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Final Environmental Assessment

DOI-BLM-NV-L000-2015-0002–EA
August, 2015

December 2015 Oil and Gas Lease Sale

Applicant: BLM Nevada State Office

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Final Environmental Assessment
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August, 2015

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

December 2015 Oil and Gas Lease Sale
Competitive Lease Sale

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Chapter 1. Introduction

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This chapter provides the background for the proposed action and analysis contained within this environmental assessment.

1.1. Ely District Oil & Gas Leasing

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 (constraints, timing limitations, etc.) should be applied to the lease. The Ely Resource Management Plan (RMP), signed in 2008, is the planning document that identifies these management determinations. All leases are subject to the terms and conditions of the standard lease form which allows for up to 60-day timing deferments and 200-meter (656 feet) displacements (Title 43 Code of Federal Regulations (CFR) Section 3101.1-2). In addition to stipulations, a notice to lessees may also be attached to a 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 (BLM 2008b; page 92).

Over 10 million acres (87%) of the Ely District are open to fluid mineral leasing (Table 1.1). Closed areas include designated wilderness and wilderness study areas (10%). Discretionary closures such as Areas of Critical Environmental Concern, and no surface occupancy areas make up about 3% of the Ely District (BLM 2008b).

Table 1.1. Summary of Fluid Mineral Leasing Designations 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
Grand Total	11,500,000

Once a lease is issued, authorization for surface disturbance must be requested through an Application for Permit to Drill (APD). A site-specific analysis per the National Environmental Policy Act (NEPA) is required before approval can be granted. At this stage, the Bureau of Land Management (BLM) considers the potential impacts from the proposed surface disturbance (for exploration and/or production). Resources are further protected during operational activities through the application of Best Management Practices, 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 (BLM 2008b; page 92). However, conditions of approval must fall within the lease rights granted.

Under certain conditions, waivers, exceptions, and modifications to lease stipulations may be granted by the Authorized Officer . The circumstances for granting an exception, waiver or modification are attached to each stipulation in the RMP. 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 Authorized Officer determines that the factors leading to its inclusion in the lease have changed

sufficiently to make requirements of the stipulation no longer justified, or mitigation contained in individual permits would preclude unacceptable impacts. If the waiver or modification is of major concern to the public, such modification would be subject to a 30–day public review. This review can be held concurrent with the required 30–day posting of the 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 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 on 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 Authorized Officer determines it is a 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 warrant an exception if the winter is mild and the target species have not moved on to 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 periods allowed the deposition of the organic-rich source rocks necessary for hydrocarbon development. Late Cretaceous Sevier Orogeny created stacked sets 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 the Mississippian ages are the potentially oil-bearing formations most often targeted in the majority of the analysis area. New directional drilling and hydraulic fracturing technology may allow for more extensive exploration into these tight formations and others 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 hydraulic fracturing 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 Mount Diablo Baseline Meridian and reached a total depth of 929 feet. The well presented with gas and oil shows (Garside et al. 1988). The Illipah Syndicate drilled three 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 percent 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 wells per year have been drilled in the district, with most of the wells drilled in White Pine County (Hess, 2001). However, approximately 68 wells have been drilled in Nye County, and most of those are in Railroad Valley.

Most wells are on federal leases. 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 five percent of the wells were drilled to more than 10,000 feet deep. The deepest well in the District, drilled in 1983, was the Commodore Resource Outlaw Federal #1 drilled to a total depth of 13,000 feet in White Pine County (Section 1, Township 10 North, Range 70 East Mount Diablo Baseline Meridian). 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 this 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 techniques, 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 1.2). 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 1.2 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 2015 lease sale could add another 140,691 leased acres.

Only 32 wells have been authorized in the Ely District over the past 10 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 (R) "Legacy Rehost System," or "LR2000 database." LR2000 database provides reports on BLM land and mineral use authorizations for oil, gas, and geothermal leasing, rights-of-way, coal and other mineral development, land and mineral title, mining claims, withdrawals, classifications, and more on federal lands or on federal mineral estate.

The number of parcels leased is derived from that year's competitive lease sale plus a window of up to two years following the lease sale. Parcel size can range from 80 to 2,560 acres, therefore the number of parcels leased does not have a fixed multiplier for leased acreage. Currently Active Leases means that the lease holder is in good standing and has paid fees. Some parcels leased may be inactive (for non-payment of fees) or leases may have expired because a lease is only good for ten years. If a lease is in production, the 10-year time limit no longer applies. The number of Application for Permits to Drill (APDs) approved reflects development. There may be hundreds of thousands of current leased acreage at any point in time, but very few of those acres receive an APD and go forward into an exploration or development phase.

Table 1.2. Ely District Oil and Gas Leasing and Development over the past 10 years

Year Leased	No. of Parcels Leased	Leased Acreage	Active Leases	Active Leased Acres	No. of APDs Approved
2005	344	821,247	40	71,854	1
2006	288	687,413	96	216,001	3
2007	92	165,955	19	28,346	3
2008	281	539,564	33	55,527	1
2009	138	3,884,979	71	1,314,158	1

Year Leased	No. of Parcels Leased	Leased Acreage	Active Leases	Active Leased Acres	No. of APDs Approved
2010	178	547,072	132	416,134	3
2011	131	323,717	109	268,164	0
2012	66	108,484	33	58,607	4
2013	7	33,147	6	27,822	2
2014	81	232,486	55	95,383	0
Totals:	1605	7,344,064	594	2,551,996	18

1.5. 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(s).

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. Through an environmental assessment, the district and field office staff then review the parcels to determine:

- If they are in areas open to 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.

Based on the environmental assessment, the Nevada BLM State Director will decide which parcels to make available for leasing and which stipulations to attach to the parcels. Those parcels and stipulations that are included in the State Director's decision would then be made available to the public through a NCLS. Lease stipulations applicable to each parcel are specified in the NCLS. 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.

This Environmental Assessment (EA) documents the review of 94 Ely District Office (EYDO) administered parcels nominated in the December 2015 Competitive Oil and Gas Lease Sale (Figure 1). The EA verifies conformance with the approved land use plan, provides the rationale for any lease stipulations applied to specific parcels, and identifies parcels for potential deferral.

An assessment of potential environmental impacts, based on a Reasonably Foreseeable Future Development (RFFD) scenario, was conducted by resource specialists who relied on historical data and personal knowledge of the areas involved, conducted field inspections and/or reviewed existing databases and file information to determine the appropriate stipulations to attach to specific parcels. The EA assists the BLM in project planning and ensuring compliance with the NEPA, and in making a determination as to whether any "significant" impacts could result from the analyzed actions. "Significance" is determined by the consideration of context and intensity of the impacts. If there is a Finding of No Significant Impact (FONSI), the context and intensity criteria are listed with rationale for the determination in the FONSI document.

At the time of this review, it is not known whether the nominated parcels would receive bids, if leases would be issued, or what types of lease operations might be proposed in the future. In accordance with the 43 CFR 3100 and The Gold Book, ground disturbance and drilling can only occur when the APD is authorized. As part of the APD authorization, detailed site-specific analysis per NEPA would be conducted to determine the effects of the specific project actions. This NEPA analysis would examine all potentially affected resources. Appendix C and E list best management practices developed by 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. Items in these appendices may be applied at the APD stage, to exploration and development activities as a result of site specific NEPA analysis.

1.6. Purpose and Need for the Proposed Action :

Leasing is proposed to meet requirements of the Mineral Leasing Act of 1920, as amended, the Mining and Minerals Policy Act of 1970, and the Federal Onshore Oil and Gas Leasing Reform Act of 1987 (Reform Act). Oil and gas are marketable resources that meet the public's need for energy.

Offering parcels for competitive oil and gas leasing provides for the orderly development of fluid mineral resources under BLM's jurisdiction in a manner consistent with multiple use management and consideration for the natural and cultural resources that may be present. This requires that adequate provisions are included with the leases to protect public health and safety and assure full compliance with the spirit and objectives of the NEPA and other federal environmental laws and regulations.

The BLM is required by law to consider leasing of areas that have been nominated for lease if leasing is in conformance with the BLM land use plan. The oil and gas parcels addressed in this EA cannot be considered for leasing without supplemental analysis of changes in environmental conditions that have occurred since the completion of the current Land Use Plan (LUP) (e.g., increased growth, locations of special status species, identification of traditional cultural properties).

The purpose of the action is to offer nominated parcels for competitive oil and gas leasing in the December 2015 Competitive Oil and Gas Lease Sale. Offering nominated parcels for competitive oil and gas leasing allows private individuals or companies an opportunity to explore the federal mineral estate for oil and gas resources.

The sale of oil and gas leases is needed to allow continued exploration for and potential development of additional petroleum reserves as required by several laws, outlined in the previous paragraphs, which would help the United States meet its growing energy needs. 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).

1.7. 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 2015 Competitive Oil and Gas Lease Sale to the Nevada BLM Deputy State Director for Minerals Management by August 15, 2015. 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 resources while allowing for exploration and development of mineral resources. The BLM Deputy State Director of Minerals will make the final decision and sign the Decision Record (DR).

The decision to be made is only to identify which parcels are to be leased and which notices and stipulations must be attached to those parcels. The lease does grant certain rights but it does not authorize any ground disturbance or development of the leased parcels. Any development of the leased parcels will be subject to additional NEPA analysis.

1.8. Preliminary Issues:

Internal scoping was conducted on May 5, 2015 and May 19, 2015 by an interdisciplinary team composed of Ely District and Nevada State Office staff that analyzed the potential consequences of the proposed action. During the scoping meetings, specific parcels were recommended for deferral based on resource concerns and land use conflicts. The list of parcels recommended for deferral can be found in Appendix E.

The Ely District initiated Native American consultation for the December 2015 Oil and Gas Lease Sale on April 30, 2015. A list of tribes that were sent this consultation request can be found in Table 5.1. A summary of the results of this consultation effort can be found in Section 5.2.1.

Nevada Department of Wildlife (NDOW) and United States Fish and Wildlife Service (USFWS) were informed of the lease sale on May 4, 2015 and attended a conference call with BLM Caliente Field Office manager, project lead/geologist, and wildlife biologist on May 7, 2015. A response letter was received from NDOW on May 22, 2015. A response letter was received from USFWS on June 5, 2015.

Preliminary Issues identified during internal and public scoping are listed below.

- Desert Tortoise Critical Habitat
- T&E Species of Fishes in White River and Railroad Valleys
- Greater Sage-Grouse and its habitat
- Impacts to Kirch Wildlife Management Area
- Impacts to Cultural Districts and Sites

- Native American Concerns
- Impacts from hydraulic fracturing
- Potential overlap of parcels with utility corridors
- Occupied Desert Bighorn Sheep Habitat — timing stipulations to be applied
- Gila Monster Habitat — stipulations to be applied
- Areas of Critical Environmental Concern (tortoise and cultural)
- Wild Horses

1.9. Summary of major changes in response to comments received

- ESA listed and other special status species concerns modified Alternative B to defer from leasing all nominated parcels except the following: NV-15–12–002, NV-15–12–020, NV-15–12–021, NV-15–12–023, NV-15–12–024, and the southern block consisting of approximately 1, 317 acres of NV-15–12–018. The acreage to be offered for lease under Alternative B is now approximately 5,040 acres. Analysis of impacts under Alternative B was updated for all resource concerns.
- Corrected the acreage for the parcel groups in the table Parcel Groups for December 2015 Ely District Competitive Lease Sale
- As a result of substantive comments received during the public comment period on the Preliminary EA the assessment was revised to include further details and clarifications on potential impacts to resources.

Chapter 2. Description of Alternatives, Including Proposed Action

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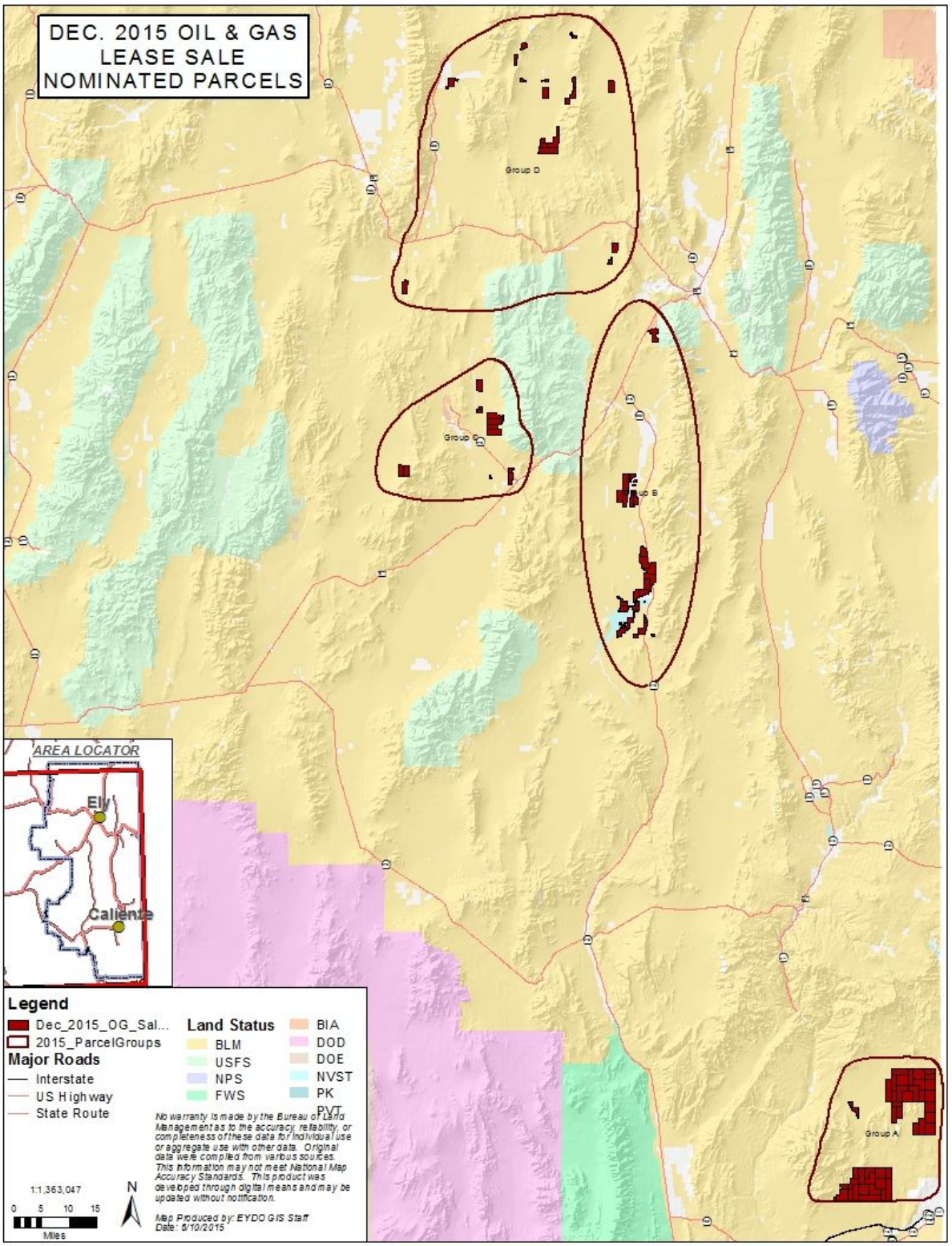
2.1. Introduction:

The previous chapter presented the purpose and need for the proposed project, as well as the 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 has developed a range of action alternatives; however, only two action alternatives and no action alternative seemed necessary to meet the purpose and need of the project. These alternatives are presented below. The potential environmental impacts or consequences resulting from the implementation of each alternative are then analyzed in Chapter 3 for each of the identified issues.

The Nevada State Office submitted a list of 94 nominated parcels totaling 140,388.670 acres of the Ely District on April 15, 2015 (see Map 2.1 and Table 2.1). This total acreage represents only 1.4 percent of the acres open to leasing in the Ely District. Lincoln County contains the majority of the parcels (42). Nye County has 30 parcels and White Pine County has 19. Three of the parcels overlap the Nye-White Pine County line. Appendix B lists all 94 parcels, the parcel number, acreage, legal description, and Appendix C lists stipulations and notices to be applied to each parcel.

Table 2.1. Parcel Groups for December 2015 Ely District Competitive Lease Sale

Group	Group Name	Number of Parcels	Field Office	County	Acres*
A	Tule Desert	42	Caliente	Lincoln	82,121.320
B	White River Valley Area	24	Egan & Schell	Nye & White Pine	28,578.430
C	Railroad Valley —Sand Spring Valley Area	12	Egan	Nye & White Pine	12,589.020
D	Long Valley — Jakes Valley Area	16	Egan	White Pine	17,099.900
Totals	*Acres are approximate	94	Ely District	Lincoln, Nye, & White Pine	140,388.670



This map shows the general location of the parcel groups and the nominated parcels within the Ely District.

Map 2.1. General Location Map of Nominated Parcels in the Ely District

2.2. Alternative A – Lease all parcels available for lease:

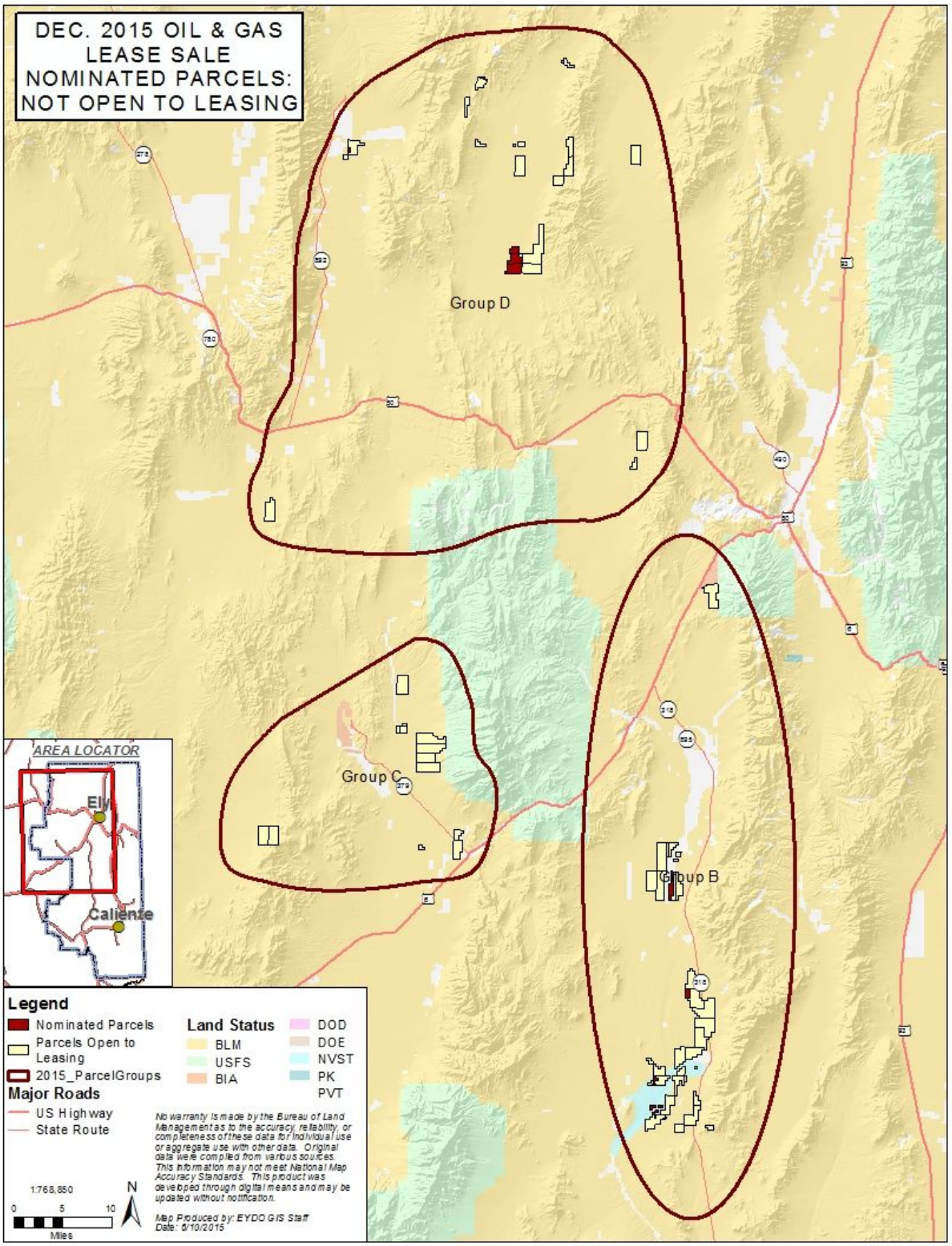
This Alternative considers leasing those portions of the 94 nominated parcels for the December 2015 lease sale that are open for leasing as identified in the Ely District Resource Management Plan.

Based on issues identified through scoping and public comments, 10 parcels in whole or in part, were removed from the list because they occurred in areas not open to leasing.The following parcels, or portions thereof, are being removed from the December 2015 and all future lease sales (see Appendix D for a complete description of parcels):

- Portions of parcel NVN-15–12–004 are being removed as it has been identified as private surface-private minerals and therefore not under the jurisdiction of the BLM to lease.
- All or Portions of parcels NVN-15–12–020, NVN-15–12–030, NVN-15–12–031, NVN-15–12–032, NVN-15–12–041, and NVN-15–12–050 were not classified as open or closed to leasing in the approved Ely District Resource Management Plan (BLM 2008b) and are therefore closed to leasing.
- All or portions of parcels NVN-15–12–015, NVN-15–12–016, and NVN-15–12–017 have been closed to leasing pursuant to the Ely RMP (2008b, pg 99).

See appendix D for legal descriptions of those areas not open for Oil and Gas Leasing. Standard terms and conditions as well as special stipulations 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. Refer to Appendix C for a complete list of stipulations and notices approved in the RMP and subsequent maintenance, which may be applied to individual leases.



This map shows the nominated parcels in Groups B, C, and D and highlights those parcels, in whole or in part, that are not open to leasing. All parcels in Group A are open to leasing.

Map 2.2. Nominated Parcels with potions not open to leasing

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 (NCLS), the Bureau of Land Management (BLM) would send a courtesy letter to the surface owner(s). The letter would 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) would not be processed by the BLM. Such lands would not be placed on a list of lands included in a NCLS until the required information is provided.

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 and notices attached to the lease (Title 43 CFR 3101.1–2). Leases are issued for a 10 year period and continue for as long thereafter as oil or gas is produced in paying quantities. If a lessee fails to produce oil and gas, does not make annual rental payments, does not comply with the terms and conditions of the lease, or relinquishes the lease; ownership of the lease reverts back to the federal government and the lease can be resold.

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 National Historic Preservation Act (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. Additional resource specific stipulations that may be attached to the offered leases may be found in Appendix C.

In order for a lessee to exercise their rights to explore or develop a lease, an Application for Permit to Drill must be submitted and approved. Additional NEPA analysis is prepared for these site specific plans. Site-specific mitigation measures and BMPs (Appendices A and the Gold Book) would be attached as Conditions of Approval (COAs) for each proposed activity, which would be analyzed under future site-specific analysis per the National Environmental Policy Act (NEPA). The level of further NEPA analysis would depend upon the results of scoping and the particulars of the proposed action.

2.3. Alternative B – Lease Subset of Nominated Parcels:

This Alternative is to offer for competitive sale the following parcels: NV-15–12–002, NV-15–12–023, NV-15–12–024, and the southern block consisting of approximately 1,280 acres of NV-15–12–018. The acreage to be offered for lease under Alternative B is approximately 5,040.720 acres. All other parcels would be deferred from lease due to specific resource concerns and land use conflicts. The deferred parcels comprise 135,347.95 acres or 96 percent of the total nominated acreage. The specific reasons for deferral may be found in Appendix E and Section 2.3.1.

Ely District recommends deferral of parcels listed in the attached table as identified by FWS in a memo dated July 21, 2015 in response to the Ely District's Preliminary Environmental Assessment (DOI-BLM-NV-L000-2015-0002-EA) dated June 2015. The memo states, "Absent reinitiation of the existing consultation, we do not believe the 2008 consultation provides adequate

Section 7(a)(2) coverage for the BLM if Alternative A or B are selected. To ensure compliance with the ESA, we recommend that consultation on the RMP be reinitiated prior to the BLM offering oil and gas leasing in all Group A parcels, all Group B parcels, all Group C parcels, and Group D parcels NV-l5-12-004 and NV-15-12-027."

Nevada Department of Wildlife (NDOW) requested deferral of parcels listed in the attached table due to proximity of the parcels to important sage grouse habitats. NDOW has additional information regarding sage grouse leks and believes that leasing parcels within a 3 mile radius of leks is premature, given the current status of the Proposed Nevada and Northeastern California Land Use Plan Amendment and Final EIS.

Parcels NV-15-12-020 and NV-15-12-021are encumbered by approved 43 CFR 3809 Plans of Operation (NVN078825 & NVN082888) and a pending 43 CFR 3809 Plan of Operation (NVN090443). We request that the parcels listed below be permanently removed from this sale list and all future sale lists until the Plans are closed.

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 NCLS, the BLM would send a courtesy letter to the surface owner(s). The letter would 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) would not be processed by the BLM. Such lands would not be placed on a list of lands included in a NCLS until the required information is provided.

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 and notices attached to the lease (Title 43 CFR 3101.1–2). Leases are issued for a 10 year period and continue for as long thereafter as oil or gas is produced in paying quantities. If a lessee fails to produce oil and gas, does not make annual rental payments, does not comply with the terms and conditions of the lease, or relinquishes the lease; ownership of the lease reverts back to the federal government and the lease can be resold.

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) Lease 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. Additional resource specific stipulations that may be attached to the offered leases may be found in Appendix C.

In order for a lessee to exercise their rights to explore or develop a lease, an Application for Permit to Drill must be submitted and approved. Additional NEPA analysis is prepared for these site specific plans. Site-specific mitigation measures and BMPs (Appendices A and the Gold Book) would be attached as Conditions of Approval (COAs) for each proposed activity, which would be analyzed under future site-specific NEPA analysis. The level of further NEPA analysis would depend upon the results of scoping and the particulars of the proposed action.

2.3.1. Recommended Deferrals

It is Ely District's recommendation to approve leasing of parcels NV-15–12–002, NV-15–12–023, NV-15–12–024, and the southern block consisting of approximately 1,280 acres of NV-15–12–018. The Ely District after coordination with the Public and other government agencies recommends that ALL other parcels be deferred from leasing in December of 2015. Below is the specific rationale for this request for deferral.

- Group A, B and C: All parcels in their entirety Group D: Parcels NV-15–12–004 and NV-15–12–0027

  Rationale: The 2008 RMP consultation did not fully analyze or consider all actions or impacts that we now understand are reasonably foreseeable from oil and gas leasing or the potential effects to multiple listed species and critical habitats (specifically, White River spinedace and its Critical Habitat (CH), Railroad Valley springfish and its CH, woundfin and its CH, Virgin River chub and its CH, Moapa dace, southwestern willow flycatcher and its CH, Yuma clapper rail, or yellow-billed cuckoo and its proposed CH). In addition to these newly listed species new management strategies for desert tortoise have been finalized (U.S. Fish and Wildlife Service 2011). These considerations represent new information available since the RMP consultation was completed in 2008. Further, indirect effects of oil and gas development can include earthquakes (Ellsworth 2013) and potential contamination of surface water from fracture and production fluid discharge, poorly sealed or poorly installed wells, and improperly abandoned wells (Wiseman 2009). Effects of this nature warrant reinitiation of section 7 consultation prior to leasing in this hydrobasins.

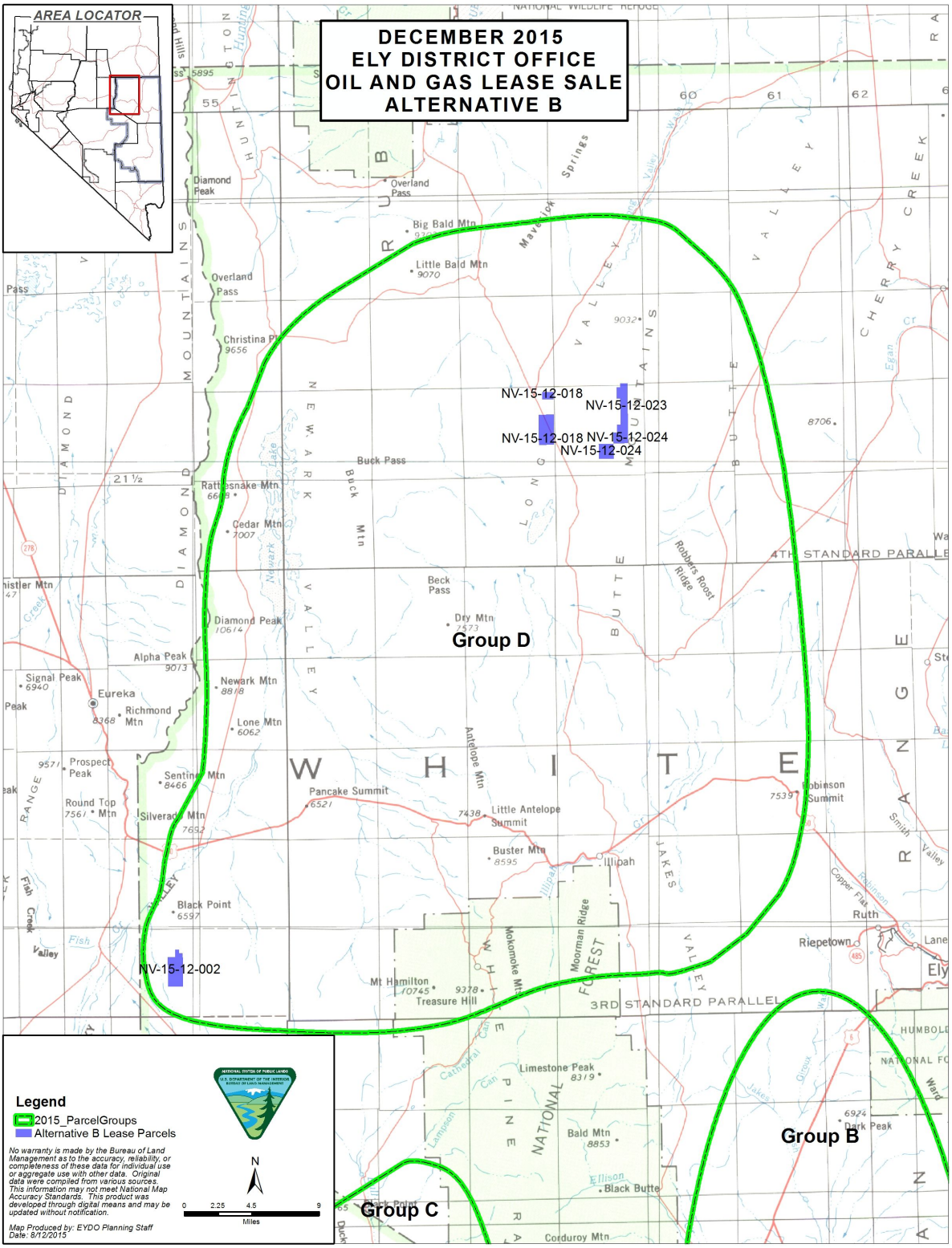
  According to the reinitiation requirement, "As required by 50 CFR § 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over an action has been retained (or is authorized by law) and if … new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion." New information since the Ely RMP indicates that oil and gas extraction could lead to impacts not previously analyzed in the Ely RMP Biological Assessment.

- Group D: Parcels NV-15-12-025, NV-15-12-026, NV-15-12-004, NV-15-12-015, NV-15-12-016, NV-15-12-017, NV-15-12-022, NV-15-12-027, and NV-15-12-028

  Rationale: Due to management changes that will be coming with the signing of the Record of Decision (ROD)for the Nevada and Northeastern California Sub-Regional Greater Sage-Grouse RMP Amendment Environmental Impact Statement it is prudent for the BLM to defer these parcels that are located in Sage Grouse Habitat until such time that the management prescriptions outlined in that ROD can be applied to Oil and Gas Lease parcels.

- Group D: Parcels NV-15–12–020 and NV-15–12–021.

  Rationale: The Egan Field Office has approved two Plans of Operation (NVN082888 and NVN078825) per 43 CFR 3809 for gold mining overlaps these parcels. The existing authorized use has a priority right to use the land. Oil and gas development is likely to substantially interfere with these operations. Therefore, the Ely District plans to defer these parcels from this lease sale and all future lease sales until the Plans of Operation are closed out.



Map 2.3. Parcels recommended for leasing under Alternative B

Chapter 2 Description of Alternatives, Including
Proposed Action
Recommended Deferrals

2.4. Alternative C — No Action:

The BLM NEPA Handbook (H1790–1) (BLM 2008a) states that for EAs on externally initiated proposed actions, the No Action Alternative generally means that the Proposed Action would not take place. 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 withdraw all 94 lease parcels from the December 2015 lease sale. Surface management would remain the same and ongoing oil and gas exploration and/or 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.

2.5. Alternatives Considered, but Eliminated from Further Analysis

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 scoping period.

2.6. Reasonably Foreseeable Development Scenario

A Reasonably Foreseeable Future Development scenario (RFFD) for oil and gas is a long-term projection of oil and gas exploration, development, production, and reclamation activity. The RFFD covers oil and gas activity in a defined area for a specified period of time and provides the basis for the analysis of the environmental effects in Chapter 3 of this document. The RFFD scenario was developed based on past exploration activities and estimates of future exploration and development activity given the potential occurrence of resources (BLM 2007; page 4.18–3). The RFFD 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 RFFD provides the mechanism to analyze the effect that discretionary management decisions have on oil and gas activity. The RFFD also provides the basic information that is analyzed in the NEPA document. The RFFD 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 RFFD scenario for oil and gas 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/FEIS (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 RFFD 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 RFFD 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 would consider possible impacts from potential indirect effects under RFFD scenarios. The following table summarizes the RFFD assumptions in comparison to this EA extrapolated from the RMP.

Table 2.2. Ely RMP Reasonably Foreseeable Future Development Scenarios (RFFD)

Facility Type	Number of Facilities	Short-term Disturbance (acres)	Long-term Disturbance (acres)
Seismic Survey	30 miles/year	<1000	0
Exploration Well Disturbances	200 wells and 1000 miles of road	5600	590
Small Well Field Developments	40 wells	745	359
Large Well Field Developments	100 wells	996	432
Refinery Facilities	1 refinery	65	20
Total		8406	1401

Notes

- Short-term applies to effects occurring in the immediate future and persisting for less than 10 years; long-term applies to effects occurring or lasting beyond 10 years (10–20 years).
- Summarized from Table 4.18–2 in the Ely RMP/FEIS (2007, page 4.18–5)

2.6.1. General Assumptions for the RFFD Scenario

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

- The RFFD would occur over a span of 20 years.
- There would be no major regulatory changes in federal or state statutes, regulations, policy and guidance that govern the exploration and development of fluid minerals, including lease royalty provisions and lease rental fees.
- Oil prices would remain sufficiently high to stimulate continued exploration and drilling. Recent historic highs in the price of oil may stimulate exploration activity above levels of the recent past. It is possible that higher prices may persist for the next few years. The RFFD 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 RFFD scenario is made without respect to any existing or proposed leasing stipulations and conditions of approval in accordance with BLM guidance.
- Actual locations of potential exploration wells and field development are unknown. The impacts associated with these activities are likely to occur anywhere within the planning area that is of high, moderate, or even low potential for oil and gas resources.

2.6.2. 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: gravitational field, magnetic field, and 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 would 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 less than 2 acres per mile would be conducted in the Ely District. If 30 miles of surveys should occur over 20 years, then an average of 1.5 miles of seismic survey totaling 3 acres of surface disturbance can be expected per year under the RFFD scenario.

2.6.3. 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, 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 (greater than 10 years for producing wells) disturbance of approximately 1,400 acres. Short-term disturbance, as defined for the RFFD scenario, identifies wells to be plugged and abandoned that would be reclaimed immediately after drilling or construction, in accordance with COAs and BMPs. If 448 wells should occur over 20 years, then an average of 22 wells totaling 81 acres of short-term surface disturbance and 33 acres of long-term surface disturbance can be expected per year under the RFFD scenario. Therefore, it is expected that 132 wells should have been drilled since the RMP.

There have been 18 APDs approved by the Ely District over the past 10 years and only 10 have been approved since the ELY RMP was approved in August 2008. Most APD's in the Ely District propose a single well per pad. Additionally, not every APD approved is actually drilled. Therefore, it would be highly speculative that 438 wells would be drilled over the next 9 years, even with advancements in well stimulation techniques.

2.6.3.1. Exploration Drilling

The RFFD scenario in the Ely District RMP/FEIS (2007) planned for 200 exploration wells over the life of the RMP that could result in 740 acres of short-term surface disturbance. Under the RMP scenario, approximately 1,000 miles of new roads would be created to access the well pads. This would add another 4,800 acres of short-term surface disturbance (BLM 2007, Table 4.18–2). If this development and associated disturbance is expected over the course of 20 years, then average development and disturbance per year is expected to include 10 exploration wells and 50 miles of new roads resulting in 37 acres and 240 acres of short term surface disturbance respectively.

Typically, constructing the roads and pads, and drilling the well should take less than six months to complete. If the well is a dry hole, then it is plugged immediately before the drill rig leaves the site. Reclamation of the pad and access road takes place once conditions permit, typically within six months of abandoning the well. If the well becomes a producer, then the access road would remain until the well is no longer producing. The pad would be reclaimed to a smaller size necessary to accommodate production operations.

2.6.3.2. 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 RFFD 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 RFFD also included a total of 56 miles of new access and service roads, and eight miles of new pipelines for the small well fields. The two large well fields would include a overall total of 55 miles of new access and service roads, and 10 miles of new pipelines. A projection of adding a new refinery to the area was also included in this RFFD (BLM 2007, Table 4.18–2).

Well fields can take a number of years to develop and occupy various acreages. Therefore it cannot be broken down into an average number of well field development per year. Furthermore, the Ely District only has one well field (located on in Railroad Valley with only 2 producing wells). It is possible however, that some of the individual parcels nominated, individually or as adjacent leases, could support well field development.

2.6.3.3. Well Stimulation

Well stimulation may be used to enhance oil recovery of developed wells. Several methods of well stimulation could be used to increase the yield of a well. Hydraulic fracturing is the process of applying high pressure fluids to a subsurface formation via a wellbore, to the extent that the pressure induces fractures in the rock. These fractures allow the oil and gas to migrate, or flow, into the well. Without the fracturing of the formation, the oil and gas contained in the rock would be to tightly trapped to flow into the well. Development of hydraulic fracturing methods

and the drilling technology in which it is applied (in particular, long wells drilled horizontally within zones of interest) have enabled production of oil and gas from tight formations formerly not economically feasible.

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

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

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

- Hydraulic fracturing fluids may be returned to the surface as "flowback" or produced water when the well is tested or produced.

- All recovered fluids are generally handled by one of four methods: (1) underground injection; (2) captured in steel tanks and disposed of in an approved disposal facility; (3) treatment and reuse; or (4) surface disposal pits.

