

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

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**July 2014 Competitive
Oil and Gas Lease Sale,
Battle Mountain District, Nevada
ENVIRONMENTAL ASSESSMENT**

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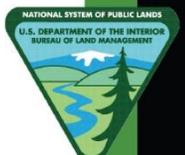


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1.0 INTRODUCTION

1.1 Background

It is the policy of the Bureau of Land Management (BLM) as mandated by various laws, including the Mineral Leasing Act 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 BLM-Nevada State Office (NSO) conducts competitive sales for oil and gas lease parcels in the Battle Mountain District. The NSO publishes a Notice of Competitive Lease Sale (NCLS) that lists lease parcels offered at the auction at least 45 days before it is held. The BLM bases its decision as to which parcels to offer for a competitive lease sale on current resource and land use information and the management framework developed in the appropriate district or field office Resource Management Plans (RMPs).

In the process of preparing a lease sale, the NSO sends a list of nominated parcels to each field office where the parcels are located. Through an environmental assessment, the Field Office staff then reviews 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 will then be made available to the public through a NCLS. Lease stipulations applicable to each parcel are specified in the Sale Notice. On rare occasions, additional information obtained after the publication of the NCLS, may result in withdrawal of certain parcels prior to the day of the lease sale.

This Environmental Assessment (EA) documents the review of 166 Battle Mountain District Office (BMDO) administered parcels nominated in the July 2014 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 deferral.

An assessment of potential environmental impacts, based on a Reasonably Foreseeable Development (RFD) 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.

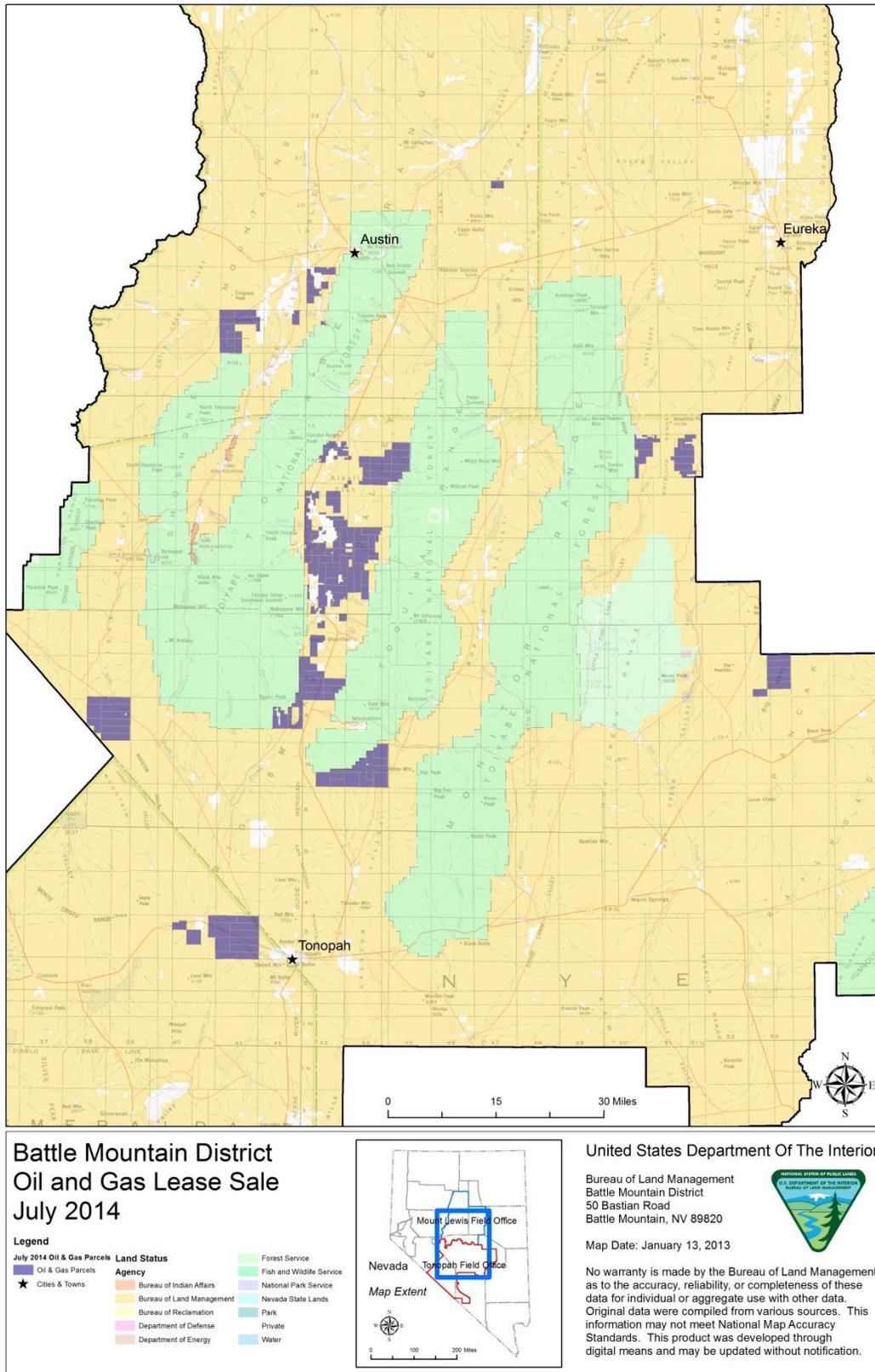


Figure 1. Oil and gas lease parcels nominated for July 2014 lease sale.

At the time of this review, it is not known whether the nominated parcels will receive bids, if leases will be issued, or what types of lease operations might be proposed in the future. Detailed site-specific NEPA analysis would occur when an Application for Permit to Drill (APD) is submitted.

1.2 Purpose and Need for Action

Oil and gas leasing is necessary to provide oil and gas companies with new areas to explore and potentially develop. 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 National Environmental Policy Act (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).

1.3 Land Use Plan Conformance

The Proposed Action is in conformance with the Tonopah RMP, approved on October 6, 1997, for the Tonopah Planning Area and the Shoshone Eureka RMP and associated Record of Decision (1986). The Proposed Action is in conformance with the Tonopah RMP because it is specifically provided for in the following LUP objective:

Page 22 of the RMP, under the heading "Fluid Minerals" subtitled "Objective": "To provide opportunity for exploration and development of fluid minerals such as oil, gas, and geothermal resources, using appropriate stipulations to allow for the preservation and enhancement of fragile and unique resources".

The Proposed Action also in conformance with the Tonopah RMP because it has been determined that the lease parcels are a subset of:

"[The] total of 5,360,477 acres (88% of the Tonopah Planning Area)[that] is open to fluid minerals leasing subject to standard terms and conditions (p.22)."

The Proposed Action is also in conformance with the Shoshone-Eureka RMP Part II, Section E, Management Actions Not Expressly Addressed by the Resource Management Plan, which includes Minerals Objectives and Management Decisions brought forward unaltered from the

Management Framework Plan (Record of Decision p. 29). Minerals Objectives 1, 2, and 3 led to Management Decisions 1 through 5 for leasable minerals (oil and gas). The objectives are as follows:

Objective 1: Make available and encourage development of mineral resources to meet national, regional, and local needs consistent with national objectives for an adequate supply of minerals.

Objective 2: Assure that mineral exploration, development, and extraction are carried out in such a way as to minimize environmental and other resource damage and to provide, where legally possible, for the rehabilitation of lands.

Objective 3: Develop detailed mineral resource data in areas where different resources conflict so that informed decisions may be made that result in optimum use of the lands.

Management Decision #4, specifically addresses oil and gas leasing and states, “All areas designated by the BLM as prospectively valuable for oil and gas will be open to leasing except as modified by other resources.”

1.4 Relationship to Statutes, Regulations, Policy, Plans and Other Environmental Analysis

Purchasers of oil and gas leases are required to abide by all applicable federal, state, and local laws and regulations. This includes obtaining all required permits should lease development occur. Federal regulations and policies require the BLM to make 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 do not contribute to the need for the species to become listed as threatened or endangered by the United States Fish and Wildlife Service (USFWS).

The BLM must adhere to Section 106 of National Historic Preservation Act (NHPA). The BLM also must comply with 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*.

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. If potential Traditional Cultural Property (TCP) or heritage-related issues are identified, such parcels may be withheld from the sale while coordination or consultation with Native American groups is conducted.

The Proposed Action and alternatives will be in conformance with the National Environmental Policy Act (NEPA) of 1969, (P.L. 91-190 as amended (42 USC §4321 et seq.); Mineral Leasing Act (MLA) of 1920 as amended and supplemented (30 USC 181 et seq.); the Federal Oil and Gas Leasing Reform Act of 1987, which includes the regulatory authority under 43 Code of

Federal Regulation (CFR) 3100, Onshore Oil and Gas Leasing; General, and Title V of the Federal Land Policy and Management Act of 1976 (FLPMA) Right-of-Way (ROW) under regulatory authority under 43 CFR 2800 for ROWs.

1.5 Scoping and Public Involvement

The BMDO interdisciplinary team participated in internal scoping meetings on December 18, 2013 and January 7, 2014. 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 C.

Native American consultation letters for the July 2014 Lease Sale were sent on December 16, 2013. They were sent to Battle Mountain Band, South Fork Band, Duckwater Shoshone Tribe, Yomba Shoshone Tribe, Ely Shoshone Tribe, Timbisha Shoshone Tribe, and Fallon Pointe Shoshone Tribe. On January 22, 2014, resource specialists met with a representative of the Duckwater Shoshone Tribe, and descendants of the Big Smokey Valley Tribe. Lease parcels of interest to the tribes were visited on that day. On January 8, 2014 BLM also received a letter from the Yomba Shoshone Tribe. A meeting has been scheduled for February 14, 2014.

Nevada Department of Wildlife (NDOW) was informed of the lease sale on December 13, 2013. A response letter was received from NDOW on January 27, 2014.

2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.1 Proposed Action

The Proposed Action is to offer for competitive sale 139 of the 166 nominated parcels that were sent to the BMDO for review. The acreage nominated for leasing was 285,179 acres and the acreage to be offered is 230,989 acres. Seventeen parcels have been identified for deferral due to specific resource concerns and land use conflicts. The seventeen parcels comprise 54,190 acres or 19 percent of the original total. The specific parcels and reasons for deferral may be found in Appendix C.

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

2.2 No Action Alternative

The BLM NEPA Handbook (H-1790-1) 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 166 lease parcels from the July 2014 lease sale. Surface management would remain the same and ongoing oil and gas development would continue on surrounding leased federal, private, and state lands.

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

2.3 Alternatives Considered but Eliminated from Further Analysis

The BMDO staff considered leasing all 166 parcels that were nominated for leasing. However, during scoping, it was determined that there were specific resource conflicts and land use conflicts that would require deferring specific parcels. This Alternative has been eliminated from further analysis.

2.4 Reasonably Foreseeable Development Scenario

2.4.1 Trends and Projections for Oil and Gas Exploration in the BMD

Oil production data from the Nevada Bureau of Mines and Minerals (Figure 2) show that oil and gas production in the state has fallen off since the early 1990s and has flattened out at less than 500,000 barrels per year over the last several years.

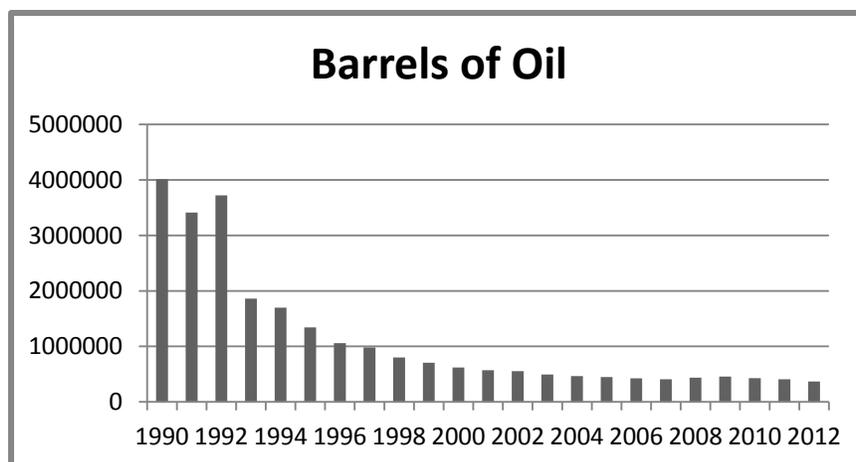


Figure 2. Oil production trends in Nevada from 1990 through 2012.

As part of the 1997 Tonopah RMP, the BLM conducted a RFD scenario for oil and gas exploration and development. The RFD projected that 30 wildcat wells would be drilled through the year 2014 for a total disturbance of 296 acres. It also projected a number of additional production wells in established old fields and estimated a total future surface disturbance of 131 acres. The 1997 RFD also projected the development of two additional oil fields with a total future disturbance of 944 acres.

This assessment provides a clear basis for estimating a very low development potential for oil and gas disturbance that might indirectly result from the July oil and gas lease sale. Conservatively, over the next ten years, 710 acres of disturbance could be expected to occur in the TFO, where the majority of the sale parcels would be located. Considering that the total number of acres in this lease sale for the TFO is approximately 165,169, the total amount of disturbance could be expected to be less than one percent of the lease sale area (0.43%).

A relatively small number of the sale parcels, totaling 65,820 acres would be located in the Mount Lewis Field Office (MLFO) area. According to the 2006 *Environmental Assessment for Oil and Gas Leasing within Portions of the Shoshone-Eureka Planning Area*, the overall potential for oil and gas exploration and development in this area is also low. The western portion of the planning area was considered to have a lower potential when compared to that of the eastern portion. The eastern portion of the Shoshone-Eureka planning area was considered to have moderate to high potential because it is located on a strike between Pine Valley and Railroad Valley, the two major production areas in the State. In addition, the geologic setting is similar.

While oil and gas interest has increased over the last 25 years in the MLFO area, very few exploratory wells have been drilled; an average of one exploration well was drilled per year between the years of 1980 and 2004. Exploration interest since during this time has focused on the eastern portion of the MLFO area, specifically in Eureka County, which is consistent with the geologic potential of the area. However, there have not been any wells drilled in the MLFO area in the last five years. Like the TFO area, the potential for oil and gas exploration and production in the MLFO can also be considered very low.

2.4.2 Typical Oil and Gas Exploration and Development Activities

Despite the low predicted potential of the proposed lease parcels, at any point during the 10-year term of the lease, the lessee, or operator may submit specific plans for some level of proposed development. Typical oil and gas development operations occur in phases, each of which occurs in a more or less predictable sequence that is contingent on the success or failure of the previous phase.

GEOPHYSICAL EXPLORATION

Geophysical exploration is used to obtain detailed geologic information. A variety of exploration methods are employed, ranging from placing electrodes in the ground, to detonating explosives to create shockwaves, to employing specially constructed off-road vehicles to produce vibrations. The most commonly used method in eastern Nevada is the vibroseis technique, which uses large off-road vehicles with “thumpers” to generate shockwaves for two or three dimensional surveys.

EXPLORATORY DRILLING

Exploratory drilling (a wildcat well) begins development of a lease. An Application for Permit to Drill (APD) is filed with the BLM. A field examination is conducted and NEPA review is completed before a drilling permit is issued. An access road and a well pad are constructed for each well, if needed. Total disturbance attributed to drilling and exploration well is usually limited less than ten acres for the pad and access road. Statistically, over 95% of exploration wells are dry.

WELL STIMULATION AND HYDRAULIC FRACTURING

Well Stimulation may be used to enhance oil recovery. Several methods of well stimulation could be used. Hydraulic Fracturing is one of these methods that is reasonably foreseeable for leases proposed for sale. Hydraulic fracturing is the process of applying high pressure to a subsurface formation via a wellbore, to the extent that the pressure induces fractures in the rock. Typically, the induced fractures would be propped open with a granular “proppant” to enhance fluid connection between the well and formation. The process was developed experimentally in 1947 and has been used routinely since 1950. The Society of Petroleum Engineers (SPE) estimates that over one million hydraulic fracturing procedures have been conducted in the United States and tens of thousands of horizontal wells have been drilled and hydraulically fractured. The process can greatly increase the yield of a well, and development of hydraulic fracturing methods and the drilling technology in which it is applied (in particular, long wells drilled horizontally within zones of interest) have enabled production of oil and gas from tight formations formerly not economically feasible.

Hydraulic Fracturing Methods

In order to mitigate potential environmental impacts:

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

- Drilling and hydraulic fracturing fluids will either be contained in a pitless system (above ground tanks) or a lined pit. Cuttings could be contained in roll-off boxes for hauling to disposal or surface casing interval cuttings could be spread over the site during reclamation.
- Hydraulic fracturing fluids are recovered to a large degree in “flowback” or produced water when the well is tested or produced.
- All recovered fluids are generally handled by one of four methods.
 - o Underground injection
 - o Captured in steel tanks and disposed of in an approved disposal facility.
 - o Treatment and reuse
 - o Surface disposal pits
- Drilling cuttings could be land farmed and buried on site 3 feet below root zones. Any cuttings that do not fit this waste profile will be disposed of at an approved disposal facility.

IN-FIELD DRILLING

In-field drilling of additional exploration wells typically occurs in order to define the limits of the oil or gas reservoir when initial drilling has located oil or gas. The process of in-field drilling is the same as that employed for initial exploratory drilling, although new roads and pads may not be required in every instance.

PRODUCTION

Production only occurs if oil or gas can be transported to a market and sold at a profit. In the Battle Mountain District, pumped oil is generally piped a short distance for temporary storage, then trucked to a refinery for processing. This basic method of transport is not likely to change because of the small quantity of resource estimated to be present in the Battle Mountain District. Production facilities may include one or more of the following: a well head; pumping equipment; a separation system; pipelines; a metering system; storage facilities; water treatment and injection facilities; cathodic protection systems; electrical distribution lines; compressor stations; communication sites; roads; salt water disposal systems; dehydration sites; and, fresh and salt water plant sites.

WELL ABANDONMENT

Well abandonment may be temporary or permanent. Wells are sometimes shut-in because pipelines or roads needed for production and marketing don't exist and the cost for construction is not justified by the quantity of oil discovered. These wells may later be reentered when their production can be marketed. The permanent abandonment of a well occurs when the well is

determined to no longer have a potential for economic production, or when the well cannot be used for other purposes.

RECLAMATION

Reclamation includes removal of facilities and reclamation of surface disturbance. In the case of exploration wells which do not find economically recoverable amounts of oil, initial reclamation (recontouring), is usually completed the following year which provides for sufficient time for the reserve pit to dry out. After revegetation of the site is completed, usually within two to three years, reclamation is complete.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This section describes the existing condition of natural and cultural resources in the lease sale area and presents an impact analysis which predicts how these resources might be affected by the implementation of the Proposed Action.

3.1 Supplemental Authorities to be considered

To comply with the National Environmental Policy Act (NEPA), the Bureau of Land Management is required to address specific elements of the environment that are subject to requirements specified in statute, regulation or by executive order (BLM 1988, BLM 1997, BLM 2008). The following table (Table 1) outlines the elements that must be addressed in all environmental analyses, as well as other resources deemed appropriate for evaluation.

Supplemental Authority	Not Present	Present/Not Affected	Present/May be Affected	Rationale
Air Quality			√	See discussions in Sections 3.4.1 and 4.3.1.
Area of Critical Environmental Concern (ACEC)	√			The nominated lease parcels are not located in or near any ACECs.
Cultural/Historical			√	See discussions in Sections 3.4.2 and 4.3.2.
Environmental Justice	√			Drilling activities often provide a few short-term employment opportunities that may be afforded to low income or disadvantaged individuals. This would be a small but positive socioeconomic benefit at the APD stage which will require further analysis
Farmlands Prime or Unique	√			There are no Prime or Unique Farmlands in the Battle Mountain District.
Noxious Weeds/Invasive Non-native Species			√	See discussion in Sections 3.4.7 and 4.3.7.
Native American Religious Concerns			√	See discussion in Sections 3.4.3 and 4.3.3.
Floodplains			√	See discussion in Section 3.4.5 and 4.3.5.
Riparian/Wetlands/			√	See discussion in Sections 3.4.5 and 4.3.5.
Threatened, Endangered Species			√	See discussion in Sections 3.4.4 and 4.3.4.
Migratory Birds			√	See discussion in Sections 3.4.4 and 4.3.4.
Waste – Hazardous/Solid			√	See discussion in Sections 3.4.6 and 4.3.6.

