extent of these affects by reviewing the disturbance scenario in Section 2.5 Reasonably Foreseeable Development Scenario for Oil and Gas Resources.

4.9.2. No Action Alternative

Under the No Action Alternative, the lease sale would not occur. Therefore, no impacts to soil resources would occur.

4.10. Visual Resource Management Environmental Effects

4.10.1. Proposed Action

The actual sale of the lease parcels would not impact visual resources, though the development of the lease parcels may impact visual resources. When an APD is submitted a site-specific visual contrast rating would be conducted. The contrast rating would identify what types of mitigation is needed to minimize any visual contrast. Those recommended mitigation measures would be incorporated into site-specific NEPA or become applicant committed mitigation measures incorporated into the APD as a means to meet the VRM class objectives, at the beginning of the project planning phase.

Areas B, C, D, and F have portions of VRM Class II. Exploration and development within these parcels have a high probability of not meeting the VRM Class II objectives. Objectives for VRM Classes III and IV would be met by incorporating design features. The objectives of each VRM class would be taken into consideration for the development of lease parcels. Modifications to decrease visual contrast may include, but are not limited to, painting of facilities, the use of low profile tanks, placing facilities to avoid or minimize visibility from travel corridors, residential areas, and other sensitive observation points, the use of existing vegetation would be considered when designing the position of certain pads to blend into the existing characteristic landscape, minimizing hard edges of the well pads to avoid stark line contrasts and blend with the surrounding landscape, when possible.

4.10.2. No Action Alternative

Under the No Action Alternative the lease sale would not occur, therefore no impacts to visual resources would occur.

4.11. Vegetative Resources (including Wetlands/Riparian Vegetation) Environmental Effects

4.11.1. Proposed Action

The act of offering, selling, and issuing federal oil and gas lease does not create impacts to vegetation. Impacts to vegetation, both direct and indirect, would occur when the lease is developed in the future. The potential impacts would be analyzed on a site-specific basis prior to oil and gas development.

If oil and gas exploration and development were to occur in the proposed area(s) for leasing, impacts would occur due to ground disturbance and potential reduction of water resources. Most of the disturbance would be in the form of well pad construction, roads to access the well pad, road spurs off of the main well pad access road and the large amount of water resources needed to extract the petroleum resources. The vegetation resources that would primarily be affected would be the areas dominated by upland vegetation communities and associated soil types sensitive to ground disturbance and water table reduction (i.e. winterfat plant communities/the associated silty soils and riparian/spring vegetation).

If oil and gas exploration and development were to occur in the proposed area(s) for leasing, the magnitude and extent this would affect the vegetative resources in the area is directly proportional to the amount of oil and gas development that would occur in the given area.

The potential impacts of oil and gas leasing on vegetation communities would be:

1. Reduction or loss in production, distribution and vigor of sensitive plant communities (i.e. winterfat) due to oil and gas activities.
2. Introduction of invasive plant species to plant communities by way of oil and gas activities.

Riparian vegetation is reliant upon both precipitation in the form of rain and snow, in conjunction with ground water table levels of the given area. One could extrapolate the potential magnitude and extent of these affects by applying a water consumption scenario in Section 2.5 of this EA (RFD Scenario for Oil and Gas Resources).

The potential impacts of oil and gas leasing on riparian vegetation communities would be:

1. Reduction or loss in production and vigor of riparian plant communities due to oil and gas activities and associated water table loss.
2. A contraction or drying up of existing riparian plant communities' distribution due to oil and gas activities, and associated water table loss.
3. Introduction of invasive plant species to riparian plant communities by way of oil and gas activities.

4.11.2. No Action Alternative

Under the No Action Alternative, the lease sale would not occur and no impacts to vegetative resources (including wetlands/riparian vegetation) would occur.

4.12. Livestock Grazing Environmental Effects

4.12.1. Proposed Action

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. Should exploration or development be proposed within the lease parcels, additional, site specific NEPA analysis would be completed to assess the potential impacts to livestock grazing.