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

2.7. Relationship to Planning

2.7.1. Conformance with BLM Land Use Plan(s):

The proposed actions are in conformance with the Goals and Objectives of the Ely District Record of Decision and Approved Resource Management Plan(BLM 2008b, the Ely RMP), which are 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) and the Ely District Record of Decision and Approved Resource Management Plan (BLM 2008b, the Ely RMP). 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.

In addition, review of management decisions for other resources and concerns that would possibly be impacted by the project was conducted, and it was determined that approval of the proposed actions are in conformance with the Ely RMP.

2.7.2. Relationship to Statutes, Regulations, or other Plans:

The proposed actions comply with federal, state, and local laws, and regulations, and are consistent with federal, state, and local policies, and plans to the 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 (USFWS).

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 would 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 to 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 (Reform Act), 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 (ROW).

Chapter 3. Affected Environment/Environmental Impacts

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3.1. Introduction:

This chapter presents the existing environment (i.e., the physical, biological, social, and economic values and resources) of the impact area, the issues analyzed, the impacts to the analyzed resources, and mitigation that could be applied that would reduce those impacts. Mitigation proposed in this section could be included in the FONSI to prevent potentially significant impacts. Application of the mitigation measures to the proposed action would then be carried forward into the Decision Record as a condition of approval of the proposal.

While many potential issues may arise during scoping, not all of them 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 impact, such as a potential violation of a law imposed to protect the environment).
- Analysis of the issue is necessary to determine if the direct or indirect impacts are themselves significant, or if it would add a measurable incremental impact to past, present and reasonably foreseeable actions that could have a cumulatively significant impact.

Potential impacts to the following resources/concerns were evaluated in accordance with criteria listed above 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 BLM in particular.

Many times a project would have some degree of effect upon a resource or concern, but that effect doesn't approach any threshold of significance, nor does it increase cumulative impacts by a measurable increment. Such effects are described as "negligible" in the rationale for dismissal from analysis.

The following table documents the issues evaluation or rationale for dismissal from analysis:

Table 3.1. Identification of Issues for Analysis

Resource/ Concern	**Issue(s) Analyzed? (Y/N)**	**Rationale for Dismissal from Detailed Analysis or Issue(s) Requiring Detailed Analysis (Grouped in accordance with the format of the Ely RMP)**
Air Quality* and Climate Change	Y	There are no direct impacts to air quality associated with leasing, since there isn't any surface disturbance. However, there is a potential for direct impacts associated with lease development activities that could potentially affect air quality. Those potential direct impacts are analyzed in this EA.
Water Resources (Water Rights, Water Quality, Floodplains, and Wetlands/Riparian Zones*)	Y	Analyzed in Potentially Affected Resources and Environmental Effects sections due to potential impacts
Farmlands, Prime and Unique*	N	Resource is not present on the nominated parcels.

Resource/ Concern	Issue(s) Analyzed? (Y/N)	Rationale for Dismissal from Detailed Analysis or Issue(s) Requiring Detailed Analysis (Grouped in accordance with the format of the Ely RMP)
Soils/Watershed	N	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.
Forest Health*	N	Project does not meet HFRA criteria.
Vegetation, Forest/ Woodland and other vegetative products (Native seeds, yucca and cactus plants) and Wetlands/Riparian Zones*	N	For the purpose 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. All Parcels are located within the Great Basin ecosystem and Major Land Resource Area (MLRA) 28B and 29, except Group A, which is located within Blackbrush *(Coleogyne Romosissima)* and cresosote *(Larrea tridentata)* communities of the northern Mojave Desert and MLRA 30. Restoration of blackbrush communities is not possible under the current climate conditions. 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.

Resource/ Concern	Issue(s) Analyzed? (Y/N)	Rationale for Dismissal from Detailed Analysis or Issue(s) Requiring Detailed Analysis (Grouped in accordance with the format of the Ely RMP)
		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 (RFFD Scenario for Oil and Gas Resources). 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 (RFFD 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.
Fish and Wildlife	Y	Analyzed in Potentially Affected Resources and Environmental Effects sections due to potential impacts.
Migratory Birds*	N	A Lease Notice regarding the Migratory Bird Treaty Act has been included on all parcels. **Migratory Bird Treaty Act** The Operator is responsible for compliance with provisions of the Migratory Bird Treaty Act by implementing one of the following measures: a) avoidance by timing - ground disturbing activities would not occur during the breeding bird season; b) habitat manipulation - render proposed project footprints unsuitable for nesting prior to the arrival of migratory birds; blading or pre-clearing of vegetation must occur prior to the beginning of the breeding season within the year and area scheduled for activities during the breeding season of that year to deter nesting; or c) survey area monitoring – surveys would be conducted by a BLM approved biologist within the area of the proposed action including an appropriate-sized survey area from the proposed project footprint during the breeding season if activities are proposed within this timeframe. If nesting birds are found, activities would not be allowed within an appropriate-sized buffer determined in coordination with the BLM biologist. If active nests are not found, construction activities must occur within 7 days of the survey. If this does not occur, new surveys must be conducted. Survey reports would be submitted to the appropriate BLM Office.

Resource/ Concern	Issue(s) Analyzed? (Y/N)	Rationale for Dismissal from Detailed Analysis or Issue(s) Requiring Detailed Analysis (Grouped in accordance with the format of the Ely RMP)
		Long-term population trends of migratory birds would not be impacted 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 would comply with the provisions of the Migratory Bird Treaty Act (MBTA). A detailed analysis is not required.
USFWS 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. The Mormon Mesa ACEC was designated for habitat conservation of a threatened species (desert tortoise) and is also analyzed in this section.
Special Status Animal Species, other than those listed or proposed by the USFWS as Threatened or Endangered.	Y	Analyzed in Potentially Affected Resources and Environmental Effects sections due to potential impacts.
Special Status Plant Species, other than those listed or proposed by the USFWS as Threatened or Endangered.	Y	Analyzed in Potentially Affected Resources and Environmental Effects sections due to potential impacts. The White River Valley ACEC was designated for numerous rare and special status plant species and is analyzed in this section.
Wild Horses	N	No impacts to wild horses would occur from leasing. If parcels are later developed, impacts could result in surface disturbance and forage availability within the HMAs/HAs. Springs exist in and near parcels. Should exploration or development be proposed within these lease parcels, 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 development within HMAs would reduce impacts. For example: flagging all new fences, road signs for safety, and water resource mitigation measures.
Cultural Resources *	Y	Analyzed in Potentially Affected Resources and Environmental Effects sections due to potential impacts.
Heritage Special Designations (Historic Trails, Archaeological Districts and Areas, and ACEC's designated for Cultural Resources)	Y	Analyzed in Potentially Affected Resources and Environmental Effects sections due to potential impacts.
Paleontological Resources	N	A BLM records search was conducted on the project parcels that revealed no known paleontological resources present that have special research interest or importance to the general public. Further analysis is not required.
Visual Resources	Y	Analyzed in Potentially Affected Resources and Environmental Effects sections due to potential impacts.
Land Uses	Y	Analyzed in Potentially Affected Resources and Environmental Effects sections due to potential impacts.
Transportation/ Access	N	This resource would not be affected by the proposed actions. The resource would be analyzed, if necessary, at the development stage.

Resource/ Concern	**Issue(s) Analyzed? (Y/N)**	**Rationale for Dismissal from Detailed Analysis or Issue(s) Requiring Detailed Analysis (Grouped in accordance with the format of the Ely RMP)**
Recreation Uses including Back country Byways, Caves, Rockhounding Areas	N	This resource would not be affected by the proposed actions. The resource would be analyzed, if necessary, at the development stage.
Grazing Uses/Forage	Y	Analyzed in Potentially Affected Resources and Environmental Effects sections due to potential impacts.
Mineral Resources	Y	Analyzed in Potentially Affected Resources and Environmental Effects sections due to potential impacts.
Fuels	N	The Proposed Actions are limited to leasing and there are no authorizations for ground disturbing activity associated with issuing the lease. Therefore, there is no need for detailed analysis of Fuels or Fire Management. Impacts from exploration and development activities would be analyzed under a separate, site specific analysis when an APD is submitted.
ES&R	N	The resource would not be affected by the proposed actions.
Non-Native Invasive and Noxious Species *	Y	Noxious and invasive species are documented within the parcel areas. See the attached Weed Risk Assessment in Appendix J for a list of specific species in these areas and potential impacts.
Swamp Cedar and Blue Mass ACEC's (Schell)*	N	No proposed parcels overlap these ACECs. Not present.
Wilderness/ WSA*	N	Oil and gas leasing is not allowed in wilderness or WSAs. Not present.
Lands with Wilderness Characteristics	Y	Analyzed in Potentially Affected Resources and Environmental Effects sections due to potential impacts.
Wild and Scenic Rivers	N	Not present.
Human Health and Safety*	N	Human health and safety would not be affected by the proposed actions because no activity is authorized at this time. Additional NEPA would be required if development is proposed.
Native American Religious and other Concerns*	Y	Analyzed in Potentially Affected Resources and Environmental Effects sections due to potential impacts.
Wastes, Hazardous or Solid*	N	After reviewing the proposed actions and the most current electronic GIS data, there does not appear to be any concerns or issues with solid or hazardous wastes. Activities that may contribute or create solid or hazardous wastes are not authorized at this time and would require additional NEPA if development is proposed.
Public Safety	N	Activities that may affect public safety are not authorized at this time and would require additional NEPA if development is proposed.
Environmental Justice*	N	Although no minority population reaches the 50% threshold within the study area, there are Native American populations within close enough distance to some proposed sale parcels to warrant special scrutiny. However, the lease sale does not authorize any surface disturbing activity and therefore, would not disproportionately affect the health or environmental for minority populations. Additional analysis would be required if the parcels are leased and proposed to be explored or developed.
Socioeconomics	Y	Analyzed in Potentially Affected Resources and Environmental Effects sections due to potential impacts.

*Supplemental Authority

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 primarily the Chainman and Pilot shales. Devonian-age subthrust structures, thought to be present in some valleys within the analysis area, are also targeted. The nominated parcels have been separated into 4 groups by geographic area and similar resource concerns (see Chapter 2 Tables and maps). The total area of all the parcels is approximately 140,388.670 acres.

Group A or Tule Desert Area is located entirely within Lincoln County (in the southeastern corner) and entirely within the Caliente Field Office, and contains 42 parcels totaling 82,121.320 acres. These parcels occur within the Mojave Desert ecosystem. No known exploration wells have been drilled in this region of Nevada, but geophysical exploration has been authorized in the past.

Group B or White River Valley Area is located in Nye and White Pine counties and contains 24 parcels totaling 28,578.430 acres. Five parcels overlap the Schell —Egan Field Office boundary and only one parcel occurs completely within the Schell Field Office. Three of these parcels occur in White Pine County and the rest occur in Nye County. These parcels occur within the Great Basin ecosystem.

Group C or Railroad Valley — Sand Springs Valley Area is located in Nye and White Pine counties, is completely within Egan Field Office, and contains 12 parcels totaling 12,589.020 acres. Only one of these parcels occur in White Pine County. These parcels occur within the Great Basin ecosystem.

Group D or Long Valley — Jakes Valley Area is located entirely within White Pine County and entirely within the Egan Field Office, and has 16 parcels totaling 17,099.900 acres. These parcels occur within the Great Basin ecosystem.

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 analyses were required. Consideration of some of these items is to ensure compliance with laws, statues 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. Table 3.1 lists any resources and rationale for not being carried forward for analysis as well as those that are carried forward.

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

3.3.1. Air Quality and Climate Change

3.3.1.1. Affected Environment

The U.S. Environmental Protection Agency (EPA) has established national ambient air quality standards (NAAQS) for criteria pollutants, including carbon monoxide (CO), nitrogen dioxide (NO2), ozone (O3), particulate matter (PM10 and PM2.5), sulfur dioxide (SO2), and lead (Pb). 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 (i.e. receptor height) 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. For more information on pollutant monitoring values, including the other criteria pollutants not shown below, please visit the EPA's AirData 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". The Intergovernmental Panel on Climate Change (IPCC) has predicted that the average global temperature rise between 1990 and 2100 could be as great as 5.8°C (10.4°F), which could have massive deleterious impacts on the natural and human environments. Although GHG levels have varied for millennia (along with corresponding variations in climatic conditions), industrialization and burning of fossil carbon sources have caused GHG concentrations to increase measurably, from approximately 280 ppm in 1750 to 400 ppm in 2015 (as of May). The rate of change has also been increasing as more industrialization and population growth is occurring around the globe. This fact is demonstrated by data from the Mauna Loa CO2 monitor in Hawaii that documents atmospheric concentrations of CO2 going back to 1960, at which point the average annual CO2 concentration was recorded at approximately 317 ppm. The record shows that approximately 70% of the increases in atmospheric CO2 concentration or build up, since pre-industrial times, have occurred within the last 50 years.

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.

3.3.1.2. Impact Analysis

3.3.1.2.1. Alternative A

While the act of leasing the parcels would produce no substantial air quality effects, potential future development of the leases could lead to increases in area and regional emissions. Since it is unknown if the parcels would be developed, or the extent of the development, it is not possible to reasonably quantify potential air quality effects through dispersion modeling or another applicable method at this time. Further, the timing, construction and production equipment specifications and configurations, and specific locations of activities are also unforeseeable at this time. Additional air effects would 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.

The Bureau of Land Management National Operations Center (NOC) retained the Kleinfelder Team (which consisted of staff from Kleinfelder, Inc. and ENVIRON International Corporation) to prepare an emissions inventory estimate of criteria pollutants, greenhouse gases (GHG), and key hazardous air pollutants (HAPs) for representative oil and gas wells in the western United States (US). The emissions inventory was designed to be used by BLM staff, such as NEPA planners, air resource specialists, and natural resource specialists, to evaluate emissions from small, which for purposes of this inventory is approximately five wells or less, oil and gas projects.

Defining a “representative” oil and gas well for the entire western US was extremely challenging as there are numerous variables, even within a single basin and sub basin, that can materially affect the emissions. Such variables include oil and gas composition, difficulty drilling the geologic formation, oil and gas production rate, equipment at the well site, emission controls, produced water that may be associated with oil and gas production, among many others.

Accordingly, to develop such an inventory, five different well types (three natural gas wells and two oil wells) representative of five different major oil and gas basins in the western US were evaluated. In order to develop the emission inventories, information that is not proprietary, not draft, and not pre-decisional was reviewed for the five selected basins plus other oil and gas developments in the western US. The characteristics of the five basins selected are similar to a large portion of the oil and gas produced in the western United States. The following table is taken from this March 2013 report (Erbes, Air Emissions Inventory Estimates for a Representative Oil and Gas Well in the Western United States). The Reasonably Foreseeable Development Scenario developed for this lease EA is a maximum of 100 wells drilled within the parcels in the Elko District. The number of holes that could be drilled in any given area is unknown but potential emissions would be multiplied appropriately.

Well Type	**Gas**	**Gas**	**Gas**	**Oil**	**Oil**
Basin Pollutant	Uinta/Piceance (tpy)	Upper Green River (tpy)	San Juan (tpy)	Williston (tpy)	Denver (tpy)
NOX	15.6	14.6	5.6	15.6	6.3
CO	3.8	3.9	3.1	8.0	3.4

VOC	3.4	5.2	5.3	17.6	6.7
SO2	0.0004	0.0004	0.001	0.001	0.001
PM10	6.9	6.7	6.8	6.9	6.6
PM 2.5	0.8	0.8	0.5	0.8	0.5
CO2	2,552.1	2,552.1	651.0	3156.4	1,049
CH4	12.2	14.1	6.1	16.6	1.8
N2O	0.05	0.05	0.04	0.6	0.04
GWP	2,825	3,194	791	3,682	1,099
Benzene	1.4	1.5	1.4	1.5	1.4
Toluene	1.0	1.2	1.0	1.0	1.0
Ethybenzene	0.00003	0.01	0.0008	0.0008	0.0006
Xylene	0.6	0.7	0.6	0.6	0.6
n-Hexane	7.5	7.5	7.5	7.9	7.5
Total HAPs	10.4	10.9	10.5	11.0	10.5

Note: Sums may not precisely total due to rounding off differences. A value of 0.00 indicates that pollutant is not emitted or emitted in *de minimis* amounts. If there is a non-zero value, at least one significant figure is reported. Greenhouse gas emissions are in terms of short tons CO2, CH4, and N2O. Global Warming Potential (GWP) is in terms of short tons of CO2 equivalent (CO2e), using a GWP of 1 for CO2, 21 for CH4, and 310 for N2O (Erbes, 2013).

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 (specifically PM10 and PM2.5) in the project 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 would contribute to potential short and long term increases in the following criteria pollutants: carbon monoxide, ozone (a secondary pollutant, formed photochemically by combining VOC and NOX emissions), 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. Certain pollutants may be significant when evaluating AQRV for effects on visibility and atmospheric deposition. Significance would depend greatly on the proximity to sensitive receptors, area meteorology, and the background levels of AQRV at any sensitive receptor. Dust control measures, such as applying a layer of gravel over the travel surfaces, watering travel surfaces, and reducing speed along the roadways can be very effective in mitigating dust issues.

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. The development stage may likely include the installation of pipelines for transportation of raw product. New centralized collection, distribution and/or gas processing facilities may also be necessary. The decision to offer the identified parcels for lease would not result in any direct emissions of air pollutants. However, any future exploration or development of these leases would result in emissions of criteria, HAP and GHG pollutants. The additional emissions could result in an incremental increase in overall emissions of pollutants in the region depending on any contemporaneous activities occurring at the same time when potential exploration and development occurring on the lease would happen.

The BLM encourages industry to incorporate and implement BMPs to reduce impacts to air quality by reducing emissions, surface disturbances, and dust from field production and operations. In accordance with a recent BLM Memorandum of Understanding (MOU) regarding air quality analysis and mitigation; BLM would coordinate with the Environmental Protection Agency (EPA) early in the APD process to determine how best to model and mitigate for impacts to air quality. 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;
- Emission control equipment of a minimum 95 percent efficiency on 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 combustions 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-located 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; and,
- Air monitoring for NOx and ozone.

3.3.1.2.2. Alternative B

Alternative B would have the same types of impacts as Alternative A, but possibly less extensive due to fewer parcels being leased and/or fewer wells being drilled.

3.3.1.2.3. Alternative C

Alternative C would have no impacts on the existing air quality and climate change in the area. Activities on currently leased parcels adjacent to the proposed parcels would still be permitted.

3.3.2. Water Resources (including Water Rights, Water Quality, Floodplains, Wetlands/Riparian Zones)

Ground water and surface water conditions are described in Section 3.3 of the RMP/FEIS. Trends and current management of ground water, surface water, water rights, and water quality are indicated.

3.3.2.1. Affected Environment

Hydrographic Basins

The hydrographic basin is the basic management unit used by the Nevada Division of Water Resources (NDWR). Table 1 identifies the hydrographic basin numbers, basin names, and regions in which they are located. There are basins in the lease area that are designated as closed to particular beneficial uses, typically due to perennial yields and the number of appropriations as of May 13, 2015, from the NDWR website (NDWR 2015).

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 NDWR would closely monitor future groundwater use and may not issue new groundwater permits.

Table 3.2. Hydrographic Basin Summary

Basin #	Basin Name	Region	Designated Basin (Y/N)[a]	Perennial Yield (Acre-Feet/ Year)	Groundwater Appropriations (Acre-Feet/ Year)
154	Newark Valley	Central	N	18,000	27,649[b]
155A	Little Smoky Valley (A)	Central	N	5,000	5,074[2]
155C	Little Smoky Valley (C)	Central	N	1,000	52
173B	Railroad valley	Central	N	75,000	26,747
174	Jakes Valley	Central	N	12,000	48
175	Long Valley	Central	N	6,000	4,749
178B	Butte Valley	Central	N	14,000	321

Basin #	Basin Name	Region	Designated Basin (Y/N)[a]	Perennial Yield (Acre-Feet/ Year)	Groundwater Appropriations (Acre-Feet/ Year)
207	White River Valley	Colorado River Basin	Y — Order 1219	37,000	35,558
220	Lower Moapa Valley	Colorado River Basin	Y — Order 798	50	5,776[2]
221	Tule Desert	Colorado River Basin	N	2,500	5,004[2]
222	Virgin River Valley	Colorado River Basin	Y — Order 753	3,600	12,898[2]

[a]Designated groundwater basins are basins where permitted groundwater 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, domestic, and/or agriculture. The Nevada State Engineer has additional authority to administer water resources in a designated groundwater basin.

[b]The shallow alluvial groundwater resource currently is fully allocated by the Nevada Division of Water Resources.

The proposed lease parcels are located in hydrographic region 10, Central Region and 13, Colorado River Basin. Table 4 provides a summary of the proposed lease area:

Table 3.3. Hydrographic Regions in which proposed leases are located

Group	# of Acres of Parcels	Basin Number	Basin Name	Groundwater Flow System[a]
D	1,262	154	Newark Valley	Humboldt Region[b]
D	1,389	155A	Little Smoky Valley (A)	Railroad Valley Region
C	2,554	155C	Little Smoky Valley (C)	Railroad Valley Region
C	10,020	173B	Railroad valley	Railroad Valley Region
D	1,537	174	Jakes Valley	Colorado Region & Humboldt Region[4]
D	11,697	175	Long Valley	Humboldt Region[4]
D	1,299	178B	Butte Valley	Great Salt Lake Region and Humboldt Region[4]
B	28,697	207	White River Valley	Colorado Region
A	249	220	Lower Moapa Valley	Colorado Region
A	8,709	221	Tule Desert	Colorado Region
A	73,236	222	Virgin River Valley	Colorado Region

[a]Based on Brooks et al. 2014

[b]Previous studies (Harrill and Prudic 1998; Harrill et al. 1988) mapped these basins as part of different flow systems. Long and Jakes Valley were part of the Colorado Region, Newark Valley was part of the Railroad Valley Region and Butte Valley was part of the Goshute Valley System. Brooks et al. 2014 redefined these flow systems.

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. Additionally, any water used for exploration or production of oil and gas resources would need to be in compliance with BLM Manual 7250 and Nevada Water Law to ensure that the use does not to impact other water right holders.

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. The Carbonate Aquifer Systems are not extensively utilized. In many places, groundwater flows between the deeper carbonate bedrock aquifers and the overlying unconsolidated basin-fill aquifers; therefore pumping in one aquifer can impact water levels is an adjacent connected aquifer.

Depths of these aquifer systems can vary throughout the project area. The combined thickness of the carbonate-rock aquifer system typically is greater than 20,000 feet, however, there is uncertainty regarding the depth of the groundwater flow within the carbonate-rock aquifer system (Plume 1996; BLM 2012). The thickness of the basin-fill deposits ranges from zero at the valley margin to several thousands of feet along the axis of the valley. In some valleys the thickness of the basin-fill locally exceeds 10,000 feet (BLM 2012).

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).

<u>Group A</u>

Parcels in Group A are located in hydrographic areas Lower Moapa Valley (220), Tule Desert (221) and Virgin River Valley (222).

Page et al. 2006, mapped several cross-sections in the Colorado and White River flow systems. In the area of the group A parcels, most of the regional carbonate is mapped as upper and middle Cambrian. Groundwater flow through this region occurs mostly through fractures and faults with zones of high transmissivity. Brooks et al. 2014 modeled this area as having high hydraulic conductivity where both lithologic and structural factors which enhance hydraulic conductivity in the RASA model. The modeled potentiometric surface map shows groundwater flowing from the north in Clover Valley through Virgin Valley and Tule Desert towards the Virgin River. However, the southern area of Virgin Valley is fairly unknown as to the specific dynamics of groundwater flow in the area and the role the Muddy Creek Formation plays.

Aquatic species of concern based on the groundwater flow system within this project area include the Virgin River chub and the Moapa dace. More localized effects from groundwater pumping could result in direct impacts to listed species with habitat located within the same HA as a given parcel. More indirect impacts resulting from potential groundwater contamination could occur down gradient of any given parcel.

Groups B, C &D

Parcels in Group D are located in hydrographic areas Butte Valley (178B), Long Valley (174), Little Smoky Valley (155A) and Newark Valley (154). Group C parcels are located in hydrographic areas Little Smoky Valley (155C) and Railroad Valley (173B). Parcels in Group B are located in hydrographic areas Jakes Valley (174) and White River Valley (207).

The project area around groups B, C and D has been extensively studied by the USGS and other researchers. The USGS completed the Regional Aquifer-System Analysis (RASA) for the Great Basin study in 1998. This study developed a regional base of information to improve understanding of the flow system, hydraulic properties of the associated aquifers and the functioning of multi-basin flows. Two subsequent USGS studies, Heilweil and Brooks 2011 and Brooks et al 2014, reviewed and updated the original RASA analysis.

Generally speaking, groundwater flow through most of the northern project area occurs from north to south. Groundwater from the southern portion of Jakes Valley (HA 174) flows south into White River Valley (HA 207), which continues through different HAs in a southerly direction to Lake Mead. Flows from Little Smoky Valley (HAs 155A and 155C) flow south and east into Railroad Valley (173B). From Railroad Valley (HA 173B), groundwater flows west into the White River Valley (HA 207).

Long Valley (HA 175) was previous thought to be the beginning of the White River Flow System but is now thought to be part of the Humboldt subregion, with groundwater flow moving north and west. Newark Valley (HA 154) was once considered to be wholly within the Railroad Valley region but is now thought to be split, with the northern half flowing into the Humboldt Region and the southern portion flowing into the Railroad valley region. Jakes Valley (HA 174) is another basin that is now thought to be split, with the northern part flowing to the north as part of the Humboldt region and the southern part flowing south in the Muddy River Springs formation.

Aquatic species of concern based on the groundwater flow system within this project area include the white river spinedace, railroad valley spring fish and the moapa dace. More localized effects from groundwater pumping could result in direct impacts to listed species with habitat located within the same HA as a given parcel. More indirect impacts resulting from potential groundwater contamination could occur down gradient of any given parcel.

Surface Water

Surface water resources in the eastern Great Basin include perennial, intermittent, and ephemeral streams, marshlands and small lakes, intermittently inundated playas, springs 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.

Group A: Most of the parcels are located within watersheds that drain into the Virgin River. Surface water resources within these watersheds are comprised of mostly intermittent and ephemeral streams, flowing only after large storm events, and small spring systems. One spring, Jones spring is located within a parcel.

Group B: All of the parcels within this group are located within watersheds that flow into the White River. Surface water resources within these watersheds are comprised of mostly intermittent and ephemeral streams, flowing only after large storm events, a few perennial reaches along the White River and headwater streams and several spring systems. Many of the spring systems are perennial with some discharging 100+ gallons per minute of which 13 are considered to be major discharge areas for the valley. Spring discharge contributes flow to localized perennial reaches of the White River and to several surface-water features (e.g., ponds, reservoirs, marshes, wetlands) in the basin, including extensive surface-water features in the Kirch Wildlife Management Area in the southern portion of the basin (BLM 2012).

Group C: Parcels within this group are located within three separate hydrographic areas, Smoky Valley (155C) and Railroad Valley (173B). Surface waters in all valleys are comprised of mostly intermittent and ephemeral streams, flowing only after large storm events, a few perennial reaches in headwater streams and a several spring systems. Smoky Valley (155A) surface waters generally flow from the south to the north. Smoky Valley (155C) is an endorheic system, meaning all surface water remains within the basin and there is no outflow into adjacent basins. All surface water flows to Sand Springs Wash. There is a large spring complex in Railroad Valley (173B) which includes North Spring and Reynolds Springs located on the eastern side of the valley. All of the surface waters in this valley drain inward towards a dry lake bed.

Group D: Parcels within this group are located within four separate hydrographic areas, Little Smoky Valley (155A), Newark Valley (154), Long Valley (175), Jakes Valley (174) and Butte Valley (178B). Surface waters in all valleys are comprised of mostly intermittent and ephemeral streams, flowing only after large storm events, a few perennial reaches in headwater streams and a several spring systems. All of these basins are all endorheic systems, with all surface waters flowing towards the center of the valley and not outflow to adjacent basins.

Riparian/Wetland Zones

Riparian wetland sites in the project area are mostly lentic, which refers to standing water as in lakes, springs, and bogs, or lotic, where water is flowing as in rivers and streams (BLM 2007). Water quality and supply is intimately related to the health of riparian and wetland ecosystems.

Riparian and wetland areas are the most productive and important ecosystems on the LDO. They represent a small percentage of the area, but contain the majority of biodiversity and are vital ecologic functions. Research has shown that riparian and wetland habitat characteristically has a greater diversity of plant and animal species than adjoining areas. Approximately 0.35 miles of perennial stream and 721 miles of intermittent stream are within the parcels. These streams may have associated riparian habitat.

Most of the riparian wetland sites within the project area are associated with lentic environments. The size of these systems can vary greatly from very small to very large which can be dependent of the discharge rates of the lentic source. Springs that occur in high-elevation areas in the mountains are generally controlled by discharge from localized or perched groundwater systems that are not hydraulically connected to the regional groundwater system (Prudic et al. 1995). Many small springs also occur in the valleys or along the margins of the valleys. The occurrence and discharge of these springs generally is controlled by flow along intermediate flow paths that originate in the adjacent mountain ranges or alluvial fans (BLM 2012).

Large springs (greater than 100 gpm) with relatively constant discharge rates are present in several valleys within the hydrologic study area. These springs typically discharge from carbonate rock or from basin-fill that overlies or that is adjacent to carbonate rocks (Prudic et al. 1995). Discharge at these large springs is presumed to be controlled by groundwater that moves through a deep, regional groundwater flow system. Because these springs are controlled by the regional groundwater system, the springs are generally warmer in temperature and have a distinct chemical signature.

Floodplains

Federal Emergency Management Agency (FEMA)-designated Zone A flood hazard areas, which would be flooded during a 100-year, 24-hour runoff event, have been delineated in some of the low-lying regions of the lease area. Areas identified within Zone A or AE flood hazard areas would be subject to Federal Regulation and mitigation; however FEMA flood mapping data are not yet available for parts of Northern White Pine County, NV. Areas identified as Zone X or 0.2 percent annual chance of flood hazard, where no base flood evaluations or depths are shown in this zone and insurance purchase is not required. The Zone D designation is used for areas where there are possible but undetermined flood hazards, as no analysis of flood hazards has been conducted. Flood insurance is optional and available and the flood insurance rates for properties in Zone D are commensurate with the uncertainty of the flood risk.

Municipal Wellhead Zones and Drinking Water Protection Areas

No lease areas are located within a Municipal Wellhead Zone or Drinking Water Protection Area; however, there are parcels that are located in close proximity within the HUC-12 boundaries. Lessees should be aware of Lease Notice NV-L-10-E-NTL, which may require further analysis if Municipal Well Head Zones or Drinking Water Protection Areas change in the future.

3.3.2.2. Impact Analysis

3.3.2.2.1. Alternative A

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 were 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. 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. However, impacts from use of water for a project would be analyzed future NEPA analysis.

The BLM cannot determine at the leasing stage whether or not a proposed parcel would 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 would be applied to leases to address determined vulnerability.

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. Big, Warm, and Hot Springs, and the Kirch WMA) would further mitigate impacts.

Groundwater:

Hydraulic fracturing 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 hydraulic fracturing. 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, however, the regional carbonate system is known to deeper in certain areas. Potential impacts and proximity between production zones and freshwater aquifers would need to be analyzed in the APD stage.

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 hydraulic fracturing, are currently being investigated by the EPA. Authorization of the proposed projects would require compliance with local, state, and federal directives, regulations, permitting, and stipulations that relate to surface and groundwater protection, as well as federal and State of Nevada guidelines for hydraulic fracturing.

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 would 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 breech, 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 APDs would employ fracturing and water consumption would 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 would be utilized to reduce the risks to groundwater. These mitigations would be identified at the APD stage.

Riparian/Wetland Zones

Impacts to riparian areas from development of the parcels could be direct due to increased surface runoff from a site. This could cause increased sedimentation or even contamination of an area if there are contaminants in the runoff. Indirect impacts to riparian areas would be related to potential groundwater pumping and contamination of aquifer sources. Site specific analysis should be completed prior to any exploration or drilling and lessees' should follow all State and BLM requirements for well development and monitoring to reduce potential for impacts.

Floodplains

Federal Emergency Management Agency (FEMA)-designated Zone A flood hazard areas, which would be flooded during a 100-year, 24-hour runoff event, have been delineated in low-lying regions of the lease area. There are a total of 2,487 acres of lease parcels identified within Zone A or AE flood hazard areas and they would be subject to Federal Regulation and mitigation; however FEMA flood mapping data are not yet available for White Pine County, NV which includes all of the parcels in Group D and 1,544 acres from Group B. Site-specific analysis for parcels located in Zone A or AE and in unmapped areas, to identify potential flood plain impacts, would be required prior to drilling in parcels that meet this designation. The remaining 36,239 acres are located in Zone X or 0.2 percent annual chance of flood hazard, where no base flood evaluations or depths are shown in this zone and insurance purchase is not required. All parcels within Group A are located in Zone D. The Zone D designation is used for areas where there are possible but undetermined flood hazards, as no analysis of flood hazards has been conducted. Flood insurance is optional and available and the flood insurance rates for properties in Zone D are commensurate with the uncertainty of the flood risk.

Municipal Wellhead Zones and Drinking Water Protection Areas

No lease areas are located within a Municipal Wellhead Zone or Drinking Water Protection Area; however, there are parcels that are located in close proximity within the HUC-12 boundaries. Depending on future development within municipalities and changes in groundwater availability, these areas may change in the future. Site-specific analysis, to identify potential impacts, would be required prior to drilling in parcels that meet this designation.

3.3.2.2.2. Alternative B

For this alternative, parcels within Groups A, B and C and 11 parcels in Group D would be removed from the lease sale and only four parcels located within Group D would be available for lease. Impacts to parcels located in Group D would be similar to those identified in Alternative A.

3.3.2.2.3. Alternative C

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

3.3.3. Fish and Wildlife

3.3.3.1. Affected Environment

The analysis area includes four groups of parcels across the Ely District. These parcels are expected to provide habitat for a large number of wildlife species. Several species of mammals, birds, reptiles, amphibians, fish and invertebrates may inhabit any of the proposed lease areas. A number of parcels proposed for leasing are located in areas of special importance to one or more wildlife species, such as crucial winter range for mule deer. These areas may include special stipulations from the Ely RMP concerning drilling activities, which would have to be followed by proponents proposing to develop specific sites.

- Upland game bird habitat is encompassed by parcels in group A. Gambel's quail (*Callipepla gambelii*), chukar (*Alectoris chukar*), and mourning dove (*Zenaida macroura*) are game birds popular for hunting in these areas. Several small volume wildlife water developments were constructed in this region. Wildland fires in the Mojave Desert (primarily the Southern Nevada Complex in 2005) burned large acreages of upland game bird habitat in this region

- Group A and D parcels (-19 to —24, —72, —73, and —88) contain winter and crucial winter range for mule deer. A crucial winter range timing stipulation would be applied in the crucial winter areas.

- The area around Kirch Wildlife Management Area (WMA) in Group B parcels provides habitat for a variety of small mammals, such as North American deermouse (*Peromyscus maniculatus*), Western harvest mouse (*Reithrodontomys megalotis*), Chisel-toothed kangaroo rat (*Dipodomys microps*), Ord's kangaroo rat (*Dipodomys ordii*), Great Basin pocket mouse (*Perognathus parvus*), and white-tailed antelope ground squirrel (*Ammospermophilus leucurus*).

- Parcel NV-15-12-031 in group B overlaps Adams-McGill Reservoir, a popular rainbow trout (*Oncorhynchus mykiss*) and largemouth bass (*Micropterus salmoides*) fishery.

- Parcels in groups B, C, and D contain habitat for pronghorn antelope (*Antilocapra americana*), mule deer (*Odocoileus hemionus*), and elk (*Cervus canadensis*).

- Small and large volume wildlife water developments occur in the region of Group B and D parcels.

- Group D parcels NV-15–12–018 and –019 contain crucial summer habitat for pronghorn antelope.

- Dust from development activities could alter photosynthesis and/or reproduction of vegetation in the surrounding areas, which serves as habitat.

3.3.3.2. Impact Analysis

3.3.3.2.1. Alternative A

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 RFFD 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 RFFD scenario, have the potential to affect individuals in the following ways:

- Any ground disturbance has the potential to injure or kill individual ground-dwelling animals.
- Noise and other elements of human presence in wildlife habitats could impact various wildlife species by causing disturbance and/or displacement. Energy expenditure from displacement could be detrimental to some species. Movement from displacement could bring animals into occupied habitat, increasing competition of available resources. For example, a study by Easterly et al. (1991) of mule deer and pronghorn antelope in relation to oil and gas drilling and well maintenance activities found: "Displacement of animals may result in use of sub-optimal winter habitat, overcrowding, increased intraspecific competition, deterioration of habitat, and decreased physical condition of the population."
- Reduction or degradation of habitat quantity and/or quality (including food resources and cover) could result from this alternative. Noxious weeds could become established and spread due to oil and gas exploration and development. Failure to re-establish native vegetation during required restoration following activities could increase this possibility.
- Hindquarter contamination from spills, evaporation pond runoff or overflow, and casing failure could change water chemistry (Wiseman 2009) at springs, altering aquatic and riparian habitat. This could potentially alter survivorship and reproduction of aquatic and riparian species.
- Pumping of groundwater within the hydrologic unit of springs could potentially cause reduced water quantity or de-watering of riparian areas. Reduction of water could alter water chemistry and/or temperature, impacting aquatic and riparian species. Changes could alter survivorship and reproduction of aquatic and riparian species.
- Seismic activity resulting from oil and gas development (Ellsworth 2013) could alter water quality and/or quantity at springs. These types of changes could alter survivorship and reproduction of aquatic and riparian species.
- Leasing of parcels in Group B in the vicinity of Kirch WMA could have negative impacts on Nevada sport fishing. Additional concerns about impacts listed in a letter from NDOW on May 20, 2015 include surface and subsurface water quality, surface water quantity, noise, accelerated surface degradation from access and use, no directional drilling under lands of the State, vegetation removal impact to wildlife habitat, noxious and invasive weeds, infrastructure impacts, need for Industrial Artificial Pond Permit from NDOW, site trash, wildfire threat, proper decommissioning of abandoned wells, and wildlife encounters/mortality.
- NDOW requests a surface occupancy stipulation with a buffer around wildlife water developments. As no stipulation for wildlife water developments is present in Appendix A-2 of

the Ely RMP, a mitigation measure would be needed to address this issue at the site-specific development stage.

3.3.3.2.2. Alternative B

For this alternative, all parcels within Groups A, B, and C and some parcels in Group D would be removed from the lease sale. Impacts to parcels available for leasing in Group D would be similar to those identified in Alternative A. Impacts to Group B parcels in the vicinity of Kirch WMA would not occur under this alternative. Impacts to upland game bird habitat in Group A would not occur under this alternative.

3.3.3.2.3. Alternative C

Under the No Action Alternative, the lease sale would not occur, and impacts to fish and wildlife would not occur.

3.3.4. USFWS Listed (or proposed for listing) Threatened or Endangered Species or critical habitat

3.3.4.1. Affected Environment

Species listed as proposed, threatened, or endangered under the Endangered Species Act (ESA) that occur within and/or near the lease parcels are described below. Critical habitat, where designated for these species, is also described below.