Supplemental Authority	Not Present	Present/Not Affected	Present/May be Affected	Rationale
Water Quality			√	See discussion in Sections 3.4.5 and 4.3.5.
Wild & Scenic Rivers	√			The nominated parcels are not located in or near any wild and scenic rivers.
Wilderness	√			Some of the nominated lease parcels are located near the Antelope Range Wilderness Study Area (WSA) but the WSA is not affected by the nominated lease parcels.
Forests and Rangelands (HFRA only)	√			This is not a Healthy Forest Restoration Act (HFRA) related proposal, thus the HFRA does not apply.

Table 1. Supplemental Authorities Considered in the EA.

3.2 Other Resources

Other resources that have been considered for this environmental assessment (EA) are listed in Table 2 below. Elements that may be affected are further described in the EA. For those resources that would not be affected, rationale is provided.

Other Resources	Not Present	Present/Not Affected	Present/May be Affected	Rationale
Fire Management	√			The Proposed Action is limited to leasing and there is no authorized ground disturbing activity associated with the lease, 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.
Forestry			√	See discussion in Sections 3.4.17 and 4.3.17
Grazing Management			√	See discussion in Sections 4.4.11 and 4.3.11.
Land Use Authorization			√	See discussion in Sections 3.4.12 and 4.3.12.
Minerals			√	See discussion in Sections 3.4.8 and 4.3.8.
Paleontological Resources	√			
Recreation			√	See discussion in Sections 3.4.14 and 4.3.14.
Socio-Economic Values			√	See discussion in Sections 3.4.15 and 4.3.15.
Soils			√	See discussion in Sections 3.4.9 and 4.3.9
Special Status Species			√	See discussion in Sections 3.4.4 and 4.3.4

Other Resources	Not Present	Present/Not Affected	Present/May be Affected	Rationale
Vegetation			√	See discussion in Sections 3.4.10 and 4.3.10.
Visual Resources			√	See discussion in Sections 3.4.13 and 4.3.13
Wild Horses and Burros			√	See discussion in Section 3.4.16 and 4.3.16.
Wildlife			√	See discussion in Sections 3.4.4 and 4.3.4.

Table 2. Other Resources Considered in the EA.

3.3 Environmental Impacts of No Action Alternative

Under the No Action alternative, the lease parcels would not be sold. This means that no on-the-ground actions would occur (geophysical exploration, exploration drilling, etc.) that would have the potential to impact resources. Since there would not be potential impacts to resources, it is not considered further in the EA.

3.4 Impacts Requiring Further Analysis

Through internal scoping, the following resources have been determined to be present and potentially affected by the Proposed Action: air quality, cultural resources, noxious weeds, wetlands/riparian zones, forestry, minerals, soils, migratory birds, water quality/hydrology, vegetation, wild horses and burros, visual resource management, wastes (hazardous and solid), threatened and endangered species, special status species, Native American concerns, wildlife, range resources, lands and realty, recreation, and socioeconomics. The effects of the Proposed Action on these resources will be brought forth for further analysis.

There would be no direct impacts (i.e., impacts that would occur during the implementation of the Proposed Action) from issuing new oil and gas leases because leasing does not directly authorize oil exploration and development activities. However, if a lease is sold, the lessee retains irrevocable rights. For example, according to 43 CFR § 3101.1-2, once a lease is issued to its owner, that owner has the *"right to use as much of the lease lands as is necessary to explore for, drill for, mine, extract, remove and dispose of the leased resource in the leasehold"* subject to specific nondiscretionary statutes and lease stipulations.

If an Application of a Permit to Drill (APD) is received for a purchased parcel, a separate, site-specific NEPA analysis would be required to disclose environmental impacts to resources on public lands. Potential impacts may be caused by any or all of the oil and gas exploration and development activities described in Section 3.4. The reader should note that in the following sections only indirect impacts (i.e., impacts that occur at some point after the implementation of the Proposed Action) are considered.

3.4.1 Air Quality

Affected Environment

Weather in central Nevada is characterized by low humidity with large diurnal variations in temperature. Prevailing wind patterns are generally from the west but locally follow the north-south orientations of the mountain ranges. Occasional intense winds can cause localized dust storms and decreased visibility.

Air quality in Battle Mountain District has been designated as “attainment/unclassified” (which means it either meets, or is assumed to meet, the applicable federal ambient air quality standards) for all standard (“criteria”) air pollutants (U.S. Environmental Protection Agency, 2007). The Nevada Department of Conservation and Natural Resources, Division of Environmental Protection, Bureau of Air Pollution Control has been delegated responsibility by both the U. S. Environmental Protection Agency and the State of Nevada to regulate emissions of air pollutants in Nevada.

The lease parcels are not located in or adjacent to any mandatory Class I (most restrictive) federal air quality areas, U.S. Fish and Wildlife Service Class I air quality units, or American Indian Class I air quality lands.

Environmental Consequences

Potential indirect impacts likely to result from exploration and development activities would be an increase in fugitive dust related to ground disturbance and exhaust fumes from motorized equipment during site construction and drilling activities. Increased traffic on the existing roads would also contribute some level of fugitive dust; however, for most drilling activities, the impacts would be minor and would occur over a two to three week period. Impacts to air quality would cease when these activities cease. Since the potential for oil and gas exploration activity is expected to be very low within the lease sale area, impacts to air quality are not expected to be significant. The Proposed Action would not result in an indirect exceedance of the National Ambient Air Quality Standards (NAAQS) standards.

However, if parcels were developed in the future, site-specific mitigation measures and Best Management Practices (BMPs) would be attached as Conditions of Approval (COAs) for each proposed activity, which would be analyzed under a site-specific NEPA analysis. All operations would comply with applicable air quality standards.

3.4.2 Cultural Resources

Affected Environment

Parcels proposed to be sold at the July 2014 lease sale are located in nine different regions: In the Shoshone Range, in and around Iron Mountain; the Reese River valley along the western flank of the Toiyabe Range and just south of Austin, Nevada; Simpson Park, just east of Water Canyon; along the eastern and western slopes of the Antelope Range just south of the Eureka/

Nye county boundary; in the Big Sand Springs valley, west of the Pancake Range and south and west of the Red Hills; the south end of the Big Smokey Valley, west of Tonopah; along the northern edge and north of the Royston Hills; the southern end of the Toquima Range between the Ralston and Big Smokey valley; and in the Big Smokey Valley between the Toiyabe and Toquima Ranges from Kingston to Round Mountain.

Although limited cultural resource surveys have been completed, all of these regions are likely to contain areas of high cultural resource sensitivity. Within the nine regional areas identified here, the Big Smokey Valley has perhaps the greatest potential for significant cultural resources.

Environmental Consequences

The Proposed Action is unlikely to result in indirect adverse effects to cultural resources because any activities proposed on a given lease would be subject to compliance under Section 106 of the National Historic Preservation Act. Compliance with the NHPA would require that a site-specific cultural resource survey, including National Register of Historic Preservation (NRHP) eligibility evaluations and Nevada SHPO concurrence, would be required. If it is determined that an NRHP-eligible site would be affected, the proponent would be required to alter the design specifications of the proposal to avoid the effect or would be compelled to mitigate the adverse effect through a data collection program or other measures developed in coordination with the Nevada SHPO. Such site-specific mitigation measures would be attached as COAs for each proposed activity.

3.4.3 Native American Religious Concerns

Affected Environment

The area described in the Proposed Action lies within the traditional territory of the Western Shoshone and possibly the Paiute Tribes. Sites and resources considered sacred or necessary to the continuation of tribal traditions include, but are not limited to: prehistoric and historic village sites, pine nut gathering locations, sites of ceremony and prayer, archaeological sites, burial locations, “rock art” sites, medicinal/edible plant gathering locations, areas associated with creation stories, or any other tribally designated Traditional Cultural Property. Specific locations in the area were not identified or shared. Future Native American Consultations in the area may reveal such sites, activities, or resources.

The majority of lands within the proposed action area have not been analyzed for cultural resources or Native American Religious Concerns. Therefore, the BLM contacted the Battle Mountain band, the South Fork band, the Ely, Timbisha, Duckwater, Yomba Shoshone Tribes and the Fallon Paiute-Shoshone Tribe to identify areas of concern, mitigation measures, operating procedures or alternatives that may eliminate or reduce impacts to any existing tribal resources.

Environmental Consequences

Although the act of selling oil and gas leases does not directly authorize exploration, development, or production, or any other related ground disturbing activities, there does exist the potential to impact Native American sites of a spiritual, cultural, or traditional nature. Impacts to cultural sites can be minimized and/or mitigated when affected Tribes provide input and actively and fully participate in the decision making process.

Impacts to cultural resources are expected to be minimal because exploration activity is expected to be minor and temporary. However, 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.

3.4.4 Wildlife Resources

Regulatory Framework

BLM Special Status Species

The lease area may contain BLM BMDO special status species (SSS) plants, animals or their habitat (see Appendix D for the BMDO SSS list). BLM SSS are defined as those plant and animal species for which population viability is a concern, as evidenced by: 1) significant current or predicted downward trend in population numbers or density, or 2) a significant current or predicted downward trend in habitat capability that would reduce the species' existing distribution. SSS also include federally listed species under the Endangered Species Act (ESA; i.e., threatened, endangered or candidate; see section below). These SSS animals are protected under provisions of the ESA or under BLM Manual 6840, *Special Status Species Management*. BLM has species-specific recommendations to avoid or modify activities that are likely to disturb SSS or severely degrade critical habitat. In many cases, the BLM requires that surveys are conducted for SSS species. BLM will not approve any ground-disturbing activity that may negatively affect federally listed species or critical habitat, until it completes its obligations under applicable requirements of the ESA as amended, 16 U.S.C. § 1531 *et seq.*, including completion of any required procedure for conference or consultation.

Endangered Species Act (ESA)

In accordance with Section 7 of the ESA, federal agencies must “insure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of critical habitat of such species.” The purpose of the Act is to provide a means for conserving the ecosystems upon which threatened and endangered species depend, and to provide a program for protecting these species. The ESA defines an endangered species as a species that is in danger of extinction throughout all or a major portion of its range. A threatened species is defined as any species that is likely to become an endangered species within the foreseeable future throughout all or a major portion of its range. This Act also address species that have been proposed for listing as either threatened or endangered, but for which a final determination has not been made. These so-called “candidate” species are those for which the US Fish and Wildlife Service (USFWS) has sufficient information on their biological status and threats to propose them as endangered or threatened under the ESA, but for which development of a proposed listing

regulation is precluded by other, higher priority listing activities. Critical habitat is a specific area or type of area that is considered to be essential for the survival of a species, as designated by the USFWS under the ESA.

Within the BMD, there are eight listed as threatened, endangered, proposed, or candidate species by the USFWS (see Appendix D). Of these, greater sage-grouse (candidate species) are the only species likely to occur in the lease sale parcels. However, parcel sales will not occur in Preliminary Priority Habitat (PPH) or within certain areas of Preliminary General Habitat (PGH) that was determined by site visits to be of high-value.

BLM and Nevada Department of Wildlife Memorandum of Understanding

Wildlife and fish resources and their habitat on public lands are managed cooperatively by the BLM and NDOW under a MOU as established in 1971. The MOU describes the BLM's commitment to manage wildlife and fisheries resource habitat, and the NDOW's role in managing populations. The BLM meets its obligations by managing public lands to protect and enhance food, shelter, and breeding areas for wild animals. The NDOW assures healthy wildlife numbers through a variety of management tools including wildlife and fisheries stocking programs, hunting and fishing regulations, land purchases for wildlife management, cooperative enhancement projects, and other activities.

Nevada Department of Wildlife Programs

The NDOW is the state agency responsible for the restoration and management of fish and wildlife resources within the state. The NDOW administers state wildlife management and protection programs as set forth in NRS Chapter 501, Wildlife Administration and Enforcement, and NAC Chapter 503, Hunting, Fishing and Trapping; Miscellaneous Protective Measures. NRS 501.110 defines the various categories of wildlife in Nevada, including protected categories. NAC 503.010-503.080, 503.110, and 503.140 lists the wildlife species currently placed in the state's various legal categories, including protected species, game species, and pest species.

Migratory Bird Treaty Act and Migratory Bird Conservation Act

Migratory birds, with the exception of native resident game birds, are protected under the provisions of the Migratory Bird Treaty Act (MBTA) of 1918. Under this act, nests with eggs or the young of migratory birds may not be harmed, nor may any migratory birds be killed. Measures to prevent bird mortality must be incorporated into the design of project design. To comply with the MBTA, it is recommended that any land clearing or other surface disturbance associated with proposed actions within the project area be timed to avoid potential disturbance of breeding birds or their nests and young. Disturbance of breeding birds or destruction of nests with eggs or young is a violation of the MBTA. The BLM recommends that land clearing be conducted outside the avian breeding season. For most birds, the breeding season is considered to be from April 1 – July 31 (but see guidelines for Raptors and Eagles below). If land clearing is not feasible outside of the breeding season, the BLM recommends that a qualified biologist survey the area prior to land clearing. These surveys are only good for 14 days. If activity is not completed before that window is finished then another survey may be needed. If nests are located, or if other evidence of nesting (*i.e.*, mated pairs, territorial defense, carrying nesting material, transporting of food) is observed, a protective buffer (the size

depending on the habitat requirements of the species should be delineated and the entire area avoided until young fledge or the nest is no longer occupied.

Guidance for raptors differs from migratory songbirds in that 1) the nesting season is extended (March 1- July 31), and 2) the survey area is larger (surveys will be conducted in the project area in addition to a 1 mile buffer surrounding the proposed surface disturbance). This survey buffer may be reduced or altered based on topography and the presence of other physical barriers.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (16 U.S.C. 668) applies primarily to taking, hunting, and trading activities that involve any bald or golden eagle. The act prohibits the direct or indirect take of an eagle, eagle part or product, nest, or egg. The term “take” includes “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb.” Golden eagles are protected by the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act, both of which prohibit take.

The USFWS has guidance for proposed projects that have the potential to impact eagles or their habitat. Generally, the steps in these guidelines include 1) surveying for nests within an appropriate radius of the project, 2) developing an eagle conservation plan (ECP) in cases where eagles and/or their nests are likely to be impacted, 3) determining if the project has the potential to disturb breeding behavior, and 4) determining if the proponents need to apply for a permit to authorize unintentional take.

Surveys for golden eagle nests will be designed in coordination with BMD biologists to target the most probable locations near the parcels.

Other Regulations

The Sikes Act is federal legislation that authorizes the USDI to plan, develop, maintain, and coordinate programs with state agencies for the conservation and rehabilitation of wildlife, fish, and game on public lands. The Fish and Wildlife Conservation Act of 1980 encourages federal agencies to conserve and promote the conservation of non-game fish and wildlife species and their habitats.

Affected Environment

The BMD provides habitat for approximately 73 mammals, 231 birds, 24 reptiles, 7 amphibians, 19 fish species, and numerous invertebrate species (many of which have yet to be inventoried or identified to species). Several of these wildlife species are likely to occupy the oil and gas lease sale parcels, including migratory birds, golden eagles and other raptors, greater sage-grouse, bats, pronghorn antelope, and mule deer. In particular, parcels that contain or are adjacent to riparian areas (e.g., streams, springs, seeps, and wet meadows) are likely to support a high density of wildlife species. Other important wildlife habitat types within the sale parcels include big sagebrush (mountain and Wyoming big sagebrush), low sagebrush, pinyon-juniper woodlands, aspen woodlands, and salt desert scrub vegetation.

The following sections briefly discuss a few select wildlife species that are likely to occur on the oil and gas lease sale parcels, and for which federal law or BLM policy and guidance directs management actions.

Migratory Birds

A wide variety of bird species protected by the MBTA are found throughout all habitat types within the lease parcels. These include raptors (i.e., hawks, eagles, and owls) and many songbirds. Major avian communities within the BMD occur in sagebrush, salt shrub, pinyon-juniper, montane, riparian, and aspen habitats. Species commonly occurring in pinyon-juniper habitats and that are known to occur or have the potential to occur include the pinyon jay, western bluebird, Virginia's warbler, black-throated gray warbler and Scott's oriole. Sage thrasher, Brewer's sparrow and sage sparrow use sagebrush habitats, while loggerhead shrike and green-tailed towhee also have potential to occur in the sagebrush habitats. Many songbird species are heavily dependent on healthy riparian systems. Seventy-seven bird species have been identified as either riparian obligate or riparian dependent in the western United States (Rich 2002), and these communities are requisite for a diverse migratory bird community.

Eagles

Golden eagles are widespread year-round residents across the BMD. Golden eagles typically nest on large cliffs and they forage on small mammals such as jackrabbits, cottontails, and ground squirrels in open shrub, grassland and forested habitats. Alternatively, bald eagles do not nest in the BMD, but they do occur during the winter near relatively large open bodies of water.

Greater sage-grouse

Greater sage-grouse occur within sagebrush habitat in Eureka, Lander and northern portions of Nye County on the BMD. Sage-grouse are largely dependent on sagebrush for nesting, brood rearing, and foraging. Greater sage-grouse are known to occur in foothills, plains, and mountain slopes where sagebrush meadows and aspen are in close proximity. Currently, sage-grouse are a candidate species for listing under the ESA.

Mule deer

Mule deer use a variety of vegetation types and habitats seasonally within the project area in their pursuit of forage, thermal cover, and escape cover for seasonal needs. Vegetation important for mule deer includes serviceberry, snowberry, mountain mahogany, sagebrush, aspen, cottonwood, willows, chokecherry, wild roses, Pinyon pine, juniper, eriogonum, arrowleaf balsamroot, penstemon, phlox sp., sorrel, hawksbeard, lupine, and numerous forbs. Riparian vegetation along streams, meadow areas, and aspen stands are important fawn-rearing areas.

Pygmy rabbits

Pygmy rabbits are North America's smallest rabbits, and the only ones that construct their own burrows. These burrows usually occur in stands of tall, dense sagebrush in areas with deep, loose soils. Big sagebrush is the primary food and may comprise up to 99 percent of food taken in winter and 51 percent in the summer. Wheatgrass and bluegrass were highly preferred foods in the summer. Cheatgrass invasion is detrimental to pygmy rabbits. Shrub cover is necessary for protection during dispersal and cheatgrass monocultures may provide a barrier to dispersal.

Bats

Bats inhabit or utilize many niches across the Nevada and the BMD. These include caves, abandoned mines, cliffs, springs, riparian, aspen, Pinyon-juniper, subalpine coniferous forest,

and desert shrub habitats. Bats frequently forage in riparian areas, and some of the most important bat habitat exists along perennial stream corridors.

Environmental Consequences

Indirect effects on wildlife species could include direct habitat loss, habitat fragmentation, displacement, and mortality. These effects of lease operations are not likely to be intensive because the potential for oil and gas exploration and development within the lease area is very low and would probably be of short duration.

In addition, site-specific mitigation measures and BMPs would be attached as COAs for each proposed activity, which would be analyzed in a site-specific NEPA document. No oil and gas parcel sales would occur in any areas determined to be located in Preliminary Priority Habitat (PPH) or within certain areas of high-value Preliminary General Habitat (PGH) for the Greater Sage Grouse.