Oil and Gas exploration and development activities have the potential to affect livestock grazing. If oil and gas exploration and development were to occur in the proposed area(s) for leasing, impacts could occur due to ground disturbance and potential reduction of forage availability. Areas grazed by livestock and distribution of livestock could be affected. Reduction or loss in production, distribution and vigor of sensitive upland plant communities (i.e. winterfat) due to oil and gas activities could affect livestock grazing. The magnitude and extent this would affect livestock grazing and distribution is directly proportional to the amount of oil and gas development that would occur in the given area. At the APD stage, COAs and BMPs referenced in the RMP (particularly Vegetation Resources) would reduce impacts.

4.12.2. No Action Alternative

Under the No Action Alternative, the lease sale would not occur and no impacts to livestock grazing resources would occur.

4.13. Wild Horses Environmental Effects

4.13.1. Proposed Action

No impacts to wild horses would occur from leasing. However, if parcels are later developed indirect and cumulative impacts could result in temporary disturbance and a minimal impact to forage available within the HMAs/HAs. Springs exist in and near parcels. Pumping of ground water in the general vicinity of springs could possibly cause reduced water quantity or possible de-watering of riparian areas. However it is believed that the amount of water necessary for drilling would not affect neighboring springs. Should exploration or development be proposed within these lease areas, additional, site specific NEPA analysis would be completed to assess the potential impacts to wild horses and their habitat.

At the APD stage, COAs for developments within HMAs would reduce impacts. For example: flagging all new fences, road signs for safety, and water resource mitigation measures.

4.13.2. No Action Alternative

Under the No Action Alternative, the lease sale would not occur and, therefore, no impacts to wild horses would occur.

4.14. Land Uses & Access Environmental Effects

4.14.1. Proposed Action

Leasing creates a valid existing right, which could conflict with other existing or future land use authorizations. These conflicts would be mitigated through agreements between relevant operators.

Applications for ROWs may be required for roads for oil and gas exploration and production activities. These off-lease ROWs would be non-exclusive where possible, that is, they can be used by the general public for other purposes such as access to public lands.

Impacts to existing ROWs may occur as a result of disturbance activities such as road construction. These impacts may cause temporary disruptions to ROW holders, but FLPMA requires that prior existing rights must be recognized. If parcels were developed in the future, site-specific mitigation measures and BMPs would be attached as COAs for each proposed activity, which would be analyzed under their own site-specific NEPA analysis.

Lease parcels that overlap private property could potentially have an impact on the character, usage, or integrity of the private land due to the surface occupancy associated with energy development. There would be greater activity from construction and operation of the facility, potential residency of maintenance staff, and the opportunity cost of lost use of the developed area. Due to the regulations of the split-estate arrangement, the landowner has little control over allowing the use on their land, but can negotiate with the operator to determine parameters of development.

4.14.2. No Action Alternative

Under the No Action Alternative, the lease sale would not occur and, therefore, no impacts to current Land Uses or Access would occur.

4.15. Waste, Hazardous or Solid Environmental Effects

4.15.1. Proposed Action

The lease parcels fall under environmental regulations that impact exploration and production waste management and disposal practices and impose responsibility and liability for protection of human health and the environment from harmful waste management practices or discharges. Any potential for waste impact would not occur until post-lease development activities are initiated. Any subsequent activity authorized after APD approval could be in the form of drilling fluid spills, solid chemical spills, fuel spills, trash scatter on and off the well pads, and hydrocarbon or gas releases.

The lease sale parcels are regulated under the Resource Conservation and Recovery Act (RCRA), Subtitle C regulations. Leaseholders proposing development would be required to have approved Spill Prevention Control and Countermeasure Plans, if the applicable requirements of 40 CFR 112 are met, and comply with all requirements for reporting of undesirable events.

4.15.2. No Action Alternative

The No Action Alternative would not impact hazardous or solid wastes in the area.

Chapter 5. Cumulative Effects Analysis

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5.1. Past Actions

The Ely District is rich in natural resources and the cumulative effects study area has been used for a wide array of activities over the years. Mining, grazing, recreation, realty actions, and oil exploration have been conducted throughout the Ely District and more than likely, will continue for many more years. While more than 200 wells have been drilled in the Ely District, only two are in production.