- Desert tortoise (federally threatened): Agassiz's desert tortoise (*Gopherus agassizii*) habitat occurs in the Tule Desert in all group A parcels. The USGS predictive model for desert tortoise habitat suitability (Nussear et al 2009) includes most parcels in Group A.
    - Parcels NV-15-12-086, -087, and -090 to -094 are within designated desert tortoise critical habitat in the Beaver Dam Slope Critical Habitat Unit. These parcels are not within the Beaver Dam Area of Critical Environmental Concern (ACEC) therefore, ACEC stipulations do not apply to this critical habitat.
    - Parcels NV-15-12-055, 057 to -059, NV-15-12-061 to -063, and NV-15-12-065 to -071 are within designated desert tortoise critical habitat in the Mormon Mesa Critical Habitat Unit. These parcels are also within the Mormon Mesa ACEC. No Surface Occupancy is allowed within the Mormon Mesa ACEC.
    - The Ely RMP and associated Biological Opinion were completed in 2008. Since that time, the Recovery Plan for desert tortoise (*Gopherus agassizii*) has been revised by U.S. Fish and Wildlife Service (USFWS). The Revised Recovery Plan for the Mojave Population of the Desert Tortoise (Revised Recovery Plan) contains Recovery Action 2.12: Limit mining and minimize its effects (USFWS 2011). This recovery action states, "Within tortoise conservation areas and where indirect effects would affect those areas, mining should be withdrawn (if feasible) or limited through mining plans of operations. Monitoring plans and mitigation/minimization measures should be implemented at mining sites."

- Strategic Element 2: Protect Existing Populations and Habitat in the Revised Recovery Plan calls for "aggressive management as generally recommended in the 1994 Recovery Plan needs to be applied within existing tortoise conservation areas." Tortoise conservation areas, as defined in the Revised Recovery Plan, include desert tortoise critical habitat and Areas of Critical Environmental Concern managed for desert tortoises. Recovery Action 2.1: Conserve intact desert tortoise habitat, puts a focus on tortoise conservation areas stating, "Disturbances to be avoided include those caused by development … construction of roads or other linear facilities … and other surface disturbing activities."

- The Ely RMP BO lists a maximum disturbance of desert tortoise habitat for fluid leaseable minerals as 100 acres in critical desert tortoise habitat and 500 acres in non-critical desert tortoise habitat.

- White River spinedace (federally endangered): All parcels in group B are within White River Valley, which USFWS identified as a Main Hydrobasin of Concern on 2/6/15. This hydrobasin contains critical habitat for the federally endangered White River spinedace (*Lepidomeda albivallis*). These parcels range from 0.5 to 18 miles away from designated critical habitat for White River spinedace. Several parcels in group B are within or adjacent to Kirch Wildlife Management Area (WMA), which is state land managed by Nevada Department of Wildlife (NDOW). No Surface Occupancy is allowed within the Kirch WMA. In a memo dated July 21, 2015, USFWS also identified one parcel of concern for this species in Group D (NV-15–12–027).

- Railroad Valley springfish (federally threatened): Parcels 005, 006, 007, 008, 009, 010, 011, 012, 013, and 014 in group C are within Railroad Valley (North), which USFWS identified as a Main Hydrobasin of Concern on 2/6/2015 due to designated critical habitat for the threatened Railroad Valley springfish (*Crenichthys nevadae*). These parcels range from 4 to 16 miles away from designated critical habitat for Railroad Valley springfish. Parcels 001 and 003 are within Little Smoky Valley (South), which USFWS identified as a Connected Hydrobasin on 2/6/2015. These parcels are approximately 13 miles from designated critical habitat for Railroad Valley springfish. In a memo dated July 21, 2015, USFWS also identified one parcel of concern for this species in Group D (NV-15–12–004).

- Southwestern willow flycatcher (federally endangered): The southwestern willow flycatcher (*Empidonax extimus trailii*) occurs primarily in Meadow Valley Wash in the Ely District. Revised critical habitat for this species was published in the Federal Register (78 FR 343 534) in 2013. Although critical habitat for this flycatcher is not designated within the Ely District, parcels in the southeast corner of Group A are approximately 6.2 miles from designated critical habitat (along the Virgin River) for this species.

- Virgin River chub (federally endangered): The Virgin River chub (*Gila seminuda*) occurs in the Virgin River south of the Caliente Field Office boundary. Parcels in the southeast corner of Group A are located approximately 6.2 miles from designated critical habitat for this listed fish.

- Woundfin (federally endangered): The woundfin (*Plagopterus argentissimus*) occurs in Arizona, Nevada, New Mexico, and Utah. Parcels in the southeast corner of Group A are located approximately 6.2 miles from designated critical habitat for this listed fish.

- Moapa dace (federally endangered): No critical habitat has been designated for Moapa dace (*Moapa coriacea*). Habitat for Moapa dace is located approximately 17 miles from parcels in the southwest corner of Group A.

- Yuma clapper rail (federally endangered): The Yuma clapper rail (*Rallus longirostris yumanensis*) occurs north of Lake Mead. No critical habitat has been designated for this species. Parcels in the southeast corner of Group A are located approximately 6.2 miles from habitat for this listed bird.
- Western yellow-billed cuckoo (federally threatened): No critical habitat has been formally designated for western yellow-billed cuckoo (*Coccyzus americanus*) yet. Proposed critical habitat is located approximately 6.2 miles from parcels in the southeastern corner of Group A.
- Dust from development activities could alter photosynthesis and/or reproduction of vegetation in the surrounding areas, which serves as habitat.

3.3.4.2. Impact Analysis

3.3.4.2.1. Alternative A

Desert tortoise:

The Ely RMP and associated Biological Opinion were completed in 2008. Since that time, the Recovery Plan for desert tortoise (*Gopherus agassizii*) has been revised by U.S. Fish and Wildlife Service (USFWS). The Revised Recovery Plan for the Mojave Population of the Desert Tortoise (Revised Recovery Plan) contains Recovery Action 2.12: Limit mining and minimize its effects (USFWS 2011). This recovery action states, "Within tortoise conservation areas and where indirect effects would affect those areas, mining should be withdrawn (if feasible) or limited through mining plans of operations. Monitoring plans and mitigation/minimization measures should be implemented at mining sites."

Strategic Element 2: Protect Existing Populations and Habitat in the Revised Recovery Plan calls for "aggressive management as generally recommended in the 1994 Recovery Plan needs to be applied within existing tortoise conservation areas." Tortoise conservation areas, as defined in the Revised Recovery Plan, include desert tortoise critical habitat and Areas of Critical Environmental Concern managed for desert tortoises. Recovery Action 2.1: Conserve intact desert tortoise habitat, puts a focus on tortoise conservation areas stating, "Disturbances to be avoided include those caused by development … construction of roads or other linear facilities … and other surface disturbing activities."

Geophysical exploration could impact individual desert tortoises. Tortoises of the *Gopherus* genus in North America have a highly evolved otolithic ear, which could be used to detect seismic vibrations (Bramble and Hutchison 2014). Exact impacts are unknown, but tortoises underground in their burrows could be highly sensitive to geophysical exploration if seismic vibrations are sent through an area with desert tortoises.

The Mormon Mesa ACEC was designated for the conservation of desert tortoise habitat. A No Surface Occupancy stipulation applied in this ACEC would minimize impacts. Exploration and development for oil and gas would likely disturb or destroy critical habitat outside the ACEC in the Beaver Dam Slope Critical Habitat Unit.

White River spinedace and Railroad Valley springfish:

The Ely RMP Endangered Species Act section 7 consultation concluded "no effect" to White River spinedace and Railroad Valley springfish based upon the proposed action. According to the

reinitiation requirement, "As required by 50 CFR § 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over an action has been retained (or is authorized by law) and if … new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion." New information since the Ely RMP indicates that oil and gas extraction could lead to impacts not previously analyzed in the Ely RMP Biological Assessment. For example, indirect effects of oil and gas development can include earthquakes (Ellsworth 2013) and potential contamination of surface water from fracture and production fluid discharge, poorly sealed or poorly installed wells, and improperly abandoned wells (Wiseman 2009). Effects of this nature warrant reinitiation of section 7 consultation prior to leasing in these hydrobasins.

Virgin River chub, woundfin, Moapa dace, and Yuma clapper rail:

Because these species did not occur within the Action Area of the Ely RMP, effects determinations were not made, and section 7 consultation was not undertaken for these species. Potential indirect effects to these species from oil and gas exploration and development within the Ely District are unknown at this time.

Western yellow-billed cuckoo:

This species was not included within the section 7 consultation for the Ely RMP because it was not listed at the time. Potential indirect effects to this species from oil and gas exploration and development within the Ely District are unknown at this time.

Southwestern willow flycatcher:

The Ely RMP Endangered Species Act section 7 consultation effects determination was "may affect, likely to adversely affect" to southwestern willow flycatcher based upon the proposed action of the Ely RMP and an anticipated disturbance of up to 10 acres of flycatcher habitat along Meadow Valley Wash. Potential indirect effects to this species and its critical habitat from oil and gas exploration and development within the Ely District are unknown at this time.

3.3.4.2.2. Alternative B

For this alternative, all parcels within Groups A, B, and C and some parcels in Group D would be removed from the lease sale.

Impacts to White River spinedace and Railroad Valley springfish would be avoided by the deferral of Groups B and C and two parcels in Group D. Impacts to desert tortoise, southwestern willow flycatcher, yellow-billed cuckoo, Virgin River chub, woundfin, Moapa dace, and Yuma clapper rail would be avoided by deferral of Group A parcels. Impacts to designated critical habitat (where designated) for these species would be avoided by deferrals under this alternative.

This alternative ensures compliance with the ESA until reinitiation of section 7 consultation can be completed for these hydrobasins.

3.3.4.2.3. Alternative C

Under the No Action Alternative, the lease sale would not occur, and no impacts to T&E species would occur.

3.3.5. Special Status Animal Species, other than those listed or proposed by the USFWS as Threatened or Endangered

3.3.5.1. Affected Environment

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 five years following delisting would be conserved as Bureau sensitive species. See Appendix G for a complete list of all Special Status Species that have the potential to be affected directly or indirectly by oil and gas leasing. The following section includes special status species as well as species that may not appear on the BLM Nevada Special Status Species list but are otherwise rare, limited in distribution, or tracked by the Nevada Natural Heritage Program.

- Parcels in Group A provide year-round and migration habitat for desert bighorn sheep (*Ovis canadensis nelsoni*).

- BLM sensitive small mammal species, such as pallid bat (*Antrozous pallidus*), California myotis (*Myotis californicus*), fringed myotis (*Myotis thysanodes*), Brazilian free-tailed bat (*Taderida brasiliensis*), and Western pipistrelle (*Pipistrellus hesperus*), may inhabit areas near parcels in Group A.

- Parcels in Group A include habitat for a BLM sensitive reptile, banded Gila monster (*Heloderma suspectum cinctum*). Habitat for this species is similar to that of desert tortoise.

- Fish species inhabit areas in the vicinity of Group A parcels, including Meadow Valley Wash speckled dace (*Rhinichthys osculus* ssp.) and Meadow Valley Wash desert sucker (*Catostomus clarki* spp.).

- Group B parcels in the Kirch Wildlife Management Area provide habitat for the BLM sensitive species White River speckled dace (*Rhinichthys osculus velifer*) and northern leopard frog (*Rana pipiens*).

- Group B parcels in the Kirch Wildlife Management Area also provide habitat for several endemic and rare desert fish species, including White River desert sucker (*Catostomus clarki intermedius*), Moorman White River springfish (*Crenichthys baileyi thermophilus*), Preston White River springfish (*C. b. albivallis*), and sculpin (*Cottus* sp.).

- Parcels in Group B provide habitat for Western snowy plover (*Charadrius alexandrines nivosus*), northern goshawk (*Accipiter gentilis*), peregrine falcon (*Falco peregrinus*), loggerhead shrike (*Lanius ludovicianus*), and bald eagle (*Haliaeetus leucocephalus*).

- BLM sensitive small mammal species, such as silver-haired bat (*Lasionycteris noctivagans*), big brown bat (*Eptesicus fuscus*), long-legged myotis (*Myotis volans*) and dark kangaroo mouse (*Microdipodops megacephalus*), may inhabit areas near parcels in Group B.

- Several gastropod species have been petitioned for ESA-listing in the vicinity of Kirch WMA include grated tryonia (*Tryonia clathrata*), Emigrant pyrg (*Pyrgulopsis gracilis*), Flag pyrg (*P. breviloba*), Butterfield pyrg (*P. lata*), Hardy pyrg (*P. marcida*), Pahranagat pebblesnail (*P. merriami*), and White River Valley pyrg (*P. sathos*).
- Parcels in Group B provide terrestrial invertebrate habitat for endemic species, such as White River Valley skipper (*Hesperia uncas grandiosa*) and White River wood nymph (*Cercyonis pegala* ssp.).
- Springs in the vicinity of group C parcels provide important habitat for endemic springsnails, including Duckwater pyrg (*P. aloba*), Southern Duckwater pyrg (*P. anatine*), Big Warm Spring pyrg (*P. papillata*) and, Duckwater Warm Spring pyrg (*P. villacampae*).
- Parcels in the northwest corner of Group D are approximately 10 miles from Ruby Lake National Wildlife Refuge. The refuge provides habitat for the BLM sensitive fish species relict dace (*Relictus solitarius*) as well as a variety of bird species.
- The Greater Sage-Grouse (*Centrocercus urophasianus*) was determined by the USFWS to be "warranted for listing but precluded by species of higher priority" and is a candidate species. The BLM emphasizes conservation measures to promote sustainable Greater Sage-Grouse populations and conservation of its habitat. As a result, lands (as identified by BLM) within Preliminary Priority Habitat (PPH) and Preliminary General Habitat (PGH) have been removed from consideration for the December 2015 Oil and Gas Lease Sale. A planning effort is currently underway to amend all existing land use plans in Greater Sage-Grouse habitat. Parcels in Groups B, C and D contain mapped habitat for Greater Sage-Grouse.
- Pygmy rabbit (*Brachylagus idahoensis*) habitat generally consists of areas with tall dense sagebrush with deep loamy soils that are friable enough for burrowing. Parcels in Groups B, C, and D may contain pygmy rabbit habitat.
- Any of the parcels may provide habitat for BLM sensitive bird species, including but not limited to golden eagle (*Aquila chrysaetos*), ferruginous hawk (*Buteo regalis*), and western burrowing owl (*Athene cunicularia hypugaea*).
- Dust from development activities could alter photosynthesis and/or reproduction of vegetation in the surrounding areas, which serves as habitat.

3.3.5.2. Impact Analysis

3.3.5.2.1. Alternative A

Impacts would be similar to those described under the Fish and Wildlife section of this document.

More detailed effects from oil and gas exploration and development have been studied on some Special Status Animal Species because of their rarity and/or sensitivity to disturbance.

- Some species, such as Greater Sage-Grouse, may avoid anthropogenic edges caused by oil and gas development or suffer from higher mortality rates of young animals in proximity to development (Aldridge and Boyce 2007). Exploration and development for oil and gas would result in travel through and disturbance to habitat for Greater Sage-Grouse. Noise impacts and increased traffic through Greater Sage-Grouse areas could occur in parcels B, C, ,and D.

Timing stipulations could minimize some of these effects. Additional mitigation measures may be needed at the exploration and development stages.

- One study on bighorn sheep found animals attracted to potentially hazardous conditions at an oil and gas development site. Bighorn sheep were licking and eating soil at a well site, potentially ingesting toxic chemicals (Morgantini, and Bruns 1988). Other potential effects to bighorn sheep listed in this study included "crowding, range depletion, altered distribution, tameness, and hunting." Timing stipulations could minimize some of these effects. Additional mitigation measures may be needed at the exploration and development stages.

- Decreased recruitment can result from oil and gas development disturbance. For example, a study on ferruginous hawk nests in proximity to disturbance fledged less young than non-disturbed nests (White and Thurow 1985).

Notices and timing stipulations would minimize some effects to special status animal species. For example, the raptor nest site timing stipulation would minimize effects to Northern goshawk, golden eagle, Western burrowing owl, ferruginous hawk, and peregrine falcon during the breeding season. Because of the highly specialized and endemic nature of some special status animal species, additional mitigation measures are needed at the exploration and development stages.

The Nevada and Northeastern California Greater Sage-Grouse Proposed Land Use Plan Amendment and Final Environmental Impact Statement was published in June 2015. All applicable notices and stipulations from the Ely RMP will be applied to this lease sale. If and when a Record of Decision is signed for the Land Use Plan Amendment, stipulations from that document would amend and supersede the Ely RMP.

3.3.5.2.2. Alternative B

For this alternative, all parcels within Groups A, B, and C and some parcels in Group D would be removed from the lease sale. Impacts to parcels available for leasing in Group D would be similar to those identified in Alternative A.

Impacts to species in the vicinity of Kirch WMA would be avoided with this alternative. Impacts to desert bighorn sheep and Gila monster would be avoided by the deferral of Group A parcels under this alternative. Several parcels in proximity to important Greater Sage-Grouse habitat would be deferred under this alternative.

3.3.5.2.3. Alternative C

Under the No Action Alternative, the lease sale would not occur, and no impacts to Special Status Animal Species would occur.

3.3.6. Special Status Plant Species, other than those listed or proposed by the USFWS as Threatened or Endangered

3.3.6.1. Affected Environment

BLM Manual 6840 entitled Special Status Species Management states BLM special status species are those that 1) are listed or proposed for listed 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 five years following delisting would be conserved as Bureau sensitive species. See Appendix H for a complete list of all Special Status Species that have the potential to be affected directly or indirectly by oil and gas leasing. The following section includes special status species as well as species that may not appear on the BLM Nevada Special Status Species list but are otherwise rare, limited in distribution, or tracked by the Nevada Natural Heritage Program.

- BLM sensitive plant species, including Sunnyside green gentian (*Frasera gypsicola)*, Eastwood milkweed (*Asclepias eastwoodiana*), Tiehm blazingstar (*Mentzelia tiehmii)*, Blaine pincushion (*Sclerocactus blainei*), Railroad Valley globemallow (*Sphaeralcea caespitosa* var. *williamsiae*), Currant milkvetch (*Astragalus unicalis*), and Parish phacelia (*Phacelia parishii)* may occur in the vicinity of parcels in Groups B, C, and D.

- Some parcels (-034, -035, -038, and -048) in Group B overlap the White River Valley Area of Critical Environmental Concern (ACEC). According to Appendix A-2 of the Ely District Record of Decision and Approved RMP (page A.2-6) the White River Valley ACEC is "no surface occupancy." The White River Valley ACEC was designated for protection of numerous sensitive plant and animal species and unique badland soil types. According to Appendix D of the Ely Proposed RMP/Final EIS: "The predominant plant community in which most of these plant populations occur is pygmy sagebrush (*Artemisia pygmaea*) dwarf shrub lands which are restricted to the Great Basin and adjacent ecoregions. Pygmy sagebrush dwarf shrub lands are plant communities considered rare and local throughout its range by NatureServe."

- Several plant species tracked by Nevada Natural Heritage Program including White River catseye (*Cryptantha welshii)*, Charleston grounddaisy *(Townsendia jonesii* var. *tumulosa)*, dwarf peppercress (*Lepidium nanum*), Darrow buckwheat (*Eriogonum darrovii*), Clokey pincushion (*Coryphantaha vivipara* var. *rosea*), Rayless tansy aster *(Machaeranthera grindelioides* var. *depressa)* may occur in the vicinity of parcels in Groups B, C, and D.

3.3.6.2. Impact Analysis

3.3.6.2.1. Alternative A

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 RFFD 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 RFFD scenario, have the potential to affect vegetation as follows:

- Reduction or loss in production, distribution, and vigor of sensitive plant communities due to oil and gas activities.
- Ground disturbance and activities associated with oil and gas have the potential to introduce invasive plant species to communities that currently lack invasive plants (Blumenthal 2005). An increase in non-native plants can also lead to increased risk of wildfire.
- Recovery of native plant communities following reclamation could vary depending on habitat type.
- Dust from development activities could alter photosynthesis and/or reproduction of vegetation in the surrounding areas.

  Appendix D of the Ely Proposed RMP/Final EIS identified threats to the White River Valley ACEC "…include any action which disrupts soil surfaces and vegetation cover such as off-highway vehicle use and road maintenance or construction. The introduction of invasive and nonnative plants to the area, oil and gas exploration … constitute a threat to the protected resources." As noted in the RMP, oil and gas exploration poses a threat to the White River Valley ACEC. Parcels within the ACEC are subject to a "No Surface Occupancy" stipulation, which would reduce this threat. Special status plant species populations that are not encompassed by the ACEC could be impacted by this alternative.

3.3.6.2.2. Alternative B

Deferral of all parcels in Groups A, B, and C and some parcels in Group D would limit the extent of effects to BLM special status plants and species tracked by Nevada Natural Heritage Program. The species listed in the Affected Environment section are primarily located in the vicinity of parcels in Groups B and C. No impacts to the White River Valley ACEC would occur under this alternative.

3.3.6.2.3. Alternative C

Under the No Action Alternative, the lease sale would not occur, and no impacts to Special Status Plant Species would occur.

3.3.7. Cultural Resources

Cultural resources include, but are not limited to rock art, Paleo-Indian and other prehistoric habitation sites, utilized rock shelters and caves, historic cemeteries, mines, town sites and dwellings. 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 avoidance, project abandonment or 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.

3.3.7.1. Affected Environment

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 (NRHP) or otherwise affects a cultural property's legally protected status. Impacts to cultural properties are considered adverse if the effect diminishes the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Negative or adverse effects can include, but are not limited to: 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).

The cultural landscape on the Ely District provides evidence of a long history of human occupation. The earliest commonly accepted time frame for prehistoric human presence in the Nevada is approximately 10,000 to 11,000 years before present. The region has been consistently, though not densely populated up to the present day. The prehistoric and historic cultural landscape encompasses artifacts, features, sites, and districts. These evidence classes relate to prehistoric subsistence, lifeways, cultural affiliation, and historic settlement of Nevada that includes mining, ranching, and agriculture.

3.3.7.2. Impact Analysis

The Cultural Resources Inventory Needs Assessment (8111 NANV040FY15-057) consists of a literature review to ensure that previously recorded cultural sites with significance or importance in accordance with NRHP criteria were identified within the nominated parcels. Cultural Resource data was reviewed from the Nevada Cultural Resource Information System (NVCRIS) and BLM cultural resource files in the Caliente Field Office. Lands within a lease parcel may contain areas of known high potential for cultural resources. Of the parcels identified for the 2015 Oil and Gas Lease Sale that contain areas that have been inventoried for cultural resources, 18 Parcels have documented Cultural ACECs, Archaeological Districts, properties eligible for inclusion in the National Register of Historic Places (NRHP) or documented sites that have not been evaluated for the NRHP.

The lease of oil and gas parcels does not entail ground disturbing activities as part of the undertaking. Therefore, this undertaking would not result in impacts to Cultural Resources. All ground disturbing actions associated with the development of a lease after it has been sold require additional NEPA and NHPA section 106 review. At the time of development all areas of proposed ground disturbance will be inventoried for cultural resources and effects to those resources will be evaluated in future NEPA analysis as required by law.

3.3.7.2.1. Alternative A

The lease of oil and gas parcels does not entail ground disturbing activities as part of the undertaking. Therefore, this undertaking would not result in impacts to Cultural Resources. All ground disturbing actions associated with the development of a lease after it has been sold require additional NEPA and NHPA section 106 review. At the time of development all areas of proposed ground disturbance will be inventoried for cultural resources and effects to those resources will be evaluated in future NEPA analysis as required by law.

3.3.7.2.2. Alternative B

The lease of oil and gas parcels does not entail ground disturbing activities as part of the undertaking. Therefore, this undertaking would not result in impacts to Cultural Resources. All ground disturbing actions associated with the development of a lease after it has been sold require additional NEPA and NHPA section 106 review. At the time of development all areas of proposed ground disturbance will be inventoried for cultural resources and effects to those resources will be evaluated in future NEPA analysis as required by law.

3.3.7.2.3. Alternative C

The No Action Alternative would not impact cultural resources in the area.

3.3.8. Heritage Special Designations (National Monuments, Historic Trails, ACECs designated for Cultural Resources, Archaeological Districts and Areas)

Heritage Special Designated areas have special interest or importance to the Nevada State Historic Preservation Office (SHPO), Native American Tribes, and the general public. Heritage Special Designated areas take the form of National Monuments, National Register of Historic Places (NRHP) designated sites or districts, National Historic Trails, and Areas of Critical Environmental Concern (ACEC) for cultural resources. The primary impact mechanisms that could affect Heritage Special Designated areas 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 Heritage Special Designated areas, which would be mitigated through avoidance, project abandonment or redesign, and, if necessary, data recovery. The National Scenic and Historic Trails (NSHT) are formally designated through Congressional and Presidential process in conjunction with the National Landscape Conservation System (NLCS). Protection under an ACEC designation has a positive and beneficial impact on Heritage Special Designated areas giving them special management consideration.

3.3.8.1. Affected Environment

Any program, activity, or project has an effect on a Heritage Special Designated areas 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 Heritage Special Designated areas 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).

The Cultural Resources Inventory Needs Assessment (8111 NANV040FY15-057) prompted a literature review to ensure that Heritage Special Designated areas were identified within the nominated parcels. Cultural Resource data was reviewed from the Nevada Cultural Resource Information System (NVCRIS) and BLM Nevada State cultural resource files in the Caliente

Field Office. Based on the results of the initial search, there are 2 Heritage Special Designated areas of concern in the nominated parcels.

The Sunshine Locality National Register District ACEC is listed on the NRHP. The District is a preserve of more than 90 archaeological sites located within a 35,000-acre area representing an 11,000-year-old Early Archaic lake-and-marsh adapted culture known as the Western Pluvial Lakes Tradition. A long-term Cultural Resources Management Plan was developed for this site in 1987.

No Historic Trails fall within the proposed oil and gas lease parcels. The Pony Express NSHT does not cross, but is within visual range of several parcels.

None of the proposed lease parcels are located within the Basin and Range National Monument.

3.3.8.2. Impact Analysis

The lease of oil and gas parcels does not entail ground disturbing activities as part of the undertaking. Therefore, this undertaking would not result in impacts to Heritage Special Designated areas.

The entirety of Parcels NV-15-12-15, 16, and 17, and a portion of 22 are in Sunshine Locality National Register District ACEC. Parcels 15 and 17 are designated as Closed. Parcels 16 and the lower Southwest portion of 22 are designated as No Surface Occupancy and thus serve as a buffer to the eligible landscape.

All Parcels are greater than the RMP consideration of 1 mile distant viewshed from the Pony Express Historic Trail. The Trail is within a visual range from 5 to 15 miles of Parcels NV-15-12-4, 18, 19, 25, 26, and 28, and may be within distant partial visual range of activity in Parcels 20 and 21.

3.3.8.2.1. Alternative A

Lease parcels that include the Sunshine Locality and Jakes Valley carry a high potential for cultural resources and are likely to contain undocumented sites. To protect Heritage Special Designated areas, the Ely District Resource Management Plan (BLM 2008b) requires all affected Lease Sales parcels to contain Closed or No Surface Occupancy stipulations, as appropriate. The Sunshine Locality is a Heritage Special Designated ACEC. For instance, Parcels NV-15-12-15 and 17 of the Sunshine Locality District ACEC are closed to leasing. Additionally, there is a half mile perimeter buffer area incorporated into that ACEC which overlies Parcel NV-15-12-16 and the southern portion of NV-15-12-22 where no surface occupancy may occur. Though not officially a Heritage Special Designations area, the Southern portion of Parcel NV-15-12-027 is located in Jakes Valley which is known to be an area rich in evidence of the earliest human presence in the state.

3.3.8.2.2. Alternative B

No Heritage Special Designated areas located in Alternative B.

3.3.8.2.3. Alternative C

The No Action Alternative would not impact Heritage Special Designated areas.

3.3.9. Visual Resources Management

The proposed parcels nominated for lease fall within Visual Resource Management (VRM) Classes designated in the Ely RMP (BLM 2008). BLM administered lands are placed into four visual resource inventory classes: VRM Classes I, II, III, 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 as a management tool that provides an objective for managing visual resources.

3.3.9.1. Affected Environment

Group A parcels are located within VRM II, III and IV. These parcels are located in the remote southeastern edge of the Ely District, the Clover Mountain Wilderness is to the north, and the Mormon Mountains Wilderness is located to the west.

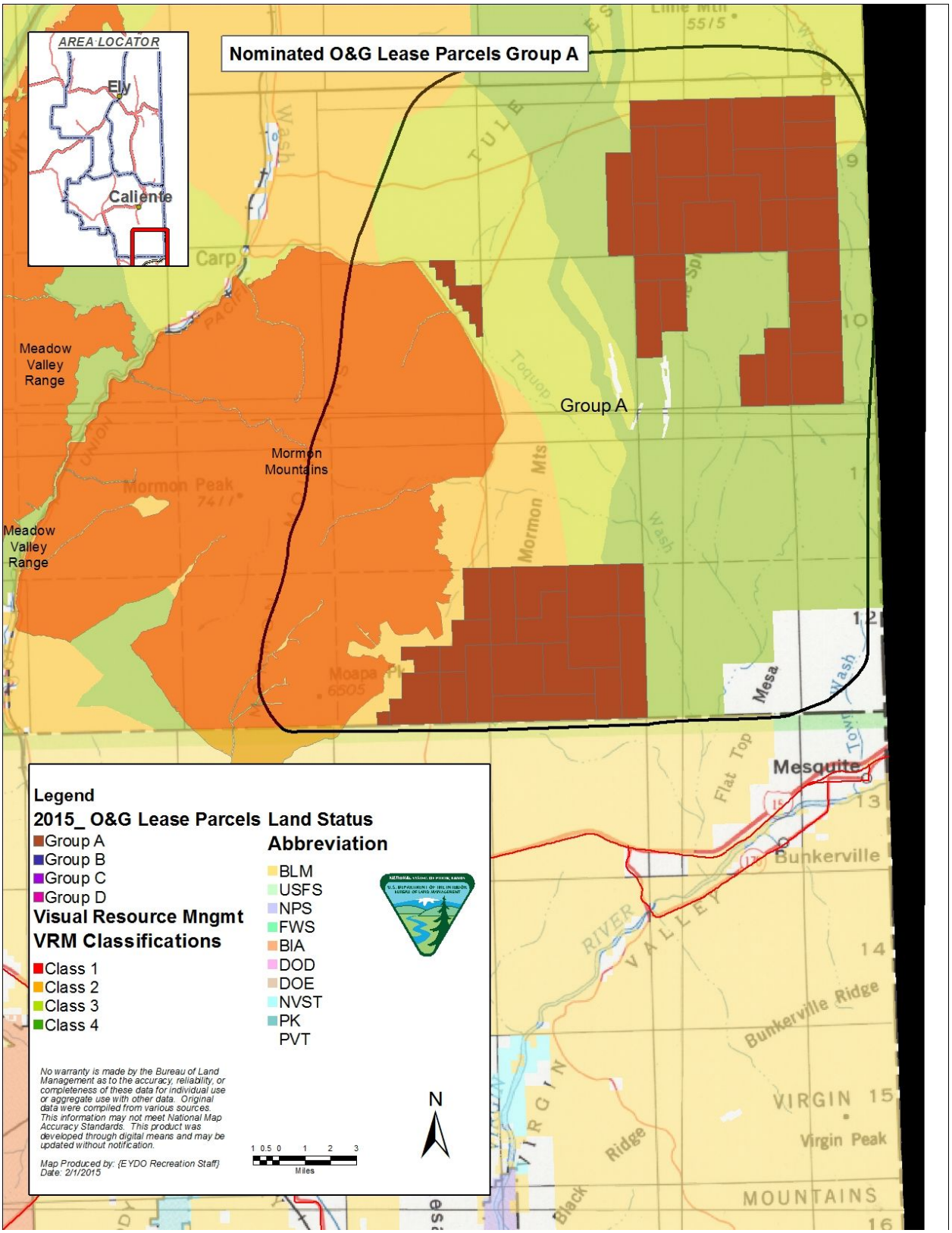
Group B parcels are located primarily within VRM III. These parcels are located east of the South Egan Range Wilderness and the Far South Egans Wilderness. The majority of these parcels are located west of Highway 318 near Wayne E. Kirch Wildlife Management Area with a few parcels on the east side of Highway 318 near Sunnyside. A few subsets of parcels are located south of Lund and also north of Lund next to the Humboldt National Forest.

Group C parcels are located primarily within VRM III with fewer parcels occurring within VRM IV. These parcels are located to the west of Highway 6 with the majority of parcels adjacent to Humboldt – Toiyabe National Forest.

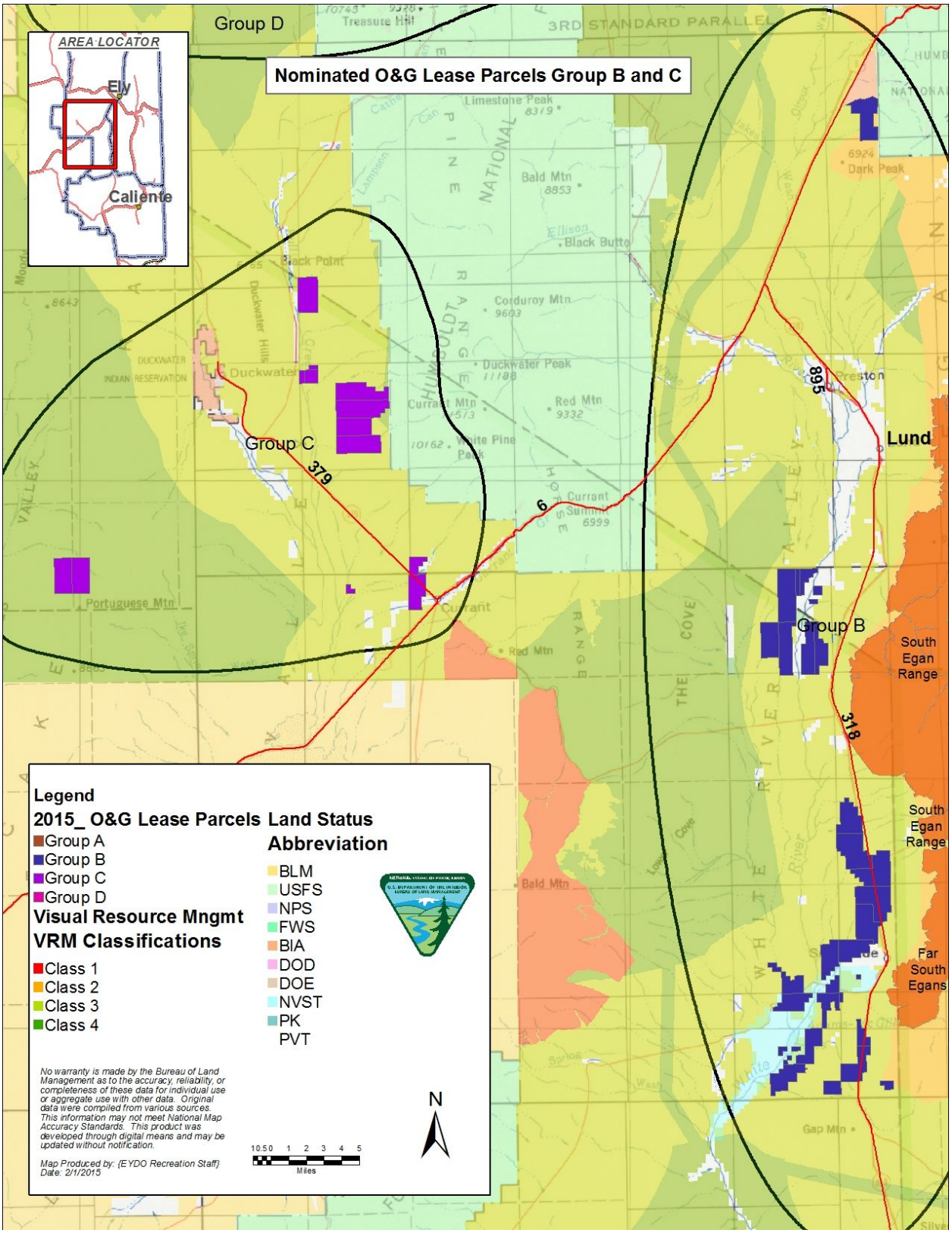
Group D parcels are located primarily within VRM III with fewer parcels within VRM IV. These parcels are located west of Ely.

Table 3.4. VRM Classification Objectives

VRM Classes	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 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.

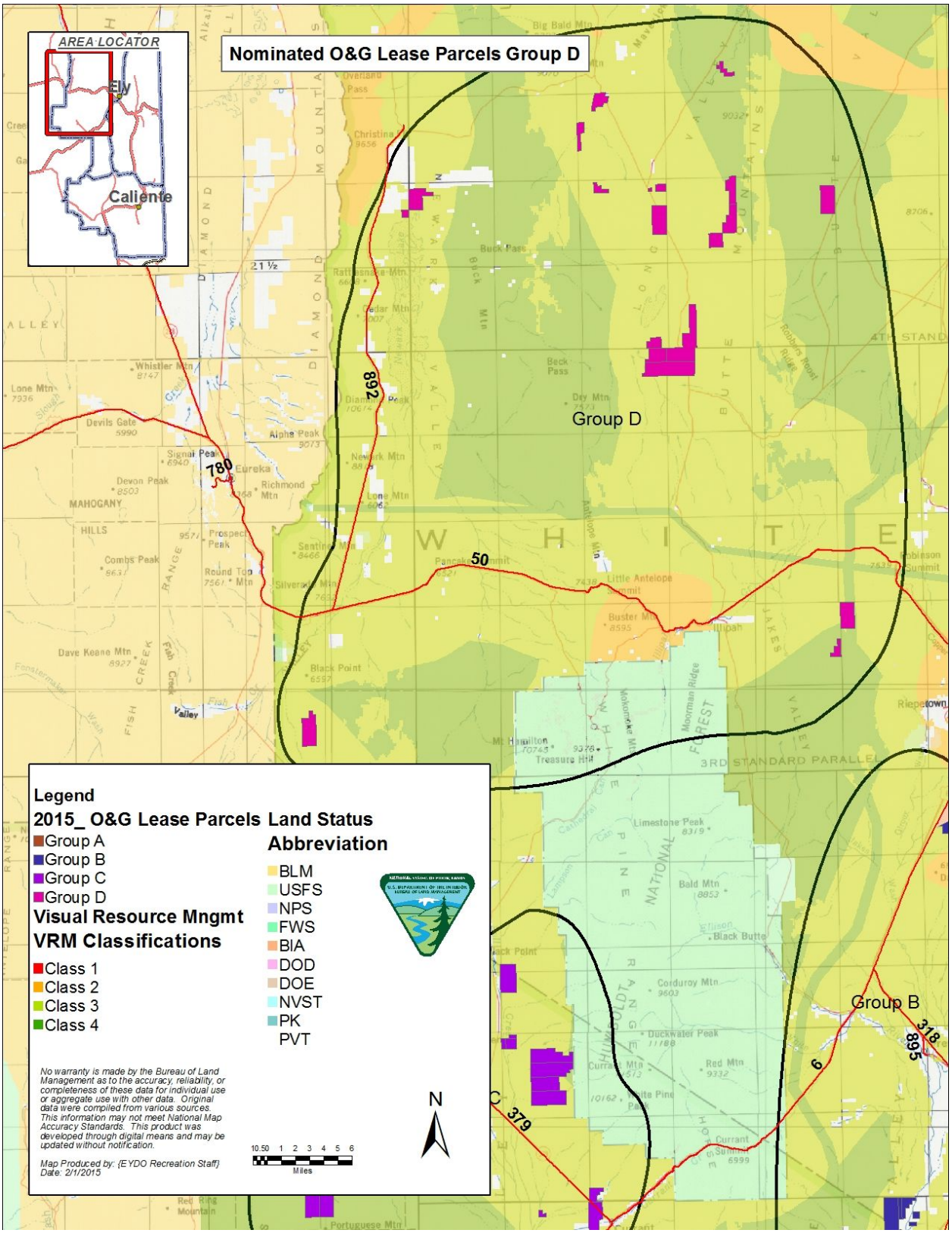


Map 3.1. VRM Classes for Group A of the Proposed Lease Sale



Map 3.2. VRM Classes for Groups B and C of the Proposed Lease Sale

Map 3.3. VRM Classes for Group D of the Proposed Lease Sale


Nominated O&G Lease Parcels Group D
AREA LOCATOR
Ely
Caliente
Group D
Group B
892
780
50
318
895
6
379
Legend
2015_ O&G Lease Parcels
Group A
Group B
Group C
Group D
Visual Resource Mngmt
VRM Classifications
Class 1
Class 2
Class 3
Class 4
Land Status
Abbreviation
BLM
USFS
NPS
FWS
BIA
DOD
DOE
NVST
PK
PVT
No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.
Map Produced by: {EYDO Recreation Staff}
Date: 2/11/2015
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3.3.9.2. Impact Analysis

The actual sale of the lease parcels would not impact visual resources, though the development of the leased 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 are needed to minimize any visual contrast. Those recommended mitigation measures would be incorporated into the APD as a means to meet the VRM class objective.