3.4.5 Water Quality (Surface and Ground) and Quantity

Affected Environment

Water in the lease area is owned by the public of Nevada, however, the right to use surface and groundwater and management of water appropriations are administered by the Nevada Division of Water Resources (NDWR). The water quality standards of Nevada support other Federal laws such as the Clean Water Act of 1977, the Water Resources Planning Act of 1962, the Pollution Prevention Act of 1990, and the Safe Drinking Water Act of 1977 and are administered by the Nevada Division of Water Quality (NDWQ). The lease area is part of the Basin and Range Physiographic Province, a semiarid and arid desert environment with most precipitation originating as snow. Annual precipitation is highly variable. The average annual precipitation in Tonopah is 4.95 inches, and March and April are the wettest months (WRCC 2013a). The average annual precipitation in Battle Mountain is 8.2 inches, and April and May are the wettest months (WRCC 2013b).

Hydrographic Basins

The hydrographic basin is the basic management unit used by the NDWR. Table 3 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 March 13, 2012, from the NDWR web site (NDWR 2012a).

Basin #	Basin Name	Region	Designated Closed (Yes/No)	Perennial Yield (Acre Feet/Year)	Appropriations
137B	Big Smoky Valley - Northern	Central Region	Yes	65,000	54,829
056	Upper Reese River Valley	Humboldt River Basin	No	37,000	36,037
137A	Big Smoky Valley - Tonopah	Central Region	Yes	6,000	23,930

Basin #	Basin Name	Region	Designated Closed (Yes/No)	Perennial Yield (Acre Feet/Year)	Appropriations
139	Kobeh Valley	Central Region	Yes	16,000	12,478
138	Grass Valley	Central Region	No	13,000	12,644
155A	Little Smoky Valley - Northern	Central Region	No	5,000	5,055
150	Little Fish Lake Valley	Central Region	No	10,000	7,895
141	Ralston Valley	Central Region	Yes	6,000	4,305
151	Antelope Valley	Central Region	No	4,000	3,063
134	Smith Creek	Central Region	No	10,000	1,915
135	Ione Valley	Central Region	No	2,500	191
155C	Little Smoky Valley - Southern	Central Region	No	1,000	17
155B	Little Smoky Valley - Central	Central Region	No	100	2

Table 3. Hydrographic Basin Summary

The proposed lease parcels are located in hydrographic region 10, Central Region and 4, Humboldt River Region. The majority of leases are within hydrographic basin 137, Big Smokey Basin. Table 4 provides a summary of the proposed lease area:

# of Parcels	Basin Number	Basin Name	Hydrographic Region
4	151	Antelope Valley	Central-10
123	137	Big Smokey	Central-10
1	138	Grass Valley	Central-10
9	135	Ione Valley	Central-10
1	139	Kobeh Valley	Central-10
2	150	Little Fish Lake Valley	Central-10
11	144	Little Smokey Valley	Central-10
11	141	Ralston Valley	Central-10
6	134	Smith Creek	Central-10
21	056	Upper Reese River	Humboldt-4

Table 4 Hydrographic sub-areas in which the proposed leases are located.

Surface Water

Most of the lease area consists of closed drainage basins, with a few watersheds to the north flowing toward the Humboldt River. According to the National Hydrography Dataset, the lease area contains 11 springs, 86 km of perennial streams, 1,642 km of ephemeral and intermittent streams, 168 acres of lakes and ponds, 361 acres of playa, 11 acres of swamp and marsh, and 266 acres of reservoir bodies. Unsurveyed features may exist.

The magnitude of surface water discharge varies in space and time. With the exception of moist winters in 2006 and 2010-2011, the Great Basin has been abnormally dry or within drought conditions since 2000. Since early 2012, the BMD and much of the Central Great Basin have

consistently been in states of moderate to exceptional drought. Streamflow forecasts show most of the major river systems in the planning area will be at 25 to 50 percent of average for 2013.

The Nevada Administrative Code Chapter 445A identifies class waters, which generally include smaller perennial streams that are tributaries to the large rivers in the state. The classification process is ongoing and not all water bodies have been classified. Water bodies are classified according to their quality and potential beneficial uses. The water quality standards correspond to these classes.

Groundwater

Runoff from upland areas of the lease area often infiltrates into the groundwater as it flows across the broad alluvial fans that transition into wide basins. Groundwater is either directed toward the playa and is lost to the atmosphere as evapotranspiration or seeps into deeper aquifers that compose larger regional flow systems. Two regional flow systems have been extensively studied by the USGS, the Death Valley Regional Flow System (Belcher 2004), and the Basin and Range Carbonate Aquifer System (Welch et al. 2007). However, a large proportion in the middle of the Planning Area has not been studied. Perennial base flow from springs is largely driven by snowmelt runoff recharge. Depth to groundwater is highly variable throughout the Lease Area ranging from a few feet to hundreds of feet.

Nevada's groundwater quality standards are based on the assumption that groundwater should be maintained suitable for use as a drinking water source, unless the natural water quality prevents this. The State adopts the Federal primary and secondary drinking water standards (maximum contaminant limits) for groundwater resources. The chemical character and quality of groundwater varies in the Lease Area and depends largely on the mineral content of the rock, residence time, evapotranspiration, temperature.

The perennial yield is defined as the maximum amount of groundwater that can be harvested each year over the long term without depleting the groundwater reservoir or it being in disequilibrium. Perennial yields were quantified by USGS reconnaissance reports from the late 1940s to the 1970s. A hydrographic basin that has more appropriations than perennial yield is identified as a designated basin; the BMD has 29 basins that are fully or partially designated.

Riparian/Wetland Zones

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 BMD. They represent less than one percent 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 86 kilometers of perennial stream and 1,642 kilometers of ephemeral or intermittent stream are within the parcels. These streams may have associated riparian habitat.

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 6,133 acres of lease parcels identified within Zone A flood hazard areas and they would be subject to Federal Regulation and mitigation; however

FEMA flood mapping data are not yet available for Esmeralda County, NV. Site-specific analysis, to identify potential flood plain impacts, would be required prior to drilling in parcels that meet this designation.

Municipal Watersheds

Areas within the lease area have been identified as having Municipal Water Supplies within the HUC-12 boundaries. Site-specific analysis, to identify potential impacts, would be required prior to drilling in parcels that meet this designation.

Environmental Consequences

Groundwater

There would be no direct impacts to groundwater due to oil and gas leasing because no authorization for surface disturbance would be granted. Impacts from development activities would be analyzed under a separate site-specific environmental analysis. All activities would be subject to BMPs, State and Federal Regulations, and COAs. Potential impacts to groundwater by the development of a lease may include degradation of water quality and drawdown of existing water levels. Water quality issues may arise from either underground or surface contamination. The primary cause of underground degradation would be from improperly functioning well casings. Surface activities can degrade groundwater by infiltration of contaminants, particularly from sumps and spills. Areas with shallow groundwater levels would be at greater risk and may be subject to additional constraints. All required state and federal regulations would apply and site-specific stipulations and mitigation may be applied on the APD.

Surface Waters

There would be no direct impacts to surface waters due to oil and gas leasing because no authorization for surface disturbance would be granted. Impacts from development activities would be analyzed under a separate site-specific environmental analysis. All activities would be subject to BMPs, State and Federal Regulations, and COAs. Potential impacts of lease development on surface waters may include increases in sediments and changes in flow. If surface-disturbing activities were proposed near surface waters or wetlands/riparian zones, additional mitigation may be required. All operations would be required to comply with all state and federal regulations.

Riparian Areas and Wetlands

There would be no direct impacts to riparian and wetlands due to oil and gas leasing because no authorization for surface disturbance would be granted. Impacts from development activities would be analyzed under a separate site-specific environmental analysis. All activities would be subject to BMPs, state and federal regulations, and COAs. Surface disturbance adjacent to wetlands/riparian zones and adjacent to flood plains has the potential to adversely affect the functioning condition of a riparian area's soil and watershed attributes. Based on the RFD, it is expected that the impact of lease development on riparian habitats would be relatively small, when site-specific mitigation, COAs, and BMPs are implemented.

3.4.6 Waste, Hazardous and Solid Affected Environment

Oil and gas development could affect the environment through production of waste fluids, emissions, and site impacts resulting from field development and related infrastructure. Hazards that may be encountered include oil spills, releases of produced water, exposures of drill cuttings and fluids, and the production of hazardous materials.

Environmental Consequences

Indirect impacts could include drilling fluid or hydrocarbon spills, leakage from sump ponds or waste water collection systems, spillage of brine water from drilling and accumulations of solid waste. Hydrocarbon spills could include hydraulic fluid, gasoline, oil, or grease from vehicles, generators and exploration drill rigs. Brine water from exploration drilling, if improperly disposed, could raise the pH and/or salinity of existing surface waters to unacceptable levels. Generations of nonhazardous solid waste could include small amounts of trash, drill cuttings, wastewater, bentonite and cement generated during drilling operations.

Despite this array of potential impacts, the probability of their occurrence is remote, because the potential for oil and gas exploration and development in the lease area is very low. In addition, 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.

3.4.7 Noxious Weeds and Invasive, Non-native Species

Affected Environment

A noxious weed is a plant species that has been defined as a pest by law or regulation. The list of the species that are designated as noxious weeds within Nevada is found in the Nevada Administrative Code (NAC), Chapter 555, Section 010 (NAC 555.010). Currently the list contains 47 noxious weed species. When considering whether to add a species to the list, the Nevada Department of Agriculture (NDOA) makes a recommendation after consulting with outside experts and a panel comprising Nevada Weed Action Committee members. Per NAC 555.005, if a species is found probable to be "detrimental or destructive and difficult to control or eradicate", the NDOA, with approval of the Board of Agriculture, designates the species as a noxious weed. The species is then added to the noxious weed list in NAC 555.010. Upon listing, the NDOA will also assign a rating of "A", "B", or "C" to the species. The rating reflects the NDOA's view of the statewide importance of the noxious weed, the likelihood that eradication or control efforts would be successful, and the present distribution of noxious weeds within the state.

An invasive species is defined as a species that is non-native to the ecosystem under consideration and whose introduction causes or is likely to cause economic concern or environmental harm or harm to human health (EO 13112, signed February 3, 1999).

Noxious weeds and invasive species occur on surface acres within the affected areas. Downy brome (cheatgrass), halogeton and other annual weeds are common along roadsides and on other disturbed areas. Russian knapweed, hoary cress, perennial pepperweed, tamarisk, and various thistles (Canada, musk and scotch) are also known to occur in these areas.

Other species have the potential to be introduced into newly disturbed areas. The inventory process is on-going to detect small, invasive populations as they begin to move into the district. Once a population is found, the BLM coordinates with various agencies, lease operators, and land users to implement treatment to remove or control the population. For all actions on public lands that involve surface disturbance or rehabilitation, reasonable measures are required to prevent the introduction or spread of noxious weeds and invasive non-native species. These measures may include power washing or air blasting of construction equipment to remove soil, oil, and vegetative parts and requirements for using certified weed-free seed and weed-free hay, mulch, and straw. In addition, any actions that result in the introduction or spread of noxious weeds and/or invasive non-native species would be mitigated by standard weed management guidelines under the direction of the BLM.

Environmental Consequences

Under the Proposed Action, there would be no direct impacts to noxious weeds and invasive, non-native species, because no new ground-disturbing activities or increase in development-related vehicular or equipment traffic would occur.

Oil and gas exploration and development activities would provide a mode of transport for noxious weeds and other invasive non-native species to become established. Further, ground disturbance associated with exploration and development would provide areas where new and expanded infestation could occur. 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.

3.4.8 Geology and Minerals

Affected Environment

The lease area in the MLFO region is bounded by the Desatoya Mountains and the Tobin Range on the west and Diamond Mountains and Sulphur Spring Range on the east. The parcels in the TFO are located within three valleys: the Big Smokey Valley, the Ione Valley, and the Big Sand Springs Valley. The lease area is located in the Basin and Range province. The Basin and Range province is comprised of north-south oriented mountain ranges separated by broad valleys, which covers most of Nevada. These mountains were formed by crustal blocks that moved upward along parallel normal faults. Basins, or valleys, were formed by fault-bounded crustal blocks that moved relatively downward. Many of these faults are still active and earthquakes can occur.

A variety of rock types can be found within the lease area. These rock types include: Lower Paleozoic sedimentary and volcanic rocks, Tertiary volcanic rocks, Upper Tertiary volcanic rocks, and Quaternary alluvial and playa deposits.

Paleozoic Sedimentary and Volcanic Rocks

Paleozoic sedimentary and volcanic rocks represent the oldest sedimentary and volcanic rock outcrops in the district. These rocks consist primarily of carbonates (limestone and dolomite) and

metamorphosed basalts. In the remainder of the district, the Paleozoic and Mesozoic sedimentary rocks are composed of carbonate rocks interbedded with silica-rich rocks, cherts, shales and volcanic rocks.

Mesozoic and Tertiary Intrusive Rocks

The majority of intrusive rocks are Mesozoic in age with a lesser amount of intrusive rocks emplaced during the Tertiary time. These rocks are predominantly granitic in composition.

Tertiary Volcanic Rocks

These volcanic rocks are composed primarily of rhyolitic ash flows, lava flows and welded tuffs.

Quaternary Rocks

Quaternary rocks consist of unconsolidated valley fill material (i.e., material eroded off of mountains), sand, gravel, and alluvium. Also included are Quaternary basalt flows and Pleistocene lake beds with intercalated volcanic tuffs.

Although there is a combination of rock types and complex geologic events in the lease parcels there are no locatable, saleable, or leasable minerals that are currently being mined.

Neogene Rocks

The Neogene Period is a unit of geologic time starting 23.03 ± 0.05 million years ago. The Neogene Period follows the Paleogene Period of the Cenozoic Era. Under the current proposal of the International Commission on Stratigraphy (ICS), the Neogene would consist of the Miocene, Pliocene, Pleistocene, and Holocene epochs and continue until the present.

Locatable Minerals

Locatable minerals are mostly metallic, nonmetallic, semi-precious and precious gemstones, and rare earth elements. Metallic minerals include precious metals such as gold and silver, and base minerals such as zinc, molybdenum, bentonite, nickel, cinnabar, lead, tin, and copper. Some of the nonmetallic minerals are borax, feldspar, fluorspar, and gypsum. One of the rare earth elements mined as a locatable mineral is uranium.

The potential that oil and gas interests may overlap with those of mineral exploration exists. However, based on past experience in Nevada most of the lands that are used for oil and gas exploration and production would be reclaimed within ten years. The majority of oil and gas exploration and development would be short term and hence would not appreciably affect mineral exploration and development. Agreements between oil and gas and mineral operators could mitigate potential conflicts between the 2 land uses.

Saleable Minerals

Saleable minerals can only be acquired by purchase. They include, but are not limited to, the following: petrified wood, common varieties of sand, stone, gravel, pumice, pumicite, cinder, clay, and rock. The most common are sand and gravel deposits. Gravel deposits are associated with colluvium, which was eroded off the mountain ranges. Other types of deposits include topsoil and sand. These types of saleable minerals are distributed throughout the lease area,

although, there is no ongoing major exploration for saleable minerals or active mining on the lease parcels.

Prior history in Nevada shows that oil and gas exploration and development activities would require up to 2.5 acres in gravel pit expansion. This small acreage would not greatly increase the amount of gravel pits, nor would it burden the communities that utilize gravel.

Leasable Minerals

Leasable minerals are those that may be extracted from leases on public lands and are subdivided into solid and fluid leasable mineral groups. Solid minerals include the following: coal, sodium, potassium, and phosphate (and under certain conditions, sand, gravel, and locatable minerals). Fluid minerals include oil and gas, and geothermal resources.

In Nevada, oil and gas wells are typically associated with elevated water temperatures (approximately 160°F or higher), and conflicts may arise between geothermal and oil and gas exploration development. These potential impacts could be mitigated through negotiations between operators.

Oil and Gas

The only oil and gas production that has occurred in the BMD is located within Railroad Valley; approximately twenty (20) miles east/southeast from the parcels located within Big Sand Springs Valley. Railroad Valley is the predominate area of oil and gas production in Nevada. However, interest in oil and gas leasing and exploration continues.

Geothermal

Lately interest in geothermal exploration has increased. Nevada leads the nation in geothermal energy production. Currently operating plants include: Washoe County (Galena 2, Galena 3, Richard Burdette, San Emidio, Steamboat Hills, Steamboat 1A, Steamboat 2, Steamboat 3); Churchill County (Brady, Desert Peak, Dixie Meadows, Salt Wells, Soda Lake 1 & 2, Stillwater 2); Lander and Pershing Counties (Jersey Valley, McGinnis Hills); Elko County (Tuscarora – formerly Hot Sulphur Springs 2); Eureka County (Beowawe); Humboldt County (Faulkner); Lyon County (Homestretch).

There are no oil and gas lease parcels that overlap current geothermal operations, although two of them are contiguous. Any issues that may arise could be mitigated by negotiation between the operators.

Environmental Consequences

The potential that oil and gas interests may overlap with those of mineral exploration exists. However, the majority of acres that may be used for oil and gas exploration and production are usually reclaimed within ten years. In most instances, oil and gas exploration and development are short term endeavors and hence would not appreciably affect mineral exploration and

development. Agreements between oil and gas and mineral operators could help to mitigate those acres that would be used for oil and gas production on a more long-term basis.

Oil and gas exploration and development activities could require up to 2.5 acres in gravel pit expansion. This small acreage would not greatly increase the amount of gravel pits, nor would it burden the communities that utilize gravel.

In Nevada, oil and gas wells are typically associated with elevated water temperatures (approximately 160°F or above), and conflicts may arise between geothermal and oil and gas exploration development. These potential impacts could be mitigated through negotiations between operators.

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.

3.4.9 Soils

Affected Environment

Differences in climate, relief, aspect, slope, landform, elevation and parent material among other factors contribute to the formation of different soil types. High variability of these factors within the project area creates a wide variety of soil types. Soils within the project area range from those typical in the valley floors that tend to be deep, poorly drained due to high clay content and highly alkali to those common in the higher mountain elevations which tend to be shallow young gravely soils with near neutral pH.

Existing soils surveys of the project area will be used to for evaluating land-use potential, potential plant communities and developing reclamation and rehabilitation plans. Three major soil orders dominate the soil types in the project area these are: Aridisols, Entisols, and Mollisols. A brief description of each soil order is provided below.

Aridisols

Aridisols a mineral soil are found on light-colored surface horizons and have properties typical of soils in arid regions. Within the project area they are found mainly in the valley bottoms but may be found at higher elevation. These soils do not have water continuously available to them during the normal growing season. The period of water stress typically about 3 months. These soils are low in organic matter and may have accumulations of soluble salts and lime and tend to be alkali. Aridisols tend to be finer in texture than the other two orders.

Entisols

Entisols are found on recent landscapes, such as alluvium and disturbed sites. Soil texture tends to be more gravely and well drained. These are mineral soils that are very young and have not yet developed appreciable accumulations of soluble salts and lime. Soil horizon development is typically minimal. They occur in both the valley bottoms as well as the mountains. In the mountains these tend to make up the steeper more erodible soils whereas lower elevation they

tend to be found in areas of deposition such as alluvial fans and floodplains. Though these sites are typically xeric however, they are not as dry as the Aridisols.

Mollisols

Mollisols are found on dark-colored fertile surface horizons that have been formed under semiarid to sub-humid climate. Moisture availability is typically the highest in this type than the other two. These soils are rich in organic matter and are very fertile. In the project area, these soils mainly form in the mountains with grass communities. These soils are older and generally occur on more stable alluvial fans and terraces.

Environmental Consequences

There would be no direct impacts from issuing new oil and gas leases because leasing does not directly authorize oil and gas exploration and development activities. However, it is reasonably foreseeable that oil and gas exploration and development would occur within the next 10 years. Direct impacts from these activities would be analyzed under separate site-specific EAs.