The following area parcels contain reclaimed and unreclaimed disturbance from past oil well pads:

- The Group A parcel contains approximately 6 acres of disturbance from two unreclaimed oil well pads and their associated access roads.
- Group B parcels contain approximately 6.5 acres of disturbance from one unreclaimed oil well pad and associated access road and power line.
- Group C parcels contain approximately 12 acres of reclaimed disturbance from four oil well pads.

Parcels in Group D, E, and F have not had any past oil wells drilled within them. There are roads, gravel pits, and abandoned mining prospects throughout all the parcel groups.

5.2. Present Actions

Mining, grazing, recreation, realty actions, and oil exploration are being conducted throughout the District and more than likely, will continue for many more years. There is currently one active mining operation within Group D that is located in the South Pahroc Range and there are locatable mineral exploration projects and gravel pits that are active within Groups D, E, and F.

5.3. Reasonably Foreseeable Future Actions

There are many new projects coming to rural Nevada, especially around Ely. Several wind development projects, solar projects, transmission lines, and a groundwater development project are being proposed in the Ely District. Due to the current prices of gold and oil, the potential for more exploration and development for each of these commodities are likely to occur in the Ely District in the future.

Other than the continuation of activities on authorized mineral projects, there are currently no future mining or mineral exploration projects proposed within any of the parcels analyzed in this EA.

Although the proposed action does not include exploration, development, production, or final reclamation of oil and gas resources, authorization of oil and gas leasing does convey a right to subsequent exploration and development activities. Even though these later activities can be associated with oil and gas leasing, they would be analyzed in a separate, site-specific NEPA document, once an APD is received.

The RFD scenario in the Ely RMP projects that a total of 448 wells would be drilled resulting in total short-term disturbance of approximately 8,400 acres and a long-term disturbance of approximately 1,400 acres. It also suggests that a new field discovery similar in size and surface

disturbance to the Trap Springs and Kate Springs oil fields within Railroad Valley could be made over the next several years. Short-term disturbance as defined for the reasonably foreseeable development scenario includes locations for wells in the plugged and abandoned category that would be reclaimed immediately after drilling or construction.

For the purposes of this EA, Approximately 4% of the total District is subject to this lease sale. This percentage indicates that approximately 30 exploration and production wells and 24 acres of seismic lines should be expected as a result of this sale. Total short-term and long-term disturbance for future development would be approximately 439 acres and 90 acres, respectively.

Under the RFD for this EA, one could assume that only one small well field would be developed within the proposed 407,000 lease acres. This could result in 10 producing wells and 12 other wells being plugged and abandoned. In addition, 14 miles of new access roads and two miles of pipeline could be developed. Total short- and long-term disturbance would be approximately 185 acres and 90 acres, respectively.

5.4. Cumulative Impacts from Past, Present, and Reasonably Foreseeable Future Actions

For the purpose of this EA, only indirect impacts are discussed in this section. Direct incremental cumulative impacts from a potentially proposed oil well would be analyzed during the APD review process. There are no cumulative impacts from leasing. The following is a discussion of cumulative impacts resulting from potential future development.

5.4.1. Air Quality and Climate Change

Leasing the parcels would have no direct impacts on air quality. Any potential effects from sale of lease parcels could occur at the time the leases are developed.

Current monitoring data show that criteria pollutants concentrations are below applicable air quality standards, indicating good air quality. The potential level of development and mitigation described below is expected to maintain this level of air quality by limiting emissions. In addition, pollutants would be regulated through the use of state-issued air quality permits or air quality registration processes developed to maintain air quality emissions below applicable standards.

It is currently not possible to know with certainty the net impacts from lease parcel development on climate change. The inconsistency in results of scientific models used to predict climate change at the global scale, coupled with the lack of scientific models designed to predict climate change on regional or local scales, limits the ability to quantify potential future impacts of decisions made at this level. It is therefore beyond the scope of existing science to relate a specific source of GHG emission or sequestration with the creation or mitigation of any specific climate-related environmental effects.

It is not possible to predict effects on climate change of potential GHG emissions discussed above in the event of lease parcel development for alternatives considered in this EA; the act of leasing does not produce any GHG emissions in and of itself. Releases of GHGs could occur at the exploration/development stage.