The objective of each VRM class would be taken into consideration for the development of the 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 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 whenever possible.

3.3.9.2.1. Alternative A

Group A has a large portion of VRM II. Exploration and development within these parcels has a high probability of not meeting the VRM II objectives. Mitigation measures would be needed to address potential issues at the development stage. Objectives for VRM III and IV would be met during development by incorporating design features or requiring mitigation measures.

Group B and C are all VRM III and IV. Objectives for VRM III and IV would be met during development by incorporating design features or requiring mitigation measures.

Group D is largely VRM III with some parcels occurring in VRM IV. Objectives for VRM III and IV would be met during development by incorporating design features or requiring mitigation measures.

3.3.9.2.2. Alternative B

Under Alternative B, impacts would be similar to, but substantially less than in Alterative A. Only parcels identified for lease located in Group D would be potentially affected.

3.3.9.2.3. Alternative C

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

3.3.10. Land Uses

3.3.10.1. Affected Environment

Seven of the proposed lease parcels overlap private property and are considered split-estate, where the subsurface minerals are federally owned and the private ownership is limited to the surface of the land. The seven parcels, numbers 29, 30, 31, 32, 34, 48 and 50 are situated in Nye County, and comprise of approximately 2,635 acres.

Many of the proposed lease parcels include pre-existing land use authorizations such as grants, leases, permits and withdrawals. The following table provides a summary of the land use authorizations in the proposed lease areas.

Group	Parcel #	Case File #	ROW Holder	Project Description
C	NV-15-12-012	NVN 007774	US Forest Service	60 ft. wide, road
C	NV-15-12-013	NVN 004874	Mt. Wheeler Power, Inc.	24 ft wide, 24.9 kv power line
C	NV-15-12-013	NVN 007848	SBC/NV Bell	20 ft wide, buried telephone line
C	NV-15-12-013	NVN 0037985	Nevada Dept. of Transportation	400 ft wide, federal highway
C	NV-15-12-014	NVN 007848	SBC/NV Bell	20 ft wide, buried telephone line
C	NV-15-12-014	NVN 056870	Donald Lani	25 ft wide, ditch/pipeline
C	NV-15-12-014	NVN 0037985	Nevada Dept. of Transportation	400 ft wide, federal highway
D	NV-15-12-018	NVN 025806	Baltd Mountain Mine	50 ft wide road
D	NV-15-12-021	NVN 057896	Mt. Wheeler Power, Inc.	50 ft wide power line ROW, 69 kv
D	NV-15-12-027	NVN 085210	Great Basin Transmission LLC, Nevada Power Co., Sierra Pacific Power Co.	200 ft wide ROW, 500 kv power line
D	NV-15-12-027	NVN 085210	Great Basin Transmission LLC, Nevada Power Co., Sierra Pacific Power Co.	200 ft wide ROW, 500 kv power line
D	NV-15-12-027	NVN 089508	NV Energy	360 ft - 560 ft varying width, (2) 345 kv interconnection power lines
D	NV-15-12-027	NVN 089509	NV Energy	200 ft wide , 500 kv interconnection power line
B	NV-15-12-031	NVN 057058	BLM	60 ft wide, road
B	NV-15-12-032	NVN 040251	US Geological Survey	200 ft wide, monitoring well
B	NV-15-12-032	NVN 057058	BLM	60 ft wide, road
B	NV-15-12-032	NVN 0042816	Adams McGill	width varies; open ditch/reservoir
B	NV-15-12-033	NVN 057058	BLM	60 ft wide, road
B	NV-15-12-034	NVN 005752	Mt. Wheeler Power, Inc.	25 ft wide, aerial power line
B	NV-15-12-034	NVN 066758	SBC/NV Bell	20 ft wide, buried fiber optic
B	NV-15-12-035	NVN 005752	Mt. Wheeler Power, Inc.	25 ft wide, aerial power line
B	NV-15-12-035	NVN 066758	SBC/NV Bell	20 ft wide, buried fiber optic
B	NV-15-12-038	NVN 035514	Mt. Wheeler Power, Inc.	25 ft wide, aerial power line
B	NV-15-12-038	NVN 066758	SBC/NV Bell	20 ft wide, buried fiber optic
B	NV-15-12-039	NVN 035514	Mt. Wheeler Power, Inc.	25 ft wide, aerial powe rline
B	NV-15-12-039	NVN 066758	SBC/NV Bell	20 ft wide, buried fiber optic
B	NV-15-12-040	NVN 035514	Mt. Wheeler Power, Inc.	25 ft wide, aerial power line
B	NV-15-12-040	NVN 066758	SBC/NV Bell	20 ft wide, buried fiber optic
B	NV-15-12-041	NVN 066758	SBC/NV Bell	20 ft wide, buried fiber optic
B	NV-15-12-042	NVN 066758	SBC/NV Bell	20 ft wide, buried fiber optic
B	NV-15-12-044	NVN 074959	Lincoln County Telephone System	10 ft wide, buried fiber optic
B	NV-15-12-044 & 45	NVN 004216	Nevada Dept. of Transportation	Width varies, federal highway
B	NV-15-12-045	NVN 004162	Nevada Dept. of Transportation	Material site, highway use
B	NV-15-12-045	NVN 074959	Lincoln County Telephone System	10 ft wide, buried fiber optic
B	NV-15-12-046	NVN 005752	Mt. Wheeler Power, Inc.	25 ft wide, aerial power line
B	NV-15-12-046	NVN 066758	SBC/NV Bell	20 ft wide, buried fiber optic
B	NV-15-12-046	NVN 0048462	Nevada Dept. of Transportation	400 ft wide, federal highway
B	NV-15-12-047	NVN 005752	Mt. Wheeler Power, Inc.	25 ft wide, aerial power line

Group	Parcel #	Case File #	ROW Holder	Project Description
B	NV-15-12-047	NVN 066758	SBC/NV Bell	20 ft wide, buried fiber optic
B	NV-15-12-047	NVN 0048462	Nevada Dept. of Transportation	400 ft wide, federal highway
B	NV-15-12-049	NVN 005752	Mt. Wheeler Power, Inc.	25 ft wide, aerial power line
B	NV-15-12-049	NVN 066758	SBC/NV Bell	20 ft wide, buried fiber optic
B	NV-15-12-049	NVN 0048462	Nevada Dept. of Transportation	400 ft wide, federal highway
B	NV-15-12-050	NVN 005752	Mt. Wheeler Power, Inc.	25 ft wide, aerial power line
B	NV-15-12-050	NVN 066758	SBC/NV Bell	20 ft wide, buried fiber optic
B	NV-15-12-050	NVN 090839	Lincoln County Road Department	30 ft wide road
B	NV-15-12-050	NVN 091327	Bright Sky Energy & Minerals, Inc.	30 ft wide road
B	NV-15-12-050	NVN 0048462	Nevada Dept. of Transportation	400 ft wide, federal highway
B	NV-15-12-051	NVN 005752	Mt. Wheeler Power, Inc.	25 ft wide, aerial power line
B	NV-15-12-051	NVN 040246	US Geological Survey	200 ft wide, monitoring well
B	NV-15-12-051	NVN 066758	SBC/NV Bell	20 ft wide, buried fiber optic
B	NV-15-12-051	NVN 090839	Lincoln County Road Department	30 ft wide road
B	NV-15-12-051	NVN 0048462	Nevada Dept. of Transportation	400 ft wide, federal highway
B	NV-15-12-052	NVN 007766	US Forest Service	60 ft wide, road
B	NV-15-12-052	NVN 007769	US Forest Service	60 ft wide, road
B	NV-15-12-052	NVN 0061326	Mt. Wheeler Power, Inc.	25 ft wide, overhead power line
A	NV-15-12-053	NVN 079734	Lincoln County Water District	Widths vary, pending construction
A	NV-15-12-054	NVN 079734	Lincoln County Water District	Widths vary, pending construction
A	NV-15-12-055	NVN 079734	Lincoln County Water District	Widths vary, pending construction
A	NV-15-12-057	NVN 004790	Los Angeles City/BOR/NV Power Co.	400 ft wide, 550 kv power line
A	NV-15-12-057	NVN 010683	Los Angeles City Dept of Water & Power	Unrecorded width, (2) 500 kv power lines
A	NV-15-12-057	NVN 039815	NV Power Co.	130 ft wide, 345 kv power line
A	NV-15-12-057	NVN 042581	Kern River Gas Transmission Co.	Width varies, gas pipeline
A	NV-15-12-057	NVN 062093	FTV Comm C/O LEVEL 3	10 ft wide, fiber optic line
A	NV-15-12-057	NVN 082385	Holly Energy Partners	50 ft wide, pipeline
A	NV-15-12-059	NVN 079734	Lincoln County Water District	Widths vary, pending construction
A	NV-15-12-061	NVN 004790	Los Angeles City/BOR/NV Power Co.	400 ft wide, 550 kv power line
A	NV-15-12-061	NVN 039815	NV Power Co.	130 ft wide, 345 kv power line
A	NV-15-12-061	NVN 042581	Kern River Gas Transmission Co.	Width varies, gas pipeline
A	NV-15-12-061	NVN 062093	FTV Comm C/O LEVEL 3	10 ft wide, fiber optic line
A	NV-15-12-061	NVN 077485	Toquop Energy, Inc.	40 ft wide, road
A	NV-15-12-061	NVN 079734	Lincoln County Water District	Widths vary, pending construction
A	NV-15-12-061	NVN 082385	Holly Energy Partners	50 ft wide, pipeline
A	NV-15-12-062	NVN 004790	Los Angeles City/BOR/NV Power Co.	400 ft wide, 550 kv power line
A	NV-15-12-062	NVN 039815	NV Power Co.	130 ft wide, 345 kv power line
A	NV-15-12-062	NVN 042581	Kern River Gas Transmission Co.	Width varies, gas pipeline
A	NV-15-12-062	NVN 062093	FTV Comm C/O LEVEL 3	10 ft wide, fiber optic line
A	NV-15-12-062	NVN 077485	Toquop Energy, Inc.	40 ft wide, road

Group	Parcel #	Case File #	ROW Holder	Project Description
A	NV-15-12-062	NVN 079734	Lincoln County Water District	Widths vary, pending construction
A	NV-15-12-062	NVN 082385	Holly Energy Partners	50 ft wide, pipeline
A	NV-15-12-062	NVN 0053733	American Tower Corp.	400' x 400' comm site, road width varies
A	NV-15-12-063	NVN 0053733	American Tower Corp.	400' x 400' comm site, road width varies
A	NV-15-12-065	NVN 004790	Los Angeles City/BOR/NV Power Co.	400 ft wide, 550 kv power line
A	NV-15-12-065	NVN 031629A	Los Angeles City Dept of Water & Power	100 ft wide, comm site
A	NV-15-12-065	NVN 039815	NV Power Co.	130 ft wide, 345 kv power line
A	NV-15-12-065	NVN 0053733	American Tower Corp.	400' x 400' comm site, road width varies
A	NV-15-12-065	NVN 0055507	AT&T	40 ft wide, aerial phone line
A	NV-15-12-065	NVN 0055886	Overton Power District	100 ft wide, power line, unknown kv
A	NV-15-12-065	NVN 0059755	Union Pacific Railroad	100 ft wide comm site, 20 ft wide road
A	NV-15-12-067	NVN 004790	Los Angeles City/BOR/NV Power Co.	400 ft wide, 550 kv power line
A	NV-15-12-067	NVN 039815	NV Power Co.	130 ft wide, 345 kv power line
A	NV-15-12-067	NVN 042581	Kern River Gas Transmission Co.	Width varies, gas pipeline
A	NV-15-12-067	NVN 062093	FTV Comm C/O LEVEL 3	10 ft wide, fiber optic line
A	NV-15-12-067	NVN 077485	Toquop Energy, Inc.	40 ft wide, road
A	NV-15-12-067	NVN 079734	Lincoln County Water District	Widths vary, pending construction
A	NV-15-12-067	NVN 082385	Holly Energy Partners	50 ft wide, pipeline
A	NV-15-12-067	NVN 0053733	American Tower Corp.	400' x 400' comm site, road width varies
A	NV-15-12-068	NVN 004790	Los Angeles City/BOR/NV Power Co.	400 ft wide, 550 kv power line
A	NV-15-12-068	NVN 007476	AT&T Real Estate Lease Administration	20 ft wide, telephone line
A	NV-15-12-068	NVN 039815	NV Power Co.	130 ft wide, 345 kv power line
A	NV-15-12-068	NVN 042581	Kern River Gas Transmission Co.	Width varies, gas pipeline
A	NV-15-12-068	NVN 052747	Clark County Regional Flood	3 ft x 3 ft site
A	NV-15-12-068	NVN 062093	FTV Comm C/O LEVEL 3	10 ft wide, fiber optic line
A	NV-15-12-068	NVN 065699	Electric Lightwave, LLC	50 x 50 site
A	NV-15-12-068	NVN 077485	Toquop Energy, Inc.	40 ft wide, road
A	NV-15-12-068	NVN 079734	Lincoln County Water District	Widths vary, pending construction
A	NV-15-12-068	NVN 081000	Toquop Energy, Inc.	50 x 50 site, air monitoring station
A	NV-15-12-068	NVN 082385	Holly Energy Partners	50 ft width, pipeline
A	NV-15-12-068	NVN 0053733	American Tower Corp.	400' x 400' comm site, road width varies
A	NV-15-12-068	NVN 0055507	AT&T	40 ft wide, aerial phone line
A	NV-15-12-068	NVN 0055886	Overton Power District	100 ft wide, power line, unknown kv
A	NV-15-12-068	NVN 0061635	FAA	100 ft wide comm site, 60 ft wide road

Group	Parcel #	Case File #	ROW Holder	Project Description
A	NV-15-12-069	NVN 004790	Los Angeles City/BOR/NV Power Co.	400 ft wide, 550 kv power line
A	NV-15-12-069	NVN 039815	NV Power Co.	130 ft wide, 345 kv power line
A	NV-15-12-069	NVN 042581	Kern River Gas Transmission Co.	width varies, gas pipeline
A	NV-15-12-069	NVN 062093	FTV Comm C/O LEVEL 3	10 ft wide, fiber optic line
A	NV-15-12-069	NVN 077485	Toquop Energy, Inc.	40 ft wide, road
A	NV-15-12-069	NVN 079734	Lincoln County Water District	Widths vary, pending construction
A	NV-15-12-069	NVN 082385	Holly Energy Partners	50 ft width, pipeline
A	NV-15-12-069	NVN 0053733	American Tower Corp.	400' x 400' comm site, road width varies
A	NV-15-12-071	NVN 004790	Los Angeles City/BOR/NV Power Co.	400 ft wide, 550 kv power line
A	NV-15-12-071	NVN 007476	AT&T Real Estate Lease Administration	20 ft wide, telephone line
A	NV-15-12-071	NVN 039815	NV Power Co.	130 ft wide, 345 kv power line
A	NV-15-12-071	NVN 042581	Kern River Gas Transmission Co.	width varies, gas pipeline
A	NV-15-12-071	NVN 062093	FTV Comm C/O LEVEL 3	10 ft wide, fiber optic line
A	NV-15-12-071	NVN 077485	Toquop Energy, Inc.	40 ft wide, road
A	NV-15-12-071	NVN 079734	Lincoln County Water District	Widths vary, pending construction
A	NV-15-12-071	NVN 082385	Holly Energy Partners	50 ft width, pipeline
A	NV-15-12-071	NVN 0053733	American Tower Corp.	400' x 400' comm site, road width varies
A	NV-15-12-071	NVN 0055886	Overton Power District	100 ft wide, power line, unknown kv
A	NV-15-12-071	NVN 0061635	FAA	100 ft wide comm site, 60 ft wide road
A	NV-15-12-074	NVN 079734	Lincoln County Water District	Widths vary, pending construction
A	NV-15-12-074	NVN 080825	Lincoln County Water District	Width unknown
A	NV-15-12-075	NVN 079734	Lincoln County Water District	Widths vary, pending construction
A	NV-15-12-075	NVN 080825	Lincoln County Water District	Width unknown
A	NV-15-12-086	NVN 042581	Kern River Gas Transmission Co.	width varies, gas pipeline
A	NV-15-12-086	NVN 062093	FTV Comm C/O LEVEL 3	10 ft wide, fiber optic line
A	NV-15-12-086	NVN 082385	Holly Energy Partners	50 ft width, pipeline
A	NV-15-12-093	NVN 042581	Kern River Gas Transmission Co.	width varies, gas pipeline
A	NV-15-12-093	NVN 062093	FTV Comm C/O LEVEL 3	10 ft wide, fiber optic line
A	NV-15-12-093	NVN 082385	Holly Energy Partners	50 ft width, pipeline
A	NV-15-12-094	NVN 042581	Kern River Gas Transmission Co.	width varies, gas pipeline
A	NV-15-12-094	NVN 062093	FTV Comm C/O LEVEL 3	10 ft wide, fiber optic line
A	NV-15-12-094	NVN 082385	Holly Energy Partners	50 ft width, pipeline

Additionally, grants, leases, and permits may be authorized prior to any proposals for exploration by an oil and gas lessee. In these instances, the holder of a land use authorization would have a valid existing right to the authorized use of public lands within the lease.

3.3.10.2. Impact Analysis

3.3.10.2.1. Alternative A

The Federal Land Policy and Management Act of 1976 (FLPMA) requires that prior existing rights must be recognized. Leasing creates a valid existing right, which could conflict with other existing or future land use authorizations. Conflicts would be mitigated through agreements between relevant operators.

Temporary impacts to existing ROWs could occur as a result of disturbance activities, such as road construction. These impacts may cause short-term disruptions to existing ROW holders.

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 a 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.

3.3.10.2.2. Alternative B

Alternative B would have the same types of impacts as Alternative A, albeit less extensive due to fewer parcels offered for sale.

3.3.10.2.3. Alternative C

Under Alternative C, the lease sale would not occur and therefore no impacts to current land uses or access would occur.

3.3.11. Grazing Uses/Forage

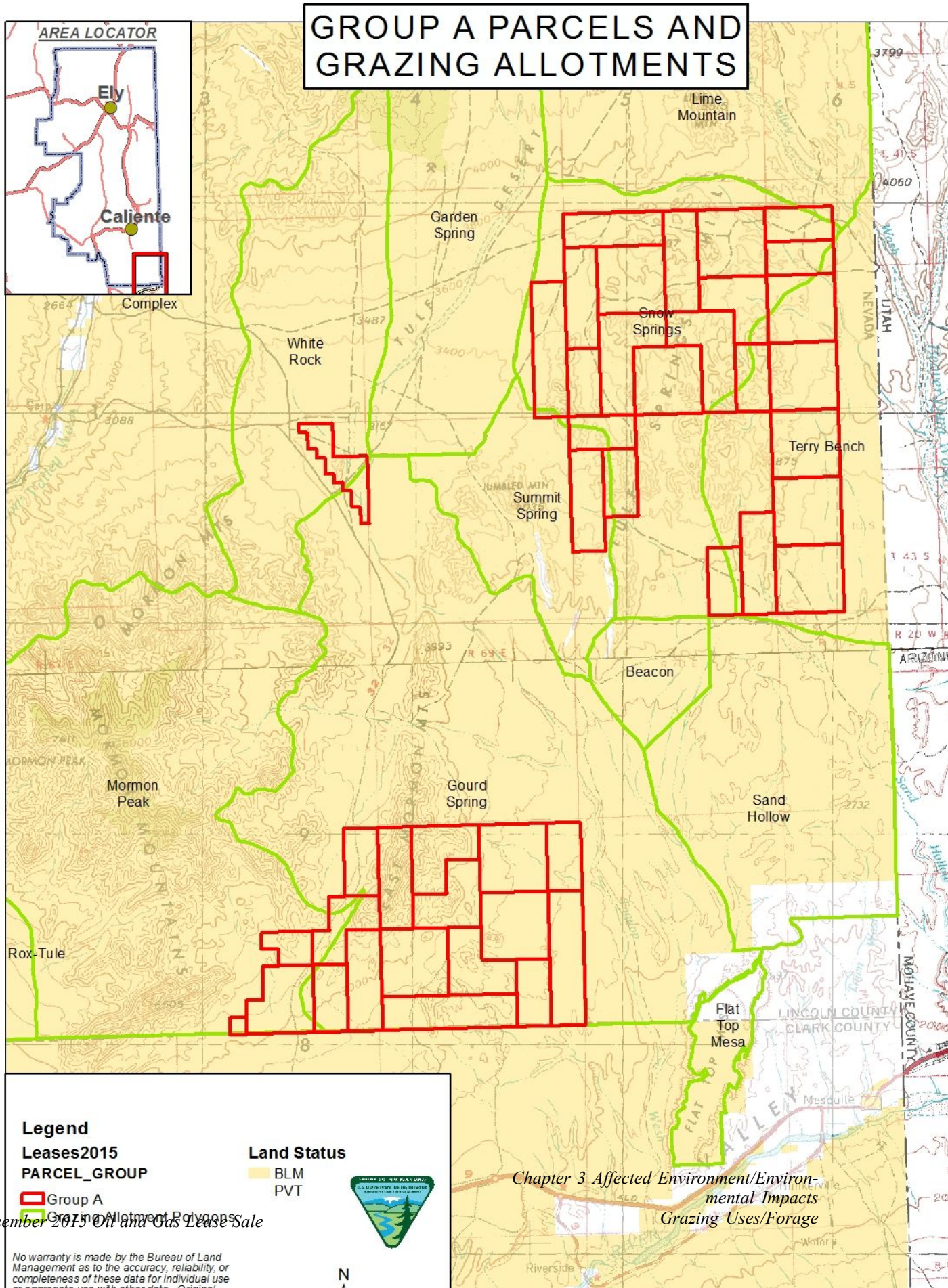
3.3.11.1. Affected Environment

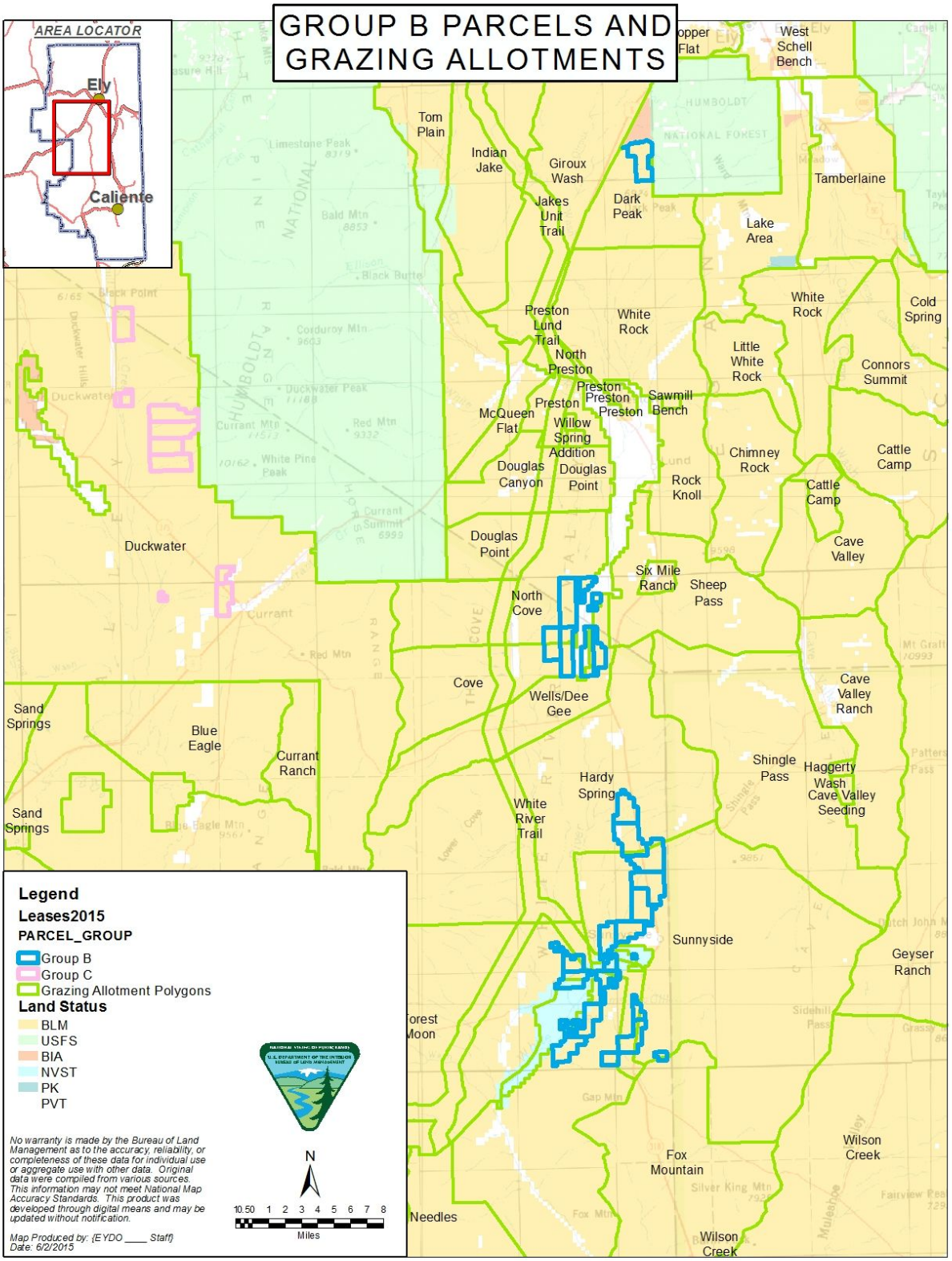
For the purpose of this EA the Affected Environment for the proposed oil and gas leasing area is the same as that described in Section 3.5 of the RMP/FEIS.

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.

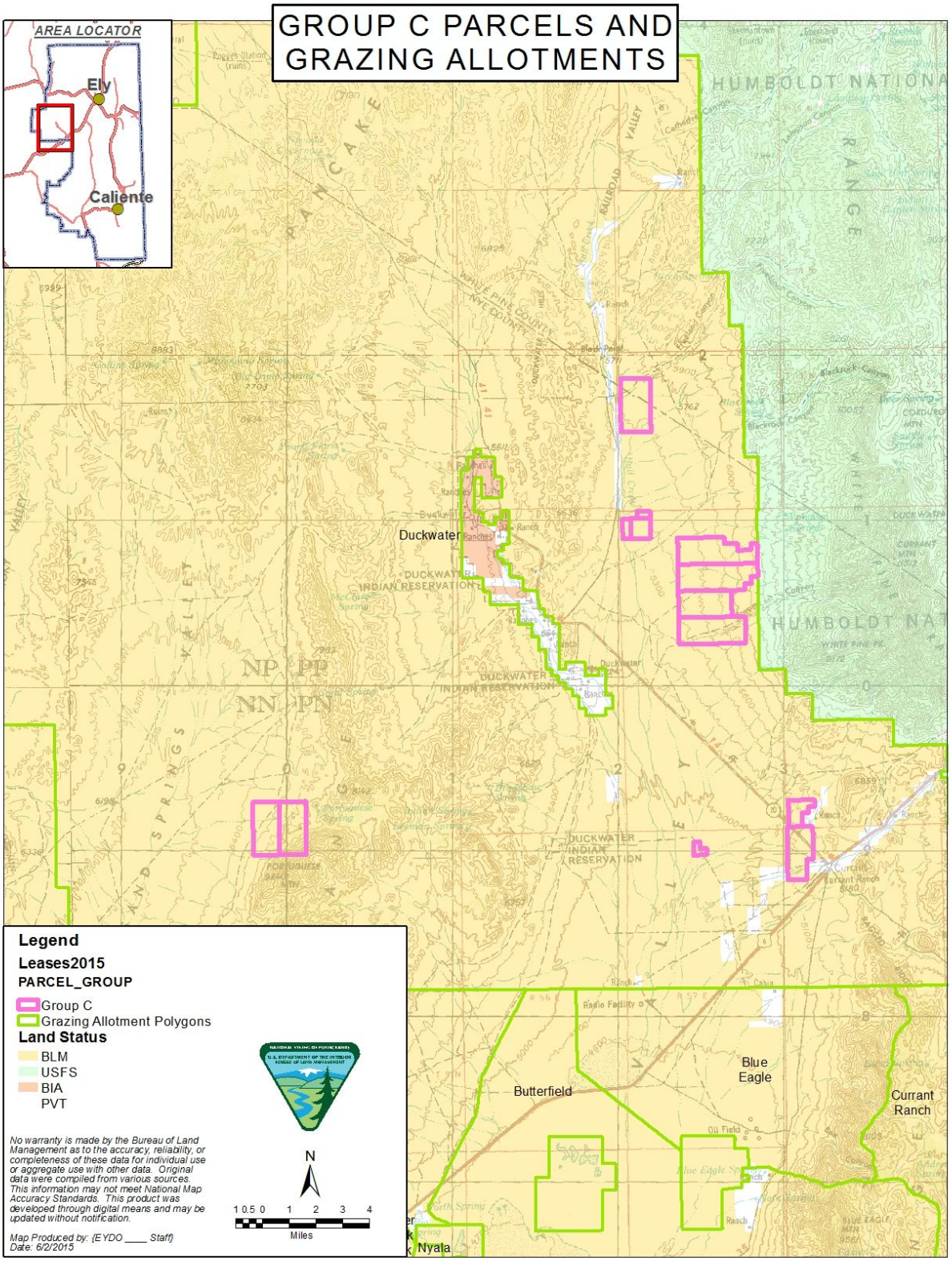
O&G Group	Allotment Name	GIS Acres	Active AUMs	GIS_ACRES in Project	Percentage of Allotment Potentially Affected	Season of Use	
D	Badger Spring	33765	1412	1537	5	15-Apr	30-Nov
D	Cold Creek	64841	5803	39	>1	15-Apr	15-Nov
B	Cove	28199	1544	1626	6	1-Nov	15-Apr
B	Dark Peak	19669	1826	1650	8	1-Apr	1-Nov
D	Duckwater	849127	20100	1400	>1	1-Mar	28-Feb
C	Duckwater	849127	20100	13959	2	1-Mar	28-Feb
B	Forest Moon	118805	2263	1480	1	1-May	28-Feb
B	Fox Mountain(East)	73557	3732	55	>1	1-Nov	10-Apr
A	Garden Spring	39209	1685	1	>1	1-Nov	30-Apr
A	Gourd Spring	97536	3458	29046	30	1-Oct	31-May
B	Hardy Spring	125652	3478	3258	3	1-Mar	28-Feb
D	Jakes Unit Trail	32735	832	1021	3	1-Apr	30-Apr
D	Jakes Unit Trail	32735	832	1021	3	1-Nov	30-Nov
A	Lime Mountain	62602	6754	152	>1	1-Oct	15-May
D	Maverick Springs	46630	1500	57	>1	1-Mar	28-Feb
D	Medicine Butte	310967	7701	1299	>1	1-Mar	28-Feb
D	Moorman Ranch	135877	4740	1606	1	1-Mar	28-Feb
A	Mormon Peak	77991	330	3550	5	1-Oct	30-May
B	North Cove	40101	1335	3824	5	1-Nov	1-Jul
A	Snow Springs	44377	3574	29449	66	1-Oct	15-May
A	Summit Spring	17621	429	2723	15	1-Nov	30-Apr
B	Sunnyside	226959	5402	13582	6	1-Jun	31-Mar
A	Terry Bench	30163	698	16182	54	16-Nov	15-Mar
D	Warm Springs	362941	7740	11269	3	1-Apr	15-Oct
B	Wells/Dee Gee	31204	1327	1729	6	1-Nov	1-Jul
B	White River Trail	35594	1505	1774	5	1-Jun	31-Mar
A	White Rock	32983	1728	981	3	1-Nov	30-Apr

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

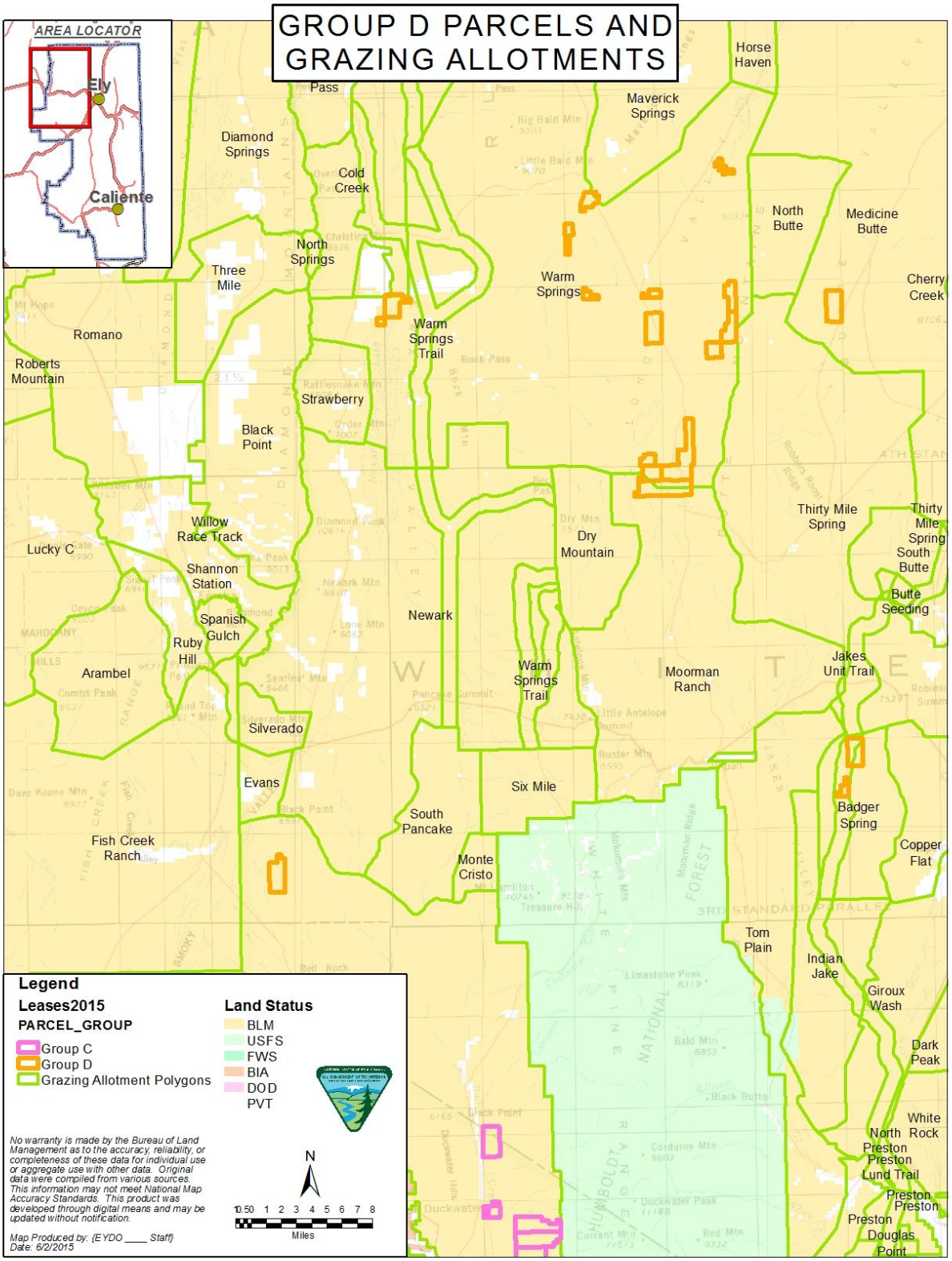

GROUP A PARCELS AND GRAZING ALLOTMENTS
AREA LOCATOR
Ely
Caliente
Complex
Lime Mountain
Garden Spring
White Rock
Snow Springs
Terry Bench
Summit Spring
Beacon
Mormon Peak
Gourd Spring
Sand Hollow
Rox-Tule
Flat Top Mesa
UTAH
NEVADA
ARIZONA
LINCOLN COUNTY
CLARK COUNTY
MOHAVE COUNTY
Legend
Leases2015
PARCEL_GROUP
Group A
Grazing Allotment Polygons
Land Status
BLM
PVT
No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or purpose. Use with other data. Original
N



Map 3.5. Map of Group B Parcels Overlapping Allotments



Map 3.6. Map of Group C Parcels Overlapping Allotments



Map 3.7. Map of Group D Parcels Overlapping Allotments

Chapter 3 Affected Environment/Environmental Impacts
Grazing Uses/Forage

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 group A 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. Restoration in the Mojave Desert ecosystem is especially difficult due to xeric conditions.

Livestock grazing allotments within group B, C, and D are in White Pine and Nye Counties and are within the Great Basin ecological system.

3.3.11.2. Impact Analysis

3.3.11.2.1. Alternative A

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.

Under the proposed action for the lease sale, livestock grazing would continue; however, should development occur on the lease, loss of forage and possible reductions of AUMs would occur in the allotments due to disturbance and activity. Livestock movement patterns would be hindered by new roads and oil well pads. Increased traffic may lead to an increase in vehicle livestock collisions, and increasing mortality rates. Invasive weeds would be expected to increase along new roads and throughout well pads; past reclamation efforts have not been successful in eradication of invasive species or in obtaining the seral state of ecological site descriptions for those areas before disturbance occurred. Topsoil erosion would occur which would increase sediment loading within riparian areas and decrease viable soils for plant communities. Channelization would occur along roads. At the APD stage, COAs and BMPs referenced in the RMP (particularly Vegetation Resources) would reduce impacts.