If exploration and development activities were permitted, soil could be impacted by wind and water erosion, disturbance to microbiotic crusts, and soil compaction. 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 a site-specific NEPA analysis

3.4.10 Vegetation

Affected Environment:

Vegetation within the lease area provides forage and cover for wildlife, livestock, wild horses and burros within the project area. It also provides ground cover and root mass for soil stability and development. Vegetative cover also aids in infiltration of water into the ground. The type of vegetation that grows in a particular area depends largely on soil types and average precipitation. Ecological site descriptions including soil surveys are available. The information obtained from these surveys is used for evaluating land-use potential, potential plant communities, and developing reclamation and rehabilitation plans. These ecological site descriptions provide detailed information regarding vegetative communities for each soil type and precipitation zone. The following vegetative communities have been identified as those affected by the proposed action and are discussed in detail below.

Greasewood

This community occurs on floodplains and closed-basin bottomlands adjacent to playas. Greasewood is located on slopes that range from 0-2% with an elevation between 4,500-5,000 feet and occur in precipitation zones of 3-5 and 5-8 inches. Vegetation in this type is normally restricted to mounded areas that are surrounded by playa-like depressions or nearly level, usually barren, interspaces. This plant community is characterized by black greasewood (*Sarcobatus vermiculatus*), Basin wildrye (*Leymus cinereus*), inland saltgrass (*Distichlis spicata*), and alkali sacaton (*Spordoolus airoides*) are the most prevalent herbaceous species associated with this community. Saltgrass may extend into the interspace in some areas. Potential vegetative composition is typically 25% grasses, 5% forbs and 70% shrubs.

Salt Desert Shrub

This vegetative community occurs on alluvial terraces, fans, and foothills on all aspects. Salt desert shrubs are located on slopes that range from 0-30%, with 0-8% slopes the most typical. Salt Desert Shrub occurs at elevations between 4,500-6,000 feet and within precipitation zones of 3-5 and 5-8 inches. The plant community is characterized by shadscale (*Atriplex confertifolia*), bud sagebrush (*Artemisia spinescens*), and some winterfat (*Krascheninnikovia lanata*). Bud sagebrush and winterfat are palatable salt desert shrub species. Bottlebrush squirreltail (*Elymus elymoides*) and Indian ricegrass (*Achnatherum hymenoides*) are key grass species associated with this vegetative community. Alkali meadows are included in this plant community and consist of inland saltgrass and basin wildrye. Potential vegetative composition is typically 10% grasses, 5% forbs and 85% shrubs.

Big Sagebrush

This is the most extensive community within the project area, which occurs on terraces, alluvial fans, and low rolling hills on all exposures. Wyoming and Big sagebrush (*Artemisia tridentata* ssp. *wyomingensis*; *Artemisia tridentata* ssp. *tridentata*) occurs on slopes that range from 2-50% with elevations ranging from 4,500-6,000 feet and within the 8-12 inch precipitation zone. This plant community is characterized by Wyoming and Basin big sagebrush, Thurber's needlegrass (*Achnatherum thurberianum*), Indian ricegrass, Basin wildrye, bottlebrush squirreltail, and Sandberg's bluegrass (*Poa secunda*). Arrowleaf balsamroot (*Balsamorhiza sagittata*) and Tapertip hawksbeard (*Crepis acuminata*) are important forb species associated with this vegetation type. Potential vegetative composition is typically 50% grasses, 15% forbs and 35% shrubs.

Black Sagebrush

This vegetative community occurs on low arid foothills, mountain side slopes and plateaus. Black sagebrush (*Artemisia nova*) occurs on slopes that range from 4-50% with elevations ranging from 5,000-7,000 feet and are associated with the 4-8 inch precipitation zone. Soils are often shallow over a calcareous pan, which limits effective water holding capacity and seeding success. Vegetation that characterizes this community consists of black sagebrush, bottlebrush squirreltail, and Sandberg's bluegrass. Bluebunch wheatgrass (*Pseudoroegneria spicata*) is characteristic for communities that occur in the higher elevations. Potential vegetative composition is typically 50% grasses, 15% forbs and 35% shrubs.

Low sagebrush

This vegetative community occurs on mountain side slopes and plateaus. Low sagebrush occurs on slopes that range from 4-75% with elevations ranging from 5,000-9,000 feet and are associated with the 8-12 inch precipitation zone. Soils are often shallow over a calcareous pan, which limits effective water holding capacity and seeding success. This vegetative community is characterized by low sagebrush (*Artemisia arbuscula*), bottlebrush squirreltail, Sandberg's bluegrass, and bluebunch wheatgrass. Potential vegetative composition is typically 50% grasses, 15% forbs and 35% shrubs.

Mountain Brush

This community occurs on upland terraces and inset mountain valleys on all slope aspects. Mountain brush occurs on slopes that range from 4-50% with elevations ranging from 6,000-9,000 feet. These communities generally occur within the 12+ inch precipitation zone. The vegetative community is characterized by Idaho fescue (*Festuca idahoensis*), bluebunch wheatgrass, snowberry (*Symphoricarpos albus*), antelope bitterbrush (*Purshia tridentata*), and serviceberry (*Amelanchier utahensis*). Mountain brome (*Bromus carinatus*), mountain spray (*Holodiscus discolor*), curl-leaf mountain mahogany (*Cercocarpus ledifolius*), and mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*) are other species associated with this community. Potential vegetative composition is typically 55% grasses, 15% forbs and 30% shrubs.

Piñon-Juniper Woodlands

This community occurs on upper alluvial fans and in the higher mountainous regions with slopes ranging from 30-50%. Elevations range from 5,500-9,000 feet. This community occurs within the 10-22 inch precipitation zone. Lower elevations (5,000-6,500 feet) communities are dominated by juniper, mid elevations (6,500-7,500 feet) by both piñon and juniper, and high elevations (above 7,500 feet) are predominately piñon pine. These plant communities are characterized by single-leaf piñon pine (*Pinus monophylla*) and Utah juniper (*Juniperus osteosperma*). There are localized ecosystems which support other juniper species such as common juniper (*Juniperus communis*) and Rocky Mountain juniper (*Juniperus scopulorum*). The understory, although sparse, consists of bluebunch wheatgrass, Sandberg's bluegrass, Thurber's needlegrass, basin wildrye, and needleandthread grass (*Hesperostipa comata*). Juniper and piñon trees dominate these areas; however, mountain big sagebrush, antelope bitterbrush, and curl-leaf mountain mahogany can be found within the community. Heavily wooded areas provide little forage and have a large amount of bare ground. Potential vegetative composition is typically 40% grasses, 15% forbs and 45% shrubs and trees.

Riparian

Small riparian communities occur within the project area and are associated with streams, springs, and seeps where water is at or near the surface for the majority of the year. Species associated with this community include willow (*Salix* spp.), quaking aspen (*Populus tremuloides*), cottonwoods (*Populus fremontii*, *P. Balsamifera* ssp. *Trichocarpa trichocarpa*, *augustifolia*), water birch (*Betula occidentalis*), red-osier dogwood (*Cornus sericea*), rushes (*juncas* ssp.) and sedges (*carex* ssp.), and cattail (*Typha latifolia*). Potential vegetative composition is typically 70% grasses and grass like species, 25% forbs and 5% shrubs.

Winterfat Bottoms

Winterfat communities occur generally in flats of drainage and flood plains. They typically occur in areas where slopes range from 0-2%. The elevation of this community ranges from 4000-6000 feet and within precipitation zones of 5-8 inches. Soils are typically sandy loam. The plant community is characterized and dominated by winterfat. It also includes vegetation such as bud sagebrush, Indian ricegrass and squirreltail. Potential vegetative composition is typically 10% grasses, 5% forbs and 85% shrubs.

Annuals

Although this vegetation type is not considered an ecological type, it is a plant community that accounts for portions of the project area. Areas that have been disturbed may be invaded by invasive annual species, sometimes to the exclusion of native species. Dominant plants are cheatgrass (*Bromus tectorum*) and/or halogeton (*Halogeton glomeratus*). Other plants often present in these areas are Russian thistle (*Salsola kali*), clasping pepperweed (*Lepidium perfoliatum*), tumble mustard (*Sisymbrium altissimum*) and Russian knapweed (*Centeurea repens*).

Environmental Consequences

There would be no direct impacts from issuing new oil and gas leases because leasing does not directly authorize oil and gas exploration and development activities. However, it is reasonably foreseeable that oil and gas exploration and development would occur within the next 10 years. Direct impacts from these activities would be analyzed under separate site-specific EAs.

Exploration and development activities would likely result in the complete removal of vegetation in the developed areas. These impacts would promote the erosion of soils and the establishment of noxious weeds and invasive, non-native species. The impact would persist until the developed areas were revegetated during reclamation. 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 in a site-specific NEPA document.

3.4.11 Range Resources

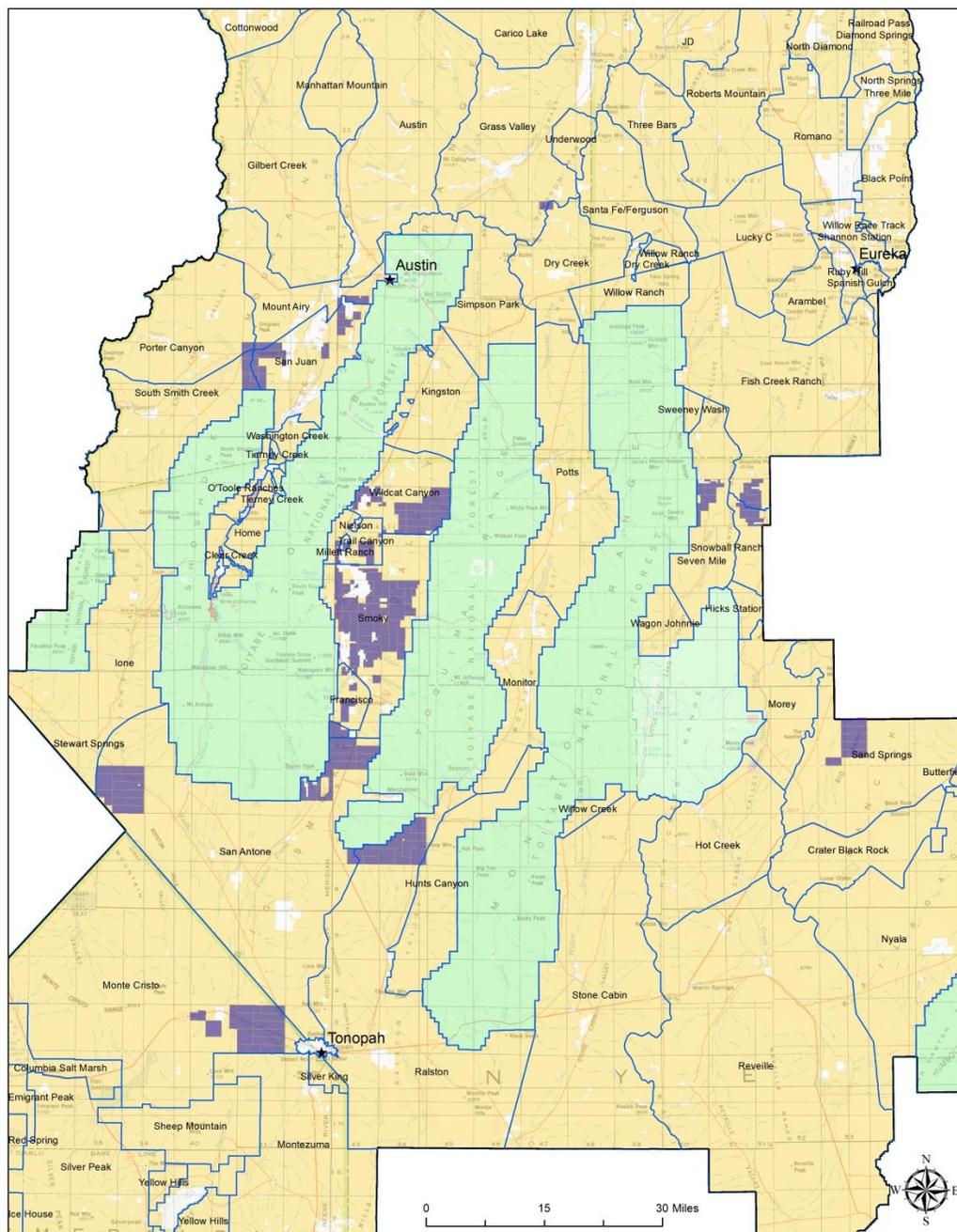
Affected Environment

Livestock production is a major industry within the lease area. There are 19 grazing allotments within or overlapping the lease area (Table 5, Figure 3). The grazing allotments are comprised of both public and private lands. Grazing permits are issued to qualified individuals or entities. These grazing permits specify numbers, season of use, kind of livestock and amount of AUMs allowed for use, other terms and conditions may be added to grazing permits. Individual permittees or multiple permittees may operate on a single allotment. Various range improvement projects are also within these allotment boundaries. These projects may include: fences, cattleguards, troughs, wells, pipelines, seeding or vegetation manipulation projects etc.

Allotment Name	Total Acres of BLM	Kind	Total AUMs
Dry Creek	149,225	Horse, Cattle	5,702
Fish Creek Ranch	287,984	Sheep, Cattle	4,815
Francisco	16,896	Cattle	1,369
Grass Valley	282,854	Horse, Cattle	17,701
Hunts Canyon	93,558	Cattle	2,237
Millett Ranch	797	Cattle	72
Mount Airy	80,093	Cattle, Sheep	3,651
Monte Christo	496,018	Cattle	9,352
Porter Canyon	125,150	Cattle	7,256
Ralston	368,682	not currently permitted	not currently permitted
San Antone	442,555	Cattle	13,505
San Juan	64,988	Cattle, Sheep	9,169

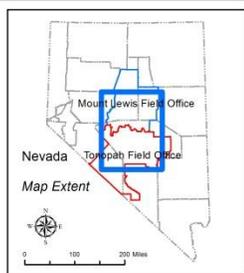
Allotment Name	Total Acres of BLM	Kind	Total AUMs
Sand Springs	203,868	Cattle, Sheep	5,727
Seven Mile	88,420	Cattle, Sheep	5,573
Smoky	125,247	Cattle	5,523
Snowball Ranch	27,261	Cattle	991
South Smith Creek	149,857	Horse, Cattle, Sheep	5,331
Trail Canyon	24,298	Cattle	581
Wildcat Canyon	65,658	Cattle	2,677

Table 5. Grazing allotments within the Lease Area.



**Battle Mountain District
Oil and Gas Lease Sale
July 2014**

- Legend**
- | | | |
|-----------------------------|---------------------------|---------------------------|
| July 2014 Oil & Gas Parcels | Land Status | Forest Service |
| Grazing Allotments | Agency | Fish and Wildlife Service |
| Cities & Towns | Bureau of Indian Affairs | National Park Service |
| | Bureau of Land Management | Nevada State Lands |
| | Bureau of Reclamation | Park |
| | Department of Defense | Private |
| | Department of Energy | Water |



United States Department Of The Interior

Bureau of Land Management
Battle Mountain District
50 Bastian Road
Battle Mountain, NV 89820
Map Date: February 3, 2014



No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual 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.

Figure 3. Grazing allotments in the Lease Area.

Environmental Consequences

There would be no direct impacts from issuing new oil and gas leases because leasing does not directly authorize oil and gas exploration and development activities. However, it is reasonably foreseeable that oil and gas exploration and development would occur within the next 10 years. Direct impacts from these activities would be analyzed under separate site-specific EAs.

Exploration and development activities would impact rangeland resources through the removal of vegetation. The removal of vegetation would temporarily decrease the amount of available forage for wildlife, livestock, wild horses, and burros in specific areas. Given the fact that the potential for exploration and development activities to occur in low, it is unlikely that Animal Unit Months (AUM's) would be lost. 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 in a site-specific NEPA document.

3.4.12 Lands and Realty

All of the proposed lease parcels are located on public lands with federally controlled surface and subsurface mineral estate. Many of the parcels would require a right-of-way (ROW) in order to access the lease parcels. Some parcels include pre-existing land use authorizations such as grants, leases, permits, and withdrawals. Table 4 provides a summary of the land use authorizations in the lease area.

ROW Case File	ROW Holder	ROW Description	Affected Lease Parcel
N-088866	Sierra Pacific Power Co.	25-foot wide powerline	001, 002, 004, & 005
N-089652	Nye County	100-foot wide road in Sections	001, 002, 004, & 005
N-090166	Nye County	Varied width road	005, 006, 007, & 008,
NVCC-018394	NDOT	400-foot wide ROW	010, 011, 015, 017, & 019
N-073706	NV Bell	20-foot fiber optic line	010, 011, 015, 017, & 019
N-004225	NDOT	Mineral Material Site	010
NVCC-020911	NDOT	Mineral Material Site	010
N-033242	Sierra Pacific Power Co.	75-foot wide powerline	010, 015, 019, & 020
Nev-043264	Sierra Pacific Power Co.	100-foot wide powerline	011, 012, 015, 017, 019, 020, 047, 055, 056, & 059
NVCC 018376	NDOT	Mineral Material Site	011
NVCC 020909	NDOT	Mineral Material Site	011
NVCC 020910	NDOT	Mineral Material Site	011
N-056304	FHWA	60-ft access road	012
N-089652	Nye County	100-foot wide road	013, 016, & 017
N-040053	USGS	Monitor Well	013
Nev-060306	NDOT	Mineral Material Site	017
NVCC-020912	NDOT	Mineral Material Site	017, & 019
N-40054	USGS	Monitoring Well	021
N-11441	Sierra Pacific Power Co.	25-foot distribution line	023, 025, 103, & 107
NVCC-021379A	NDOT	400-ft ROW	023, 024, 025, & 104
N-59009	Lander County	Access road for comm Site	024, 025, & 028
NVCC-018101A	NDOT	400-foot road ROW	024, & 025
N-023392	NDOT	Mineral Material Site	025
N-079989	UNAVCO Inc.	Plate Observatory Site	025
N-000292	Teleford	50-foot irrigation ditch	27
Nev 055173	Truckee River Ranch,	100-foot ROW for ditches	031, 032, 034, & 035

ROW Case File	ROW Holder	ROW Description	Affected Lease Parcel
	LLC		
N-055853	Truckee River Ranch, LLC	100-foot ROW for ditches	033
N-077508	NV Bell	20-foot fiber optic line	040, 103, & 104
N-007189	NV Bell	10-foot wide ROW	040, & 104
NVCC-020778	NDOT	400-foot wide road ROW	050, 052, 054, 057, 058, & 073
N-025341	Sierra Pacific Power Co.	140-foot wide powerline ROW	050, 055, 056, 059, 060, 122, 123, 128, 131, 132, 134, 146, 147, 148, 149, & 150
N-075838	Robert Beck	30-foot access road	051
Nev 063690	Sierra Pacific Power Co.	30-foot wide powerline	051
N-083122	Nye County Public Works	Water facility	051
NVCC-024751	Sierra Pacific Power Co.	40-foot wide powerline	055, 056, & 059
N-052585	Round Mountain Gold	16-foot wide access road	055, 056, & 059
N-040047	USGS	Monitoring Well	057
N-039891	Carver	Irrigation Ditch	060
N-009123	Round Mountain Gold	100-foot wide water pipeline	063
N-045089	Round Mountain Gold	100-foot well field pipeline	063
N-045228	Sierra Pacific Power Co.	25-foot distribution line	063
N-092242	Sierra Pacific Power Co.	25-foot distribution line	063
Nev 005149	Berg	100-foot water pipeline & irrigation facility	069
N-039908	NV Bell	10-foot telephone line	069, 083, 088, 093, 097, & 098
N-063200	NV Bell	20-foot fiber optic line	069, 098
NVCC-022622	NDOT	400-foot road ROW	069, 083, 088, 091, 093, & 098
Nev 064717	Sierra Pacific Power Co.	30-foot Distribution line	073
N-041911	Stonier	60-foot access road	073
N-037345	NV Bell	10-foot telephone line	073
N-047382	Nye County	access road	073
N-056922	Truckee River Ranch, LLC	varied width ditches and canals	079, & 080
N-046509	Sierra Pacific Power Co.	25-foot distribution line	079, 080, 093, & 095
N-063200	NV Bell	20-foot fiber optic line	079, 080, 083, 093, 095, & 097
N-053344	Truckee River Ranch, LLC	varied width ditches and canals	079, & 083
N-088358	Truckee River Ranch, LLC	10-ft wide distribution line	079
Nev 065085	Sierra Pacific Power Co.	30-foot distribution line	082, 086, & 087
NVCC 022617	NDOT	Mineral material site and access road	083
N-040044	USGS	Monitoring Well	083
N-046508	Nye County	25-foot road	091
NVCC-022618	NDOT	Mineral Material Site	091
Nev 045227	Potiker	Irrigation ditch	091
N-006971	USFS	Northumberland road #20023	097, 099, 139, 141, 150
N-007260	Twist Ranch	Comm. Site, canal and ditch	097
N-048679	Sierra Pacific Power Co.	25-foot distribution line	097, 098
N-054886	NV Bell	Smoky Joe's comm. Site	097
N-056103	Sierra Pacific Power Co.	10-foot distribution line	Parcel 097

ROW Case File	ROW Holder	ROW Description	Affected Lease Parcel
N-041922	Lander County	30-foot overhead powerline	Parcel 103
N-043918	Sierra Pacific Power Co.	10-foot distribution line	Parcel 107, 108
N-078094	Nye County	200-foot access road	Parcel 113, 114
N-089651	Nye County	100-foot access road	Parcel 113, 114
N-084077	Town of Round Mountain	Access 30-foot road	Parcel 120, 131
N-088024	Pickens	21-foot access road	Parcel 124
N-084473	Nye County Public Works	80-foot access road	Parcel 130
N-040045	USGS	Monitor Well	Parcel 130
N-042425	USFS	14-foot access road	Parcel 132
N-086797	Fattarsi	30-foot access road	Parcel 135
N-058903	Wichman	24-foot access road	Parcel 135
N-039525	USGS	Monitoring Well	Parcel 147
N-077437	Gardner	30-foot water pipeline	Parcel 152
N-017788	McKay	ditch, canal and water pipeline	Parcel 160

Table 5. A summary of the Rights-of-Way (ROWs) in the Lease Area.