5.4.2. Cultural Resources Including Heritage Special Designations

Cultural resources include, but are not limited to, historic cemeteries and townsites, rockshelters, caves, rock art, and Paleo-Indian and other prehistoric sites. The primary impact mechanisms that could affect cultural resources within the District include off-highway vehicle and recreational use, minerals development, land disposal, fire, special designations, and livestock grazing. Some of these mechanisms would have a negative impact on cultural resources, which would be mitigated through project abandonment, redesign, and, if necessary, data recovery. However, some of these mechanisms may have a positive or beneficial impact on cultural resources, such as protection under an ACEC designation.

Any program, activity, or project has an effect on a cultural resource if it alters any of the characteristics or criteria that may qualify the resource for inclusion on the National Register of Historic Places 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: 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 (Ely RMP).

5.4.3. Water Resources Cumulative Impacts

The cumulative effects analysis area for water resources includes the closed to semi-closed basins of White Pine, Lincoln, and northeastern Nye counties located within the boundaries of the analysis area. The cumulative effects analysis area is the same as the Ely RMP for Water Resources. This EA incorporates by reference the RMP/FEIS. The RMP analysis lost two Coal Fired Plants at the time of writing, but has gained three large Mining Operations in the EIS stage, (Bald Mountain Mine Expansion, Pan, and Gold Rock); and the net impact is considered to be equivalent.

Water Resources Reasonably Foreseeable Future Actions include;

- the Southern Nevada (Water Authority) Groundwater pipeline EIS which analyzed impacts to all resources regarding groundwater pumping (BLM 2012);
- the Lincoln County Land Act Groundwater Development and Utility Right-of-Way Project EIS (LCLA) (BLM 2010) and;
- the Toquop Energy Project EIS, a natural gas-fired plant to be located in Lincoln County. In January 2010, Toquop Energy, Inc. notified the BLM that the company intended to proceed with the gas-fired plant and the BLM issued a Notice to Proceed. BLM is now working on a ROW application for project-related water development in the Tule Valley (BLM 2003).

These three projects analyzed cumulative effects for the Tule Desert Hydrographic Area .

The Southern Nevada Groundwater pipeline EIS (BLM 2012) analyzed impacts to all resources regarding groundwater pumping, including cumulative effects. Other impacts to water resources from activities other than oil and gas development includes dispersed recreation (mostly hunting) and livestock grazing. Dispersed recreation in the lease parcels may result in erosion in some

localized areas from vehicle use. Livestock grazing may lead to localized erosion in some areas. In general, oil & gas surface disturbance within the boundaries of the lease parcels could lead to limited increased erosion and instability of soils in local areas which may increase sediment and salt loading in confined basins *de minimis*. There may be some loss of water quality characteristics in groundwaters that may or may not be used as water sources in the future. Oil and gas exploration and development would likely add to sediment and salt loads, but may not be measurable. The actual leasing of the parcels would not contribute to existing riparian disturbances, nor is future development expected to have any measurable contribution cumulatively to degradation of riparian character. Avoidance of riparian habitats, reclamation strategies and State and federally-imposed sediment and storm-control measures provide effective means of controlling excess sediment transport to those systems that support riparian communities.

Cumulative impacts of the RMP/FEIS would be minimized over the long term by extensive vegetation management and administration of other land utilizing a balanced ecological system approach. Salinity inputs to the Colorado River system would be reduced over time. Short-term increases in runoff, soil erosion, and related sedimentation may occur on those areas where vegetation treatments occur. Interrelated projects would have the potential to create impacts on both surface and groundwater resources through additional erosion and sedimentation as a result of land disturbance, further consumption of available water resources, and additional releases of undesirable water quality constituents (e.g., industrial chemicals, treated domestic effluent) into receiving waters.

5.4.4. Fish and Wildlife

All wildlife species have preferred habitats, some of which may be seasonal. Many disturbances, both natural and human caused may result in wildlife moving to less optimal habitats, which may already be at carrying capacity. This could result in reductions in population sizes due to less successful reproduction or direct mortality. Species dependent on very restricted habitats may be especially affected. A number of ongoing and future activities combined could result in loss of specific habitats, fragmentation and disruption of movement patterns. The stipulations required through the RMP or COAs on a site-specific basis will help to minimize impacts from these activities.