The percentage of the allotment potentially affected by development is negligible in many cases with the exception of the Snow Springs, Terry Bench, Gourd Springs in Group A. However, a greater effect may be realized if parcel areas cover critical grazing features on the allotment such as water location or critical forage areas. Potential effects may not be realized because of an existing no surface occupancy (NSO) designation.

3.3.11.2.2. Alternative B

Alternative B would have the same types of impacts as Alternative A, albeit less extensive due to fewer parcels offered for sale.

3.3.11.2.3. Alternative C

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

3.3.12. Mineral Resources

3.3.12.1. Affected Environment

The area of direct and indirect effects is defined as the footprint of the proposed lease parcels. The parcels are grouped into four groups: Group A, Group B, Group C, and Group D. Refer to Map 2.1 and Appendix B for location and listing of parcels in each group.

3.3.12.1.1. Ely District Geology

The Ely District falls within the basin and range province where much of the topography includes island like mountain ranges and intermontane basins filled by alluvium shed off the surrounding ranges. Most of the mountain ranges are oriented north-south. Several of the basins are interconnected and allow surface drainage to flow between them. However, some basins are sealed off and the drainage within the basin does not flow outside the basin, at least at the surface. The lithology and stratigraphy in the Ely District has been described by Tschanz and Pampeyan (1970).

Historic Geology and Stratigraphy of the Ely District (summarized from Tschanz and Pampeyan 1970) : Paleozoic sediments were deposited in a shallow sea environment (miogeosyncline) in the area that is now Lincoln County, Nevada. Thick sequences of Cambrian and Devonian rocks accumulated, including the carbonaceous Pilot Shale in upper Devonian time. The Mississippian assemblage included the Chainman Shale, black shale that typically contains disk-like concretions with disseminated pyrite. Depth of the sediments decreased to the southeast where they lapped onto the relatively elevated Mormon Mountain arch which was underlain by Proterozoic-aged (Precambrian) rocks. The Mormon Mountain arch was probably below sea level throughout much of Paleozoic time. At least 50,000 feet of sediments were deposited in the deeper portions of the basin northwest of the arch.

Sedimentation continued into late Triassic time when deposition became more characteristic of a developing continental environment. In late Cretaceous time, events associated with the Laramide orogeny produced thrusting that dislocated older sedimentary rocks for tens of miles to the east atop younger sedimentary units. Large scale strike-slip faults (tear faults) within the thrust plates further dislocated large blocks.

In Tertiary time, large volumes of volcanic materials were erupted. The volcanics were largely pyroclastic; welded tuff, lava and tuffaceous sediments were deposited over large areas, perhaps thousands of square miles. Subsequent to the eruption of most of the volcanics and the deposition of associated intraformational sedimentary deposits, normal faulting initiated uplift of the various north-south ranges and produced the Basin and Range topography.

Erosional forces have deposited thick accumulations of gravel and sand in the valleys. During the Pleistocene, most of the valleys in the Lincoln County area held abundant water in lakes and rivers. Finer sediments from reworked deposits were deposited in the lake beds. Rivers removed accumulated sediments from the valleys and transported them to the south. The end of the Pleistocene initiated the climates and conditions of the present Basin and Range geographic province.

Structural Geology in the Ely District: Regional structures have affected large-scale horizontal displacement on the order of 30 miles; the structures include Laramide-age thrust faults and northeast-trending strike-slip (tear) faults. Laramide thrust faults are documented in the Tule Springs Hills, Meadow Valley Mountains, Sheep Range, Pahranagat Range, and the Spotted Range. Strike-slip faulting is exemplified by three faults south of Alamo in the Pahranagat Valley (Arrowhead Mine, Buckhorn and Maynard faults). The faults represent a shear zone with significant right-lateral displacement known as the Pahranagat shear system; it has most recently been reactivated as a left lateral system that demonstrates less cumulative displacement than the earlier system. The strike-slip system is interpreted as the propagation of a basement rift similar to the San Andreas or Las Vegas shear zones (Tschanz and Pampeyan 1970).

Tertiary normal faulting is largely responsible for the formation of the north-south mountain ranges and intervening valleys that characterize the geography of the Eastern Nevada landscape. Basin and range faulting has, however, resulted in smaller overall displacements than the tear faults and thrust faults mentioned above (Tschanz and Pampeyan, 1970).

More recently, Stewart (1980) and Rowley and Dixon (2001) have placed the regional geology of the Basin and Range into the framework of plate tectonics. Generally, the region has been subject to Mesozoic to mid-Cenozoic thrusting associated with the eastward subduction of the Pacific plate under the western United States (compression). Basin and range, north-trending, extensional faulting began about 20 million years ago.

3.3.12.1.2. Locatable Minerals

Locatable minerals are mostly metallic minerals, semi-precious and precious gemstones, and rare earth elements. Metallic minerals include precious metals such as gold, silver, and base metals (zinc, molybdenum, nickel, cinnabar, lead, tin, and copper. Some nonmetallic minerals can also be considered locatable such as bentonite, borax, fluorspar, and gypsum. Uranium, a rare earth element is often considered a locatable mineral. These minerals are explored and developed pursuant to the Mining Law of 1872, as amended and the Federal Land Policy and Management Act of 1976, and often occur on mining claims.

3.3.12.1.3. Mineral Materials (Salable Minerals)

Mineral materials (salable minerals) are available through a series of competitive and non-competitive sales and by free use permit to governmental agencies and non-profit organizations pursuant to the Materials Act of July 31, 1947, as amended, the Surface resources Act of 1955, and the Federal Land Policy and Management Act of 1976. Salable minerals include common varieties of sand, gravel, stone, pumice, pumicite, cinders, and clay. These resources are abundant throughout the Ely District and are often concentrated in the basins.

3.3.12.1.4. Leasable Minerals

Leasable minerals include coal, phosphate, oil, oil shale, gas, and sodium resources on the public domain as designated by the Mineral Leasing Act of 1920 as Amended. The Mineral Leasing Act was amended to include minerals associated with lands acquired by the United States and by the Geothermal Steam Act of 1970 to include geothermal resources. Leasable minerals under federal ownership are available for development through the BLM's leasing program. There are minimal to no known economic deposits of coal, phosphate or sodium in the Ely District. Geothermal resources occur throughout the Ely District as well. However, no leases or production have been authorized on the nominated lands. The regions of the Ely District vary from low to high potential for oil, oil shale, and gas deposits. Further details on oil and gas geology and potential can be found in Chapter 1.

3.3.12.2. Impact Analysis

This section discusses the potential impacts from leasing nominated parcels according to the three alternatives. Information on mineral claims, leases, exploration, and development was obtained using reports pulled from BLM's Oracle Legacy Rehost software, "LR2000 database," on May 20, 2015.

3.3.12.2.1. Alternative A

3.3.12.2.1.1. Group A

This section identifies the impacts to mineral resources on parcels in Group A.

3.3.12.2.1.1.1. Locatable Minerals

Nine placer claims (NMC1071762-NMC1071770) occur in Sections 8, 17, 18, 19, and 20, in Township 10 South, Range 71 East, of the Mount Diablo Baseline Meridian. These claims occur on parcels NV-15-12-092 and NV-15-12-093. Neither exploration nor development has been authorized on these claims. While oil and gas developments could interfere with extraction of locatable minerals, this interference may be mitigated at the time of development by coordination and agreement between operators. Additionally, oil and gas exploration and development in Nevada typically involves reclamation within ten years and therefore, may only temporarily effect locatable mineral operations, if simultaneously authorized.

A lease notice (#NV-L-13-A-NTL) about the potential presence of mining claims would be attached to parcels NV-15-12-092 and NV-15-12-093.

3.3.12.2.1.1.2. Mineral Materials

The nominated lands in Group A do not contain any existing mineral material sites. Deposits are abundant in this region as well as across the district. Oil and gas leasing and development on the nominated parcels should not interfere with any potential future development of mineral material sites.

3.3.12.2.1.1.3. Leasable Minerals

The nominated lands in Group A do not contain any existing leases. Issuing oil and gas leases on these lands would allow for development of potential oil, oil shale, and gas deposits, and should have minimal to no effect on potential future development of other leasable minerals (e.g. geothermal, phosphate, sodium, etc.).

3.3.12.2.1.2. Group B

This section identifies the impacts to mineral resources on parcels in Group B.

3.3.12.2.1.2.1. Locatable Minerals

The nominated lands in Group B do not contain any existing mining claims. While oil and gas developments could interfere with extraction of locatable minerals, this interference may be mitigated at the time of development by coordination and agreement between operators. Additionally, oil and gas exploration and development in Nevada typically involves reclamation within ten years and therefore, would only temporarily effect locatable mineral operations, if simultaneously authorized.

3.3.12.2.1.2.2. Mineral Materials

The nominated lands in Group B contain one mineral material site (NVN93335), which occurs on parcel NV-15-12-051. Additionally, Nevada Department of Transportation holds a federal aid highway materials site within parcel NV-15–12–045. While drilling within this active site could interfere with the gravel operation, it is likely that with current technologies, the well could be located within the parcel off the mineral materials site and still access potential oil and gas deposits at depths below the gravel pit. Gravel is often needed to develop well pads, and the location of this pit may benefit development of several leases (authorized or nominated) in the area if the gravel suites the needs of the oil and gas development and associated operations. Mineral Material deposits are abundant in this region as well as across the district. Therefore, development of a well should not limit the availability of mineral materials in the local area.

A lease notice (#NV-L-12-B-NTL) would be attached to parcel NV-15-12-051 notifying the lessee that a mineral material site occurs on the parcel.

A lease notice (#NV-L-12-A-NTL) would be attached to parcel NV-15-12-045 notifying the lessee that a mineral material site occurs on the parcel.

3.3.12.2.1.2.3. Leasable Minerals

The nominated lands in Group B do not contain any existing leases. Issuing oil and gas leases on these lands would allow for development of potential oil, oil shale, and gas deposits, and should have minimal to no effect on potential future development of other leasable minerals (e.g. geothermal, phosphate, sodium, etc.).

3.3.12.2.1.3. Group C

This section identifies the impacts to mineral resources on parcels in Group C.

3.3.12.2.1.3.1. Locatable Minerals

The nominated lands in Group C do not contain any existing mining claims. While oil and gas developments could interfere with extraction of locatable minerals, this interference may be mitigated at the time of development by coordination and agreement between operators. Additionally, oil and gas exploration and development in Nevada typically involves reclamation within ten years and therefore, may only temporarily effect locatable mineral operations, if simultaneously authorized.

3.3.12.2.1.3.2. Mineral Materials

The nominated lands in Group C do not contain any existing mineral material sites. Deposits are abundant in this region as well as across the district. Oil and gas leasing and development on the nominated parcels should not interfere with any potential future development of mineral material sites.

3.3.12.2.1.3.3. Leasable Minerals

The nominated lands in Group C do not contain any existing leases. Issuing oil and gas leases on these lands would allow for development of potential oil, oil shale, and gas deposits, and should have minimal to no effect on potential future development of other leasable minerals (e.g. geothermal, phosphate, sodium, etc.).

3.3.12.2.1.4. Group D

This section identifies the impacts to mineral resources on parcels in Group D.

3.3.12.2.1.4.1. Locatable Minerals

Several lode mining claims occur in this area and appear to overlap nominated parcels-they occur within the same township section (see the following table). Additional research involving the Nevada State Office and county courthouses to determine if the claims truly overlap the parcels is not necessary for this level of analysis. Further research would be conducted during site-specific NEPA analysis when an APD is submitted, given the parcels would be leased. Parcels potentially overlapped by claims are identified in Appendix I.

Mining and exploration operations have been authorized in approximately the west half of Township 23 North, Range 58 East, Mount Diablo Baseline Meridian, which overlap nominated parcels NV-15-12-020, and NV-15-12-021. Oil and Gas leasing, exploration, and development could interfere with the exploration and extraction of locatable minerals on these parcels. Potential interference may be mitigated at the time of development by coordination and agreement between the operators. Additionally, oil and gas exploration and development in Nevada typically involves reclamation within ten years and therefore, may only temporarily effect locatable mineral operations, if simultaneously authorized.

A lease notice (#NV-L-13-A-NTL) about the potential presence of mining claims would be attached to parcels NV-15-12-019, NV-15-12-020, NV-15-12-021, and NV-15-12-028.

3.3.12.2.1.4.2. Mineral Materials

The nominated lands in Group D do not contain any existing mineral material sites. Deposits are abundant in this region as well as across the district. Oil and gas leasing and development on the nominated parcels should not interfere with any potential future development of mineral material sites.

3.3.12.2.1.4.3. Leasable Minerals

The nominated lands in Group D do not contain any existing leases. Issuing oil and gas leases on these lands would allow for development of potential oil, oil shale, and gas deposits, and should have minimal to no effect on potential future development of other leasable minerals (e.g. geothermal, phosphate, sodium, etc.).

3.3.12.2.2. Alternative B

Alternative B would have the same types of impacts as Alternative A, albeit less extensive due to fewer parcels offered for sale.

The same lease notices necessary for parcels in Group D would be applied.

3.3.12.2.3. Alternative C

The No Action Alternative would not have an effect on locatable minerals, mineral materials, or leasable minerals except that it would reduce the opportunity for exploration and discovery of potential oil and gas deposits that are needed to supply our local, regional, and national needs.

3.3.13. Lands with Wilderness Characteristics

3.3.13.1. Affected Environment

On June 1, 2011, the Secretary of the Department of the Interior issues a memorandum to the BLM Director that in part affirms BLM's obligations relating to wilderness characteristics under Sections 201 and 202 of the Federal Land Management Policy Act. 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).

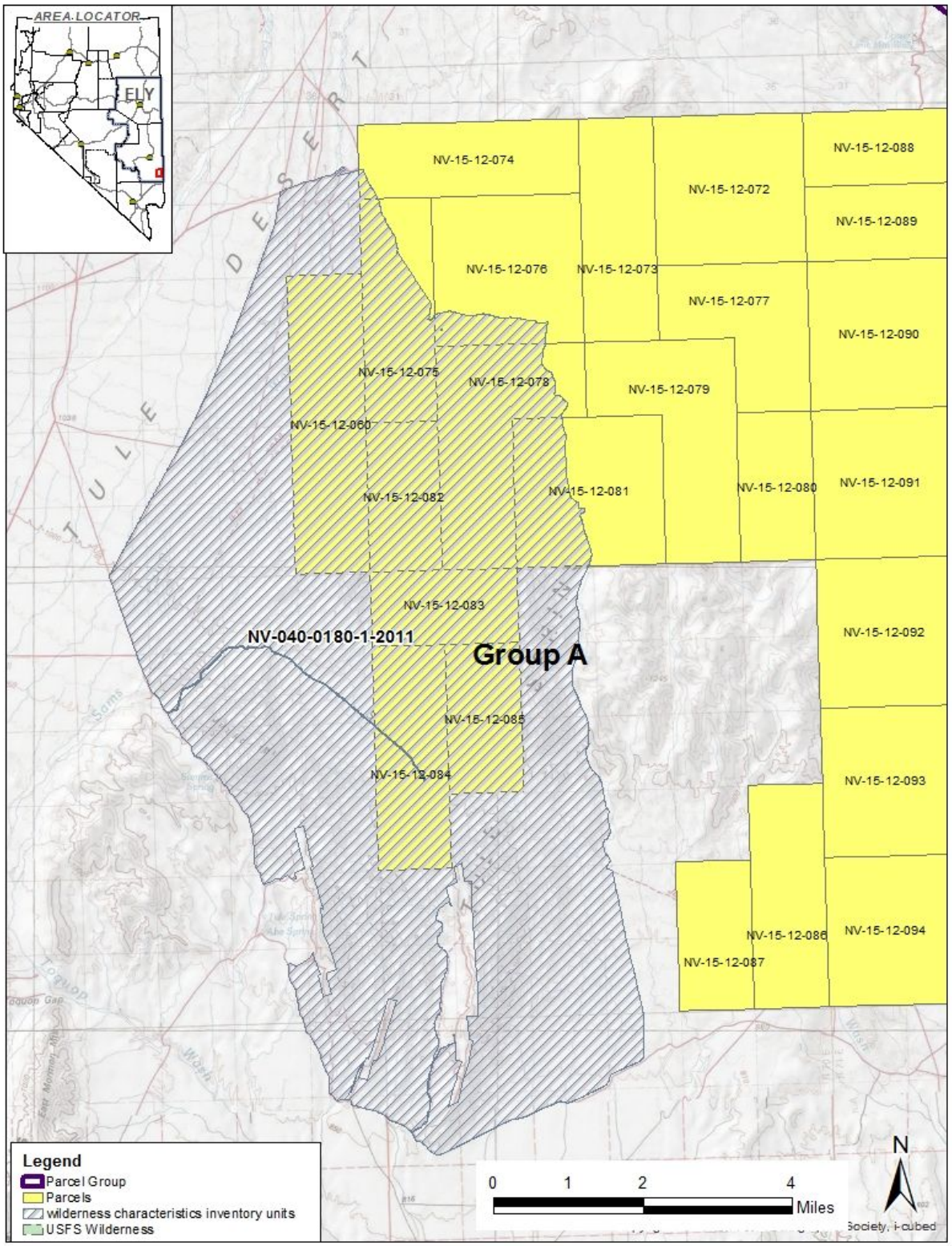
The Nevada BLM published the original draft wilderness review in 1979, and issued the intensive wilderness inventory decision in 1980. At that time, the inventory found wilderness character present in one unit that overlaps the proposed 2015 oil and gas parcels: Mormon Mountains (NV-050-0161), a portion of which became a Wilderness Study Areas in 1980. Later, in 2004, the Mormon Mountains was designated as wilderness.

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 project area has had an inventory update. Of the 94 proposed oil and gas lease parcels, 12 parcels overlap 8 inventory units which were found to possess wilderness characteristics. Of this, two of the inventory units were found to possess wilderness characteristics on their own merits. The other six units inherited the outstanding opportunities of the adjacent wilderness (Mormon Mountains, White Pine Range, Far South Egans, South Egan Range and Currant Mountain Wildernesses). **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.** The following LWC units cover a total of 138,438 acres. These units lie within parcel areas A, B and C. See maps following the Table.

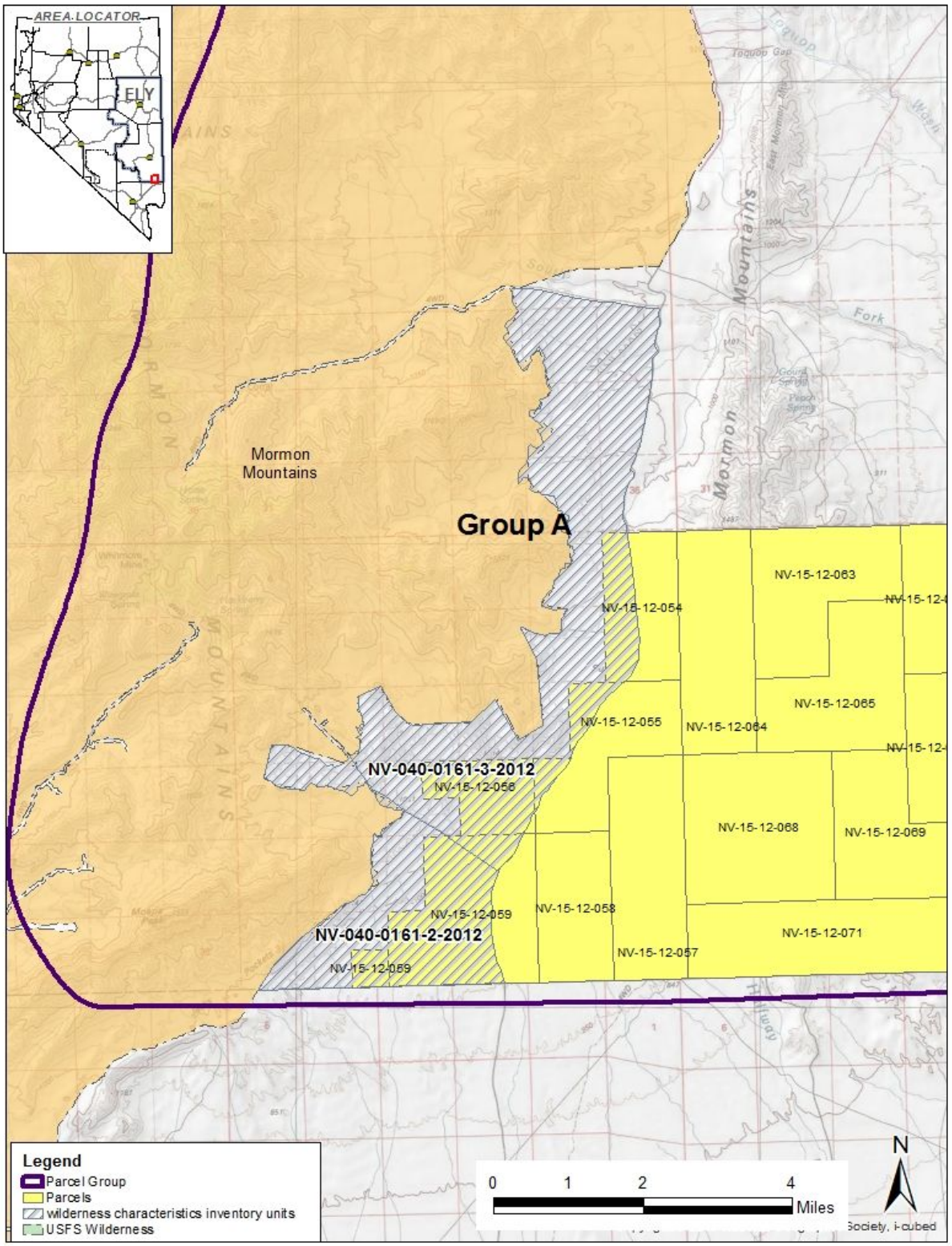
Unit Unique Identifier	**Sufficient Size?** **Yes/No** **(acres)**	**Naturalness?** **Yes/No**	**Outstanding Solitude?** **Yes/No**	**Outstanding Primitive & Unconfined Recreation?** **Yes/No**	**Supplemental Values?** **Yes/No**	**Updated Determination**	**Overlapping Parcel(s)**	**Acres of Parcel Overlapping LWC Unit**
NV-040-0161-2-2012	Yes 3,254	Yes	Yes	Yes	No	Yes*	NV-15-12-059	1,578
NV-040-0161-3-2012	Yes 7,232	Yes	Yes	Yes	No	Yes*	NV-15-12-054 NV-15-12-055 NV-15-12-056 NV-15-12-059	524 314 785 173
NV-040-0180-1-2011	Yes 35,519	Yes	Yes	No	Yes - geologic formations, arch, scenic hills	Yes	NV-15-12-060 NV-15-12-074 NV-15-12-075 NV-15-12-076 NV-15-12-078 NV-15-12-081 NV-15-12-082 NV-15-12-083 NV-15-12-084 NV-15-12-085	2,562 38 1,447 363 2,280 1,032 1,236 1,258 1,866 1,277
NV-040-148-1	Yes 12,038	Yes	No	No		Yes*	NV-15-12-012	229

Unit Unique Identifier	Sufficient Size? Yes/No (acres)	Naturalness? Yes/No	Outstanding Solitude? Yes/No	Outstanding Primitive & Unconfined Recreation? Yes/No	Supplemental Values? Yes/No	Updated Determination	Overlapping Parcel(s)	Acres of Parcel Overlapping LWC Unit
NV-040-148-2	Yes 18,486	Yes	Yes	Yes	No	Yes*	NV-15-12-006 NV-15-12-007 NV-15-12-012	360 233 1,202
NV-040-172-2012	Yes 19,992	Yes	Yes	Yes	cultural values likely	Yes*	NV-15-12-046 NV-15-12-047 NV-15-12-050 NV-15-12-051	863 7 19 1,015
NV-040-172-2-2013	Yes 11,648	Yes	Yes	Yes	No	Yes*	NV-15-12-049 NV-15-12-050 NV-15-12-051	2 35 226
NV-040-226-1-2012	Yes 30,269	Yes	yes	yes	yes	Yes	NV-15-12-044 NV-15-12-045	136 609

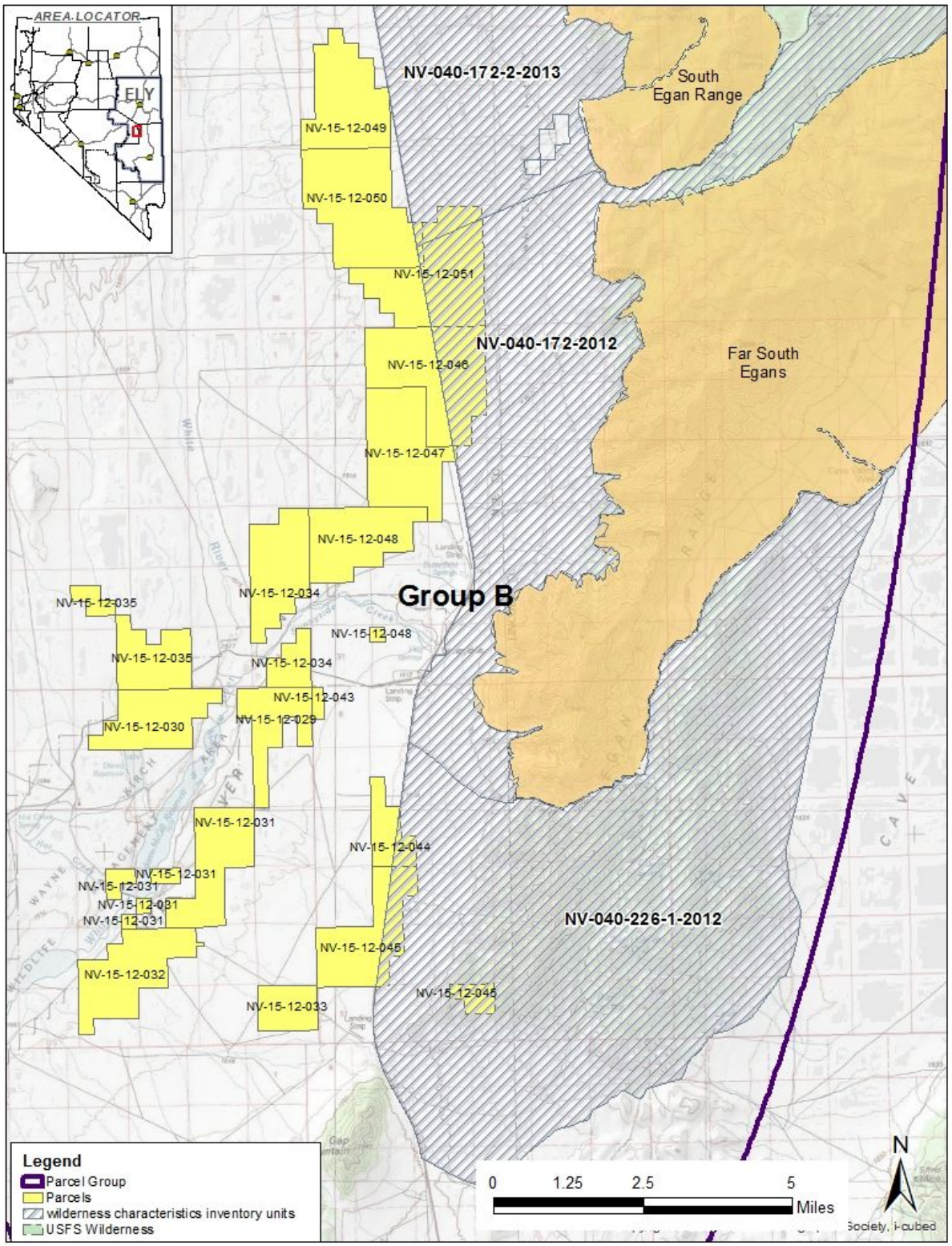
* This unit possesses wilderness characteristics based on the adjacent designated wilderness.



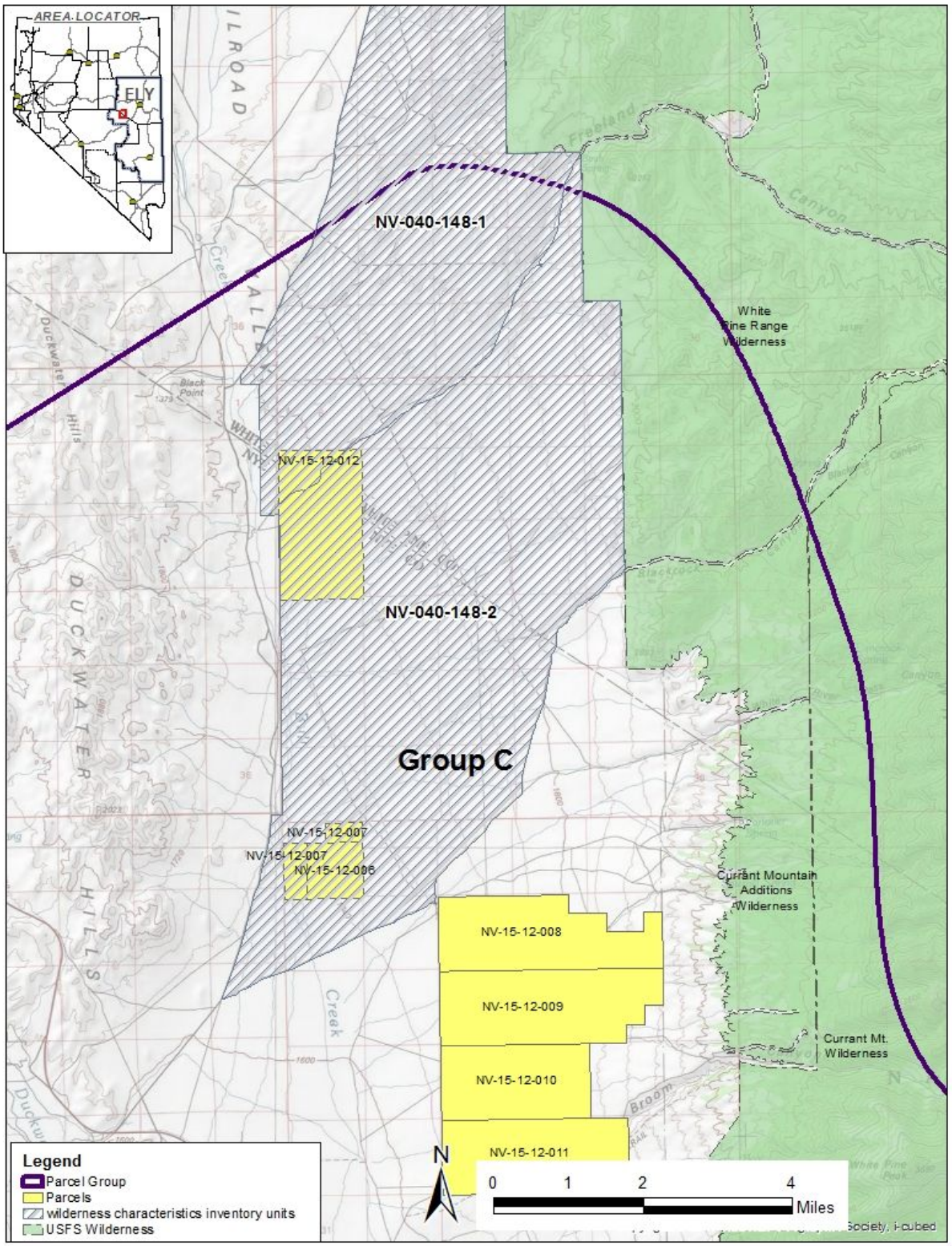
Map 3.8. Oil and Gas Lease Parcels overlapping Wilderness Characteristics Inventory Units — Group A



Map 3.9. Oil and Gas Lease Parcels overlapping Wilderness Characteristics Inventory Units — Group A



Map 3.10. Oil and Gas Lease Parcels overlapping Wilderness Characteristics Inventory Units — Group B



Map 3.11. Oil and Gas Lease Parcels overlapping Wilderness Characteristics Inventory Units — Group C

3.3.13.2. Impact Analysis

3.3.13.2.1. Alternative A

The proposed action to authorize oil and gas leasing would potentially impact wilderness characteristics in the 8 inventory units when and if exploration and production activities occur. Short-term (5-10 years) disturbances would have a dramatic and 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 could 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 (20 years) or much longer. At that point the impacts to LWC would be considered permanent.

3.3.13.2.2. Alternative B

This alternative is the same as Alternative C, the no action alternative, because none of the remaining oil and gas parcels overlap inventory units found to possess wilderness characteristics.

3.3.13.2.3. Alternative C

Under the No Action Alternative, all expressions of interest to lease would be denied or rejected. Therefore, there would be no human-caused alterations to the existing landscape from this project and there would be no impacts to the wilderness characteristics.

3.3.14. Native American Religious and other Concerns

3.3.14.1. Affected Environment

Ethnographic documents reference the Western Shoshone Tribes (Duckwater Shoshone Tribe of the Duckwater Reservation, Nevada and the Ely Shoshone Tribe of Nevada) and the Southern Paiute Tribes (Moapa Band of Paiute Indians of the Moapa River Indian Reservation, Nevada and Paiute Indian Tribe of Utah) resided within the current boundaries of the Ely District in their traditional homeland prior to statehood. For example, historically tribes resided in different geographic location on seasonal bases for hunting, gathering of native plants and religious activities. The BLM initiated consultation and coordination with Tribes to identify any sites of concern (see Consultation and Coordination, Chapter 5).

3.3.14.2. Impact Analysis

Four tribes expressed concern with leasing parcels and potential oil and gas development as a result of the December 2015 Ely District Lease Sale. Of those, two tribes expressed concerns with specific parcels and two expressed general concern with leasing and subsequent development.

Any development on parcels that are leased would require analysis under NEPA and compliance with all laws, regulations, and policies governing Federal actions potential affecting cultural resources and areas of tribal interest.

3.3.14.2.1. Alternative A

Under Alternative A, all parcels would be offered for lease, with exploration and development possible. This alternative would result in a higher potential for adverse effects to areas of tribal interest than Alternatives B or C.

3.3.14.2.2. Alternative B

Under Alternative B, some parcels of concern to the tribes would not be offered for sale, though others would be offered for lease, with exploration and development possible. This alternative would result in a lower potential for adverse effects to areas of tribal interest than Alternative A and a higher potential than Alternative C.

3.3.14.2.3. Alternative C

Under Alternative C, no parcels would be offered for sale. Therefore, no effects to areas of tribal interest would be affected by oil and gas exploration and development.

3.3.15. Socioeconomics

3.3.15.1. Affected Environment

In addition to the social and economic assessments and impact analyses included in the Ely Proposed Resource Management Plan/Final Environmental Impact Statement, referenced above, this section provides a brief overview of current socioeconomic conditions within the proposed lease sale area.

The economies and demographic profiles of Lincoln, Nye, and White Pine Counties are diverse and have not followed the same trends over the past 45 years. While population growth has been strong in Nye County, increasing by nearly 675% since 1970, during the same period the population of Lincoln County doubled and the population of White Pine County decreased by 0.7%. Jobs and income have grown the most strongly in Nye County since 1970, but all three counties have experience positive growth. Although its growth has been the lowest of the three counties, White Pine County enjoys a lower unemployment rate and higher average earnings per job and higher median household income ($48,586 in 2013) than do the other two counties. This can be attributed to the strong role mining plays in the White Pine economy, comprising more than 35% of all private employment in the county.

In 2013, the estimated total population of the three-county region was 58,687.

Population, 2000-2013*				
	Lincoln County, NV	Nye County, NV	White Pine County, NV	County Region
Population (2013*)	5,296	43,368	10,023	58,687

* The data in this table are calculated by ACS using annual surveys conducted during 2009–2013 and are representative of average characteristics during this period.

The population of Nye County tends to be older and that of Lincoln County younger than that of the U.S. as a whole. Each of the three counties has a higher percentage of Native American residents than does the U.S., with estimated Native American populations of 5.9%, 1.8%, and 6.4%, respectively, in comparison with 0.8% for the U.S. in 2013. In 2013, both Lincoln and Nye Counties had experienced poverty rates slightly higher than the U.S., while White Pine County's poverty rates were slightly lower than those of the U.S. as a whole for both families and individuals. In addition, in 2013, non-labor income (income from investment income such as dividends, interest, rent, and other "unearned" sources) was nearly equal to labor earnings within the three-county region.

In 2013, the oil and gas industry employed an estimated 52 people within Lincoln, Nye, and White Pine Counties, including support services. Since 2002, metal ore mining has remained a steady source of employment within the study area while oil and gas extraction has been minimal during the same period of time.

3.3.15.2. Impact Analysis

The lease of oil and gas parcels does not in itself affect socioeconomic resources. The degree to which socioeconomic resources would be affected in the future is uncertain due to the uncertainties related to future exploration, development, extraction, and retirement of prospective well fields. While there are currently producing wells within the region, there is insufficient information upon which to base detailed analysis of impacts of the alternatives. Impact analysis, therefore, would be limited to a qualitative discussion of possible future conditions. The specific impacts anticipated under each scenario would not be analyzed in detail until such time as further actions were proposed and evaluated under more site-specific reviews.

3.3.15.2.1. Alternative A

Under Alternative A, all 94 nominated parcels would be offered for lease, minus the parcels recommended for removal from the sale, potentially leading to the highest level of future exploration and drilling. Should the higher number of leases offered result in a higher level of exploration and production, there would be higher numbers of employment, expenditures on local and regional services, and royalty payments to Federal and state governments.

3.3.15.2.2. Alternative B

Under this alternative, 4 parcels would be offered for lease. This would result in a reduction in revenue for the Federal and state governments compared to Alternative A. At the leasing stage the BLM cannot predict whether or not any of the parcels would actually be developed or what level of development would occur. Subsequent development and production would be expected to result in lower increases in economic activity and fewer royalties than Alternative A.

3.3.15.2.3. Alternative C

Under this alternative none of the 94 parcels would be made available for sale and no development under those leases would occur. There would be no increase in employment, purchases of services, or royalty payments to Federal and state governments.

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Chapter 4. Cumulative Impacts

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4.1. Introduction:

As required under the National Environmental Policy Act (NEPA) and the regulations implementing NEPA, this section analyzes potential cumulative impacts from past, present, and reasonably foreseeable future actions combined with the Proposed Action within the area analyzed for impacts in Chapter 3 specific to the resources for which cumulative impacts may be anticipated. A cumulative impact is defined as "the impact which results from the incremental impact of the action, decision, or project when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time" (40 Code of Federal Regulations (CFR) 1508.7).

4.2. Past, Present, and Reasonably Foreseeable Future Actions

4.2.1. 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, would continue for many more years. While more than 200 wells have been drilled in the Ely District, only two are in production.

4.2.2. Present Actions

Mining, grazing, recreation, realty actions, and oil exploration are being conducted throughout the District. Refer to the affected environment discussions in Chapter 3 for presently authorized activities affecting the nominated parcels.

4.2.3. 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 groundwater development projects 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 continue and expand in the Ely District in the future.