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 land use authorization would have a valid existing right to the authorized use of public lands within the lease.

Environmental Consequences

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

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

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

3.4.13 Visual Resources

Affected Environment

BLM Manual Series 8400 outlines the visual resource management (VRM) program. The BLM assigns VRM classes to public lands through the land use planning process. Lands are assigned a class ranging from one to four, with one containing the highest visual values and four containing the lowest values. Attempts are made to mitigate visual contrasts from surface-disturbing activities regardless of the VRM class assigned. The nominated parcels are within lands rated as Class III and IV.

Environmental Consequences

No impacts to visual resources on public lands would occur as a result of the oil and gas lease sale. The purchase of a parcel does not guarantee that a parcel will be developed for oil and gas resources in the future.

Potential impacts associated with exploration and development activities may include the creation of contrasts with the characteristic landscape in line, shape, color, or texture. Potential methods to reduce impacts to visual resources on public lands include, moving drill site locations up to 200 meters, use of low profile tanks, coloring facilities and equipment, road alignment, reducing the size or changing the configuration of drill pads, and utilizing topographic features to visually screen facilities. If parcels were developed in the future, site-specific mitigation measures and BMPs would be attached as COA for each proposed activity, which would be analyzed under in a site-specific NEPA document.

3.4.14 Recreation

Affected Environment

The proposed lease parcels are all within dispersed recreation areas subject to public use. Dispersed recreation areas are areas that are used by recreationists as they desire. Activities including sightseeing, pleasure driving, rock collecting, photography, hunting four-wheeling, hiking, and bird watching occur in dispersed recreation areas. The lease area is used by the public for camping, hunting, hiking, and other outdoor recreation activities.

Environmental Consequences

The Proposed Action would have no direct impact on recreational activities because no exploration and development activities would be authorized. Indirect impacts could include the disruption of recreational activities due to elevated noise, increased truck traffic, increased dust associated with construction and temporary delays or complete closure of access roads. It is probable under these circumstances that recreationist would avoid these area. The impact is likely to be minor because the potential for exploration and development activity in the lease area is very low, and if it does occur, would probably be of short duration. However, 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.

3.4.15 Socioeconomics

Affected Environment

The lease parcels are located within three counties in Central Nevada: Nye County, Esmeralda County and Lander County. The primary economic activities that contribute to the economic base for lands within the lease area are mining, agriculture, and recreation. All three counties offer rural lifestyles with less than 3 persons per square mile. The populations base is approximately 90 percent white.

Nye County

The majority of the proposed lease parcels are located within Nye County. Nye County's total population, according to the 2010 Census, is approximately 43,946 with a population density of 2.4 persons per square mile. The median household income is \$39,150 with 20.1 percent of the population living below the poverty level.

Esmeralda County

Esmeralda County's total population, according to the 2010 Census, is approximately 783 with a population density of 0.2 persons per square mile. The median household income is \$27,500 with 24.2 percent of the population living below the poverty level.

Lander County

Lander County's total population, according to the 2010 Census, is approximately 5,775 with a population density of 1.1 persons per square mile. The median household income is \$70,341 with only 11.8 percent of the population living below the poverty level.

Environmental Consequences

The only direct effect of issuing new oil and gas leases on socioeconomics within the lease area would be the generation of revenue from the sale of the leases as the State of Nevada retains 50 percent of the proceeds from lease sales.

Subsequent oil and gas exploration, development, and production could create impacts to the county economy in terms of additional jobs, income, and tax revenues. The impact is not likely to be substantial because the potential for exploration and development in the lease area is very low. On this basis, it is not probable that there would be a substantial increase in county revenues or a measurable improvement in employment rates.

If parcels were developed in the future, the socioeconomic impacts of these activities would be analyzed in a site-specific NEPA document.

3.4.16 Wild Horse and Burro

Affected Environment

The Battle Mountain District administers 28 Herd Management Areas (HMAs) encompassing approximately 3.6 million acres of public land. Two other HMAs within the district boundary are administered by adjoining Districts. The BMD also cooperatively manage several USFS Wild Horse Territories (WHTs). The estimated BMD population as of January 1, 2014 is approximately 4,600 wild horses and 360 wild burros.

HMAs are areas identified in Land Use Planning for long term management of wild horses or burros, and are designated "Special Management Areas". Many HMAs encompass mountain ranges and include mountain browse, meadow, mahogany and pinyon and juniper vegetation types interspersed with perennial streams and springs. Wild horses and burros also use sparsely vegetated, rocky terrain and habitat with limited water. Winter habitat typically consists of

valley bottoms and lower elevations that may support winterfat or other salt desert shrub vegetation. The primary vegetation types used by wild horses consist of Wyoming or Mountain big sagebrush with an understory of perennial grass. Wild burros are able to thrive in more desert type conditions than wild horses. Wild horse and burro populations generally move throughout or between HMAs in response to a number of factors.

Wild horse and burro distribution throughout HMAs varies greatly throughout the year and is influenced by forage and water availability, precipitation, temperature, snowfall and other climatic factors, population size and resulting animal density (competition), and human disturbance caused from OHV use, roads, mining, exploration, recreation and other uses that occur on the public lands.

Water availability is a key influence to wild horse use and movement patterns, especially during summer months. Wild horses will generally travel much farther to water than will livestock. In many HMAs water sources are plentiful and supplied by perennial streams, springs, and human constructed water developments such as livestock water tanks and ponds. In other cases, water sources are limiting, and in drought years, wild horses may have difficulty accessing sufficient water, especially if the population exceeds the Appropriate Management Level (AML). In these cases, wild horse distribution is closely tied to the location of the available waters, which become very important to the health of the herd.

The average HMA population managed by the BMD is approximately 200 wild horses, with the average HMA size 114,300 acres. In some cases, wild horses do not fully utilize the entire HMA due to forage availability, water shortages, or human disturbance. Movement of wild horses between HMAs occurs where HMA boundaries are contiguous or near each other, and when fences do not impede the interchange.

Management of wild horses and burros involves periodic inventory activities, typically completed with helicopter, as well as on the ground monitoring of habitat, animal health and distribution. The majority of wild horse foals are born between March 1 and July 1 annually. Burro populations may foal year round, and may not increase at the same levels as wild horses. Throughout the BMD, populations increase by 10-22% annually. Appropriate Management Levels have been established for all HMAs administered by the BMD. When inventory and other data indicate that the AMLs have been exceeded, gathers are planned to reduce the populations within HMAs to the AML in order to prevent deterioration of the range associated with an overpopulation of wild horses or burros.

The Bureau of Land Management is responsible for the protection, management and control of wild horses and burros on public lands in accordance with the Wild Free-Roaming Horse and Burro Act of 1971 as amended (Public Law 92-195 Act) which states that BLM “shall manage wild free-roaming horses and burros in a manner that is designed to achieve and maintain a thriving natural ecological balance on the public lands.”

Fish Creek HMA

The Fish Creek HMA is located just a few miles south of Eureka, Nevada in Eureka County. The HMA is approximately 250,000 acres in size and is 25 miles wide and 28 miles long. The

majority of the HMA is comprised of north-south trending mountain ranges that include all or portions of the Fish Creek Range, the Mahogany Hills, and the Antelope Range. Elevations range from 6,030 feet in the wide valley bottoms, reaching 10,100 feet at Ninemile Peak.

The HMA is bordered on the east by U.S. Highway 50 in part, and natural barriers and fences to the south. U.S. Highway 50 borders the majority of the HMA on the north; however, a small portion of the HMA exists north of U.S. Highway 50, which is separated by highway right-of-way fences. This portion of the HMA is only 19,300 acres and is managed with the Whistler Mountain and Roberts Mountain HMAs. The Fish Creek HMA shares its southern boundary with the Sevenmile HMA to the south west and the Pancake Complex (administered by the Ely district) to the south east.

The AML for the HMA is 107-180 wild horses, with a current estimated population of 305 wild horses. Wild horses frequent the foothills and valley of Antelope Valley and Fenstermaker Wash year-round, and use the Ninemile Peak area predominantly in summer months.

Blood samples to analyze genetic diversity were collected during a wild horse gather in 2005. This analysis found that the genetic variability of the herd was high, reflecting a herd of mixed ancestry. The analysis also concluded that the herd was most similar to Old World Iberian breeds, but similar to most other groupings such as New World Iberian, Oriental, North American Gaited and Light Racing and Riding breeds. The most recent gather to remove excess wild horses and achieve the AML was completed in 2006.

There are three proposed oil and gas lease parcels located within the boundaries of the Fish Creek HMA.

Parcel Number	Acres
NV 14-07-156	2001
NV 14-07-157	2158
NV 14-07-158	1919

Parcels 156-158 are located in the southern portion of the Fish Creek HMA. All of parcel 156 is within the boundaries of the Fish Creek HMA. Approximately 90% of 157 and 50% of 158 are within the HMA. Parcels 156, 157 and 158 include several sections of Willow Creek and no less than 10 springs.

This area consists of the very southern end of the Fish Creek HMA. The area provides higher elevation summer range and is used during summer months by wild horses that winter in lower elevations of the Fish Creek HMA, with some immigration of wild horses from the adjacent Pancake Complex administered by the Ely District.

Sevenmile HMA

The Seven Mile HMA is approximately 30 miles southwest of Eureka, Nevada in Eureka County. The HMA is comprised of a long narrow valley located between the Toiyabe National Forest Monitor Range to the west, and the Antelope Range to the east. The lowest points of the

valley are 6,300 feet in elevation, reaching 10,105 feet at Ninemile Peak in the Antelope Mountain Range. This narrow HMA serves as the transition between the Antelope Valley to the north, and the Little Fish Lake Valley to the south. The HMA consists of approximately 98,000 acres stretching 31 miles long and 8 miles wide.

Wild horses within the Seven Mile HMA are often located within in the southern portion of the HMA in Fish Lake Valley during the winter, and many move into the Butler Basin WHT administered by the USFS in the summer months. A portion of the population moves through the central portion of the HMA year round, as there are several water sources in that area.

The Sevenmile HMA is managed with the USFS Butler Basin WHT located on its western border. The combined AML for the two areas is 60-100 wild horses. The current estimated population is 367 wild horses. Due to high overpopulation and drought conditions, wild horses have been moving outside of HMA boundaries to access forage and water.

Blood samples to analyze genetic diversity were collected during a wild horse gather in 2005. This analysis found that the genetic variability of the herd was low, and should be monitored closely. The analysis also concluded that the herd is of mixed origins and was most similar with Oriental breeds (Arabian, Barb), but also similar to other groupings such as North American Gaited and Light Racing and Riding breeds. The most recent gather to remove excess wild horses and achieve the AML was completed in 2006.

Within the central portion of the Sevenmile HMA, four oil and gas lease parcels exist as shown in the following table:

Parcel Number	Acres
NV 14-07-152	1718
NV 14-07-153	1597
NV 14-07-154	2236
NV 14-07-155	639

All of the above parcels are wholly located within the Sevenmile HMA

Parcels 152-155 fall within the central portion of the Sevenmile HMA in an area that wild horses move through in order to access water sources. The Butler Basin WHT exists west of the Sevenmile HMA boundary and serves as important summer range for wild horses. The southern portion of the Sevenmile HMA serves as the primary winter range, however wild horses may be present in the vicinity of the proposed lease parcels year round.

The area in the vicinity of the parcels supplies several water sources used by wild horses. Parcel 154 includes Cabin Spring, Dick Allison Spring and two other un-named sources. Parcel 155 is located within 1 mile of Cabin Spring. Though parcel 153 is within the vicinity of spring sources, this area surrounds the Segura Ranch, and wild horses do not frequent the area, but may move through the area occasionally. Parcels 152-155 are located on the border of the Sevenmile HMA and the Butler Basin WHT, an area that wild horses move through between the summer and winter grazing areas as well as for wild horses that move through the area year round. Much

of the vegetation in the area is thick pinyon juniper which does not provide abundant forage for wild horses.

Sand Springs West HMA

The Sand Springs West HMA covers 152,927 acres 80 miles northeast of Tonopah, Nevada in Nye County. The HMA is located in the Big Sand Springs Valley and the Pancake Range on the North Side of U.S. Highway 6. Elevation ranges from a low of 5,156 feet to a high of 8,153 feet.

The Sand Springs West HMA is bordered by the Pancake HMA in the Ely District. Wild horses are known to move between these two HMA's on a regular basis. The AML for the HMA is 49 wild horses. The current population estimate is 120 wild horses.

Within the central portion of the Sand Springs West HMA, six parcels exist as shown in the following table:

Parcel Number	Acres
NV 14-07-161	2078
NV 14-07-162	2081
NV 14-07-163	2082
NV 14-07-165	2084
NV 14-07-166	1278

All of the above parcels are wholly located within the Sand Springs West HMA.

Though there are no springs within any of these parcels, there are three waters in the area, Needles Catch Basin, Etcheverian Well and Sand Springs Well. Wild horses will be seen traveling to and from these water sources. The Sand Springs Wash runs through the middle of parcel NV 14-07-166 and alongside the other parcels. This wash may have water in the spring or after heavy rains which may draw horses to the area.

Most of the area in this HMA is dominated by Wyoming or mountain big sagebrush with some perennial grass understory.

Saulsbury HMA

The Saulsbury HMA is approximately 20 east of Tonopah NV in Nye County and covers 135,977 acres. U.S. Highway 6, and the USFS Monitor Wild Horse Territory separate the HMA into north and south portions. The north section is located in the northeast portion of Ralston Valley and covers 73,795 acres. It is bordered on the west by State Highways 376 and 82. The east side borders USFS land and the Monitor Wild Horse Territory. Elevations range from 5,620 feet in the Ralston Valley to 8,172 feet in the foothills of the Monitor Mountain Range.

Wild horses are known to move back and forth between the Monitor WHT and Saulsbury HMA. The AML for the northern portion of the Saulsbury HMA is 30 horses. The estimated population for the entire HMA is 174 horses.

Within the northwestern portion of the Saulsbury HMA, one parcel exists as shown in the following table:

Parcel Number	Acres
NV 14-07-114	2584 total/358 inside HMA

358 Acres or 13.8% of Parcel NV14-07-114 is within the HMA boundary.

Though there are no water sources in this area, there is a well nearby (Spanish Pipeline Well). This well is outside of the HMA boundary and across a barbed wire fence making it nearly inaccessible to wild horses. Wild horses are not expected to use this water. There is a wash that runs through parcel NV 14-07-114. This wash may have water in the spring or after heavy rains which may draw wild horses to the area. The parcel consists of valley bottom that supports winterfat plant communities.

Environmental Consequences

Direct impacts to wild horses or burros would not occur due to oil and gas leasing because exploration and development activities would not be authorized.

Indirect impacts to wild horses could include disturbance due to increase human activity. These impacts would likely be short term in nature, and would consist of wild horses moving out of the area or changing movement patterns. The degree of disturbance to wild horses would be equivalent to the levels of exploration and development and increased activity in the area. Disturbance would cease with the completion of exploration efforts. Localized and small-scale vegetation disturbance could occur due to seismic testing, road construction, overland travel and drill pad construction, which would have an overall minimal impact to the forage available within the HMA. As indicated in the RFD Scenario, it is highly unlikely that large amounts of disturbance would occur within the thirteen (13) parcels identified for lease within wild horse HMAs. However, 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 in a site-specific NEPA analysis.

3.4.17 Forestry and Woodland Products

Affected Environment

The lease area contains mountains, alluvial fans, foothills, and riparian zones which support unique varieties of woodland and forest tree species. These include quaking aspen, curlleaf mountain mahogany, single-leaf piñon pine, Utah juniper, narrow-leaf cottonwood, black cottonwood, Fremont cottonwood, and willow (*Salix* spp.).

Quaking Aspen

Populus tremuloides, commonly known as Quaking aspen, is a rather short-lived (i.e., 100 to 150 years) deciduous, hardwood belonging to the *Salicaceae* (willow) family. It is typically found in monotypic stands with mature trees reaching heights of greater than 60 feet. Nationally, it has the widest distribution of any native tree species. Due to its unique

biological characteristics and rarity, the harvesting of both live and dead aspen is prohibited throughout all of the lease parcels. Quaking aspen communities are represented in approximately 1,331 acres in the Battle Mountain District (Brieland and Tueller 2003). However, these vegetative communities are important since they comprise the highest ecological biodiversity of plants and animals found in the lease area. They are also major indicators of upper watershed health since they naturally grow and thrive only in, or adjacent to riparian zones that contain adequate surface water and quality (streams and springs) or high water tables.

The largest concentration of aspen occurs in the Antelope Range where they are found in approximately 495 acres (Brieland and Tueller 2003), of which approximately 16 acres are within proposed parcels. In certain locations, aspen are in decline or populations are no longer viable. Aspen regenerates primarily from clonal (i.e., root) sprouting rather than seed.

New aspen sprouts (suckers) are especially attractive to foraging ungulates and cattle. Cattle and sheep have the potential to restrict aspen regeneration and recruitment by browsing the suckers. This can lead to interference with clone propagation, establishment and survival (Kay 2001).

Curleaf Mountain Mahogany

Cercocarpus ledifolius, commonly known as the Curleaf mountain mahogany is not extensive in the lease area. Curleaf mountain mahogany is a long-lived (i.e., greater than 500 years) evergreen hardwood associated with other higher-elevation tree species such as limber pine. It can exist in pure stands and reach heights of greater than 25 feet. It grows best in a zone between 7,000 and 10,000 feet and is an important browse species for mule deer, especially in the winter months. Due to the relative scarcity of mahogany throughout the district, only a limited number of deadwood only harvesting permits are allowed each year.