5.4.4.1. Federally Threatened or Endangered Species and Critical Habitat

The combination of past, present and future activities could cumulatively impact the listed species included in this document. The Southern Nevada Groundwater pipeline EIS (BLM 2012) and accompanying Biological Opinion, is a future action that has fully evaluated the environmental effects of groundwater withdrawal to aquatic species. These potential impacts could result in loss of aquatic habitat, resulting in reductions in reproductive success or may have direct adverse effects on individuals in populations. Any future actions in listed species habitat would be subject to Section 7 Consultation under the Endangered Species Act with the level of consultation to be determined based upon the project site-specific proposed action.

5.4.4.2. Special Status Species other than those listed as Threatened or Endangered

The combination of past, present and future activities could cumulatively impact special status species other than those listed as threatened or endangered. These impacts could result in loss of

habitats, which may uniquely support some species, may fragment habitats resulting in reductions in reproductive success of some species, or may have potential adverse effects on individuals in populations.

The BLM is in the process of re-configuration of the TransWest Express project powerline to avoid the Las Vegas buckwheat area plant population.

5.4.5. Socioeconomics

If other construction projects were to occur at the same time as any future exploration or development activities related to these leases, the direct and indirect positive economic impacts to the local area could be magnified. There are no cumulative impacts expected to result directly from the proposed action.

5.4.6. Noxious and Invasive Weeds

Future development within the proposed lease sale parcels would result in additional vegetation loss and surface disturbance. Past and present oil and gas activities in the area have already created disturbance, and oil and gas development is anticipated to continue throughout the analysis area. Successful reclamation would reduce the risk to healthy plant communities and provide an opportunity to improve degraded vegetative communities within the analysis area.

5.4.7. Lands with Wilderness Characteristics

There are no cumulative impacts expected to result directly from the proposed action since the proposed action does not include any surface disturbance. The possible future development described in the RFD could cumulatively reduce the availability of lands with wilderness characteristics.

5.4.8. Visual Resource Management

The reasonably foreseeable future actions listed in Section 5.3 could have an impact on visual resources. The possible future development described in the RFD could result in direct and indirect impacts to visual resources, particularly to VRM Class II areas. Future activities would attempt to avoid VRM Class I areas. Class II, III and IV areas would have site-specific design features incorporated. The stipulations required through the RMP or those determined to be needed on a site-specific basis will help to minimize impacts from these activities.

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Chapter 6. List of Acronyms Used

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Table 6.1. List of Acronyms Used

ACEC	Area of Critical Environmental Concern
AO	Authorized Officer
APD	Application for Permit to Drill
AQRV	Air Quality Related Values
BLM	Bureau of Land Management
CFR	Code of Federal Regulations
COA	Condition of Approval
COA	Condition of Approval
COA	Condition of Approval
CSU	Controlled Surface Use
CTGR	Confederated Tribes of the Goshute Reservation
DOE	DOE Department of Energy
DOI	Department of the Interior
DR	Decision Record
EA	Environmental Assessment
EOI	Expression of Interest
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FEIS	Final Environmental Impact Statement
FLPMA	Federal Land Policy & Management Act
FONSI	Finding of No Significant Impact
FWS	United States Fish & Wildlife Service
GBBO	Great Basin Bird Observatory
GHG	Greenhouse Gasses
GIS	Geographic Information Systems
HAP	Hazardous Air Pollutants
HF	Hydraulic Fracturing
HUC	Hydrologic Unit Code
ID	Interdisciplinary
IPCC	Intergovernmental Panel on Climate Change
LCCRDA	Lincoln County Conservation, Recreation, & Development Act
LWC	Lands with Wilderness Characteristics
MBTA	Migratory Bird Treaty Act
NAAQS	National Ambient Air Quality Standards
NCLS	Notice of Competitive Lease Sale
NDEP	Nevada Division of Environmental Protection
NDOW	Nevada Department of Wildlife
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NLCS	National Landscape Conservation System
NPS	National Park Service
NSA	No Surface Activity
NSO	No Surface Occupancy
NTL	Notice to Lessee
NVCRIS	Nevada Cultural Resource Inventory System
PGH	Preliminary General Habitat
PLUAC	Public Landuse Advisory Committee
POD	Plan of Development
PPH	Preliminary Primary Habitat
RFD	Reasonably Foreseeable Development
RMP	Resource Management Plan
RMP BO	Resource Management Plan