Other than the continuation of activities on authorized mineral projects, there is only one pending exploration operation proposed for nominated parcels (deferred under Alternative B).

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 RFFD 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 reasonable foreseeable development scenario includes locations for wells in the plugged and abandoned category that would be reclaimed immediately after drilling or construction.

Approximately one percent of the total District is subject be leased in this lease sale. The RFFD in the RMP/FEIS (BLM 2007) is described in Chapter 2. The RFFD discussion notes that exploration and development is well below that which was expected for the Ely District. Furthermore, Table 1.2 shows that only 18 APDs (mostly single wells) have been approved in the last ten years even though more than seven million acres have been leased. While it is impossible to predict future trends in mineral exploration and development, there is no current economic trends or conditions that may suggest a substantial increase in development could occur within the Ely District in the near future.

4.3. Cumulative Impact Analysis

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.

4.3.1. Air Quality and Climate Change

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

Potential impacts of development could include increased airborne soil particles blown from new well pads or roads; exhaust emissions from drilling equipment, compressors, vehicles, and dehydration and separation facilities, as well as potential releases of GHGs and VOCs during drilling or production activities. The amount of increased emissions cannot be precisely quantified at this time since it is not known for certain how many wells might be drilled, the types of equipment needed if a well were to be completed successfully (e.g., compressor, separator, dehydrator), or what technologies may be employed by a given company for drilling any new wells. The degree of impact would also vary according to the characteristics of the geologic formations from which production occurs, as well as the scope of specific activities proposed in an APD.

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.

Sources of GHGs associated with development of lease parcels could include construction activities, operations, and facility maintenance in the course of oil and gas exploration, development, and production. Estimated GHG emissions are discussed for these specific aspects of oil and gas activity because the BLM has direct involvement in these steps. However, the current proposed activity is to offer parcels for lease. No specific development activities are currently proposed or potentially being decided upon for any parcels being considered in this

EA. Potential development activities would be analyzed if the BLM receives an APD on any of the parcels considered here.

The assessment of GHG emissions and climate change is in its formative phase. Climate change impacts can be predicted with much more certainty over global or continental scales. Existing models have difficulty in reliably simulating and attributing observed temperature changes at small scales. On smaller scales, natural climate variability is relatively larger, making it harder to distinguish changes expected due to additional development (such as contributions from local activities to GHGs).

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. Although the effects of GHG emissions in the global aggregate are well-documented, it is currently impossible to determine what specific effect GHG emissions resulting from a particular local activity might have on the environment. For additional information on environmental effects typically attributed to climate change, please refer to the cumulative effects discussion below.

While it is not possible to predict the effects on climate change from 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 and/or development stage.

4.3.1.1. Alternative A

Air resources include air quality, air quality related values (AQRVs), and climate change. As part of the planning and decision making process, BLM considers and analyzes the potential effects of BLM and BLM-authorized activities on air resources.

The decision to offer the identified parcels for lease would not result in any direct emissions of air pollutants. However, any future exploration or development of these leases would result in emissions of criteria, HAP and GHG pollutants. The additional emissions could result in an incremental increase in overall emissions of pollutants in the region depending on any contemporaneous activities occurring at the same time when potential exploration and development occurs on the lease.

While the act of leasing the parcels would produce no substantial air quality effects, potential future development of the leases could lead to increases in area and regional emissions. Since it is unknown if the parcels would be developed, or the extent of the development, it is not possible to reasonably quantify potential air quality effects through dispersion modeling or another applicable method at this time. Further, the timing, construction and production equipment specifications and configurations, and specific locations of activities are also unforeseeable at this time. Additional air effects would 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 (specifically PM10 and PM2.5) in the project 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 would contribute to potential short and long term increases in the following criteria pollutants: carbon monoxide, ozone (a secondary pollutant, formed photochemically by combining VOC and NOX emissions), 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. Certain pollutants may be significant when evaluating AQRV for effects on visibility and atmospheric deposition. Significance would depend greatly on the proximity to sensitive receptors, area meteorology, and the background levels of AQRV at any sensitive receptor. Dust control measures, such as applying a layer of gravel over the travel surfaces, watering travel surfaces, and reducing speed along the roadways can be very effective in mitigating dust issues.

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. The development stage may likely include the installation of pipelines for transportation of raw product. New centralized collection, distribution and/or gas processing facilities may also be necessary.

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. Some of the measures that could be imposed at the development stage are given in Section 3.3.1.2.1. 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.

More specific to reducing GHG emissions, the table below describes in detail commonly used technologies to reduce methane emissions from natural gas, coal bed natural gas, and oil production operations. The following table, "Selected Methane Emission Reductions Reported Under the USEPA Natural Gas STAR Program", displays common methane emission technologies reported under the Program and associated emissions reduction, cost, maintenance and payback data.

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.

Selected Methane Emission Reductions Reported Under the USEPA Natural Gas STAR Program 1					
Source Type / Technology	**Annual Methane Emission Reduction 1 (Mcf/yr)**	**Capital Cost Including Installation ($)**	**Annual Operating and Maintenance Cost ($)**	**Payback (Years or Months)**	**Payback Gas Price Basis ($/Mcf)**
Wells					
Reduced emission (green) completion	7,000 2	$1K – $10K	>$1,000	1 – 3 yr	$3
Plunger lift systems	630	$2.6K – $10K	NR	2 – 14 mo	$7
Gas well smart automation system	1,000	$1.2K	$0.1K – $1K	1 – 3 yr	$3
Gas well foaming	2,520	>$10K	$0.1K – $1K	3 – 10 yr	NR
Tanks					
Vapor recovery units on crude oil tanks	4,900 – 96,000	$35K – $104K	$7K – $17K	3 – 19 mo	$7
Consolidate crude oil production and water storage tanks	4,200	>$10K	<$0.1K	1 – 3 yr	NR
Glycol Dehydrators					
Flash tank separators	237 – 10,643	$5K – $9.8K	Negligible	4 – 51 mo	$7
Reducing glycol circulation rate	394 – 39,420	Negligible	Negligible	Immediate	$7
Zero-emission dehydrators	31,400	>$10K	>$1K	0 – 1 yr	NR
Pneumatic Devices and Controls					
Replace high-bleed devices with low-bleed devices					
End-of-life replacement	50 – 200	$0.2K – $0.3K	Negligible	3 – 8 mo	$7
Early replacement	260	$1.9K	Negligible	13 mo	$7
Retrofit	230	$0.7K	Negligible	6 mo	$7
Maintenance	45 – 260	Negl. to $0.5K	Negligible	0 – 4 mo	$7
Convert to instrument air	20,000 (per facility)	$60K	Negligible	6 mo	$7
Convert to mechanical control systems	500	<$1K	<$0.1K	0 – 1 yr	NR
Valves					
Test and repair pressure safety valves	170	NR	$0.1K – $1K	3 – 10 yr	NR
Inspect and repair compressor station blowdown valves	2,000	<$1K	$0.1K – $1K	0 – 1 yr	NR
Compressors					
Install electric compressors	40 – 16,000	>$10K	>$1K	>10 yr	NR
Replace centrifugal compressor wet seals with dry seals	45,120	$324K	Negligible	10 mo	$7
Flare Installation	2,000	>$10K	>$1K	None	NR

Source: Multiple EPA Natural Gas STAR Program documents.

1 Unless otherwise noted, emission reductions are given on a per-device basis (e.g., per well, per dehydrator, per valve, etc). 2 Emission reduction is per completion, rather than per year.

K = 1,000 mo = months Mcf = thousand cubic feet of methane NR = not reported yr = year

4.3.1.2. Alternative B

Alternative B would have the same impacts as Alternative A, but reduced due to fewer parcels being leased and probably fewer wells being drilled.

4.3.1.3. Alternative C

Alternative C would not impact air quality or climate change in the area. Activities on currently leased parcels adjacent to the proposed parcels would still be permitted.

4.3.2. Water Resource (Water Rights, Water Quality and Floodplains)

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 (BLM 2007). 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 Water Authority Groundwater Pipeline EIS (BLM 2012) included a large scale water resource analysis covering most of the Ely District, including the project area for this EA. This EIS identified impacts to water resources due to groundwater pumping throughout the region which is typically dependent on the location of pumping, geology and connectivity of the different aquifer systems. Dispersed recreation (mostly hunting and livestock grazing) occur on or near the parcels and may impact water resources. These activities could result in erosion in localized areas.

In general, oil and 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 groundwater 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 (BLM 2007) 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.

4.3.3. Fish and Wildlife

4.3.3.1. Alternative A

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 requirements for mitigation measures on a site-specific basis could minimize impacts from these activities. See Appendix G for a complete list of all fish and wildlife that have the potential to be affected directly or indirectly by oil and gas leasing.

4.3.3.2. Alternative B

For this alternative, all parcels within Groups A, B, and C and some parcels in Group D would be removed from the lease sale. Impacts to parcels in Group D available for leasing would be similar to those identified in Alternative A.

4.3.3.3. Alternative C

No cumulative effects would occur under this alternative.

4.3.4. USFWS Listed (or proposed for listing) Threatened or Endangered Species or critical habitat

4.3.4.1. Alternative A

The combination of past, present and future activities could cumulatively impact the listed species included in this document. The Clark, Lincoln, and White Pine Counties Groundwater Development Project EIS (BLM 2012) and accompanying Biological Opinion, is a future action that has 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. See Appendix G for a complete list of all Threatened and Endangered Species that have the potential to be affected directly or indirectly by oil and gas leasing.

4.3.4.2. Alternative B

For this alternative, all parcels within Groups A, B, and C and some parcels in Group D would be removed from the lease sale. Impacts to parcels available for leasing in Group D would be similar to those identified in Alternative A.

4.3.4.3. Alternative C

No cumulative impacts would occur this alternative.

4.3.5. Special Status Animal Species, other than those listed or proposed by the USFWS as Threatened or Endangered

4.3.5.1. Alternative A

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 potentially adverse effects on individuals in populations. See Appendix G for a complete list of all Special Status Species that have the potential to be affected directly or indirectly by oil and gas leasing.

4.3.5.2. Alternative B

For this alternative, all parcels within Groups A, B, and C and some parcels in Group D would be removed from the lease sale. Impacts to parcels available for leasing in Group D would be similar to those identified in Alternative A.

4.3.5.3. Alternative C

No cumulative effects would occur under this alternative.

4.3.6. Special Status Plant Species, other than those listed or proposed by the USFWS as Threatened or Endangered

4.3.6.1. Alternative A

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. See

Appendix H for a complete list of all Special Status Species that have the potential to be affected directly or indirectly by oil and gas leasing.

4.3.6.2. Alternative B

For this alternative, all parcels within Groups A, B, and C and some parcels in Group D would be removed from the lease sale. Impacts to parcels available for leasing in Group D would be similar to those identified in Alternative A.

4.3.6.3. Alternative C

No cumulative effects would occur under this alternative.

4.3.7. Cultural Resources

Cultural Resources are described in Section 3.3.15

4.3.7.1. Alternative A

Any development on leased parcels would be subject to Section 106 of the National Historic Preservation Act (NHPA) and additional NEPA analysis. Part of that process is a required BLM Class III cultural inventory before lease development ground disturbing activity proceeds. This rigorous and thorough inventory may reveal currently undocumented NRHP eligible cultural resources. The lease parcels may contain additional NRHP eligible sites, historic properties, Traditional Cultural Properties (TCPs), and/or sacred sites currently unknown to the BLM that were not identified during the initial lease parcel review process. When eligible cultural resources are present, consultation and mitigation is required before the undertaking may proceed. Consultation takes place between the BLM, State Historic Preservation Office (SHPO), concerned Native Tribes, and the interested public. Avoidance is the preferred method of mitigation to preserve and protect the resource. Through consultation other mitigation measures may be considered on a case by case basis. 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 lease of a parcel does not guarantee the feasibility of future oil and gas exploration or development.

4.3.7.2. Alternative B

Same as Alternative A, but less area of analysis.

4.3.7.3. Alternative C

The No Action Alternative would not impact cultural resources in the area.

4.3.8. Heritage Special Designations (Historic Trails, ACECs designated for Cultural Resources, Archaeological Districts and Areas)

Heritage Special Designations are described in the Affected Environment section.

4.3.8.1. Alternative A

Heritage Special Designation areas in the Lease parcels are identified and described in the Affected Environment section. The identified parcels are protected against future development.

4.3.8.2. Alternative B

There are no Heritage Special Designated areas located in Alternative B.

4.3.8.3. Alternative C

The No Action Alternative would not impact Heritage Special Designated areas.

4.3.9. Visual Resources Management

4.3.9.1. Alternative A

The reasonably foreseeable future actions would have an impact on visual resources. A number of ongoing and future activities combined could result in direct and indirect impacts to visual resources, particularly to VRM Class II areas. VRM Class III and IV areas would have site-specific design features incorporated and future activities would avoid VRM Class I areas. The stipulations required through the RMP or those determined to be needed on a site-specific basis would help to minimize impacts from these activities.

4.3.9.2. Alternative B

Alternative B would be the same as Alternative A with the exception of parcels groups A, B, C, and portions of D would have no future action due to the deferral.

4.3.9.3. Alternative C

Under the no Action Alternative the lease sale would not occur, there for there would be no cumulative effects.

4.3.10. Land Uses

There would be no long term impacts of leased parcels to existing ROWs.

Past, Present & Reasonably Foreseeable Future Actions

Various types of land uses within the lease parcel areas have been authorized in the past. Some of the authorizations were closed out over the years, but many remain in effect as shown in the informal table in Chapter 3, Section 3.3.12.

Currently, there are three applications for land use authorization, one recommendation for lands to be withdrawn from mineral entry as per the Ely RMP. One land use authorization has been issued, however the project is pending construction. The following table lists these known reasonably foreseeable future actions that could occur within the leased parcels.

Group	Parcel #	Case File #	Applicant/Holder	Project Description	Status
B	NV-15-12-041	NVN 022936 NVN 00293601	Marcia L Fagan	320 acres, Desert Land Entry	Application Rec'd, Pending Authorization
A	NV-15-12-057 NV-15-12-061 NV-15-12-062 NV-15-12-065 NV-15-12-067 NV-15-12-068 NV-15-12-069 NV-15-12-071	NVN 085095	Lincoln County Power District #1	230 kv power line	Application Rec'd, Pending Authorization
B	NV-15-12-034 NV-15-12-035 NV-15-12-038 NV-15-12-048	NVN 088107	BLM	Withdrawal per RMP: White River Valley ACEC	Pending Recommendation
A	NV-15-12-066	NVN 088959	Sithe Global	100 ft wide, 230 kv power line	Application Rec'd, Pending Authorization
A	NV-15-12-053	NVN 079734	Lincoln County Water District	Water wells, water collection & transmission pipeline, power & fiber optic.	ROW is Authorized, not ye constructed

4.3.11. Grazing uses/Forage

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 RFFD could cumulatively reduce the available forage on the affected allotments and as a result impact grazing operations.

4.3.12. Mineral Resources

4.3.12.1. Alternative A

Exploration and development for locatable minerals, mineral materials, and leasable minerals have occurred on the nominated lands. Currently, the only authorized mineral operations are gold mine and exploration affecting a few parcels in Group D and a single mineral material site

affecting one parcel in Group B. The leasing of nominated parcels would not authorize in itself surface disturbing activities that could further add to cumulative impacts. However, leasing conveys rights to the lessee to access, explore, and develop oil and gas resources within the parcel, which would be authorized under future applications.

4.3.12.2. Alternative B

Alternative B would have the same types of impacts as Alternative A, albeit less extensive due to fewer parcels offered for sale.

4.3.12.3. Alternative C

There would be no surface disturbance authorized under this alternative, nor would there be additional leases offered that would convey a right to potentially cause surface disturbance in the future. Therefore, there would be no cumulative impacts.

4.3.13. 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. However, it does authorize the right to future exploration and production activities. At the time the lease parcels are sold and exploration and development takes place, then potential impacts would be discussed in a site-specific NEPA process.

4.3.14. Native American Religious and other Concerns

Four tribes have expressed concern with leasing parcels and potential oil and gas development as a result of the December 2015 Ely District Lease Sale. If parcels are leased, BLM would be required to consult and comply with NHPA-NAGPRA. Under Alternative A, 94 parcels would be offered for lease, which could provide cumulative impacts. Under Alternative B, fewer parcels would be leased which would have less potential for cumulative impacts. Under Alternative C, no parcels would be leased and there would not add to cumulative.

Chapter 5. Consultation and Coordination:

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5.1. Introduction

The issue identification section of Chapter 3 provides the rationale for issues that were considered but not analyzed further and identifies those issues analyzed in detail in Chapter 3. The issues were identified through the public and agency involvement process described in sections 5.2 and 5.3 below.

5.2. Persons, Groups, and Agencies Consulted

Table 5.1. Persons, Groups, and Agencies Consulted

Nevada State Historic Preservation Office (SHPO)	Consultation for undertakings as required by the National Historic Preservation Act (16 USC 1531)	A Cultural Resources Inventory Needs Assessment was completed for this project as per the requirements of the State Protocol Agreement.
United States Fish and Wildlife Service (USFWS)	Endangered Species Act; Threatened, Endangered, or Proposed Species; National Wildlife Refuges	Recommendations for deferrals, stipulations or other mitigation measures.
Nevada Department of Wildlife (NDOW)	Fish and Wildlife, BLM Special Status Animal Species, Wildlife Management Areas, Threatened, Endangered, or Proposed Species	Recommendations for deferrals, stipulations or other mitigation measures.
Confederated Tribes of the Goshute Reservation, NV-UT, Duckwater Shoshone Tribe of the Duckwater Reservation, NV, Ely Shoshone Tribe of Nevada, Te-Moak Tribe of the Western Shoshone Indians of Nevada; Elko Band Council; South Fork Band Council; Battle Mountain Band Council, Paiute Indian Tribe of Utah; Indian Peaks Band of Paiutes; Shivwits Band of Paiutes, Moapa Band of Paiute Indians of the Moapa River Indian Reservation, Las Vegas Paiutes Tribe of the Las Vegas Indian Colony, and the Yomba Shoshone Tribe of the Yomba Indian Reservation, NV	Tribal consultation	Consultation is ongoing. A summary of consultation thus far is described below
Name	**Purpose & Authority for Consultation or Coordination**	**Findings and Conclusions**

5.2.1. Tribal Consultation

On April 30, 2015 the Ely District Office mailed certified letters extending invitations to the following tribes: Confederated Tribes of the Goshute Reservation, NV-UT, Duckwater Shoshone Tribe of the Duckwater Reservation, NV, Ely Shoshone Tribe of Nevada, Te-Moak Tribe of the Western Shoshone Indians of Nevada; Elko Band Council; South Fork Band Council; Battle Mountain Band Council, Paiute Indian Tribe of Utah; Indian Peaks Band of Paiutes; Shivwits Band of Paiutes, Moapa Band of Paiute Indians of the Moapa River Indian Reservation, Las Vegas Paiutes Tribe of the Las Vegas Indian Colony, and the Yomba Shoshone Tribe of the Yomba Indian Reservation, NV to assist BLM with any known traditional religious sites or cultural sites of importance that would potential be adversely affected

The BLM has conducted outreach consultation meetings with the leadership of the following tribes: the Paiute Indian Tribe of Utah on May 21, 2015, Duckwater Shoshone Tribe of the Duckwater Reservation, NV on May 26, 2015, and the Moapa Band of Paiute Indians of the Moapa River Indian Reservation, NV. The Ely District Office managers continue outreach visits with Tribes for the purpose of conducting coordination and discussing their concerns.

Three Tribes have identified parcels for deferral from the competitive sale by submitting a letter to the line-managers. The BLM took these requests into consideration to develop the recommendation for parcels to defer.

5.3. Summary of Public Participation

During preparation of the EA, the public was notified of the proposed action by posting the project on the Ely District Office Website on May 4, 2015 and publishing a press release on the same date. The press release announced a public scoping period that concluded on May 22, 2015. A public comment period for the preliminary EA was offered between June 22 and July 24, 2015.

In response to comment period on the Preliminary EA, the Ely District received 168 comment submissions from members of the public, special interest groups, Tribal Governments, and other government agencies. Below is a list of groups that submitted comments.

- 92 Concerned Citizens
- City of Mesquite
- Lincoln County Water District
- Moapa Valley Water District
- Nevada Department of Wildlife
- United States Environmental Protection Agency
- United States Fish and Wildlife Service
- Virgin Valley Water District
- White Pine County Board of County Commissioners
- Center for Biological Diversity
- Great Basin Resource Watch
- Supporters of Nevadan's Against Fracking
- Supporters of Save Nevada's Water: Ban Fracking in Nevada
- Western Energy Alliance
- Wildlands Defence

A summary of the substantial changes made in response to comments received can be found in section 1.9.

5.4. List of Preparers

5.4.1. BLM

Table 5.2. List of BLM Preparers

Name	Title	Responsible for the Following Section(s) of this Document
Carissa Shilling	Geologist (Caliente)	Minerals
Alicia Styles	Wildlife Biologist (Caliente)	Fish and Wildlife, Special Status Plants and Animals, Threatened and Endangered Species, Migratory Birds
Marian Lichtler	Wildlife Biologist (Egan)	Fish and Wildlife, Special Status Plants and Animals, Threatened and Endangered Species, Migratory Birds
Nancy Herms	Wildlife Biologist (Schell)	Fish and Wildlife, Special Status Plants and Animals, Threatened and Endangered Species, Migratory Birds
Cameron Boyce	Natural Resource Specialist (Caliente)	Farmlands Soils/Watersheds, Vegetation, Forest/Woodland and other vegetative products, Wetlands/Riparian Zones, Grazing Uses/Forage, and Noxious and Non-Native Invasive Species
Dave Corry	Range Specialist (St.George)	Grazing Uses/Forage
Ben Noyes	Wild Horse and Burro Specialist (Ely District)	Wild Horses
Ruth Thompson	Wild Horse and Burro Specialist (Egan)	Wild Horses
Emily Simpson	Wilderness Planner (Ely District)	Wilderness, WSAs, Lands with Wilderness Characteristics, Wild and Scenic Rivers, Scenic ACEC
Kyle Teel	Fuels Specialist (Caliente —Fire	Fuels
Erica Husse	ES&R Specialist (Ely District)	ES&R
Elizabeth Domina	Outdoor Recreation Planner (Caliente)	Visual Resources, Transportation, Recreational Uses
Alicia Hankins	Land Law Examiner (lands) (Ely District)	Lands and Realty
Benjamin Martin	Land Law Examiner (minerals) (Ely District)	Lands
Harry Konwin	Archaeologist (Caliente)	Cultural, Paleontology
Elvis Wall	Tribal Coordinator (Ely District)	Native American Concerns, Tribal Consultation
Sarah Peterson	Natural Resource Specialist (Nevada State Office)	Water Resources (including groundwater, surface water, water rights, riparian and wetland zones, floodplains and municipal wellhead zones and drinking water protection areas)
Dave Jones	Air Quality Specialist (Nevada State Office)	Air Quality, Climate Change
Randall Johnson	District HAZMAT lead (Ely District)	Wastes
Julie Suhr Pierce	Socioeconomist (Utah State Office)	Socioeconomics
Nicholas Pay	Planning and Environmental Coordinator (Caliente)	Environmental Justice, Land Use Plan Compliance

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Acronyms

APD:
Application for Permit to Drill

APDs:
Applications for Permit to Drill

BLM:
Bureau of Land Management

BMPs:
Best Management Practices

CFR:
Code of Federal Regulations

COAs:
Conditions of Approval

DR:
Decision Record

EA:
Environmental Assessment

EIS:
Environmental Impact Statement

EOI:
Expression of Interest

ESA:
Endangered Species Act

EYDO:
Ely District Office

FLPMA:
Federal Land Policy and Management Act

FONSI:
Finding of No Significant Impact

IM:
Instructional Memorandum

LCCRDA:
Lincoln County Conservation, Recreation, and Development Act

LUP:
Land Use Plan

MLA:
Mineral Leasing Act

NCLS:
Notice of Competitive Lease Sale

NDOW:
Nevada Department of Wildlife

NEPA:
National Environmental Policy Act

NHPA:
National Historic Preservation Act

RFFD:
Reasonably Foreseeable Future Development

RFFS:
Reasonably Foreseeable Future Action

RMP:
Resource Management Plan

RMP/FEIS:
Resource Management Plan—Final Environmental Impact Statement

ROW:
Rights-of-way

SHPO:
State Historic Preservation Office

TCPs:
Traditional Cultural Properties

USC:
United States Code

USFWS:
United States Fish and Wildlife Service

Appendix A. Ely District Best Management Practices for Oil & Gas

See Standalone PDF

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Appendix B. List of Nominated Parcels

Parcel Number	Total Parcel Acreage	Parcel Group	Individual Part Acreage	Township	Range	Section	Parts	County	Field Office	PENDING PRESALE OFFER	Former Lease Number
NV-15-12-001	1,280.000	C						Nye County	Egan FO	NVN93276	
			640.000	0110N	0540E	024	ALL;				
			640.000	0110N	0540E	025	ALL;				
NV-15-12-002	1,400.000	D						White Pine County	Egan FO	NVN93294	NVN77460
			120.000	0160N	0540E	011	NWSE,S2SE;				
			640.000	0160N	0540E	014	ALL;				
			640.000	0160N	0540E	023	ALL;				
NV-15-12-003	1,277.000	C						Nye County	Egan FO	NVN93277	NVN81116, NVN79379
			638.000	0110N	0550E	019	ALL;				
			639.000	0110N	0550E	030	ALL;				
NV-15-12-004	1,187.190	D						White Pine County	Egan FO	NVN93290	
			159.020	0220N	0550E	013	1-4;				
			160.000	0220N	0560E	005	W2SW,SESW,SWSE;				
			74.170	0220N	0560E	006	6,7;				
			240.000	0220N	0560E	006	E2SW,SE;				
			480.000	0220N	0560E	007	E2,E2W2;				
			74.000	0220N	0560E	007	1,4;				
NV-15-12-005	120.000	C						Nye County	Egan FO		
			120.000	0100N	0570E	004	NWSE,S2SE;				
NV-15-12-006	360.000	C						Nye County	Egan FO	NVN93279	
			360.000	0120N	0570E	006	S2NE,SENW,E2SW-,SE;				
NV-15-12-007	233.060	C						Nye County	Egan FO		

Parcel Number	Total Parcel Acreage	Parcel Group	Individual Part Acreage	Township	Range	Section	Parts	County	Field Office	PENDING PRESALE OFFER	Former Lease Number
			233.060	0120N	0570E	006	1,2,6-9;				
NV-15-12-008	1,640.000	C						Nye County	Egan FO	NVN93279	NVN84382
			640.000	0120N	0570E	009	ALL;				
			600.000	0120N	0570E	010	NWNE,S2NE,W2,SE;				
			400.000	0120N	0570E	011	SENE,SWNW,S2;				
NV-15-12-009	1,800.000	C						Nye County	Egan FO	NVN93279	
			520.000	0120N	0570E	014	N2,SW,NWSE;				
			640.000	0120N	0570E	015	ALL;				
			640.000	0120N	0570E	016	ALL;				
NV-15-12-010	1,280.000	C						Nye County	Egan FO	NVN93279	
			640.000	0120N	0570E	021	ALL;				
			640.000	0120N	0570E	022	ALL;				
NV-15-12-011	1,600.000	C						Nye County	Egan FO	NVN93291	
			320.000	0120N	0570E	026	W2;				
			640.000	0120N	0570E	027	ALL;				
			640.000	0120N	0570E	028	ALL;				
NV-15-12-012	1,432.440	C						Nye and White Pine	Egan FO	NVN93292	NVN85281
			395.000	0130N	0570E	007	1-12;				
			320.000	0130N	0570E	007	E2;				
			397.440	0130N	0570E	018	1-12;				
			320.000	0130N	0570E	018	E2;				
NV-15-12-013	1,126.680	C						Nye County	Egan FO	NVN93275	
			360.000	0100N	0580E	006	S2NE,SENW,E2SW-,SE;				
			260.500	0100N	0580E	006	1-7;				

Parcel Number	Total Parcel Acreage	Parcel Group	Individual Part Acreage	Township	Range	Section	Parts	County	Field Office	PENDING PRESALE OFFER	Former Lease Number
			146.180	0100N	0580E	007	1-4;				
			360.000	0100N	0580E	007	NENE,W2E2,E2W2;				
NV-15-12-014	439.840	C						Nye County	Egan FO	NVN93278	
			159.840	0110N	0580E	031	1-4;				
			280.000	0110N	0580E	031	N2NE,SWNE,E2W2;				
NV-15-12-015	847.390	D						White Pine County	Egan FO	NVN93230	
			165.840	0200N	0580E	001	1-4;				
			480.000	0200N	0580E	001	S2N2,S2;				
			41.550	0200N	0580E	002	1;				
			160.000	0200N	0580E	002	SENE,NESE,S2SE;				
NV-15-12-016	2,253.400	D						White Pine County	Egan FO	NVN93231	
			360.000	0200N	0580E	011	E2,SESW;				
			640.000	0200N	0580E	012	ALL;				
			133.400	0200N	0590E	007	1-4;				
			480.000	0200N	0590E	007	E2,E2W2;				
			640.000	0200N	0590E	008	ALL;				
NV-15-12-017	440.000	D						White Pine County	Egan FO	NVN93235	
			200.000	0210N	0580E	035	SENE,SE;				
			240.000	0210N	0580E	036	S2NW,SW;				
NV-15-12-018	1,520.000	D						White Pine County	Egan FO	NVN93237	
			240.000	0220N	0580E	001	E2SW,SE;				
			640.000	0220N	0580E	013	ALL;				
			640.000	0220N	0580E	024	ALL;				

Parcel Number	Total Parcel Acreage	Parcel Group	Individual Part Acreage	Township	Range	Section	Parts	County	Field Office	PENDING PRESALE OFFER	Former Lease Number
NV-15-12-019	320.000	D						White Pine County	Egan FO	NVN93238	NVN83242 CLASS II REINSTATE-MENT APLN
			40.000	0220N	0580E	002	SESE;				
			280.000	0220N	0580E	005	SWNW,SW,S2SE;				
NV-15-12-020	631.390	D						White Pine County	Egan FO	NVN93242	
			586.850	0230N	0580E	005	5-18;				
			44.540	0230N	0580E	008	4;				
NV-15-12-021	452.830	D						White Pine County	Egan FO	NVN93248	
			293.120	0230N	0580E	018	7-10,15-17;				
			159.710	0230N	0580E	019	8,9,16,17;				
NV-15-12-022	2,550.820	D						White Pine County	Egan FO	NVN93236	NVN79071
			170.000	0200N	0590E	005	1-4;				
			480.000	0200N	0590E	005	S2N2,S2;				
			260.820	0200N	0590E	006	1-7;				
			360.000	0200N	0590E	006	S2NE,SENW,E2SW-,SE;				
			320.000	0210N	0590E	020	E2;				
			320.000	0210N	0590E	029	E2;				
			640.000	0210N	0590E	032	ALL;				
NV-15-12-023	760.720	D						White Pine County	Egan FO	NVN93239	
			80.720	0220N	0590E	002	1,2;				
			360.000	0220N	0590E	002	S2NE,SENW,E2SW-,SE;				
			320.000	0220N	0590E	011	E2;				

Parcel Number	Total Parcel Acreage	Parcel Group	Individual Part Acreage	Township	Range	Section	Parts	County	Field Office	PENDING PRESALE OFFER	Former Lease Number
NV-15-12-024	1,600.000	D						White Pine County	Egan FO	NVN93241	
			360.000	0220N	0590E	014	E2,SESW;				
			600.000	0220N	0590E	023	E2,NENW,S2NW,SW;				
			640.000	0220N	0590E	027	ALL;				
NV-15-12-025	280.000	D						White Pine County	Egan FO	NVN93249	NVN86380
			280.000	0240N	0590E	026	W2NW,N2SW,SESW-,S2SE;				
NV-15-12-026	40.000	D						White Pine County	Egan FO	NVN93251	NVN86380
			40.000	0240N	0590E	027	SENE;				
NV-15-12-027	1,536.160	D						White Pine County	Egan FO	NVN92807	
			40.000	0170N	0600E	013	SESE;				
			320.000	0170N	0600E	024	NENE,S2NE,SESW-,SE;				
			56.160	0170N	0610E	006	1-4;				
			480.000	0170N	0610E	006	S2N2,S2;				
			640.000	0170N	0610E	007	ALL;				
NV-15-12-028	1,280.000	D						White Pine County	Egan FO	NVN92399	
			640.000	0220N	0600E	012	ALL;				
			640.000	0220N	0600E	013	ALL;				
NV-15-12-029	799.830	B						Nye County	Egan FO	NVN93280	
			400.000	0060N	0610E	001	S2N2,SW,E2SE;				

Parcel Number	Total Parcel Acreage	Parcel Group	Individual Part Acreage	Township	Range	Section	Parts	County	Field Office	PENDING PRESALE OFFER	Former Lease Number
			159.860	0060N	0610E	001	1-4;				
			40.000	0060N	0610E	002	SENE;				
			39.970	0060N	0610E	002	1;				
			160.000	0060N	0610E	012	W2W2;				
NV-15-12-030	1,041.220	B						Nye County	Egan FO	NVN93280	
			80.260	0060N	0610E	002	3,4;				
			40.000	0060N	0610E	002	SWNW;				
			160.800	0060N	0610E	003	1-4;				
			480.000	0060N	0610E	003	S2N2,S2;				
			40.160	0060N	0610E	004	1;				
			240.000	0060N	0610E	004	SENE,SESW,SE;				
NV-15-12-031	1,400.000	B						Nye County	Egan FO	NVN93280	
			640.000	0060N	0610E	014	ALL;				
			160.000	0060N	0610E	021	N2NE,SWNE,SESE;				
			280.000	0060N	0610E	022	NWNE,NENW,NWS-W,SE;				
			320.000	0060N	0610E	023	W2;				
NV-15-12-032	1,285.000	B						Nye County	Egan FO	NVN93280	
			5.000	0060N	0610E	026	N2NWSWNW;				
			480.000	0060N	0610E	027	N2,SW;				
			440.000	0060N	0610E	028	NENE,S2NE,S2;				
			360.000	0060N	0610E	033	N2,NWSW;				
NV-15-12-033	480.000	B						Nye County	Egan FO	NVN93280	
			480.000	0060N	0610E	036	N2,N2S2;				
NV-15-12-034	1,480.000	B						Nye County	Egan FO	NVN93286	
			560.000	0070N	0610E	024	E2,S2NW,SW;				
			520.000	0070N	0610E	025	N2,SW,NWSE;				

Parcel Number	Total Parcel Acreage	Parcel Group	Individual Part Acreage	Township	Range	Section	Parts	County	Field Office	PENDING PRESALE OFFER	Former Lease Number
			400.000	0070N	0610E	036	NENE,S2NE,NWNW-,E2SW,SE;				
NV-15-12-035	960.000	B						Nye County	Egan FO	NVN93286	
			200.000	0070N	0610E	028	S2NW,NESW,NWSE-,SESE;				
			160.000	0070N	0610E	033	E2E2;				
			600.000	0070N	0610E	034	NE,W2NW,SENW,S2;				
NV-15-12-036	723.080	B						White Pine County	Egan FO	NVN93283	NVN77193
			40.770	0100N	0610E	001	4;				
			122.310	0100N	0610E	002	1-3;				
			240.000	0100N	0610E	002	S2NE,SENW,E2SW,N-WSE;				
			120.000	0100N	0610E	011	E2NW,SESE;				
			200.000	0100N	0610E	012	NW,SWSW;				
NV-15-12-037	240.710	B						White Pine County	Egan FO	NVN93289	NVN77193
			40.710	0100N	0610E	002	4;				
			120.000	0100N	0610E	002	SWNW,W2SW;				
			80.000	0100N	0610E	011	W2NW;				
NV-15-12-038	1,922.860	B						White Pine and Nye	Egan FO	NVN93283	
			162.860	0100N	0610E	003	1-4;				
			480.000	0100N	0610E	003	S2N2,S2;				
			640.000	0100N	0610E	010	ALL;				
			640.000	0100N	0610E	015	ALL;				
NV-15-12-039	1,280.000	B						Nye County	Egan FO	NVN93283	
			640.000	0100N	0610E	021	ALL;				

Parcel Number	Total Parcel Acreage	Parcel Group	Individual Part Acreage	Township	Range	Section	Parts	County	Field Office	PENDING PRESALE OFFER	Former Lease Number
			640.000	0100N	0610E	028	ALL;				
NV-15-12-040	1,480.000	B						Nye County	Egan FO	NVN93283	
			520.000	0100N	0610E	022	N2NE,SWNE,W2,W2SE;				
			480.000	0100N	0610E	027	W2E2,W2;				
			480.000	0100N	0610E	034	W2E2,W2;				
NV-15-12-041	1,240.000	B						Nye County	Egan FO	NVN93283	
			320.000	0100N	0610E	023	E2;				
			440.000	0100N	0610E	026	E2,SENW,E2SW;				
			480.000	0100N	0610E	035	E2,E2W2;				
NV-15-12-042	920.000	B						Nye and White Pine	Egan FO	NVN93283	
			160.000	0100N	0610E	024	W2W2;				
			440.000	0100N	0610E	025	SWNE,W2,W2SE;				
			320.000	0100N	0610E	036	W2NE,NW,W2SW;				
NV-15-12-043	67.330	B						Nye County	Egan FO	NVN93285	
			67.330	0060N	0620E	006	4,5;				
NV-15-12-044	480.000	B						Nye County	Egan FO & Schell FO	NVN93285	
			80.000	0060N	0620E	008	W2SW;				
			400.000	0060N	0620E	017	W2,W2SE;				
NV-15-12-045	1,456.320	B						Nye County	Egan FO & Schell FO	NVN93285	
			400.000	0060N	0620E	020	W2NE,W2;				
			240.000	0060N	0620E	029	NW,W2SW;				
			480.000	0060N	0620E	030	E2,E2W2;				
			136.320	0060N	0620E	030	1-4;				
			200.000	0060N	0620E	033	NE,NENW;				

Parcel Number	Total Parcel Acreage	Parcel Group	Individual Part Acreage	Township	Range	Section	Parts	County	Field Office	PENDING PRESALE OFFER	Former Lease Number
NV-15-12-046	1,842.880	B						Nye County	Egan FO & Schell FO	NVN93281	
			161.360	0070N	0620E	004	1-4;				
			480.000	0070N	0620E	004	S2N2,S2;				
			161.520	0070N	0620E	005	1-4;				
			480.000	0070N	0620E	005	S2N2,S2;				
			560.000	0070N	0620E	009	N2,SW,W2SE;				
NV-15-12-047	1,520.000	B						Nye County	Egan FO & Schell FO	NVN93281	
			640.000	0070N	0620E	008	ALL;				
			200.000	0070N	0620E	016	NENW,W2W2;				
			640.000	0070N	0620E	017	ALL;				
			40.000	0070N	0620E	021	NWNW;				
NV-15-12-048	1,233.280	B						Nye County	Egan FO	NVN93281	
			154.560	0070N	0620E	019	1-4;				
			480.000	0070N	0620E	019	E2,E2W2;				
			400.000	0070N	0620E	020	N2NE,SWNE,NW,N2SW,SWSW;				
			40.000	0070N	0620E	020	NWSE;				
			38.720	0070N	0620E	030	1;				
			80.000	0070N	0620E	030	NWNE,NENW;				
			40.000	0070N	0620E	032	NWNW;				
NV-15-12-049	1,357.970	B						Nye County	Egan FO & Schell FO	NVN93282	
			400.000	0080N	0620E	007	NWNE,S2NE,SENW-,E2SE,SE;				
			80.000	0080N	0620E	008	W2SW;				
			320.000	0080N	0620E	017	W2;				
			77.970	0080N	0620E	018	3,4;				
			480.000	0080N	0620E	018	E2,E2W2;				