Piñon Pine and Juniper

Pinus monophylla or singleleaf Piñon pine is a relatively long-lived evergreen softwood (500 to 800 years), belonging to the *Pinaceae* family. The conifer grows best at elevations between 4,500 and 9,000 feet, on higher alluvial fans, foothills, and mountain slopes. It is a comparatively short tree, reaching maximum heights of 40 feet.

Prehistorically, the pine nuts of the piñon were used as a major source of food by ancient native cultures such as the Anasazi. Today, the nuts are harvested by the general public and are spiritually revered by Native Americans such as the Paiute and Shoshone. Commercial harvests of piñon nuts have been conducted on the lease area when production levels have been adequate. Production is cyclical, depending on a number of complex factors such as moisture and temperature. Pine nuts are also a very important food source for smaller mammals, rodents, and birds such as the scrub jay and Clark's nutcracker.

Some other current uses of piñon are for fuel wood and Christmas trees. The BMD sells hundreds of permits every year, including commercial harvest contracts.

Juniperous osteosperma or Utah Juniper is a long-lived (greater than 2,000 years) evergreen softwood belonging to the *Cupressaceae* family. The tree can be found in pure stands or mixed with piñon pine at elevations ranging from as low as 4,000 feet up to approximately 8,000 feet. Like piñon, juniper is a rather short tree reaching heights of approximately 30 feet. The tree is well distributed throughout the lease area on alluvial fans, foothills, and mountain slopes. During the settlement of the west, juniper was used extensively for building structures, fence posts, fuel wood for cooking and heating, and the production of charcoal for mining operations. In the lease area, the wood is utilized for fuel wood and fence posts. As with piñon pine, there are currently no accurate inventories of actual juniper acreages in the lease area.

Field observations over the last few years have revealed widespread mortality in piñon/juniper stands. The majority of this mortality is associated with increases in bark beetle activity and is exacerbated by drought and resource competition.

Cottonwood

Cottonwoods (*Populus spp.*) are deciduous hardwood poplars belonging to the willow family. They are found naturally in riparian areas along stream banks, on the periphery of springs and ponds, and planted in agricultural areas within the lease area. These native cottonwoods rapidly grow to heights of greater than 80 feet, with girths up to five feet and are relatively short-lived (i.e., 150 years). Unlike their aspen cousins, they can regenerate both from sprouting and seed. These species can also be propagated by transplanting suckers or small limbs. Currently, the BMD protects the trees from any type of harvesting, including deadwood.

Willow

Willows (*Salix spp.*) are hardwood members of the *Salicaceae* family with deciduous foliage and affinities for riparian habitats with high water tables. Ranging in height from ten to 40 feet, there are more individual species of willow than any other hardwood found in the lease area. Like their poplar relatives, they require relatively large, consistent amounts of water to thrive and regenerate. They are not legally harvested in the BMD. In the lease area, willows can be found in monotypic communities or associated with other riparian vegetation such as sedge, rush, and poplars.

Environmental Consequences

Under the Proposed Action, there would be no direct impacts on forestry and woodland products because exploration and development activities would not be authorized.

Indirect impacts associated with exploration and development could include damage resulting from the contact with equipment.

However, based on the history of oil and gas exploration in the BMD, it is likely that the majority of exploration and development efforts, if they occur, would be focused on the lower elevation alluvial fans and playas. 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.

4.0 CUMULATIVE IMPACTS ANALYSIS

The Proposed Action has been examined for cumulative effects to the project area and the surroundings. Cumulative impacts are those effects on resources within an area or region caused by a combination of past, present, and reasonable foreseeable future actions (RFFA's). These impacts may be individually minor but added together over time may become significant (40 CFR 1508.7).

The cumulative effect study area (CESA) for this environmental assessment encompasses the entire Battle Mountain District (Figure 5). Oil and gas leases are leased for a 10-year time period; therefore, the same timeframe was selected for the cumulative effect study analysis.

4.1. Past and Present Actions

Most of the oil and gas exploration and development conducted in the BMD has occurred in the Tonopah Field Office (TFO) area. Nye County was the location of the first producing oil well in Nevada. Shell's Eagle Springs # 1-35 well was discovered in 1954. The Eagle Springs discovery well attracted major oil companies to explore several of eastern Nevada's valleys which produced encouraging shows, but no discoveries. The Trap Springs field was discovered in 1976 by Northwest Exploration. The most prolific oil field in Nevada was discovered in 1983, when Northwest Exploration Grant Canyon No. 1 was drilled and completed. Grant Canyon No. 1 was the most prolific onshore oil well in the continental United States, flowing up to 4,300 barrels of oil per day. The most recent oil field discovered was Sans Spring, in 1993.

Land-use authorization; like new road, powerline and pipeline ROW's and renewal of existing ROW's associated with oil and gas production and grazing can be expected in the future.

Historical Oil & Gas lease sales have included hundreds of parcels in the CESA where expressions of interest were submitted by prospective lessees. Between 20 and 50 percent of the parcels have typically been sold during and the day after the lease sales. There are currently 32 are oil producing leases within the BMD. Since 2001, there have been 14 oil and gas well permits issued in the CESA. BMDO typically authorizes fewer than 4 APD's per year and 1-2 geophysical exploration permits every decade, most of which are in Nye County.

The oil and gas program consist mainly of speculative leasing and the drilling of wildcat wells in and around existing oil fields in the Railroad Valley. Three wildcat wells have been drilled since 2009. All have been plugged and abandoned.

Livestock grazing has been authorized in the past and is currently authorized. In the CESA there are approximately 10.5 million acres of land under 94 grazing allotments.

4.2 Reasonably Foreseeable Future Actions (RFFA's)

The Proposed Action does not include exploration, development, production, or final reclamation of oil and gas resources; however, authorization of oil and gas leasing does convey a right to subsequent exploration and production activities. These later activities are associated with oil and gas leasing; therefore, they would be analyzed as part of the Proposed Action.

As noted in the Draft Tonopah Resource Management Plan and Environmental Impact Statement (June, 1993), the extremely complex geologic structure of the area has limited the success rate of wells to approximately 28 percent. Within the defined oil fields the success rate is approximately 60 percent. The 2006 *Environmental Assessment for Oil and Gas Leasing Within Portions of the Shoshone-Eureka Planning Area* outlined minimal Oil and Gas activity within the respective planning area. Other than mineral exploration and development oil and gas leasing, exploration, development, and production from any future drilling programs and the continuation of highly dispersed recreation and grazing, there are no future actions anticipated in this area.

Reasonable Foreseeable Future Actions resulting from the proposed and similar future actions include; yearly competitive oil and gas lease sales; exploration activities that might lead to development and production; grazing, dispersed recreation, and associated land-use authorizations.

4.3 Cumulative Impacts from Past, Present, and Reasonably Foreseeable Future Actions

The RMP projections for oil and gas exploration and development in the planning area (see p. 6 of this EA) appear to have been somewhat overestimated; however, modest amounts of oil and gas exploration are expected to continue in the BMD over the next ten years. Geophysical surveys may be conducted prior to any exploratory drilling. Surface disturbance associated with geophysical surveys are usually minimal. An APD may then be submitted for a wildcat well in the CESA, or a production well within an existing field. A site specific NEPA document would be prepared prior to approval of any application to conduct surface disturbing activities.

There is a small chance that a new oil field will be discovered within the next 10 years. The most recently discovered new oil field, Sans Spring, was discovered in 1993. If another oil field were discovered, there would, in all likelihood, be additional disturbance of previously undisturbed lands. An additional 5 to 10 wells may be drilled in the vicinity of any new discovery and up to 30 acres of disturbance might be expected within the CESA boundary. The surface disturbance associated with a producing well would probably remain for the entire production life of the well. Surface disturbance associated with drilling a dry well would be reclaimed within a year after the well was plugged and abandoned.

Development wells include step-out or field extension wells, enhanced oil recovery wells, or other infield wells. Even though the drilling of development wells would be adjacent to or actually within areas of current production, it may require disturbance on previously undisturbed lands.

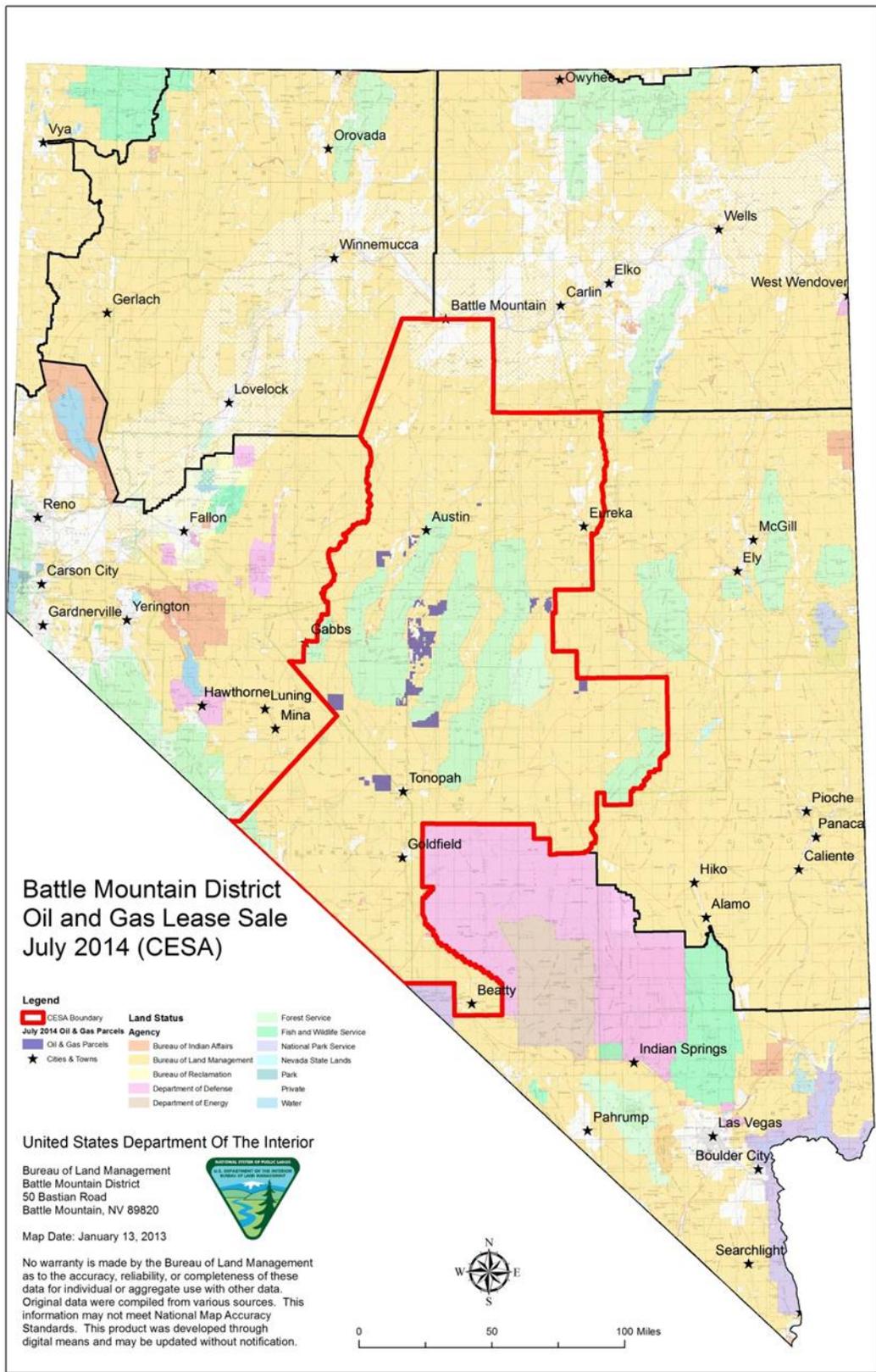


Figure 3 Cumulative Effects Study Area

Based on past actions there will be approximately 15 oil and gas wells permitted by the TFO within the next 10 years and much less than that in the MLFO. Approximately 60% of the wells projected to be drilled would be development wells (as opposed to wildcat exploratory wells). An estimated 10-20% of the development wells would produce economic quantities of oil, while the remainder would be unsuccessful and would be plugged and abandoned upon completion of drilling. The remaining 40% of wells expected to be drilled would be wildcat wells – all are expected to be dry and would be plugged and abandoned, with reclamation being completed within one year of being abandoned.

4.3.1. Cumulative Impacts on Air Quality

Past, continued, proposed and foreseeable road, power line, and pipeline construction, minerals exploration and recreation all create air quality impacts. Increased volumes of carbon dioxide, carbon monoxide, and particulates have been and would be caused by vehicle exhaust, disturbing the soil cover from additional travel on existing dirt roads and the construction of new access roads and well pads, and additional drilling.

Past and foreseeable geophysical exploration have in the past and would in the foreseeable future cause very little impact to air quality because the exploration equipment would be in the area for a very short time (typically less than a week) and little or no additional surface disturbance would be created to disturb the soil.

Activities associated with drilling wells typically last less than a month and the potential to increase particulate matter from multiple trips is mitigated by placing gravel on the access roads and protecting the soil. These localized, temporary impacts are not expected to significantly affect air quality in the area or exceed air quality standards.

4.3.2. Cumulative Impacts on Cultural Resources

A number of ongoing and potential actions in the area, such as mining, mineral and geothermal exploration, off-highway vehicle use, and livestock grazing could cumulatively impact cultural resources. However, concurrent exploration and production actions would contribute to the cumulative impacts. With implementation of BMPs and the COAs, impacts could be minimized. It is expected that the proposed action may contribute to cumulative impacts, through the reasonably foreseeable role of oil and gas exploration and development. Overall impacts within the project area could be negligible, especially when effectively mitigated.

4.3.3. Cumulative Impacts on Native American Religious Concerns

Fluid mineral leasing and exploration may contribute to the general decline in sites and associated activities of a cultural, traditional, and spiritual nature. Presently, impacts to many cultural, traditional, spiritual sites, and associated activities have been avoided through Native American consultation efforts. Only the potential impacts to tribal resources were analyzed in this EA because it evaluates the leasing of oil and gas parcels and does not analyze areas of proposed surface disturbance where impacts might be expected. Without a specific surface disturbing activity, location, and description, identifying all impacts to specific tribal resources is not possible. As noted previously, for any future development, the BLM would produce a site-specific EA, which would discuss alternatives or measures that may reduce or eliminate impacts to Native American Religious Concerns.

4.3.4. Cumulative Impacts on Wildlife Resources

Disturbance and fragmentation of wildlife habitat, including oil and gas development, may impact wildlife species by 1) displacement, or 2) temporarily or permanently altering habitat. In turn, habitat loss and displacement can have negative impacts on wildlife populations. For example, reduced habitat availability can increase competition particularly if preferred habitats are limited or near carrying capacity. In these cases, an overall reduction in population size is expected, which is of particular concern for small or isolated populations.

A number of other ongoing projects and future activities in the Lease Area, such as locatable mineral exploration, off-highway vehicle use, and livestock grazing could cumulatively impact wildlife. These activities could result in loss of habitat, habitat fragmentation, and disruption of movement patterns. It is expected that the proposed action may contribute to cumulative impacts if exploration and development of the lease parcels is authorized in the future. However, the reasonably foreseeable impacts of oil and gas exploration and development within the assessment area is negligible if potential impacts are effectively minimized through site-specific COAs, BMPs, and mitigation measures.

4.3.5. Cumulative Impacts on Water Quality (Surface and Ground) and Quantity

The impacts from the proposed, ongoing, and reasonably foreseeable actions do not appear to have an incremental effect on any area of the CESA because the total water use in the area is minimal and is exceeded by the recharge volumes on an annual basis.

4.3.6. Cumulative Impacts on Wastes, Hazardous and Solid

The cumulative impact of hazardous and solid waste generated during the development of authorized, proposed, or reasonably foreseeable actions would be negligible because of mitigation which would be developed during site specific analysis. Additionally, federal and state governments specifically regulate each project to ensure, to the extent possible, that there are no releases of hazardous materials into the environment.

4.3.7. Cumulative Impacts on Noxious Weeds and Invasive, Non-native Species

Continued use by off-highway vehicles and cattle grazing may have contributed to the infestation and spread of noxious weeds and invasive non-native species within the CESA. Overall, the proposed action and possible subsequent exploration and development of oil and gas leases could increase the potential for impacts to existing native plant communities. However, measures taken in accordance with the prevention schedule and BMPs included in the plans of operations for future oil and gas projects would reduce the spread of invasive species. By implementing site specific mitigation measures, the incremental effect from past, present and future activities, would ensure that cumulative impacts to noxious weeds and invasive non-native species would be minimal.

4.3.8. Cumulative Impacts on Geology and Minerals

A number of other ongoing activities such as mining, mineral exploration, geothermal exploration and production, sand and gravel pit development, could cumulatively impact mineral resources within the BMD. These impacts include conflicts between exploration and development of minerals resources and loss of access to mineral resources. However, based on

the small scale of expected disturbance from oil and gas-related activities the cumulative impact to minerals and geology is expected to be negligible. Impacts that may exist could be mitigated by negotiations between operators.

4.3.9. Cumulative Impacts on Soils

A number of ongoing and potential actions in the area, such as mining, mineral and geothermal exploration, off-highway vehicle use, and livestock grazing could cumulatively impact soils. These impacts include erosion of soils, disturbance of microbiotic crusts, and soil compaction. The proposed action would not likely contribute to cumulative impacts. However, concurrent exploration and production actions would contribute to the cumulative impacts. With implementation of BMPs and the conditions of approval, impacts could be minimized. It is expected that the proposed action may contribute to cumulative impacts, through the reasonably foreseeable role of oil and gas exploration and development. Overall impacts within the project area could be negligible, especially when effectively mitigated.

4.3.10. Cumulative Impacts on Vegetation

A number of ongoing and potential actions in the area, such as mining, mineral and geothermal exploration, off-highway vehicle use, and livestock grazing could cumulatively impact vegetation. These impacts include erosion of soils, disturbance of microbiotic crusts, disturbance or removal of vegetation and soil compaction. The proposed action would not likely contribute to cumulative impacts. However, concurrent exploration and production actions would contribute to the cumulative impacts. With implementation of BMPs and the conditions of approval, impacts could be minimized. For example revegetation and rehabilitation in the interim and following projects would mitigate impacts to vegetation. It is expected that the proposed action may contribute to cumulative impacts, through the reasonably foreseeable role of oil and gas exploration and development. Overall impacts within the project area could be negligible, especially when effectively mitigated.

4.3.11. Cumulative Impacts on Range Resources

The disturbance associated with oil and gas exploration and production would add to the disturbances from mining exploration, mining, and off-highway vehicle use. The creation of new roads, construction of drill pads, and the development of wells and mines removes available forage for wildlife, livestock, wild horses, and burros. Reductions of available forage could have an impact on ranching operations. However, the cumulative impacts of the proposed action on range resources are expected to be minimal due to the relatively small area of disturbance, concurrent reclamation, and developed site-specific mitigation.

4.3.12. Cumulative Impacts on Land and Realty

Cumulative impacts from past, present and future activities to realty actions within the assessment area are negligible. Site-specific mitigation measures for exploration and development would ensure that the potential cumulative impacts from the proposed action would remain negligible.

4.3.13. Cumulative Impacts on Visual Resources

The cumulative impacts from past, present, and future activities as previously outlined, remain low to moderate for visual resources due to the likelihood of large distances between actions and

limited surface disturbance. Most of the future activities would be on valley floors. Visual resources are mitigated on a case-by-case basis and many of the activities would be temporary in nature.

Principal existing human-made visual features within the assessment area include several county roads and US highway 6. There are also several gravel and native surface secondary roads, ranches, farms, and electrical transmission lines. None of the future activities would create any visual impact inconsistent with the applicable VRM Class ratings for the assessment area, thus the overall cumulative impact would continue to be low to moderate.