ROW		Right-of-Way
SHPO		Nevada State Historic Preservation Office
SWFL		Southwestern Willow Fly Catcher
T&E		Threatened and Endangered
TCP		Traditional Cultural Properties
TSP		Total Suspended Particulates
VOC		Volatile Organic Compounds
VRM		Visual Resource Management
WMA		Wildlife Management Area
WSA		Wilderness Study Area

Chapter 7. External Communications

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Table 7.1. List of Persons, Agencies and Organizations Consulted

Name	Purpose & Authorities for Consultation or Coordination	Findings & Conclusions
Confederated Tribes of the Goshute Indian Reservation in Ibapah, Utah	Traditional Religious sites, Economic Development, special knowledge of lands and resources and NHPA.	Recommendations for deferrals, stipulations or other mitigation measures.
Duckwater Shoshone Tribe of the Duckwater Reservation, Nevada	Traditional Religious sites, Economic Development, special knowledge of lands and resources and NHPA.	Recommendations for deferrals, stipulations or other mitigation measures.
Ely Shoshone Tribe, Ely Nevada	Traditional Religious sites, Economic Development, special knowledge of lands and resources and NHPA.	Recommendations for deferrals, stipulations or other mitigation measures.
FWS	Threatened, Endangered or Proposed Species	Recommendations for deferrals, stipulations or consultations.
Lincoln County	Commission, special knowledge of economic development, lands and resources	Recommendations for deferrals, stipulations or other mitigation measures.
NDOW	Sensitive or General Wildlife Species and Wildlife Management Areas	Recommendations for deferrals, stipulations or other mitigation measures.
SHPO	Cultural resources, eligibility determinations, and NHPA	Concurrence and ongoing consultation.
White Pine County	Commission, PLUAC, special knowledge of economic development, lands and resources	Recommendations for deferrals, stipulations or other mitigation measures.

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Chapter 8. List of Preparers

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NAME	TITLE	TASK ASSIGNMENT
Miles Kreidler	Geologist	Minerals
Lisa Gilbert	Archeologist Technician	Cultural Resources/Paleontology
Marian Lichtler	Wildlife Biologist	Special Status Species/Wildlife/Migratory Birds
Alicia Styles	Wildlife Biologist	Special Status Species
Travis Young	Planning and Environmental Coordinator, Project Leader	NEPA; Socioeconomics; Environmental Justice; Air Quality
Erin Rajala	Outdoor Recreation Planner	Recreation and Visual Resources
Emily Simpson	Outdoor Recreation Planner (Wilderness)	Wilderness/WSA/Wild & Scenic Rivers/LWC
Ruth Thompson	Wild Horse/Burro Specialist	Wild Horse & Burros
Stephanie Trujillo	Realty Specialist	Land Uses
Ty Chamberlain	Realty Specialist	Land Uses
Scott Standfill	Range Management Specialist	Rangeland, Grazing, Vegetative Resources, Soils, Riparian/Wetlands, Farmlands, and Floodplains
Rusty Jensen	Operations Supervisor	Health & Safety
Randy Johnson	Unit Aviation Manager	Hazardous Materials
Steve Moore	GIS Specialist	GIS Analysis
Elvis Wall	Native American Coordinator	Native American Religious and other Concerns
Chris McVicars	Natural Resource Specialist	Invasive Non-native Species

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Chapter 9. List of References

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Chapter 10. List of Appendices

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Appendix A: December 2014 Nominated Parcels

Appendix B: December 2014 Parcels with Legal Descriptions, Notices & Stipulations

Appendix C: BLM Best Management Practices (BMP)

Appendix D: Special Status Species List

Appendix E: Hydraulic Fracturing Environmental Mitigation Best Practices

Appendix F: Hydraulic Fracturing White Paper

Appendix G: Cultural Resources Inventory Needs Assessment

Appendix H: Weed Risk Assessment (WRA)

Appendix I: Table of Deferral Requests