Parcel Number	Total Parcel Acreage	Parcel Group	Individual Part Acreage	Township	Range	Section	Parts	County	Field Office	PENDING PRESALE OFFER	Former Lease Number
NV-15-12-050	1,914.420	B						Nye County	Egan FO & Schell FO	NVN93282	
			154.420	0080N	0620E	019	1-4;				
			480.000	0080N	0620E	019	E2,E2W2;				
			320.000	0080N	0620E	020	W2;				
			600.000	0080N	0620E	029	W2NE,SENE,W2,SE;				
			360.000	0080N	0620E	030	E2,NENW;				
NV-15-12-051	1,800.000	B						Nye County	Egan FO & Schell FO	NVN93282	
			600.000	0080N	0620E	028	E2,NENW,S2NW,SW;				
			40.000	0080N	0620E	031	NENE;				
			520.000	0080N	0620E	032	N2,NESW,SE;				
			640.000	0080N	0620E	033	ALL;				
NV-15-12-052	1,653.530	B						White Pine County	Schell FO	NVN92630	
			53.980	0150N	0620E	020	11,13,20,22;				
			40.000	0150N	0620E	020	SESE;				
			79.550	0150N	0620E	021	2,4,6,8;				
			160.000	0150N	0620E	021	S2S2;				
			560.000	0150N	0620E	028	N2,SW,W2SE;				
			160.000	0150N	0620E	029	NE;				
			600.000	0150N	0620E	033	NWNE,S2NE,NW,S2;				
NV-15-12-053	1,401.240	A						Lincoln County	Caliente FO		
			161.240	0100S	0680E	002	1-4;				
			320.000	0100S	0680E	002	S2NE,SENW,NESW-,SE;				
			80.000	0100S	0680E	011	E2NE;				
			600.000	0100S	0680E	012	N2,N2SW,SESW,SE;				
			240.000	0100S	0680E	013	NE,E2SE;				
NV-15-12-054	1,280.000	A						Lincoln County	Caliente FO		

Parcel Number	Total Parcel Acreage	Parcel Group	Individual Part Acreage	Township	Range	Section	Parts	County	Field Office	PENDING PRESALE OFFER	Former Lease Number
			640.000	0120S	0680E	001	ALL;				
			640.000	0120S	0680E	012	ALL;				
NV-15-12-055	1,600.000	A						Lincoln County	Caliente FO	NVN93274	
			640.000	0120S	0680E	013	ALL;				
			320.000	0120S	0680E	014	E2;				
			640.000	0120S	0680E	023	ALL;				
NV-15-12-056	800.000	A						Lincoln County	Caliente FO		
			160.000	0120S	0680E	021	NE;				
			640.000	0120S	0680E	022	ALL;				
NV-15-12-057	1,920.000	A						Lincoln County	Caliente FO		
			640.000	0120S	0680E	024	ALL;				
			640.000	0120S	0680E	025	ALL;				
			640.000	0120S	0680E	036	ALL;				
NV-15-12-058	1,280.000	A						Lincoln County	Caliente FO		
			640.000	0120S	0680E	026	ALL;				
			640.000	0120S	0680E	035	ALL;				
NV-15-12-059	2,400.000	A						Lincoln County	Caliente FO		
			640.000	0120S	0680E	027	ALL;				
			320.000	0120S	0680E	028	E2;				
			160.000	0120S	0680E	032	SE;				
			640.000	0120S	0680E	033	ALL;				
			640.000	0120S	0680E	034	ALL;				
NV-15-12-060	2,560.000	A						Lincoln County	Caliente FO		
			640.000	0090S	0690E	013	ALL;				
			640.000	0090S	0690E	024	ALL;				

Parcel Number	Total Parcel Acreage	Parcel Group	Individual Part Acreage	Township	Range	Section	Parts	County	Field Office	PENDING PRESALE OFFER	Former Lease Number
			640.000	0090S	0690E	025	ALL;				
			640.000	0090S	0690E	036	ALL;				
NV-15-12-061	1,280.000	A						Lincoln County	Caliente FO		
			640.000	0120S	0690E	001	ALL;				
			640.000	0120S	0690E	012	ALL;				
NV-15-12-062	2,560.000	A						Lincoln County	Caliente FO		
			640.000	0120S	0690E	002	ALL;				
			640.000	0120S	0690E	003	ALL;				
			640.000	0120S	0690E	010	ALL;				
			640.000	0120S	0690E	011	ALL;				
NV-15-12-063	1,920.000	A						Lincoln County	Caliente FO	NVN93274	
			640.000	0120S	0690E	004	ALL;				
			640.000	0120S	0690E	005	ALL;				
			640.000	0120S	0690E	008	ALL;				
NV-15-12-064	1,910.000	A						Lincoln County	Caliente FO		
			636.000	0120S	0690E	006	ALL;				
			637.000	0120S	0690E	007	ALL;				
			637.000	0120S	0690E	018	ALL;				
NV-15-12-065	1,920.000	A						Lincoln County	Caliente FO	NVN93274	
			640.000	0120S	0690E	009	ALL;				
			640.000	0120S	0690E	016	ALL;				
			640.000	0120S	0690E	017	ALL;				
NV-15-12-066	2,560.000	A						Lincoln County	Caliente FO		
			640.000	0120S	0690E	013	ALL;				
			640.000	0120S	0690E	024	ALL;				

Parcel Number	Total Parcel Acreage	Parcel Group	Individual Part Acreage	Township	Range	Section	Parts	County	Field Office	PENDING PRESALE OFFER	Former Lease Number
			640.000	0120S	0690E	025	ALL;				
			640.000	0120S	0690E	036	ALL;				
NV-15-12-067	2,560.000	A						Lincoln County	Caliente FO		
			640.000	0120S	0690E	014	ALL;				
			640.000	0120S	0690E	015	ALL;				
			640.000	0120S	0690E	022	ALL;				
			640.000	0120S	0690E	023	ALL;				
NV-15-12-068	2,557.000	A						Lincoln County	Caliente FO		
			638.000	0120S	0690E	019	ALL;				
			640.000	0120S	0690E	020	ALL;				
			640.000	0120S	0690E	029	ALL;				
			639.000	0120S	0690E	030	ALL;				
NV-15-12-069	1,920.000	A						Lincoln County	Caliente FO		
			640.000	0120S	0690E	021	ALL;				
			640.000	0120S	0690E	027	ALL;				
			640.000	0120S	0690E	028	ALL;				
NV-15-12-070	1,280.000	A						Lincoln County	Caliente FO		
			640.000	0120S	0690E	026	ALL;				
			640.000	0120S	0690E	035	ALL;				
NV-15-12-071	2,560.000	A						Lincoln County	Caliente FO		
			640.000	0120S	0690E	031	ALL;				
			640.000	0120S	0690E	032	ALL;				
			640.000	0120S	0690E	033	ALL;				
			640.000	0120S	0690E	034	ALL;				
NV-15-12-072	2,558.800	A						Lincoln County	Caliente FO		

Parcel Number	Total Parcel Acreage	Parcel Group	Individual Part Acreage	Township	Range	Section	Parts	County	Field Office	PENDING PRESALE OFFER	Former Lease Number
			480.000	0090S	0700E	001	S2N2,S2;				
			159.600	0090S	0700E	001	1-4;				
			159.200	0090S	0700E	002	1-4;				
			480.000	0090S	0700E	002	S2N2,S2;				
			640.000	0090S	0700E	011	ALL;				
			640.000	0090S	0700E	012	ALL;				
NV-15-12-073	1,919.760	A						Lincoln County	Caliente FO		
			159.760	0090S	0700E	003	1-4;				
			480.000	0090S	0700E	003	S2N2,S2;				
			640.000	0090S	0700E	010	ALL;				
			640.000	0090S	0700E	015	ALL;				
NV-15-12-074	1,891.420	A						Lincoln County	Caliente FO		
			480.000	0090S	0700E	004	S2N2,S2;				
			159.880	0090S	0700E	004	1-4;				
			159.320	0090S	0700E	005	1-4;				
			480.000	0090S	0700E	005	S2N2,S2;				
			252.220	0090S	0700E	006	1-7;				
			360.000	0090S	0700E	006	S2NE,SENW,E2SW-,SE;				
NV-15-12-075	1,842.800	A						Lincoln County	Caliente FO		
			133.600	0090S	0700E	007	1-4;				
			480.000	0090S	0700E	007	E2,E2W2;				
			480.000	0090S	0700E	018	E2,E2W2;				
			134.120	0090S	0700E	018	1-4;				
			135.080	0090S	0700E	019	1-4;				
			480.000	0090S	0700E	019	E2,E2W2;				
NV-15-12-076	2,560.000	A						Lincoln County	Caliente FO		
			640.000	0090S	0700E	008	ALL;				
			640.000	0090S	0700E	009	ALL;				

Parcel Number	Total Parcel Acreage	Parcel Group	Individual Part Acreage	Township	Range	Section	Parts	County	Field Office	PENDING PRESALE OFFER	Former Lease Number
			640.000	0090S	0700E	016	ALL;				
			640.000	0090S	0700E	017	ALL;				
NV-15-12-077	1,920.000	A						Lincoln County	Caliente FO		
			640.000	0090S	0700E	013	ALL;				
			640.000	0090S	0700E	014	ALL;				
			640.000	0090S	0700E	024	ALL;				
NV-15-12-078	2,560.000	A						Lincoln County	Caliente FO		
			640.000	0090S	0700E	020	ALL;				
			640.000	0090S	0700E	021	ALL;				
			640.000	0090S	0700E	029	ALL;				
			640.000	0090S	0700E	032	ALL;				
NV-15-12-079	2,560.000	A						Lincoln County	Caliente FO	NVN93273	
			640.000	0090S	0700E	022	ALL;				
			640.000	0090S	0700E	023	ALL;				
			640.000	0090S	0700E	026	ALL;				
			640.000	0090S	0700E	035	ALL;				
NV-15-12-080	1,280.000	A						Lincoln County	Caliente FO		
			640.000	0090S	0700E	025	ALL;				
			640.000	0090S	0700E	036	ALL;				
NV-15-12-081	2,560.000	A						Lincoln County	Caliente FO	NVN93273	
			640.000	0090S	0700E	027	ALL;				
			640.000	0090S	0700E	028	ALL;				
			640.000	0090S	0700E	033	ALL;				
			640.000	0090S	0700E	034	ALL;				
NV-15-12-082	1,234.880	A						Lincoln County	Caliente FO		

Parcel Number	Total Parcel Acreage	Parcel Group	Individual Part Acreage	Township	Range	Section	Parts	County	Field Office	PENDING PRESALE OFFER	Former Lease Number
			136.800	0090S	0700E	030	1-4;				
			480.000	0090S	0700E	030	E2,E2W2;				
			138.080	0090S	0700E	031	1-4;				
			480.000	0090S	0700E	031	E2,E2W2;				
NV-15-12-083	1,258.260	A						Lincoln County	Caliente FO		NVN81325
			158.360	0100S	0700E	005	1-4;				
			480.000	0100S	0700E	005	S2N2,S2;				
			360.000	0100S	0700E	006	S2NE,SENW,E2SW-,SE;				
			259.900	0100S	0700E	006	1-7;				
NV-15-12-084	1,873.640	A						Lincoln County	Caliente FO		NVN81325
			480.000	0100S	0700E	007	E2,E2W2;				
			143.520	0100S	0700E	007	1-4;				
			144.640	0100S	0700E	018	1-4;				
			480.000	0100S	0700E	018	E2,E2W2;				
			145.480	0100S	0700E	019	1-4;				
			480.000	0100S	0700E	019	E2,E2W2;				
NV-15-12-085	1,280.000	A						Lincoln County	Caliente FO		NVN81325
			640.000	0100S	0700E	008	ALL;				
			640.000	0100S	0700E	017	ALL;				
NV-15-12-086	1,920.000	A						Lincoln County	Caliente FO		NVN81230, NVN81231
			640.000	0100S	0700E	024	ALL;				
			640.000	0100S	0700E	025	ALL;				
			640.000	0100S	0700E	036	ALL;				
NV-15-12-087	1,280.000	A						Lincoln County	Caliente FO		NVN81231
			640.000	0100S	0700E	026	ALL;				
			640.000	0100S	0700E	035	ALL;				

Parcel Number	Total Parcel Acreage	Parcel Group	Individual Part Acreage	Township	Range	Section	Parts	County	Field Office	PENDING PRESALE OFFER	Former Lease Number
NV-15-12-088	1,275.360	A						Lincoln County	Caliente FO		
			156.800	0090S	0710E	005	1-4;				
			480.000	0090S	0710E	005	S2N2.S2;				
			158.560	0090S	0710E	006	1-4;				
			480.000	0090S	0710E	006	S2N2,S2;				
NV-15-12-089	1,280.000	A						Lincoln County	Caliente FO		
			640.000	0090S	0710E	007	ALL;				
			640.000	0090S	0710E	008	ALL;				
NV-15-12-090	2,560.000	A						Lincoln County	Caliente FO		
			640.000	0090S	0710E	017	ALL;				
			640.000	0090S	0710E	018	ALL;				
			640.000	0090S	0710E	019	ALL;				
			640.000	0090S	0710E	020	ALL;				
NV-15-12-091	2,560.000	A						Lincoln County	Caliente FO		
			640.000	0090S	0710E	029	ALL;				
			640.000	0090S	0710E	030	ALL;				
			640.000	0090S	0710E	031	ALL;				
			640.000	0090S	0710E	032	ALL;				
NV-15-12-092	2,558.160	A						Lincoln County	Caliente FO		NVN81243
			158.640	0100S	0710E	005	1-4;				
			480.000	0100S	0710E	005	S2N2,S2;				
			159.520	0100S	0710E	006	1-4;				
			480.000	0100S	0710E	006	S2N2,S2;				
			640.000	0100S	0710E	007	ALL;				
			640.000	0100S	0710E	008	ALL;				

Parcel Number	Total Parcel Acreage	Parcel Group	Individual Part Acreage	Township	Range	Section	Parts	County	Field Office	PENDING PRESALE OFFER	Former Lease Number
NV-15-12-093	2,560.000	A						Lincoln County	Caliente FO		NVN81244
			640.000	0100S	0710E	017	ALL;				
			640.000	0100S	0710E	018	ALL;				
			640.000	0100S	0710E	019	ALL;				
			640.000	0100S	0710E	020	ALL;				
NV-15-12-094	2,560.000	A						Lincoln County	Caliente FO		NVN81246
			640.000	0100S	0710E	029	ALL;				
			640.000	0100S	0710E	030	ALL;				
			640.000	0100S	0710E	031	ALL;				
			640.000	0100S	0710E	032	ALL;				
Totals	140,388.670		140,388.670								
Total Presale Acreage			68,474.290								
Parcel numbers w/presales			001, 002, 003, 004, 006, 008, 009, 010, 011, 012, 013, 014, 015, 016, 017, 018, 019, 020, 021, 022, 023, 024, 025, 026, 027, 028, 029, 030, 031, 032, 033, 034,								
			035, 036, 037, 038,								

Parcel Number	Total Parcel Acreage	Parcel Group	Individual Part Acreage	Township	Range	Section	Parts	County	Field Office	PENDING PRESALE OFFER	Former Lease Number
			039, 040, 041, 042, 043, 044, 045, 046, 047, 048, 049, 050, 051, 052, 055, 063, 065, 079, 081								

Appendix C. Ely District Fluid Minerals Lease Notices and Stipulations for Oil and Gas Leases

ELY RMP, APPENDIX A, SECTION 2: AS OF FEBRUARY 2015

LEASE NOTICES

Cultural Resources

(#NV-L-07-A-NTL)

Cultural Resources and Tribal Consultation Stipulation:

This lease may be found to contain historic properties and/or resources protected under the National Historic Preservation Act (NHPA), American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, Executive Order 13007, or other statutes and executive orders. The BLM would not approve any ground-disturbing activities that may affect any such properties or resources until it completes its obligations (e.g., State Historic Preservation Officer (SHPO) and tribal consultation) under applicable requirements of the NHPA and other authorities. The BLM may require modification to exploration or development proposals to protect such properties, or disapprove any activity that is likely to result in adverse effects that cannot be successfully avoided, minimized, or mitigated.

Nominated Parcels Affected:

All Parcels

Cultural Sites

(#NV-L-07-J-NTL) (Old NV-040-005-002)

Lands within this lease contain areas of known high potential for cultural resources. Properties known at the time of lease announcement that are listed on or eligible for the National Register of Historic Places would be avoided, where possible, by means of lease exclusions or by limits on surface use. The preferred avoidance option is to exclude areas containing National Register of Historic Places eligible sites from leasing and all forms of surface disturbance. Cultural sites not avoided may require consultation with State Historic Preservation Officer and treatment plans.

Nominated Parcels Affected:

Sunshine Locality National Register District

- NV-15–12–015
- NV-15–12–016
- NV-15–12–017
- NV-15–12–022

High Potential for Cultural Sites

- NV-15–12–027

Historic Sites

(#NV-L-07-K-NTL)

Lands within this lease are in proximity to or contain portions of the Pony Express National Historic Trail, the Hastings Cutoff, the Lincoln Highway, or the Osceola Ditch. Oil and gas exploration and development activities within 1 mile of these sites must undergo a visual assessment in conjunction with environmental review to determine if the activity would adversely affect the visual integrity. Appropriate mitigation would take place as necessary to maintain the management corridor in as natural a condition as possible.

Nominated Parcels Affected:

None

Fossils (PFYC-2)

(#NV-L-08-A-NTL)

This area has low potential for vertebrate paleontological resources. This area may contain vertebrate paleontological resources. In the event that previously undiscovered paleontological resources are discovered in the performance of any surface disturbing activities, the item(s) or condition(s) would be left intact and immediately brought to the attention of the authorized officer of the BLM. Operations within 250 feet of such discovery would not be resumed until written authorization to proceed is issued by the Authorized Officer. The lessee would bear the cost of any required paleontological appraisals, surface collection of fossils, or salvage of any large conspicuous fossils of significant scientific interest discovered during the operations.

Nominated Parcels Affected:

None

Fossils (PFYC-3)

(#NV-L-08-B-NTL)

This area has moderate potential for vertebrate paleontological resources. Inventory and/or on-site monitoring during disturbance or spot checking may be required by the operator. Operations within 250 feet of such discovery would not be resumed until written authorization to proceed is issued by the Authorized Officer. The lessee would bear the cost of any required paleontological appraisals, surface collection of fossils, or salvage of any large conspicuous fossils of significant scientific interest discovered during the operations.

Nominated Parcels Affected:

None

Fossils (PFYC-4)

(#NV-L-08-C-NTL)

This area has high and very high potential for paleontological resources. This land is underlain by geologic units that have been documented to contain a high occurrence of fossils, which may consist of scientifically significant paleontological resources protected by Public Law 111-11, Paleontological Resources Preservation Act. A field survey by a qualified paleontologist, and at the lessee's expense, would be required prior to surface disturbing activities. If significant paleontological resources of scientific or educational importance are discovered they would require avoidance or data recovery prior to their disturbance. On site monitoring may be necessary during construction activities.

Nominated Parcels Affected:

None

Municipal Wellhead Zones

(#NV-L-10-E-NTL)

The lease area may be within a source water protection zone designated by a specific public water system or community with endorsement from the Nevada Division of Environmental Protection (NDEP). Source water protection areas are defined as the land surface and area beneath in which activities and land uses must be managed in order to protect the underlying ground water which is used as a source of drinking water (also commonly referred to as a Wellhead Protection Area). The areas are typically delineated using a computer generated model and outline a specific time it may take a contaminant to reach the well. It may be necessary to manage activities in areas located some distance from the well (outside of the protection area) because any spills or discharge activities could contribute to groundwater contamination in the event of heavy precipitation (snow melt and rain) which recharges the well or spring. If proposed mineral activities/lease activities could result in fluid spills or discharges in a source water protection area, it is mandatory to work with local communities and/or public water systems that are responsible for implementing source water protection activities. Analysis to determine if any impacts due to the activity is to be expected, either avoid areas or coordinate with local agencies and NDEP to develop and implement mitigation measures to reduce adverse impacts.

Nominated Parcels Affected:

None

NDOT Mineral Pits

(#NV-L-12-A-NTL)

The lessee accepts this lease subject to the right of the State of Nevada to remove road building material from the land embraced in Material Site No. (See below) and agrees that its operations would not interfere with the material operations of the Department of Transportation.

Nominated Parcels Affected:

None

Saleable Minerals: Community Pits

(#NV-L-12-B-NTL)

The lessee accepts this lease subject to the right of individuals, authorized by Bureau of Land Management District Office, to remove sand and gravel from the land embraced in Community Pit No. (see below). The lessee agrees that its operations would not interfere with the use of the pit(s) by these individuals.

Nominated Parcels Affected:

None

Saleable Minerals: Exclusive Pits

(#NV-L-12-C-NTL)

The lessee accepts this lease subject to the right of individuals, authorized by Bureau of Land Management District Office, to remove sand and gravel from the land embraced by an exclusive sales contract. The lessee agrees that its operations would not interfere with the use of the pit(s) by these individuals.

Nominated Parcels Affected:

Group B Parcels

- NV-15–12–051

Mining Claims

(#NV-L-13-A-NTL)

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

Nominated Parcels Affected:

Group A Parcels

- NV-15–12–092
- NV-15–12–093

Group D Parcels

- NV-15–12–019
- NV-15–12–020
- NV-15–12–021
- NV-15–12–028

Solid Mineral Leasing

(#NV-L-14-A-NTL)

Provisions of the Mineral Leasing Act (MLA) of 1920, as amended by the Solid Mineral Leasing Amendments Act of 1976, affect an entity's qualifications to obtain an oil and gas lease. Section 2(a) (2) (A) of the MLA, 30 U.S.C. 201(a) (2) (A), requires that any entity that holds and has held a Solid Mineral lease for 10 years beginning on or after August 4, 1976, and who is not producing solid minerals in commercial quantities from each such lease, cannot qualify for the issuance of any other lease granted under the MLA. Compliance by solid mineral lessees with Section 2(a) (2) (A) is explained in 43 CFR 3472. In accordance with the terms of this oil and gas lease with respect to compliance by the initial lessee with qualification concerning Federal solid mineral lease holdings, all assignees and transferees are hereby notified that this oil and gas lease is subject to cancellation if: (1) the initial lessee as assignor or as transferrer has falsely certified compliance with Section 2(a)(2)(A) or (2) because of denial or disapproval by State Office of a pending solid mineral action, i.e., arms-length assignment, relinquishment, or logical mining unit, the initial lessee as assignor or as transferrer is no longer in compliance with Section 2(a)(2)(A). The assignee or transferee does not qualify as a bona fide purchaser and, thus, has no rights to bona fide purchaser protection in the event of cancellation of this lease due to noncompliance with Section 2(a)(2)(A). Information regarding assignor or transferrer compliance with Section 2(a)(2)(A) is contained in the lease case file as well as in other Bureau of Land Management records available through the State Office issuing this lease.

Nominated Parcels Affected:

None

Desert Tortoise Habitat

(#NV-L-06-P-NTL) (Old NV-040-005-001)

Lands within this lease would require Section 7 consultation prior to any surface disturbance in desert tortoise habitat. The BLM must ensure that the impacts from the operation do not jeopardize the continued existence of a listed species or result in the destruction or adverse modification of critical habitat. The operator, U.S. Fish and Wildlife Service, and the BLM also must reach concurrence that the proposed actions are below the jeopardy or adverse modification threshold. If it is determined that through the review of the plan of operation and the use of mitigation measures that the operation is not below the jeopardy or adverse modification threshold, the project would not go forward.

Nominated Parcels Affected:

All Group A

- NV-15–12–053
- NV-15–12–054
- NV-15–12–055
- NV-15–12–056
- NV-15–12–057

- NV-15–12–058
- NV-15–12–059
- NV-15–12–060
- NV-15–12–061
- NV-15–12–062
- NV-15–12–063
- NV-15–12–064
- NV-15–12–065
- NV-15–12–066
- NV-15–12–067
- NV-15–12–068
- NV-15–12–069
- NV-15–12–070
- NV-15–12–071
- NV-15–12–072
- NV-15–12–073
- NV-15–12–074
- NV-15–12–075
- NV-15–12–076
- NV-15–12–077
- NV-15–12–078
- NV-15–12–079
- NV-15–12–080
- NV-15–12–081
- NV-15–12–082
- NV-15–12–083
- NV-15–12–084
- NV-15–12–085
- NV-15–12–086

- NV-15–12–087
- NV-15–12–088
- NV-15–12–089
- NV-15–12–090
- NV-15–12–091
- NV-15–12–092
- NV-15–12–093
- NV-15–12–094

Desert Tortoise Critical Habitat

(#NV-L-06-Q-NTL)

The Revised Recovery Plan for the Mojave Population of the Desert Tortoise (USFWS 2011) calls for "aggressive management" in tortoise conservation areas, such as desert tortoise critical habitat. Recovery Action 2.1: Conserve Intact Desert Tortoise Habitat, puts a focus on tortoise conservation areas stating, "Disturbances to be avoided include those caused by development … construction of roads or other linear facilities … and other surface disturbing activities." BLM strives to meet the goals of the recovery plan and may consider the recovery actions when reviewing applications for permit to drill or sundry notices, and when prescribing conditions of approval.

Nominated Parcels Affected:

Group A Parcels:

- NV-15–12–055
- NV-15–12–057
- NV-15–12–058
- NV-15–12–059
- NV-15–12–061
- NV-15–12–062
- NV-15–12–063
- NV-15–12–065
- NV-15–12–066
- NV-15–12–067
- NV-15–12–068
- NV-15–12–069

- NV-15–12–070
- NV-15–12–071
- NV-15–12–084
- NV-15–12–086
- NV-15–12–087
- NV-15–12–090
- NV-15–12–091
- NV-15–12–092
- NV-15–12–093
- NV-15–12–094

T&E, Sensitive and Special Status Species

(#NV-L-06-A-NTL)

Endangered Species Act Section 7 Consultation:

The lease area may now or hereafter contain plants, animals, or their habitats determined to be threatened, endangered, or other special status species. The BLM may recommend modifications to exploration and development proposals to further its conservation and management objective to avoid BLM-approved activity that would contribute to a need to list such species or their habitat. The BLM may require modifications to or disapprove proposed activity that is likely to result in jeopardy to the continued existence of a proposed or listed threatened or endangered species or result in the destruction or adverse modification of a designated or proposed critical habitat. The BLM would not approve any ground-disturbing activity that may affect any such species or critical habitat until it completes its obligations under applicable requirements of the Endangered Species Act as amended, 16 U.S.C. §1531 et seq., including completion of any required procedure for conference or consultation.* (If known list the specific plants, animals or habitat type here.)

Nominated Parcels Affected:

All Parcels

Wild Horse and Burro

(#NV-L-05-A-NTL)

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

Nominated Parcels Affected:

Triple B HMA (Group D)

- NV-15–12–004
- NV-15–12–015
- NV-15–12–016
- NV-15–12–017
- NV-15–12–018
- NV-15–12–019
- NV-15–12–020
- NV-15–12–021
- NV-15–12–022
- NV-15–12–023
- NV-15–12–024
- NV-15–12–025
- NV-15–12–026
- NV-15–12–028

Pancake HMA (Groups C and D)

-
- NV-15–12–001
- NV-15–12–002
- NV-15–12–003
- NV-15–12–005
- NV-15–12–006
- NV-15–12–007
- NV-15–12–008
- NV-15–12–009
- NV-15–12–010
- NV-15–12–011
- NV-15–12–012

- NV-15–12–013
- NV-15–12–014

Jakes Wash HA (Group D)

-
- NV-15–12–027

Mormon Mountain HA (Group A)

-
- NV-15–12–053
- NV-15–12–055
- NV-15–12–056
- NV-15–12–059

Yucca and Cactus

(#NV-L-06-D-NTL)

All plants of the cactus family Cactaceae and of the genus *Yucca* are protected under state law Nevada Revised Statute NRS 527.060-.120, which prohibits destruction of these plants. The Operator is responsible for compliance with all state laws. Adherence to the Ely District Instruction Memorandum NVL0000-2011-010 titled *Cacti and Yucca Salvage Stipulations for External Projects* or other BLM guidance would be made a condition of approval at the time of development.

Nominated Parcels Affected:

All Parcels

Migratory Bird Treaty Act

(#NV-L-06-C-NTL)

The Operator is responsible for compliance with provisions of the Migratory Bird Treaty Act by implementing measures to prevent a take of migratory birds. Typically in the Ely District, this is accomplished by one of the following methods: a) avoidance by timing - ground disturbing activities only occur outside of the breeding bird season; b) habitat manipulation – rendering the proposed project footprints unsuitable for nesting prior to the arrival of migratory birds; blading or pre-clearing of vegetation occurs prior to the beginning of the breeding season within the year and area scheduled for activities during the breeding season of that year to deter nesting; or c) survey area monitoring – surveys are conducted by a BLM approved biologist within the area of the proposed action including an appropriate-sized survey area from the proposed project footprint during the breeding season if activities are proposed within this timeframe (if work is not completed within a specified time frame, then additional surveys may be needed); if nesting birds are found, activities would not be allowed within an appropriate-sized buffer determined in

coordination with the BLM biologist, and if active nests are not found, construction activities must occur within the survey validity time frame specified in the APD or conditions of approval.

Nominated Parcels Affected:

All Parcels

LEASE TIMING STIPULATIONS

Desert Tortoise Habitat

(#NV-L-06-J-TL) (Old NV-040-005-001)

Stipulation: Timing Limitation. No surface activity would be allowed within desert tortoise habitat from March 1 through October 31.

Objective: To protect desert tortoise during the most active period to maintain desert tortoise populations.

Exception: An exception to this stipulation may be granted by the authorized officer, in consultation with U.S. Fish and Wildlife Service, if the operator submits a plan that demonstrates that impacts from the proposed action would not adversely affect desert tortoise habitat.

Modification: The boundaries of the stipulated area may be modified if the authorized officer, in consultation with U.S. Fish and Wildlife Service, determines that portions of the area can be occupied without adversely affecting desert tortoise. The dates for the timing restriction may be modified if new information indicates the dates are not valid for the leasehold.

Waiver: The stipulation may be waived if the authorized officer, in consultation with U.S. Fish and Wildlife Service, determines that the entire leasehold is no longer occupied by desert tortoise.

Nominated Parcels Affected:

All Group A Parcels

- NV-15–12–053
- NV-15–12–054
- NV-15–12–055
- NV-15–12–056
- NV-15–12–057
- NV-15–12–058
- NV-15–12–059
- NV-15–12–060
- NV-15–12–061
- NV-15–12–062

- NV-15–12–063
- NV-15–12–064
- NV-15–12–065
- NV-15–12–066
- NV-15–12–067
- NV-15–12–068
- NV-15–12–069
- NV-15–12–070
- NV-15–12–071
- NV-15–12–072
- NV-15–12–073
- NV-15–12–074
- NV-15–12–075
- NV-15–12–076
- NV-15–12–077
- NV-15–12–078
- NV-15–12–079
- NV-15–12–080
- NV-15–12–081
- NV-15–12–082
- NV-15–12–083
- NV-15–12–084
- NV-15–12–085
- NV-15–12–086
- NV-15–12–087
- NV-15–12–088
- NV-15–12–089
- NV-15–12–090
- NV-15–12–091

- NV-15–12–092
- NV-15–12–093
- NV-15–12–094

Sage Grouse Nesting Habitat Associated with Leks

(#NV-L-06-K-TL) (Old NV-040-002-002)

Stipulation: Timing Limitation. No surface activity would be allowed within two miles of a sage grouse lek from March 1 through May 15 (June 15).

Objective: To protect sage grouse nesting activities associated with leks to maintain sage grouse populations.

Exception: An exception to this stipulation may be granted by the authorized officer, in consultation with

Nevada Department of Wildlife, if the operator submits a plan that demonstrates that impacts from the proposed action are minimal or can be adequately mitigated.

Modification: The boundaries of the stipulated area may be modified if the authorized officer, in consultation with Nevada Department of Wildlife, determines that portions of the area can be occupied without adversely affecting sage grouse nesting activity. The dates for the timing restriction may be modified if new information indicates the dates are not valid for the leasehold.

Waiver: The stipulation may be waived if the authorized officer, in consultation with Nevada Department of Wildlife, determines that the entire leasehold no longer contains nesting habitat for sage grouse.

Nominated Parcels Affected:

None

Sage Grouse Winter Range

(#NV-L-06-K-TL) (Old NV-040-002-001)

Stipulation: Timing Limitation. No surface activity would be allowed within winter range for sage grouse from November 1 through March 31.

Objective: To protect sage grouse from disturbance during the crucial winter period to maintain sage grouse populations.

Exception: An exception to this stipulation may be granted by the authorized officer, in consultation with Nevada Department of Wildlife, if the operator submits a plan that demonstrates

Modification: The boundaries of the stipulated area may be modified if the authorized officer, in consultation with Nevada Department of Wildlife, determines that portions of the area no longer contain sage grouse winter habitat. The dates for the timing restriction may be modified if new information indicates the dates are not valid for the leasehold.

Waiver: The stipulation may be waived if the authorized officer, in consultation with Nevada Department of Wildlife, determines that the entire leasehold no longer contains winter range for sage grouse.

Nominated Parcels Affected:

Group B Parcels

- NV-15–12–030
- NV-15–12–031
- NV-15–12–032
- NV-15–12–033
- NV-15–12–034
- NV-15–12–035
- NV-15–12–036
- NV-15–12–039
- NV-15–12–040
- NV-15–12–041
- NV-15–12–042
- NV-15–12–043
- NV-15–12–044
- NV-15–12–045
- NV-15–12–046
- NV-15–12–047
- NV-15–12–048
- NV-15–12–049
- NV-15–12–050
- NV-15–12–051

Group D Parcels

- NV-15–12–002
- NV-15–12–004
- NV-15–12–015

- NV-15–12–016
- NV-15–12–017
- NV-15–12–018
- NV-15–12–019
- NV-15–12–022
- NV-15–12–023
- NV-15–12–024
- NV-15–12–025
- NV-15–12–026
- NV-15–12–027
- NV-15–12–028

Raptor Nest Sites

(NV-L-06-B-TL)

Stipulation: Timing Limitation. No surface activity May 1 through July 15 within 0.5 mile of a raptor nest site which has been active within the past five years.

Objective [Purpose]: To protect raptor nesting activities necessary to maintaining the critical life stages of existing raptor populations.

Exception: The Authorized Officer may grant an exception if an environmental review determines that the action, as proposed or otherwise restricted, does not adversely affect raptor nest sites being protected by the restriction. An exception may also be granted if the proponent, BLM, and other affected interests, in consultation with Nevada Department of Wildlife, negotiate mitigation that would satisfactorily offset the anticipated impacts. An exception may be granted for actions designed to enhance the long-term utility or availability of the habitat.

Modification: The boundaries of the stipulated area may be modified if the authorized officer, in consultation with Nevada Department of Wildlife, determines that portions of the area can be occupied without adversely affecting raptor nesting activity. The dates for the timing restriction may be modified if new information indicates the dates are not valid for the leasehold. Any modification authorized by this stipulation is subject to 43 C.F.R. 3101.1-4, including provisions requiring public review for issues of major public concern, or substantial modifications.

Waiver: The stipulation may be waived if the authorized officer, in consultation with Nevada Department of Wildlife determines that the entire leasehold no longer contains raptor nest sites. Any waiver authorized by this stipulation is subject to 43 C.F.R. 3101.1-4, including provisions requiring public review for issues of major public concern, or substantial waivers.

<u>Nominated Parcels Affected:</u>

All parcels

Pronghorn Antelope Seasonal Habitat

(#NV-L-01-A-TL)

Stipulation: Timing Limitation (TL) -No surface activity within Pronghorn Antelope crucial winter habitat from November 1 through March 31.

Objective [Purpose]: To protect Pronghorn Antelope crucial winter habitat necessary to maintaining the critical life stages of Pronghorn wildlife populations.

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

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

Waiver: The restriction may be waived by the Authorized Officer if it is determined that the described lands do not contain suitable pronghorn habitat, or are otherwise incapable of serving the requirements of for the species and therefore no longer warrant consideration as a component necessary for their protection. Any waiver authorized by this stipulation is subject to 43 C.F.R. 3101.1-4, including

Nominated Parcels Affected:

Group D Parcels

- NV-15–12–015
- NV-15–12–016
- NV-15–12–017
- NV-15–12–018
- NV-15–12–019
- NV-15–12–022

Pronghorn Antelope Kidding Habitat

(#NV-L-01-B-TL)

Stipulation: Timing Limitation (TL) -No surface activity within pronghorn antelope kidding areas from

April 15 through June 30

Objective [Purpose]: To protect Pronghorn Antelope Kidding habitat necessary to maintaining the critical life stages of Pronghorn wildlife populations.

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

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

Waiver: The restriction may be waived by the Authorized Officer if it is determined that the described lands do not contain suitable Pronghorn Kidding habitat, or are otherwise incapable of serving the requirements of for the species and therefore no longer warrant consideration as a component necessary for their protection. Any waiver authorized by this stipulation is subject to 43 C.F.R. 3101.1-4, including provisions requiring public review for issues of major public concern, or substantial waivers.

Nominated Parcels Affected:

Group D Parcels

- NV-15–12–018
- NV-15–12–019

Mule Deer Seasonal Habitat

(#NV-L-02-A-TL)

Stipulation: Timing Limitation (TL) -No surface activity within crucial winter habitat from November 1 through March 31.

Objective [Purpose]: To protect mule deer crucial winter habitat necessary to maintaining the critical life stages of Mule Deer wildlife populations.

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

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

Waiver: The restriction may be waived by the Authorized Officer if it is determined that the described lands do not contain suitable Mule Deer habitat, or are otherwise incapable of serving the requirements of for the species and therefore no longer warrant consideration as a component necessary for their protection. Any waiver authorized by this stipulation is subject to 43 C.F.R. 3101.1-4, including provisions requiring public review for issues of major public concern, or substantial waivers.

Nominated Parcels Affected:

Mule Deer Crucial Winter Range

- NV-15–12–019
- NV-15–12–020
- NV-15–12–021
- NV-15–12–022
- NV-15–12–023
- NV-15–12–024
- NV-15–12–072
- NV-15–12–073
- NV-15–12–088

Mule Deer Fawning Habitat

(#NV-L-02-C-TL)

Stipulation: Timing Limitation (TL) -No surface activity within Mule Deer fawning from April 15 through June 30.

Objective [Purpose]: To protect Mule Deer Fawning habitat necessary to maintaining the critical life stages of Mule Deer wildlife populations.