4.3.14. Cumulative Impacts on Recreation

Increased commercial developments would increase the population of the area, which would in turn create an increase in all recreational activities such as visits to WSAs, hunting, and off-highway vehicle use in the assessment area. Given that many recreational activities are dependent upon a high quality visual/aesthetic environment, commercial developments, including fluid mineral development, has the potential to lower the quality of recreational experiences in the assessment area. However, the mitigation measures developed during site specific analysis in the CESA would ensure the quality of recreational experiences would not be significantly reduced.

4.3.15. Cumulative Impacts on Socioeconomics

The Proposed Action does not: Induce substantial growth or concentration of population, displace a large number of people, cause a substantial reduction in employment, reduce wage and salary earnings, cause a substantial net increase in county expenditures, or create a substantial demand for public services. In the volatile economy of the foreseeable future, it is expected that the cumulative and incremental socioeconomic effects of the proposed action, would be beneficial and not significant.

4.3.16. Cumulative Impacts on Wild Horses and Burros

Cumulative impacts to wild horses from oil and gas leasing would consist of the impacts occurring as a result of exploration and production which could occur in lease areas. The CESA for wild horse and burro management would include the HMAs in which the leases are located as well as those HMAs adjoining the affected HMAs.

Past, present and reasonably foreseeable projects that have and could continue to have impacts to wild horses include mining exploration, geothermal exploration, oil and gas exploration, power line construction, wildland urban interface activities, wild horse gathers, communication site construction, and noxious weed treatment. These activities have the result of isolated and usually limited soil and vegetation disturbance or loss.

Two primary impacts to wild horses were considered that could occur from oil and gas exploration and development – increased fragmentation of wild horse habitat, and cumulative increases in vegetation and soil disturbances, which result in incremental losses in availability of quality habitat used for wild horses.

Oil and gas exploration could involve overland travel, road construction, seismic testing, and drilling which could cause additional surface disturbance. Over time, the areas of disturbance would cumulatively increase, and impact the quality and quantity of habitat available to wild horses, as well as increase risks for erosion and noxious weed invasion. However, the proposed lease areas within the Fish Creek and Sevenmile HMAs support moderately thick to thick stand of pinyon juniper. Powerline and road construction and overall clearing of trees for exploration or development activities could open up the vegetation and result in improved travel ways for wild horses over the current situation.

Mining activity, oil and gas production, geothermal development, gravel pit expansion, road building, fencing, and wild horse gathers, are all activities, which can impact wild horse distribution and seasonal movement throughout and between HMAs. Each activity could result in incremental restrictions to free roaming behavior of wild horses and over time may influence utilization patterns, genetic interchange and use of water sources.

According to the Trends and Projections Scenario described in Section 2.4.2, it is unlikely that large areas of disturbance would occur within the thirteen (13) parcels identified for lease within wild horse HMAs and therefore the effects would be minimal.

Exploration and production activities would be analyzed on a site specific basis. Effects of potential proposed actions to wild horse populations in the HMAs would be analyzed and mitigation measures developed to avoid or reduce impacts, or COAs would be implemented to protect the long term health of wild horses.

4.3.17. Cumulative Impacts on Forestry and Woodland Products

A number of past, present and RFFAs in the area such as mining, mineral and geothermal exploration, off-highway vehicles use, and livestock grazing could contribute to cumulative impacts. Based on the RFD, foreseeable impacts could result in the construction of a number of drilling sites, production facilities, and transportation corridors. The long-term change in vegetation and associated potential loss of woodland productivity (piñon-juniper) would not result in substantial impacts since the Assessment Area contains abundant piñon-juniper woodlands. In addition, it is likely that the majority of exploration and development efforts would be focused on the lower elevation alluvial fans and playas. Based on the RFD and when considering site-specific mitigation measures that would be developed for potential exploration and development, cumulative impacts to forest and woodland resources would be minimal.

5.0 CONSULTATION AND COORDINATION

5.1 List of Preparers

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Joshua Tibbetts, Mount Lewis Field Office, Prescribed Fire/Fuels Specialist
David Jones, Nevada State Office, Air Quality Specialist

5.2 Agencies/Tribes Contacted

Battle Mountain Band
South Fork Band
Duckwater Shoshone Tribe
Yomba Shoshone Tribe
Ely Shoshone Tribe
Timbisha Shoshone Tribe
Fallon Pointe Shoshone Tribe
Nevada Department of Wildlife (NDOW)

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APPENDIX A

**LIST OF PARCELS
OFFERED FOR SALE IN THE
JULY 2014 OIL AND GAS LEASE SALE**

NV-14-07-001 1918.840 Acres
T.0080N, R.0380E, 21 MDM, NV
Sec. 001 LOTS 1-4;
001 S2N2,S2;
002 LOTS 1-4;
002 S2N2,S2;
003 LOTS 1-4;
003 S2N2,S2;

NV-14-07-002 1922.190 Acres
T.0080N, R.0380E, 21 MDM, NV
Sec. 004 LOTS 1-4;
004 S2N2,S2;
005 LOTS 1-4;
005 S2N2,S2;
006 LOTS 1-7;
006 S2NE,SE,SW,SE;

NV-14-07-003 2554.360 Acres
T.0080N, R.0380E, 21 MDM, NV
Sec. 007 LOTS 1-4;
007 E2,E2W2;
008 ALL;
017 ALL;
018 LOTS 1-4;
018 E2,E2W2;

NV-14-07-004 2560.000 Acres
T.0080N, R.0380E, 21 MDM, NV
Sec. 009 ALL;
010 ALL;
011 ALL;
012 ALL;

NV-14-07-005 2520.000 Acres
T.0080N, R.0380E, 21 MDM, NV
Sec. 013 E2,N2NW,SWNW,SW;
014 ALL;
015 ALL;
016 ALL;

NV-14-07-006 1878.330 Acres
T.0080N, R.0380E, 21 MDM, NV
Sec. 019 LOTS 1-3;
019 E2,E2W2;
020 ALL;
029 ALL;

NV-14-07-007 2560.000 Acres
T.0080N, R.0380E, 21 MDM, NV
Sec. 021 ALL;
022 ALL;
023 ALL;
024 ALL;

NV-14-07-008 2560.000 Acres
T.0080N, R.0380E, 21 MDM, NV
Sec. 025 ALL;
026 ALL;
027 ALL;
028 ALL;

NV-14-07-009 2560.000 Acres
T.0080N, R.0380E, 21 MDM, NV
Sec. 033 ALL;
034 ALL;
035 ALL;
036 ALL;

NV-14-07-010 1919.160 Acres
T.0030N, R.0400E, 21 MDM, NV
Sec. 001 LOTS 1-4;
001 S2N2,S2;
012 ALL;
013 ALL;

NV-14-07-011 1427.720 Acres
T.0030N, R.0400E, 21 MDM, NV
Sec. 005 S2S2;
007 LOTS 1-4;
007 E2,E2W2;
008 ALL;

NV-14-07-012 2560.000 Acres
T.0030N, R.0400E, 21 MDM, NV
Sec. 015 ALL;
016 ALL;
020 ALL;
021 ALL;

NV-14-07-013 1924.040 Acres
T.0030N, R.0410E, 21 MDM, NV
Sec. 001 LOTS 1-4;
001 S2N2,S2;
002 LOTS 1-4;
002 S2N2,S2;
003 LOTS 1-4;
003 S2N2,S2;

NV-14-07-014 1904.740 Acres
T.0030N, R.0410E, 21 MDM, NV
Sec. 004 LOTS 1-4;
004 S2N2,S2;
005 LOTS 1-4;
005 S2N2,S2;
006 LOTS 1-7;
006 S2NE,SE,SW,E2SW,SE;

NV-14-07-015 2537.160 Acres
T.0030N, R.0410E, 21 MDM, NV
Sec. 007 LOTS 1-4;
007 E2,E2W2;
008 ALL;
017 ALL;
018 LOTS 1-4;
018 E2,E2W2;

NV-14-07-016 2560.000 Acres
T.0030N, R.0410E, 21 MDM, NV
Sec. 009 ALL;
010 ALL;
011 ALL;
012 ALL;

NV-14-07-017 2560.000 Acres
T.0030N, R.0410E, 21 MDM, NV
Sec. 013 ALL;
014 ALL;
015 ALL;
016 ALL;

NV-14-07-018 2537.800 Acres
T.0030N, R.0410E, 21 MDM, NV
Sec. 019 LOTS 1-4;
019 E2,E2W2;
020 ALL;
029 ALL;
030 LOTS 1-4;
030 E2,E2W2;

NV-14-07-019 2560.000 Acres
T.0030N, R.0410E, 21 MDM, NV
Sec. 021 ALL;
022 ALL;
023 ALL;
024 ALL;

NV-14-07-020 2560.000 Acres
T.0030N, R.0410E, 21 MDM, NV
Sec. 025 ALL;
026 ALL;
027 ALL;
028 ALL;

NV-14-07-021 1909.520 Acres
T.0030N, R.0410E, 21 MDM, NV
Sec. 031 LOTS 1-4;
031 E2,E2W2;
032 ALL;
033 ALL;

NV-14-07-022 1920.000 Acres
T.0030N, R.0410E, 21 MDM, NV
Sec. 034 ALL;
035 ALL;
036 ALL;

NV-14-07-023 1941.000 Acres
T.0170N, R.0410E, 21 MDM, NV
Sec. 002 PROT ALL;
003 PROT ALL;
004 PROT ALL;

NV-14-07-024 1376.000 Acres
T.0170N, R.0410E, 21 MDM, NV
Sec. 005 PROT ALL;
006 PROT ALL;

NV-14-07-025 1348.000 Acres
T.0170N, R.0410E, 21 MDM, NV
Sec. 007 PROT ALL;
008 PROT ALL;
MAT SITE CC023392 - -STIP-OG44

NV-14-07-026 1920.000 Acres
T.0170N, R.0410E, 21 MDM, NV
Sec. 009 PROT ALL;
010 PROT ALL;
011 PROT ALL;

NV-14-07-027 1920.000 Acres
T.0170N, R.0410E, 21 MDM, NV
Sec. 012 W2;
013 W2;
021 PROT ALL;
029 PROT ALL;

NV-14-07-028 2033.000 Acres
T.0170N, R.0410E, 21 MDM, NV
Sec. 017 PROT ALL;
018 PROT ALL;
019 PROT ALL;

NV-14-07-029 1920.000 Acres
T.0170N, R.0410E, 21 MDM, NV
Sec. 020 PROT ALL;
028 PROT ALL;
033 PROT ALL;

NV-14-07-030 2003.000 Acres
T.0170N, R.0410E, 21 MDM, NV
Sec. 030 PROT ALL;
031 PROT ALL;
032 PROT ALL;

NV-14-07-031 1449.320 Acres
T.0080N, R.0420E, 21 MDM, NV
Sec. 001 LOTS 1-4;
001 S2N2,S2;
002 SE;
011 LOTS 1-8;
012 E2;

NV-14-07-032 1400.000 Acres
T.0080N, R.0420E, 21 MDM, NV
Sec. 009 E2NE,N2NW,SWNW,SW,
NESE;
016 SWNE,W2,W2SE;
021 W2NE,W2,SE;

NV-14-07-033 1440.000 Acres
T.0080N, R.0420E, 21 MDM, NV
Sec. 010 SW;
015 ALL;
022 ALL;

NV-14-07-034 1720.000 Acres
T.0080N, R.0420E, 21 MDM, NV
Sec. 013 E2;
014 W2;
023 W2,SE;
024 E2,E2NW,SWNW,SW;

NV-14-07-035 1057.630 Acres
T.0090N, R.0420E, 21 MDM, NV
Sec. 001 LOTS 1,2,5-7;
001 SWNE,E2SE;
012 LOTS 1-4;
012 W2E2;
013 LOTS 1-4;
013 W2E2;

NV-14-07-036 1305.360 Acres
T.0090N, R.0420E, 21 MDM, NV
Sec. 024 LOTS 1-4;
024 W2E2;
025 LOTS 1-4;
025 W2E2;
036 LOTS 1-4;
036 W2E2,W2;

NV-14-07-040 1195.000 Acres
T.0170N, R.0420E, 21 MDM, NV
Sec. 002 LOTS 1-3;
002 S2NE,SE,SW,S2;
011 ALL;

NV-14-07-043 643.760 Acres
T.0070N, R.0430E, 21 MDM, NV
Sec. 023 S2;
024 LOTS 3,4;
024 SW,W2SE;

NV-14-07-044 1291.060 Acres
T.0070N, R.0430E, 21 MDM, NV
Sec. 025 LOTS 1-4;
025 W2E2,W2;
026 ALL;

NV-14-07-045 2543.430 Acres
T.0070N, R.0430E, 21 MDM, NV
Sec. 027 ALL;
028 ALL;
033 LOTS 1-4;
033 N2,N2S2;
034 LOTS 1-4;
034 N2,N2S2;

NV-14-07-046 1289.710 Acres
T.0070N, R.0430E, 21 MDM, NV
Sec. 035 LOTS 1-4;
035 N2,N2S2;
036 LOTS 1-7;
036 W2NE,NW,N2SW,NWSE;

NV-14-07-050 1920.180 Acres
T.0090N, R.0430E, 21 MDM, NV
Sec. 003 LOTS 1-4;
003 S2N2,S2;
010 ALL;
015 ALL;

NV-14-07-051 1284.500 Acres
T.0090N, R.0430E, 21 MDM, NV
Sec. 004 LOTS 1-4;
004 S2N2,S2;
005 LOTS 1-4;
005 S2N2,S2;

NV-14-07-052 1885.600 Acres
T.0090N, R.0430E, 21 MDM, NV
Sec. 006 LOTS 1-7;
006 S2NE,SE,SW,E2SW,SE;
007 LOTS 1-4;
007 E2,E2W2;
008 ALL;

NV-14-07-053 1903.120 Acres
T.0090N, R.0430E, 21 MDM, NV
Sec. 016 ALL;
017 ALL;
018 LOTS 1-4;
018 E2,E2W2;

NV-14-07-054 1903.380 Acres
T.0090N, R.0430E, 21 MDM, NV
Sec. 019 LOTS 1-4;
019 E2,E2W2;
020 ALL;
021 ALL;

NV-14-07-055 1956.160 Acres
T.0090N, R.0430E, 21 MDM, NV
Sec. 022 ALL;
023 LOTS 1-7;
023 S2NE,SE,SW,E2SW,SE;
024 LOTS 1-4;
024 S2N2,S2;

NV-14-07-056 1459.240 Acres
T.0090N, R.0430E, 21 MDM, NV
Sec. 025 NW;
026 LOTS 1-4;
026 E2,E2W2;
027 ALL;

NV-14-07-057 1903.420 Acres
T.0090N, R.0430E, 21 MDM, NV
Sec. 028 ALL;
029 ALL;
030 LOTS 1-4;
030 E2,E2W2;

NV-14-07-058 1904.740 Acres
T.0090N, R.0430E, 21 MDM, NV
Sec. 031 LOTS 1-4;
031 E2,E2W2;
032 ALL;
033 ALL;

NV-14-07-059 970.010 Acres
T.0090N, R.0430E, 21 MDM, NV
Sec. 034 ALL;
035 LOTS 1-5;
035 E2NW,NESW;

NV-14-07-060 1207.360 Acres
T.0100N, R.0430E, 21 MDM, NV
Sec. 001 LOTS 1-4;
001 S2N2,S2;
009 E2,S2NW,SW;

NV-14-07-063 2520.000 Acres
T.0100N, R.0430E, 21 MDM, NV
Sec. 020 ALL;
021 N2,SW,N2SE,SWSE;
029 ALL;
032 ALL;
026 ALL;
035 ALL;

NV-14-07-067 1769.480 Acres
T.0110N, R.0430E, 21 MDM, NV
Sec. 001 LOTS 1-4;
001 S2N2,E2SW,SE;
002 LOTS 1-4;
002 S2N2,SW,W2SE;
003 LOTS 1-4;
003 S2N2,S2;

NV-14-07-068 1509.190 Acres
T.0110N, R.0430E, 21 MDM, NV
Sec. 004 LOTS 5-20;
005 LOTS 5-14;
009 N2,N2S2,SESE;

NV-14-07-069 422.000 Acres
T.0110N, R.0430E, 21 MDM, NV
Sec. 006 LOTS 8-9, 14-15;
018 W2NE,W2W2SE;
019 LOTS 5,6;
019 W2NE;

NV-14-07-070 1680.000 Acres
T.0110N, R.0430E, 21 MDM, NV
Sec. 010 ALL;
011 W2NE,W2,W2SE,SESE;
012 E2,NENW,SW;

NV-14-07-071 1840.000 Acres
T.0110N, R.0430E, 21 MDM, NV
Sec. 013 ALL;
014 ALL;
015 N2,N2S2,SWSW,SESE;

NV-14-07-072 2360.000 Acres
T.0110N, R.0430E, 21 MDM, NV
Sec. 016 ALL;
021 ALL;
022 NENE,W2SW;
027 E2E2,W2W2;
028 ALL;

NV-14-07-073 1004.610 Acres
T.0110N, R.0430E, 21 MDM, NV
Sec. 020 SESE;
032 SENE,W2,N2SE,SWSE;
033 LOTS 1,2;
033 E2,E2SW;

NV-14-07-074 1846.050 Acres
T.0110N, R.0430E, 21 MDM, NV
Sec. 023 ALL;
024 LOTS 1,2,4;
024 N2,SW;
026 E2,E2NW,SWNW,SW;

NV-14-07-078 1921.440 Acres
T.0120N, R.0430E, 21 MDM, NV
Sec. 001 LOTS 1-4;
001 S2N2,S2;
012 ALL;
014 ALL;

NV-14-07-079 1164.880 Acres
T.0120N, R.0430E, 21 MDM, NV
Sec. 002 LOTS 1-3;
002 S2NE,SE,SE;
004 LOTS 3,4;
004 S2NW,E2SE,SWSE;
008 N2,N2SW,SWSW,NWSE;

NV-14-07-080 1616.020 Acres
T.0120N, R.0430E, 21 MDM, NV
Sec. 005 S2;
006 LOTS 1-7;
006 S2NE,SE,SE,SE;
007 LOTS 1-4;
007 E2,E2W2;

NV-14-07-081 1480.000 Acres
T.0120N, R.0430E, 21 MDM, NV
Sec. 011 E2E2,NWNE,SESW,W2SE;
013 N2NE,SWNE,W2,W2SE,SESE;
022 N2,SW,W2SE,SESE;

NV-14-07-082 1800.000 Acres
T.0120N, R.0430E, 21 MDM, NV
Sec. 016 E2NE,SWNE,S2NW,S2;
020 ALL;
021 ALL;

NV-14-07-083 1690.850 Acres
T.0120N, R.0430E, 21 MDM, NV
Sec. 017 S2N2,S2;
018 LOTS 1,2;
018 E2,E2W2;
019 LOTS 1-4;
019 E2,E2W2;

NV-14-07-084 1840.000 Acres
T.0120N, R.0430E, 21 MDM, NV
Sec. 023 ALL;
024 W2NE,W2,SE;
026 ALL;

NV-14-07-085 1350.260 Acres
T.0120N, R.0430E, 21 MDM, NV
Sec. 025 ALL;
036 LOTS 1-16;

NV-14-07-086 1280.000 Acres
T.0120N, R.0430E, 21 MDM, NV
Sec. 027 ALL;
028 ALL;

NV-14-07-087 1736.000 Acres
T.0120N, R.0430E, 21 MDM, NV
Sec. 029 ALL;
031 LOTS 5-6, 11-14, 19-20;
032 LOTS 1-12;
032 NE;

NV-14-07-088 1382.220 Acres
T.0120N, R.0430E, 21 MDM, NV
Sec. 030 LOTS 1-4;
030 E2,E2W2;
033 LOTS 1-16;