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

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

Waiver: The restriction may be waived by the Authorized Officer if it is determined that the described lands do not contain suitable mule deer habitat, or are otherwise incapable of serving the requirements of for the species and therefore no longer warrant consideration as a component necessary for their protection. Any waiver authorized by this stipulation is subject to 43 C.F.R. 3101.1-4, including provisions requiring public review for issues of major public concern, or substantial waivers.

Nominated Parcels Affected:

None

Elk Seasonal Habitat

(#NV-L-03-A-TL)

Stipulation: Timing Limitation (TL) -No surface activity within Elk crucial winter habitat from November 1 through March 31.

Objective [Purpose]: To protect elk from disturbance during crucial winter habitat necessary to maintaining the critical life stages of Elk wildlife populations.

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

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

Waiver: The restriction may be waived by the Authorized Officer if it is determined that the described lands do not contain suitable Elk habitat, or are otherwise incapable of serving the requirements of for the species and therefore no longer warrant consideration as a component necessary for their protection. Any waiver authorized by this stipulation is subject to 43 C.F.R. 3101.1-4, including provisions requiring public review for issues of major public concern, or substantial waivers.

Nominated Parcels Affected:

None

Elk Calving Habitat

(#NV-L-03-B-TL)

Stipulation: Timing Limitation (TL) -No surface activity within Elk calving areas from April 15 through June 30.

Objective [Purpose]: To protect Elk calving habitat necessary to maintaining the critical life stages of Elk wildlife populations.

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

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

Waiver: The restriction may be waived by the Authorized Officer if it is determined that the described lands do not contain suitable elk habitat, or are otherwise incapable of serving the requirements of for the species and therefore no longer warrant consideration as a component necessary for their protection. Any waiver authorized by this stipulation is subject to 43 C.F.R. 3101.1-4, including provisions requiring public review for issues of major public concern, or substantial waivers.

Nominated Parcels Affected:

None

Bighorn Sheep Lambing/Crucial

(#NV-L-04-B-TL)

Stipulation: Timing Limitation (TL) - No surface activity within bighorn lambing from March 1 through May 31 for desert bighorn sheep and from April 15 through June 30 for Rocky Mountain bighorn sheep.

Objective [Purpose]: To protect bighorn sheep from disturbance during the lambing/crucial winter habitat necessary to maintaining the critical life stages of bighorn sheep wildlife populations.

Exception: The Authorized Officer may grant an exception if an environmental review determines that the action, as proposed or otherwise restricted, does not adversely affect the bighorn sheep and its lambing winter range. An exception may also be granted if the proponent, BLM, and other affected interests negotiate mitigation that would satisfactorily offset the anticipated

impacts. An exception may be granted for actions designed to enhance the long-term utility or availability of the habitat.

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

Waiver: The restriction may be waived if it is determined that the described lands do not contain suitable habitat, or are otherwise incapable of serving the requirements of for the species and therefore no longer warrant consideration as a component necessary for their protection. In certain instances this determination would come after consulting with other managing agencies or interested publics. Any waiver authorized by this stipulation is subject to 43 C.F.R. 3101.1-4, including provisions requiring public review for issues of major public concern, or substantial waivers.

Nominated Parcels Affected:

All Group A Parcels

- NV-15–12–054
- NV-15–12–055
- NV-15–12–056
- NV-15–12–058
- NV-15–12–060
- NV-15–12–063
- NV-15–12–064
- NV-15–12–065
- NV-15–12–068
- NV-15–12–073
- NV-15–12–074
- NV-15–12–075
- NV-15–12–076
- NV-15–12–077
- NV-15–12–078
- NV-15–12–079

- NV-15–12–080
- NV-15–12–081
- NV-15–12–082
- NV-15–12–083
- NV-15–12–084
- NV-15–12–085
- NV-15–12–086
- NV-15–12–087
- NV-15–12–090
- NV-15–12–091
- NV-15–12–092
- NV-15–12–093
- NV-15–12–094

Group B Parcels

- NV-15–12–045

Bighorn Sheep Summer Range

(#NV-L-04-C-TL)

Stipulation: Timing Limitation (TL) -No surface activity within desert bighorn summer range from July 1 through August 31 for desert bighorn.

Objective [Purpose]: To protect bighorn sheep and its summer range habitat necessary to maintaining the critical life stages of bighorn sheep wildlife populations.

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

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

Waiver: The restriction may be waived if it is determined that the described lands do not contain suitable habitat, or are otherwise incapable of serving the requirements of for the species and therefore no longer warrant consideration as a component necessary for their protection. In certain instances this determination would come after consulting with other managing agencies or interested publics. Any waiver authorized by this stipulation is subject to 43 C.F.R. 3101.1-4, including provisions requiring public review for issues of major public concern, or substantial waivers.

Nominated Parcels Affected:

All Group A Parcels

- NV-15–12–054
- NV-15–12–055
- NV-15–12–056
- NV-15–12–058
- NV-15–12–060
- NV-15–12–063
- NV-15–12–064
- NV-15–12–065
- NV-15–12–068
- NV-15–12–073
- NV-15–12–074
- NV-15–12–075
- NV-15–12–076
- NV-15–12–077
- NV-15–12–078
- NV-15–12–079
- NV-15–12–080
- NV-15–12–081
- NV-15–12–082
- NV-15–12–083
- NV-15–12–084
- NV-15–12–085

- NV-15–12–086
- NV-15–12–087
- NV-15–12–090
- NV-15–12–091
- NV-15–12–092
- NV-15–12–093
- NV-15–12–094

Group B Parcels

- NV-15–12–045

LEASE – NO SURFACE OCCUPANCY STIPULATIONS

Desert Tortoise ACEC

(#NV-L-06-M-NSO) (Old NV-040-001-008)

Stipulation: No surface occupancy would be allowed within the Beaver Dam Slope ACEC or the Mormon Mesa ACEC.

Purpose: These areas encompass the habitat which has been determined to be critical to the survival of the desert tortoise population. The desert tortoise is a listed species under the Endangered Species Act.

Exception: The authorized officer may grant an exception (allow surface occupancy) upon completion of formal consultation with the U.S. Fish and Wildlife Service that yields a no-jeopardy opinion if a plan of development is submitted that does not significantly impact tortoise habitats or populations. The plan of development must demonstrate no significant impact would occur through mitigation of impacts, compensation (in accordance with BLM policy), and restoration of the land to pre-disturbance condition.

Modification: None

Waiver: None

Nominated Parcels Affected:

Group A Parcels

- NV-15–12–055
- NV-15–12–057
- NV-15–12–058
- NV-15–12–059
- NV-15–12–061

- NV-15–12–062
- NV-15–12–063
- NV-15–12–065
- NV-15–12–066
- NV-15–12–067
- NV-15–12–068
- NV-15–12–069
- NV-15–12–070
- NV-15–12–071

Sage Grouse Leks

(#NV-L-06-N-NSO) (Old NV-040-001-001)

Stipulation: No surface occupancy. No surface use would be allowed within 0.25 mile of a sage grouse

lek.

Objective: To protect sage grouse breeding activities and the integrity of the habitat associated with sage grouse leks to maintain sage grouse populations.

Exception: An exception to this stipulation may be granted by the authorized officer, in consultation with Nevada Department of Wildlife, if the operator submits a plan that demonstrates that impacts from the proposed action would not affect breeding activity nor degrade the integrity of the habitat associated with the sage grouse lek.

Modification: The boundaries of the stipulated area may be modified if the authorized officer, in consultation with Nevada Department of Wildlife, determines that portions of the area can be occupied without adversely affecting the sage grouse lek.

Waiver: The stipulation may be waived if the authorized officer, in consultation with Nevada Department of Wildlife, determines that the lek has been inactive for at least five consecutive years or the habitat has changed such that there is no likelihood the lek would become active.

Nominated Parcels Affected:

None

Threatened and Endangered and Sensitive Species Sites

(#NV-L-06-O-NSO) (Old NV-040-001-010)

Stipulation: No ground disturbance activities would be allowed within the boundaries of areas known to contain unusually high concentrations of threatened, endangered, or BLM or State sensitive species. No surface occupancy would be allowed within the:

Ash Springs ACEC

Baking Powder Flat ACEC

Condor Canyon ACEC

Highland Range ACEC

Lower Meadow Valley Wash ACEC

Schlesser Pincushion ACEC

Shoshone Ponds ACEC

Swamp Cedar ACEC

White River Valley ACEC

Purpose: To protect threatened and endangered and sensitive species.

Avoid BLM-approved activities that contribute to a need to list a species or its habitat as threatened or endangered.

Exception: None

Modification: None

Waiver: None

Nominated Parcels Affected:

White River Valley ACEC (Group B)

- NV-15–12–034
- NV-15–12–035
- NV-15–12–038
- NV-15–12–048

Cultural Sites

(#NV-L-07-K-NSO) (Old NV-040-001-002)

Stipulation: No ground disturbance activities would be allowed within the boundaries of cultural properties and archaeological/historic districts determined to be eligible or potentially eligible to the National Register of Historic Places. No surface occupancy would be allowed within the:

Baker Archaeological Site ACEC

Rock Animal Corral Archaeological Site

Honeymoon Hill/City of Rocks ACEC

Mount Irish ACEC

Pahroc Rock Art ACEC

Rose Guano Bat Cave ACEC

Shooting Gallery ACEC

Snake Creek Indian Burial Cave ACEC

Sunshine Locality National Register District

White River Archaeological District

Purpose: To protect significant cultural properties and archaeological districts and their settings.

Exception: None.

Modification: None.

Waiver: None.

Nominated Parcels Affected:

Sunshine Locality National Register District

- NV-15–12–015
- NV-15–12–016
- NV-15–12–022

Paleontological Sites

(#NV-L-07-L-NSO) (Old NV-040-001-005)

Stipulation: No ground disturbance activities would be allowed within the boundaries of areas of known paleontological sites/locales. No surface occupancy would be allowed within the:

Andies Mine Trilobite Site

Purpose: To preserve and protect significant vertebrate fossils and paleontological sites.

Exception: None

Modification: None

Waiver: None

Nominated Parcels Affected:

None

National Register of Historic Places

(#NV-L-07-B-NSO)

Stipulation: No Surface Occupancy (NSO) within the boundaries of National Register-listed Properties and Districts, National Historic Landmarks, and Traditional Cultural Properties listed or eligible for the National Register of Historic Places (NRHP)and additional lands outside their designated boundaries to the extent necessary to protect values where the setting and visual integrity are critical to their eligibility.

Objective [Purpose]: To protect National Register-listed Properties and Districts, National Historic Landmarks, and Traditional Cultural Properties (TCPs) listed or eligible for the National Register of Historic Places (NRHP)

Exception: The Authorized Officer may grant an exception if the BLM determines, in consultation with the Nevada SHPO (if required by the Statewide Protocol Agreement), that the action, as proposed or otherwise restricted, does not adversely affect National Register-listed Properties and Districts, National Historic Landmarks, and Traditional Cultural Properties listed or eligible for the NRHP. An exception may also be granted if BLM, in consultation with the Nevada State Historic Preservation Office (SHPO), negotiate mitigation that would satisfactorily take into account any anticipated adverse effects. The authorized officer may also grant an exception if the BLM determines, in consultation with Tribes, interested parties, and the Nevada SHPO (if required by the Statewide Protocol Agreement) that the action, as proposed or otherwise restricted, does not adversely affect TCPs listed on, or eligible for the NRHP.

Modification: The Authorized Officer may modify the size and shape of the restricted area if the BLM determines, in consultation with the Nevada SHPO, interested parties, and/or Tribes, that the Area of Potential Effect to the National Register-listed Properties and Districts, National Historic Landmarks, and TCPs listed or eligible on the NRHP may be modified without causing adverse effects from those described in the original stipulation. Any modification authorized by this stipulation is subject to 43 C.F.R. 3101.1-4, including provisions requiring public review for issues of major public concern, or substantial modifications.

Waiver: Restrictions may be waived if it is determined that the described lands do not, in fact, contain sites listed on the NRHP or TCPs listed or eligible for the NRHP, or if the described lands within extended boundaries are determined to be not necessary to protect listed sites or listed or eligible TCPs where the setting and visual integrity are critical to their eligibility. Any waiver authorized by this stipulation is subject to 43 C.F.R. 3101.1-4, including provisions requiring public review for issues of major public concern, or substantial waivers.

Nominated Parcels Affected:

Sunshine Locality National Register District

- NV-15–12–015
- NV-15–12–016
- NV-15–12–022

Sites Eligible for National Register of Historic Places

(#NV-L-07-C-NSO)

Stipulation: No Surface Occupancy (NSO) within National Register-eligible Properties and Districts. Prior to surface disturbance, a survey would be required confirm the Area of Potential Effect of National Register-eligible Properties (NRHP) and Districts.

Objective [Purpose]: To protect National Register-eligible Properties and Districts setting and visual integrity critical to their eligibility.

Exception: The Authorized Officer may grant an exception if the BLM determines, in consultation with the Nevada SHPO (if required by the Statewide Protocol Agreement), that the action, as proposed or otherwise restricted, would not adversely affect National Register-listed Properties and Districts, National Historic Landmarks, and Traditional Cultural Properties listed or eligible for the NRHP. An exception may also be granted if BLM, in consultation with the Nevada State Historic Preservation Office (SHPO), negotiate mitigation that would satisfactorily take into account any anticipated adverse effects. The authorized officer may also grant an exception if the BLM determines, in consultation with Tribes, interested parties, and the Nevada SHPO (if required by the Statewide Protocol Agreement) that the action, as proposed or otherwise restricted, does not adversely affect Traditional Cultural Properties (TCP) listed on, or eligible for the NRHP.

Modification: The Authorized Officer may modify the size and shape of the NSO restricted area if the BLM determines, in consultation with the Nevada SHPO, interested parties, and/or Tribes, that the Area of Potential Effect to the National Register-listed Properties and Districts, National Historic Landmarks, and TCPs listed or eligible on the NRHP may be modified without causing adverse effects from those described in the original stipulation. Any modification authorized by this stipulation is subject to 43 C.F.R. 3101.1-4, including provisions requiring public review for issues of major public concern, or substantial modifications.

Waiver: NSO restrictions may be waived if it is determined that the described lands do not, in fact, contain sites listed on the NRHP or TCPs listed or eligible for the NRHP, or if the described lands within extended boundaries are determined to be not necessary to protect listed sites or listed or eligible TCPs where the setting and visual integrity are critical to their eligibility. Any waiver authorized by this stipulation is subject to 43 C.F.R. 3101.1-4, including provisions requiring public review for issues of major public concern, or substantial waivers.

Nominated Parcels Affected:

All Parcels

Trails

(#NV-L-07-D-NSO)

Stipulation: No Surface Occupancy (NSO) would be applied directly on National Scenic and Historic Trails and Trails under Study or Recommended as Suitable for Congressional Designation and within National Trail Management Corridors. NSO may be applied to additional bordering lands; the extent would be dependent upon the topography and integrity of the setting surrounding individual trail segments along the designated NHT and National Historic Trail Corridor. Prior to the establishment of a National Trail Management Corridor, at a minimum, NSO would be applied 1/8-mile on either side of the center line of the trail (for a total of a 1/4-mile wide corridor). The center line would be established either through the GIS-based line provided by the Trail Administering Agency (NPS or BLM) or through GPS-based inventories uploaded on the Nevada Cultural Resource Inventory System (NVCRIS).

Objective [Purpose]: To protect the National Scenic and Historic Trails and Trails under Study or Recommended as Suitable for Congressional Designation, and National Trail Management Corridor resources, qualities, values, and associated settings.

Exception: The Authorized Officer may grant an exception if, through the National Historic Preservation Act (NHPA) and Management of National Scenic and Historic Trails and Trails Under Study or Recommended as Suitable for Congressional Designation Manual 6280 requirements, it is determined that the action, as proposed or otherwise restricted, does not adversely affect the resource. An exception may be granted for actions designed to enhance the long-term utility or availability of the trail.

Modification: The Authorized Officer may modify the size and shape of the restricted area if the NHPA and Management of National Scenic and Historic Trails and Trails under Study or Recommended as Suitable for Congressional Designation Manual 6280 requirements indicate the proposed action does not adversely impact the resource. Any modification authorized by this stipulation is subject to 43 C.F.R. 3101.1-4, including provisions requiring public review for issues of major public concern, or substantial modifications.

Waiver: The restriction may be waived if the NHPA and Management of National Scenic and Historic Trails and Trails under Study or Recommended as Suitable for Congressional Designation Manual 6280 requirements determine that the described lands are not contributing elements to the resource. This determination can only come after consultation with the National Park Service, Nevada State Historic Preservation Office and other interested publics. Any waiver authorized by this stipulation is subject to 43 C.F.R. 3101.1-4, including provisions requiring public review for issues of major public concern, or substantial waivers.

Nominated Parcels Affected:

None

Natural, Scenic, and Recreation Sites

(#NV-L-09-J-NSO) (Old NV-040-001-007)

Stipulation: No ground disturbance activities would be allowed within the boundaries of areas that exhibit exceptional natural, scenic, or recreational values. No Surface Occupancy would be allowed within the:

Blue Mass Scenic Area ACEC

Cleve Creek Recreation Site

Egan Crest Trailhead

Garnet Hill

Illipah Reservoir

Kirch Wildlife Management Area

Sacramento Pass Recreation Site

Ward Mountain Recreation Site

White Pine County Shooting Range

Purpose: To protect the public's opportunity for quality recreation experiences at those sites developed for those purposes. To prevent user conflicts and incompatible uses in areas with high recreational values and significant amounts of recreational activity. To control the visual impacts of activities and facilities within acceptable levels.

Exception: None

Modification: None

Waiver: A waiver may be granted for a site if it is moved or eliminated.

Nominated Parcels Affected:

Kirch Wildlife Management Area (Group B)

- NV-15–12–029
- NV-15–12–030
- NV-15–12–031
- NV-15–12–032
- NV-15–12–034
- NV-15–12–048

BLM Facilities

(#NV-L-015-A-NSO) (Old NV-040-001-006)

Stipulation: No surface occupancy would be allowed within the following withdrawal areas:

Caliente Field Station

Pony Springs Fire Station

Purpose: To protect the operation and maintenance of the BLM's facilities.

Exception: None

Modification: None

Waiver: None

Nominated Parcels Affected:

None

100 Year Flood Plains

(#NV-L-10-C-NSO)

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

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

Exception: The Authorized Officer may grant an exception if an environmental review determines that the action, as proposed or otherwise restricted, does not affect the resource. An exception may also be granted if the proponent, BLM, and other affected interests (e.g. NDOW) negotiate mitigation that would satisfactorily offset the anticipated negative impacts. An exception may be granted for actions designed to enhance the long-term utility or availability of the 100-year flood plain.

Modification: The Authorized Officer may modify the size and shape of the restricted area if an environmental analysis indicates the actual suitability of the land for the resource differs from that in the otherwise applicable restriction. Any modification authorized by this stipulation is subject to 43 C.F.R. 3101.1-4, including provisions requiring public review for issues of major public concern, or substantial modifications.

Waiver: The restriction may be waived if it is determined that the described lands do not contain the subject resource, or are incapable of serving the requirements of the resource and therefore no longer warrant consideration as a component necessary for protection of the resource. Any waiver authorized by this stipulation is subject to 43 C.F.R. 3101.1-4, including provisions requiring public review for issues of major public concern, or substantial waivers.

Nominated Parcels Affected:

Group A Parcels

- NV-15–12–053
- NV-15–12–054
- NV-15–12–055
- NV-15–12–056
- NV-15–12–057
- NV-15–12–058
- NV-15–12–059
- NV-15–12–060
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- NV-15–12–090
- NV-15–12–091
- NV-15–12–092
- NV-15–12–093
- NV-15–12–094

Group B Parcels

- NV-15–12–030
- NV-15–12–031
- NV-15–12–034
- NV-15–12–035
- NV-15–12–036
- NV-15–12–037
- NV-15–12–038
- NV-15–12–040
- NV-15–12–041

Group C Parcels

- NV-15–12–005
- NV-15–12–007
- NV-15–12–012
- NV-15–12–013

Group D Parcels

- NV-15–12–002
- NV-15–12–004
- NV-15–12–015
- NV-15–12–016
- NV-15–12–017
- NV-15–12–018
- NV-15–12–019
- NV-15–12–020
- NV-15–12–021
- NV-15–12–022
- NV-15–12–023
- NV-15–12–024
- NV-15–12–025

- NV-15–12–026
- NV-15–12–027
- NV-15–12–028

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Appendix D. List of Parcels Nominated that are Closed to Leasing per the RMP or Realty Action

Parcel #	All or Part of Parcel Affected	Legal Lands Description of Part Not Open to Leasing	Deferral Rationale	Parcel Group
NVN-15-12-004	Part	T22N, R56E, 21 MDM, NV Sec. 007; Lots 2-3;	The surface and minerals are privately owned and therefore, BLM has no jurisdiction to lease the land.	Group D
NVN-15-12-015	Part	T20N, R58E, 21 MDM, NV Sec. 001; S2, N2NW, S2N2, Lots 2-4; Sec. 002; SENE, NESE, S2SE, Lot 1;	RMP decision declared the land as closed to leasing.	Group D
NVN-15-12-016	Part	T20N, R58E, 21 MDM, NV Sec. 011; E2, SESW; Sec. 012; All;	RMP decision declared the land as closed to leasing.	Group D
NVN-15-12-017	All	T21N, R58E, 21 MDM, NV Sec. 035; SENE, SE; Sec. 036; S2NW, SW;	RMP decision declared the land as closed to leasing.	Group D
NVN-15-12-020	Part	T23N, R58E, 21 MDM, NV Sec. 005; Lots 5-6, Lot 11;	RMP decision did not declare open or closed and is therefore not available for leasing.	Group D
NVN-15-12-030	Part	T06N, R61E, 21 MDM, NV Sec. 003; SWNW; Sec. 004; SENE, E2SE, Lot 1;	RMP decision did not declare open or closed and is therefore not available for leasing.	Group B
NVN-15-12-031	Part	T06N, R61E, 21 MDM, NV Sec. 021; N2NE, SWNE, SESE; Sec. 022; NWNE, NENW, NWSW;	RMP decision did not declare open or closed and is therefore not available for leasing.	Group B
NVN-15-12-032	Part	T06N, R61E, 21 MDM, NV Sec. 026; SWNW; Sec. 027; W2NW, SENE;	RMP decision did not declare open or closed and is therefore not available for leasing.	Group B

Parcel #	All or Part of Parcel Affected	Legal Lands Description of Part Not Open to Leasing	Deferral Rationale	Parcel Group
NVN-15-12-041	All	T10N, R61E, 21 MDM, NV	RMP decision did not declare open or closed and is therefore not available for leasing.	Group B
		Sec. 023; W2E2;		
		Sec. 026; W2E2; E2SW, SENW;		
		Sec. 035; E2W2, W2NE;		
NVN-15-12-050	Part	T08N, R62E, 21 MDM, NV	RMP decision did not declare open or closed and is therefore not available for leasing.	Group B
		Sec. 019; E2W2, Lots 1-4;		

Appendix E. Deferrals

Parcel Number	Parcel Group	Total Parcel Acreage	Alt B Deferred Acreage	Deferral Rationale	Projected Date of Resolution
NV-15-12-001	C	1,280.000	1,280.000	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-002	D	1,400.000	0.000	Available for Lease	
NV-15-12-003	C	1,277.000	1,277.000	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-004	D	1,187.190	1,187.190	A & B	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-005	C	120.000	120.000	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-006	C	360.000	360.000	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-007	C	233.060	233.060	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-008	C	1,640.000	1,640.000	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-009	C	1,800.000	1,800.000	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-010	C	1,280.000	1,280.000	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-011	C	1,600.000	1,600.000	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-012	C	1,432.440	1,432.440	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-013	C	1,126.680	1,126.680	A & B	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion

Parcel Number	Parcel Group	Total Parcel Acreage	Alt B Deferred Acreage	Deferral Rationale	Projected Date of Resolution
NV-15-12-014	C	439.840	439.840	A & B	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-015	D	847.390	847.390	B	Pending signature of the Greater Sage-grouse LUPA ROD
NV-15-12-016	D	2,253.400	2,253.400	B	Pending signature of the Greater Sage-grouse LUPA ROD
NV-15-12-017	D	440.000	440.000	B	Pending signature of the Greater Sage-grouse LUPA ROD
NV-15-12-018	D	1,280.000	0.000	Available for Lease	
NV-15-12-018	D	240.000	240.000	B	Pending signature of the Greater Sage-grouse LUPA ROD
NV-15-12-019	D	320.000	320.000	B	Pending signature of the Greater Sage-grouse LUPA ROD
NV-15-12-020	D	631.390	631.390	C	Pending closure of PoO under 3809
NV-15-12-021	D	452.830	452.830	C	Pending closure of PoO under 3809
NV-15-12-022	D	2,550.820	2,550.820	B	Pending signature of the Greater Sage-grouse LUPA ROD
NV-15-12-023	D	760.720	0.000	Available for Lease	
NV-15-12-024	D	1,600.000	0.000	Available for Lease	
NV-15-12-025	D	280.000	280.000	B	Pending signature of the Greater Sage-grouse LUPA ROD
NV-15-12-026	D	40.000	40.000	B	Pending signature of the Greater Sage-grouse LUPA ROD
NV-15-12-027	D	1,536.160	1,536.160	A & B	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-028	D	1,280.000	1,280.000	B	Pending signature of the Greater Sage-grouse LUPA ROD
NV-15-12-029	B	799.830	799.830	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-030	B	1,041.220	1,041.220	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-031	B	1,400.000	1,400.000	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion

Parcel Number	Parcel Group	Total Parcel Acreage	Alt B Deferred Acreage	Deferral Rationale	Projected Date of Resolution
NV-15-12-032	B	1,285.000	1,285.000	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-033	B	480.000	480.000	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-034	B	1,480.000	1,480.000	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-035	B	960.000	960.000	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-036	B	723.080	723.080	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-037	B	240.710	240.710	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-038	B	1,922.860	1,922.860	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-039	B	1,280.000	1,280.000	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-040	B	1,480.000	1,480.000	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-041	B	1,240.000	1,240.000	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-042	B	920.000	920.000	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-043	B	67.330	67.330	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-044	B	480.000	480.000	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion

Parcel Number	Parcel Group	Total Parcel Acreage	Alt B Deferred Acreage	Deferral Rationale	Projected Date of Resolution
NV-15-12-045	B	1,456.320	1,456.320	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-046	B	1,842.880	1,842.880	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-047	B	1,520.000	1,520.000	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-048	B	1,233.280	1,233.280	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-049	B	1,357.970	1,357.970	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-050	B	1,914.420	1,914.420	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-051	B	1,800.000	1,800.000	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-052	B	1,653.530	1,653.530	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-053	A	1,401.240	1,401.240	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-054	A	1,280.000	1,280.000	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-055	A	1,600.000	1,600.000	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-056	A	800.000	800.000	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-057	A	1,920.000	1,920.000	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion

Parcel Number	Parcel Group	Total Parcel Acreage	Alt B Deferred Acreage	Deferral Rationale	Projected Date of Resolution
NV-15-12-058	A	1,280.000	1,280.000	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-059	A	2,400.000	2,400.000	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-060	A	2,560.000	2,560.000	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-061	A	1,280.000	1,280.000	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-062	A	2,560.000	2,560.000	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-063	A	1,920.000	1,920.000	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-064	A	1,910.000	1,910.000	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-065	A	1,920.000	1,920.000	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-066	A	2,560.000	2,560.000	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-067	A	2,560.000	2,560.000	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-068	A	2,557.000	2,557.000	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-069	A	1,920.000	1,920.000	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-070	A	1,280.000	1,280.000	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion

Parcel Number	Parcel Group	Total Parcel Acreage	Alt B Deferred Acreage	Deferral Rationale	Projected Date of Resolution
NV-15-12-071	A	2,560.000	2,560.000	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-072	A	2,558.800	2,558.800	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-073	A	1,919.760	1,919.760	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-074	A	1,891.420	1,891.420	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-075	A	1,842.800	1,842.800	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-076	A	2,560.000	2,560.000	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-077	A	1,920.000	1,920.000	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-078	A	2,560.000	2,560.000	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-079	A	2,560.000	2,560.000	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-080	A	1,280.000	1,280.000	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-081	A	2,560.000	2,560.000	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-082	A	1,234.880	1,234.880	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-083	A	1,258.260	1,258.260	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion

Parcel Number	Parcel Group	Total Parcel Acreage	Alt B Deferred Acreage	Deferral Rationale	Projected Date of Resolution
NV-15-12-084	A	1,873.640	1,873.640	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-085	A	1,280.000	1,280.000	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-086	A	1,920.000	1,920.000	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-087	A	1,280.000	1,280.000	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-088	A	1,275.360	1,275.360	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-089	A	1,280.000	1,280.000	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-090	A	2,560.000	2,560.000	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-091	A	2,560.000	2,560.000	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-092	A	2,558.160	2,558.160	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-093	A	2,560.000	2,560.000	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion
NV-15-12-094	A	2,560.000	2,560.000	A	Pending Reinitiation of the Ely District Resource Management Plan Biological Opinion

NOTES:

- Rationale A: Ely District recommends deferral of parcels identified by U.S. Fish and Wildlife Service in a memo dated July 21, 2015. The memo states, "Absent reinitiation of the existing consultation, we do not believe the 2008 consultation provides adequate Section 7(a)(2) coverage for the BLM if Alternative A or B are selected. To ensure compliance with the ESA, we recommend that consultation on the RMP be reinitiated prior to the BLM offering oil and gas leasing in all Group A parcels, all Group B parcels, all Group C parcels, and Group D parcels NV-l5-12-004 and NV-15-12-027."

- Rationale B: Nevada Department of Wildlife (NDOW) requested deferral of parcels (totaling 8,315 acres) in Group D due to proximity of the parcels to important sage grouse habitats. NDOW has additional information regarding sage grouse leks and believes that leasing parcels within a 3 mile radius of leks is premature, given the current Land Use Plan Amendment.

- Rationale C: The Egan Field Office has approved two Plans of Operation (NVN082888 and NVN078825) per 43 CFR 3809 for gold mining overlaps these parcels. The existing authorized use has a priority right to use the land. Oil and gas development is likely to substantially interfere with these operations. Therefore, the Ely District plans to defer these parcels from this lease sale and all future lease sales until the Plans of Operation are closed out.

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Appendix F. Hydraulic Fracturing White Paper

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

I. BACKGROUND

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

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

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

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

Generally, HF can be described as follows:

1. Water, proppant, and chemical additives are pumped at extremely high pressures down the wellbore.

2. The fracturing fluid is pumped through perforated sections of the wellbore and into the surrounding formation, creating fractures in the rock. The proppant holds the fractures open during well production.

3. Company personnel continuously monitor and gauge pressures, fluids and proppants, studying how the sand reacts when it hits the bottom of the wellbore, slowly increasing the density of sand to water as HF progresses.

4. This process may be repeated multiple times, in "stages" to reach maximum areas of the formation(s). The wellbore is temporarily plugged between each stage to maintain the highest fluid pressure possible and get maximum fracturing results in the rock.

5. The plugs are drilled or removed from the wellbore and the well is tested for results.

6. The pressure is reduced and the fracturing fluids are returned up the wellbore for disposal or treatment and re-use, leaving the sand in place to prop open the fractures and allow the oil/gas to flow.

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II. **OPERATIONAL ISSUES**

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

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

In general, approximately 50,000 to 300,000 gallons may be used to fracture shallow vertical wells in NV, while approximately 800,000 to 10 million gallons may be used to fracture deep tight sand gas horizontal or directionally drilled wells in NV.

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

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

Gas emissions associated with the HF process are captured when the operator utilizes a green completion process. Where a green completion process is not utilized, gas associated with the well may be vented and/or flared until "saleable quality" product is obtained in accordance with federal and state rules and regulations. The total volume of emissions from the equipment used (trucks, engines) will vary based on the pressures needed to fracture the well, and the number of zones to be fractured.

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

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

Fracturing Fluids

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

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

Re-Fracturing

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

Water Availability and Consumption Estimates

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

The anticipated rise in total statewide water withdrawals primarily reflects expected increases in public supply for M&I water usage to meet the needs of a growing urban population, with expanding commercial and industrial activities. Nevada's population is projected to reach about

3,047,000 by the year 2020, with about 95 percent of these residents served by public water systems (NDWP, March 1999).

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

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

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

Potential Sources of Water for Hydraulic Fracturing

Freshwater-quality water is required to drill the surface-casing section of the wellbore per Federal regulations; other sections of the wellbore (intermediate and/or production strings) would be drilled with appropriate quality makeup water as necessary. This is done to protect usable water zones from contamination, to prevent mixing of zones containing different water quality/use classifications, and to minimize total freshwater volumes. With detailed geologic well logging during drilling operations, geologists/mud loggers on location identify the bottoms of these usable water zones, which aids in the proper setting of casing depths.

Several sources of water are available for drilling and/or HF in NV. Because Nevada's water rights system is based in the prior appropriation doctrine, water cannot be diverted from a stream/reservoir or pumped out of the ground for drilling and/or HF without reconciling that diversion with the prior appropriation doctrine. Like any other water user, companies that drill or hydraulically fracture oil and gas wells must adhere to NV water laws when obtaining and using specific sources of water.

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

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

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

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

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

New diversion of surface water flowing in streams and rivers. New diversion of surface waters in most parts of the state are rare because the surface streams are already "over appropriated," that is, the flows do not reliably occur in such a magnitude that all of the vested water rights on those streams can be satisfied. Therefore, the only time that an operator may be able to divert water directly from a river is during periods of high flow and less demand. These periods do occur but not reliably or predictably.

Produced Water. The operator may choose to use water produced in conjunction with oil or gas production at an existing oil or gas well. The water that is produced from an oil or gas well is under the administrative purview of the NDEP, Underground Injection Control Program (UIC) and is either non-tributary, in which case, it is administered independent of the prior appropriation doctrine; or is tributary, in which case, the depletions from its withdrawal must be fully augmented if the depletions occur in an over-appropriated basin. The result in either case is that the produced water is available for consumption for other purposes, not just oil and gas operations. The water must not be encumbered by other needs and the operator must obtain a proper well permit from the NDEP before the water can be used for drilling and HF operations.

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

On-Location Water Supply Wells. Operators may apply for, and receive, permission from the NDEP to drill and use a new water supply well. These wells are usually drilled on location to provide an on-demand supply. These industrial-type water supply wells are typically drilled deeper than nearby domestic and/or stock wells to minimize drawdown interference, and have large capacity pumps. The proper construction, operation and maintenance, backflow prevention and security of these water supply wells are critical considerations at the time they are proposed to minimize impacts to the well and/or the waters in the well and are under the jurisdiction of the NDEP. Plugging these wells is under the jurisdiction of the NDEP and BLM.

III. POTENTIAL IMPACTS TO USABLE WATER ZONES

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

Should hydrocarbons or associated chemicals for oil and gas development, including HF, exceeding US Environmental Protection Agency (EPA)/NDEP standards for minimum concentration levels migrate into potable water supply wells, springs, or usable water systems, it could result in these water sources becoming non-potable. Water wells developed for oil and gas drilling could also result in a draw down in the quantity of water in nearby residential areas depending upon the geology; however it is not currently possible to predict whether or not such water wells would be developed.

Usable groundwater aquifers are most susceptible to pollution where the aquifer is shallow (within 100 feet of the surface depending on surface geology) or perched, are very permeable, or connected directly to a surface water system, such as through floodplains and/or alluvial valleys or where operations occur in geologic zones which are highly fractured and/or lack a sealing formation between the production zone and the usable water zones. If an impact to usable waters were to occur, a greater number of people could be affected in densely populated areas versus sparsely populated areas characteristic of NV.

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

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

2. Communication of the induced hydraulic fractures with existing fractures potentially allows for HF fluid migration into usable water zones/supplies. The potential for this impact is likely dependent on the local hydraulic gradients where those fluids are dissolved in the water column.

3. Cross-contamination of aquifers/formations may result when fluids from a deeper aquifer/formation migrate into a shallower aquifer/formation due to improperly cemented well casings.

4. Localized depletion of perched aquifer or drawdown of unconfined groundwater aquifer.

5. Progressive contamination of deep confined, shallow confined, and unconfined aquifers if the deep confined aquifers are not completely cased off, and geologically isolated, from deeper oil bearing units. An example of this would be salt water intrusion resulting from sustained drawdown associated with the pumping of groundwater.

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

Improper casing and cementing.

A well casing design that is not set at the proper depths or a cementing program that does not properly isolate necessary formations could allow oil, gas or HF fluids to contaminate other aquifers/formations.

Natural fractures, faults, and abandoned wells.

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

Fracture growth.

A number of studies and publications report that the risk of induced fractures extending out of the target formation into an aquifer—allowing hydrocarbons or other fluids to contaminate the aquifer—may depend, in part, on the formation thickness separating the targeted fractured formation and the aquifer. For example, according to a 2012 Bipartisan Policy Center report, the fracturing process itself is unlikely to directly affect freshwater aquifers because fracturing typically takes place at a depth of 6,000 to 10,000 feet, while drinking water aquifers are typically less than 1,000 feet deep. Fractures created during HF have not been shown to span the distance between the targeted oil formation and freshwater bearing zones. If a parcel is sold and development is proposed in usable water zones, those operations would have to comply with federal and/or state water quality standards or receive a Class II designation from the NDEP.

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

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

2. Presence of existing natural fracture systems and their orientation in the target formation and surrounding formations.

3. 3. Amount and distribution of stress (i.e., in-situ stress), and the stress contrasts between the targeted formation and the surrounding formations.

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

Fluid leak and recovery (flowback) of HF fluids.

Not all fracturing fluids injected into the formation during the HF process may be recovered at the surface. Fluid movement into smaller fractures or other geologic substructures can be to a point where flowback efforts will not recover all the fluid or that the pressure reduction caused by pumping during subsequent production operations may not be sufficient to recover all the fluid that has leaked into the formation. It is noted that the fluid loss due to leakage into small fractures and pores is minimized by the use of cross-linked gels.

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

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

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

Check-Valve Effect

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

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

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

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

Adsorption and Chemical Reactions

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

Movement of Fluids outside the Capture Zone

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

Incomplete Mixing of Fracturing Fluids with Water

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

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

IV. GEOLOGIC HAZARDS (INCLUDING SEISMIC/LANDSLIDES)

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

blocks of material. Any destructive earthquake also has the potential to induce liquefaction in saturated soils.

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

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

1. The process of hydraulic fracturing a well as presently implemented for shale gas recovery does not pose a high risk for inducing felt seismic events; and

2. Injection for disposal of waste water derived from energy technologies into the subsurface does pose some risk for induced seismicity, but very few events have been documented over the past several decades relative to the large number of disposal wells in operation.

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

V. SPILL RESPONSE AND REPORTING

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

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

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

VI. PUBLIC HEALTH AND SAFETY

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

VII. REFERENCES

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Appendix G. Special Status Animal Species

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Appendix H. Special Status Plant Species

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Appendix I. Claims Overlapping Group D Parcels

Claim Serial Number	Legal Description	Parcel(s) Potentially Affected
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NMC882278		
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NMC905558		
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Appendix J. Weed Risk Assessments

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