NV-14-07-089 1459.140 Acres
T.0120N, R.0430E, 21 MDM, NV
Sec. 034 LOTS 1-16;
035 LOTS 1-16;

NV-14-07-090 1440.000 Acres
T.0130N, R.0430E, 21 MDM, NV
Sec. 001 LOTS 1,2;
001 S2NE;
010 PROT ALL;
011 PROT ALL;

NV-14-07-091 1028.580 Acres
T.0130N, R.0430E, 21 MDM, NV
Sec. 007 LOTS 1-4;
007 NE,E2NW,NESW,NWSE;
008 E2,S2NW,SW;

NV-14-07-092 1920.000 Acres
T.0130N, R.0430E, 21 MDM, NV
Sec. 014 PROT ALL;
015 PROT ALL;
023 PROT ALL;

NV-14-07-093 1026.880 Acres
T.0130N, R.0430E, 21 MDM, NV
Sec. 017 E2W2,NWNW;
018 LOTS 1-4;
018 W2NE,E2W2,NWSE;
019 LOTS 1-4;
019 E2W2,W2SE;

NV-14-07-094 720.000 Acres
T.0130N, R.0430E, 21 MDM, NV
Sec. 025 SW;
026 S2;
027 N2S2,S2SE;

NV-14-07-095 1038.460 Acres
T.0130N, R.0430E, 21 MDM, NV
Sec. 028 N2N2;
030 LOTS 1-4;
030 E2SW;
031 LOTS 1-4;
031 E2,E2W2;

NV-14-07-096 1269.920 Acres
T.0130N, R.0430E, 21 MDM, NV
Sec. 035 ALL;
036 LOTS 1-4;
036 W2,SE;

NV-14-07-097 1593.700 Acres
T.0140N, R.0430E, 21 MDM, NV
Sec. 001 LOTS 2-4;
001 SWNE,S2NW,SW,S2SE;
002 LOTS 4;
002 S2NW,SW,S2SE;
003 LOTS 1-3;
003 S2N2,S2;
004 SE;

NV-14-07-098 1040.000 Acres
T.0140N, R.0430E, 21 MDM, NV
Sec. 009 E2;
010 N2NW,SWNW,W2SW;
016 W2E2E2,W2E2,NW,SWSW,
E2SW;

NV-14-07-099 1160.000 Acres
T.0140N, R.0430E, 21 MDM, NV
Sec. 011 E2,N2NW;
012 S2NE,NWNW,S2NW,S2;
013 S2NE;
014 NW;

NV-14-07-102 195.000 Acres
T.0170N, R.0430E, 21 MDM, NV
Sec. 009 LOTS 8,9;
009 E2SW,SWSE;

NV-14-07-103 1738.000 Acres
T.0180N, R.0430E, 21 MDM, NV
Sec. 003 LOTS 1-4;
003 S2N2,S2;
004 LOTS 2-4;
004 S2N2,S2;
005 LOTS 1-4;
005 S2N2,N2S2;

NV-14-07-104 838.030 Acres
T.0180N, R.0430E, 21 MDM, NV
Sec. 006 LOTS 5-7;
006 SENW,E2SW;
007 LOTS 1-4;
007 NWNE,S2NE,E2W2,SE;

NV-14-07-106 1283.000 Acres
T.0180N, R.0430E, 21 MDM, NV
Sec. 016 ALL;
018 LOTS 1-4;
018 E2,E2W2;

NV-14-07-107 1204.000 Acres
T.0180N, R.0430E, 21 MDM, NV
Sec. 019 LOTS 1-4;
019 E2,E2W2;
020 N2NE,SWNE,W2,W2SE,SESE;

NV-14-07-108 640.000 Acres
T.0180N, R.0430E, 21 MDM, NV
Sec. 030 LOTS 1-4;
030 E2,E2W2;

NV-14-07-110 2520.000 Acres
T.0070N, R.0440E, 21 MDM, NV
Sec. 010 ALL;
013 ALL;
014 ALL;
015 N2,N2SW,SESW,SE;

NV-14-07-111 2401.280 Acres
T.0070N, R.0440E, 21 MDM, NV
Sec. 001 LOTS 1-4;
001 S2N2,S2;
002 LOTS 1,2;
002 S2NE,S2;
011 ALL;
012 ALL;

NV-14-07-112 2398.490 Acres
T.0070N, R.0440E, 21 MDM, NV
Sec. 016 ALL;
017 SE;
019 LOTS 3,4;
019 E2SW,SE;
020 ALL;
021 ALL;

NV-14-07-113 2560.000 Acres
T.0070N, R.0440E, 21 MDM, NV
Sec. 022 ALL;
023 ALL;
024 ALL;
027 ALL;

NV-14-07-114 2560.000 Acres
T.0070N, R.0440E, 21 MDM, NV
Sec. 025 ALL;
026 ALL;
035 ALL;
036 ALL;

NV-14-07-115 1920.000 Acres
T.0070N, R.0440E, 21 MDM, NV
Sec. 028 ALL;
033 ALL;
034 ALL;

NV-14-07-116 2553.500 Acres
T.0070N, R.0440E, 21 MDM, NV
Sec. 029 ALL;
030 LOTS 1-4;
030 E2,E2W2;
031 LOTS 1-4;
031 E2,E2W2;
032 ALL;

NV-14-07-120 1911.670 Acres
T.0110N, R.0440E, 21 MDM, NV
Sec. 006 LOTS 1-7;
006 S2NE,SESW,E2SW,SE;
007 LOTS 1-4;
007 E2,E2W2;
018 LOTS 1-4;
018 E2,E2W2;

NV-14-07-122 1376.200 Acres
T.0110N, R.0440E, 21 MDM, NV
Sec. 004 LOTS 1,2,5-21;
009 LOTS 1-8;
009 W2;

NV-14-07-123 1922.980 Acres
T.0110N, R.0440E, 21 MDM, NV
Sec. 005 LOTS 1-4;
005 S2N2,S2;
008 ALL;
017 ALL;

NV-14-07-124 1278.000 Acres
T.0110N, R.0440E, 21 MDM, NV
Sec. 015 LOTS 1-7;
016 LOTS 1,2;
016 E2NE,W2,SE;
021 LOTS 1-8;
021 N2;

NV-14-07-128 1711.000 Acres
T.0120N, R.0440E, 21 MDM, NV
Sec. 002 LOTS 5-8;
002 S2N2,E2S2,E2SE;
003 LOTS 5-11;
003 S2NE,SE,SW,SE;
004 LOTS 1-4;
004 S2N2,S2;

NV-14-07-129 1923.780 Acres
T.0120N, R.0440E, 21 MDM, NV
Sec. 005 LOTS 1-4;
005 S2N2,S2;
008 ALL;
009 ALL;

NV-14-07-130 1658.120 Acres
T.0120N, R.0440E, 21 MDM, NV
Sec. 006 LOTS 1-7;
006 S2NE,SE,SW,SE;
007 LOTS 1-4;
007 E2,E2W2;
018 LOTS 1,4;
018 E2E2,NWNE,NENW,SESW,
SWSE;

NV-14-07-131 1113.150 Acres
T.0120N, R.0440E, 21 MDM, NV
Sec. 010 LOTS 1-4;
010 E2,E2W2;
015 LOTS 1-4;
015 E2,E2W2;

NV-14-07-132 1058.000 Acres
T.0120N, R.0440E, 21 MDM, NV
Sec. 011 W2;
022 LOTS 1-4;
022 E2,E2W2;
023 N2,SW;

NV-14-07-133 1659.710 Acres
T.0120N, R.0440E, 21 MDM, NV
Sec. 016 ALL;
017 ALL;
019 LOTS 5-12;
019 E2NE;

NV-14-07-134 2560.000 Acres
T.0120N, R.0440E, 21 MDM, NV
Sec. 020 ALL;
021 ALL;
028 ALL;
029 ALL;

NV-14-07-135 459.000 Acres
T.0120N, R.0440E, 21 MDM, NV
Sec. 026 NW;
027 LOTS 1,2;
027 NE,E2NW;

NV-14-07-136 908.540 Acres
T.0120N, R.0440E, 21 MDM, NV
Sec. 030 LOTS 5-13,16,17,20;
031 LOTS 5,8,9,12-16;
031 SE;

NV-14-07-137 968.140 Acres
T.0120N, R.0440E, 21 MDM, NV
Sec. 032 LOTS 1-4;
032 E2,NW;
033 W2;

NV-14-07-138 2560.000 Acres
T.0140N, R.0440E, 21 MDM, NV
Sec. 012 ALL;
013 ALL;
014 ALL;
015 ALL;

NV-14-07-139 1109.200 Acres
T.0140N, R.0440E, 21 MDM, NV
Sec. 016 ALL;
017 E2;
018 LOTS 1,2;
018 E2NW;

NV-14-07-140 800.000 Acres
T.0140N, R.0440E, 21 MDM, NV
Sec. 020 NE;
021 ALL;

NV-14-07-141 1920.000 Acres
T.0140N, R.0440E, 21 MDM, NV
Sec. 022 ALL;
023 ALL;
024 ALL;

NV-14-07-142 1920.000 Acres
T.0140N, R.0440E, 21 MDM, NV
Sec. 025 ALL;
026 ALL;
027 ALL;

NV-14-07-143 640.000 Acres
T.0140N, R.0440E, 21 MDM, NV
Sec. 028 ALL;

NV-14-07-144 953.000 Acres
T.0140N, R.0440E, 21 MDM, NV
Sec. 031 LOTS 3,4;
031 E2SW;
032 SE;
033 ALL;

NV-14-07-145 1760.000 Acres
T.0140N, R.0440E, 21 MDM, NV
Sec. 034 ALL;
035 ALL;
036 N2,SW;

NV-14-07-146 1588.710 Acres
T.0140N, R.0450E, 21 MDM, NV
Sec. 004 LOTS 3,4;
004 S2NW,SW;
005 LOTS 1-4;
005 S2N2,S2;
006 LOTS 1-7;
006 S2NE,SE,SW,E2SW,SE;

NV-14-07-147 1580.180 Acres
T.0140N, R.0450E, 21 MDM, NV
Sec. 007 LOTS 1-4;
007 E2,E2W2;
008 ALL;
009 W2;

NV-14-07-148 1581.280 Acres
T.0140N, R.0450E, 21 MDM, NV
Sec. 016 W2;
017 ALL;
018 LOTS 1-4;
018 E2,E2W2;

NV-14-07-149 1583.360 Acres
T.0140N, R.0450E, 21 MDM, NV
Sec. 019 LOTS 1-4;
019 E2,E2W2;
020 ALL;
021 NW;
021 PROT SW;

NV-14-07-150 1258.800 Acres
T.0140N, R.0450E, 21 MDM, NV
Sec. 029 W2;
030 LOTS 1-4;
030 E2,E2W2;
031 LOTS 1,2;
031 NE,E2NW;

NV-14-07-151 1118.080 Acres
T.0200N, R.0470E, 21 MDM, NV
Sec. 004 LOTS 2-4;
004 SWNE,S2NW,SW,W2SE;
005 LOTS 1-4;
005 S2N2,S2;

NV-14-07-152 1517.000 Acres
T.0140N, R.0500E, 21 MDM, NV
Sec. 001 LOT 3;
001 S2NW,S2;
002 LOT 4;
002 S2NE,SENE,S2;
003 LOTS 1,2;
003 S2;
004 LOTS 2;
004 SWNE,SE;

NV-14-07-153 1600.000 Acres
T.0140N, R.0500E, 21 MDM, NV
Sec. 009 E2;
010 ALL;
011 ALL;

NV-14-07-154 2240.000 Acres
T.0140N, R.0500E, 21 MDM, NV
Sec. 014 ALL;
015 ALL;
021 E2;
022 ALL;

NV-14-07-155 640.000 Acres
T.0140N, R.0500E, 21 MDM, NV
Sec. 028 E2;
033 E2;

NV-14-07-156 2001.650 Acres
T.0140N, R.0510E, 21 MDM, NV
Sec. 002 LOTS 1-4;
002 S2N2,SW;
003 LOTS 1,2;
003 S2NE,S2;
004 SE;
010 S2NE,W2,SE;
011 S2NW,SW,W2SE;

NV-14-07-157 2160.000 Acres
T.0140N, R.0510E, 21 MDM, NV
Sec. 009 E2,S2SW;
014 W2E2,W2;
015 ALL;
016 ALL;

NV-14-07-158 1920.000 Acres
T.0140N, R.0510E, 21 MDM, NV
Sec. 020 NE;
021 ALL;
022 ALL;
023 W2E2,W2;

NV-14-07-159 1600.000 Acres
T.0140N, R.0510E, 21 MDM, NV
Sec. 026 W2;
027 ALL;
028 ALL;

NV-14-07-160 1160.000 Acres
T.0140N, R.0510E, 21 MDM, NV
Sec. 033 E2NE;
034 N2,SW,NWSE,S2SE;
035 N2,S2S2;

NV-14-07-161 2080.000 Acres
T.0090N, R.0530E, 21 MDM, NV
Sec. 001 PROT ALL;
002 PROT ALL;
003 PROT ALL;

NV-14-07-162 2084.000 Acres
T.0090N, R.0530E, 21 MDM, NV
Sec. 010 PROT ALL;
011 PROT ALL;
012 PROT ALL;

NV-14-07-163 2084.000 Acres
T.0090N, R.0530E, 21 MDM, NV
Sec. 013 PROT ALL;
014 PROT ALL;
015 PROT ALL;

NV-14-07-164 2085.000 Acres
T.0090N, R.0530E, 21 MDM, NV
Sec. 022 PROT ALL;
023 PROT ALL;
024 PROT ALL;

NV-14-07-165 2086.000 Acres
T.0090N, R.0530E, 21 MDM, NV
Sec. 025 PROT ALL;
026 PROT ALL;
027 PROT ALL;

NV-14-07-166 1280.000 Acres
T.0090N, R.0530E, 21 MDM, NV
Sec. 032 PROT ALL;
033 PROT ALL;

APPENDIX B
OIL AND GAS LEASE PARCELS STIPULATIONS

General Occupancy

Surface occupancy may be restricted for specific periods by the BLM's authorized officer for reasons that include, but are not limited to (a) extended periods of high soil moisture or runoff when unusual road damage or land surface rutting can occur, and (b) disturbance activity that could have a significant effect on sage-grouse breeding or brood-rearing, raptor nesting, or crucial deer or pronghorn antelope wintering areas.

Warming and cooling trends during winter, spring runoff events and other large precipitation events can contribute to extended periods of high soil moisture or runoff that can cause road damage or land surface rutting. These issues can be compounded in areas where slopes are greater than 30%.

All Parcels

Mule deer (*Odocoileus hemionus*)

No surface occupancy is allowed from December 1 – May 1 in the following parcels within the Mt Lewis Field Office. This stipulation does not apply to operations and maintenance of production facilities.

<u>Parcels</u>	<u>Description of Lands</u>
NV-14-07-027	Sec 21, 29, 28
NV-14-07-028	Sec 17, 19
NV-14-07-029	Sec 20, 33
NV-14-07-030	Sec 30, 31, 32
NV-14-07-151	All
NV-14-07-152	T.14N, R.50E., Sec. 1,2,3,4 (Lot 1)
NV-14-07-153	All
NV-14-07-154	All
NV-14-07-155	All
NV-14-07-156	All
NV-14-07-157	All
NV-14-07-158	All
NV-14-07-159	All
NV-14-07-160	All

No surface occupancy is allowed from January 15 – May 15 in the following parcels within the Tonopah Field Office. This stipulation does not apply to operations and maintenance of production facilities.

NV-14-07-037	All
NV-14-07-038	All
NV-14-07-039	All
NV-14-07-069	T. 11N., R. 43E., Sec. 6 W ½ ; Sec. 7 W ½ , W ½ W ½ E ½ ; Sec. 18 W ½ W ½ E ½ ; Sec. 19 W ½ W ½ E ½
NV-14-07-076	T. 11N., R. 43E., Sec. 30 NE, E ½ SE Sec. 31 W ½ NE
NV-14-07-080	T. 12N., R. 43E., Sec. 6 W ½ W ½ ; Sec. 7 W ½ W ½
NV-14-07-083	T. 12N., R. 43E., Sec. 18 W ½ W ½ ; Sec. 19 W ½ W ½
NV-14-07-087	T. 12N., R. 43E., Sec. 31 W ½
NV-14-07-088	T. 12N., R. 43E., Sec. 30 W ½ W ½
NV-14-07-095	T. 13N., R. 43E., Sec. 31 W ½ W ½ W ½

Threatened, Endangered, and Special Status Species

The lease area may now or hereafter contain plants, animals, or their habitats determined to be threatened, endangered, or other special status species. BLM may recommend modifications to exploration and development proposals to further its conservation and management objective to avoid BLM-approved activity that will contribute to a need to list such a species or their habitat. BLM may require modifications to or disapprove proposed activity that is likely to result in jeopardy to the continued existence of a proposed or listed threatened or endangered species or result in the destruction or adverse modification of a designated or proposed critical habitat. BLM will not approve any ground-disturbing activity that may affect any such species or critical habitat until it complete 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.

Authority: BLM Washington Office Instruction Memorandum 2002-174; Endangered Species Act

Plants

A list of BLM special status plant species can be found in Appendix E, and seasonally appropriate surveys for the respective species by a qualified biologist will be required before surface disturbance will be authorized.

All Parcels

Special Status Fish Species

The following parcels are in watersheds with known populations of BLM sensitive status fish species and, according to the National Hydrography Dataset (NHD), contain a perennial stream segment. As not all populations of these species have been surveyed, it must be assumed that these species could exist in the perennial streams of these parcels. Therefore, no activities that adversely impact the sediment or water budgets in the perennial stream systems will be permitted.

Populations of the Big Smokey Valley Speckled Dace may exist in the following parcels:

<u>Parcels</u>	<u>Description of Lands</u>
NV-14-07-068	Perennial Streams
NV-14-07-069	Perennial Streams
NV-14-07-083	Perennial Streams
NV-14-07-119	Perennial Streams
NV-14-07-124	Perennial Streams
NV-14-07-133	Perennial Streams
NV-14-07-134	Perennial Streams
NV-14-07-135	Perennial Streams

Populations of the Big Smokey Valley Tui Chub (*Gila Bicolor sp 8*) may exist in the following parcels:

<u>Parcels</u>	<u>Description of Lands</u>
NV-14-07-079	Perennial Streams
NV-14-07-091	Perennial Streams
NV-14-07-093	Perennial Streams
NV-14-07-095	Perennial Streams
NV-14-07-097	Perennial Streams
NV-14-07-130	Perennial Streams

Fire

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

- All vehicles should carry fire extinguishers, and a minimum of 10 gallons of water.
- Adequate firefighting equipment i.e. shovel, pulaski, extinguisher(s), and a minimum 10 gallons of water should be kept at the drill site(s).
- Vehicle catalytic converters should be inspected often and cleaned of all brush and grass debris.
- When conducting welding operations, they should be conducted in an area free from or mostly free from vegetation. A minimum of 10 gallons water and a shovel should be on hand to extinguish any fires created from the sparks. Extra personnel should be at the welding site to watch for fires created by welding sparks.
- Report wildland fires immediately to the BLM Central Nevada Interagency Dispatch Center (CNIDC) at (775) 623-3444. Helpful information to reported is location (latitude and longitude if possible), what's burning, time started, who/what is near the fire, and direction of fire spread.
- When conducting operations during the months of May through September, the operator must contact the BLM Battle Mountain District Office, Division of Fire and Aviation at (775)635-4000 to find out about any fire restrictions in place for the area of operation and to advise this office of approximate beginning and ending dates for your activities.

All Parcels

Cultural Resources

Operators are advised that the proposed activity area has not been surveyed for cultural resources. Furthermore, a records check of the cultural resource data files at the Mount Lewis Field Office indicates a strong likelihood of encountering cultural resources in these locations. The BLM therefore strongly recommends that the operator retain the services of an archaeological contractor to avoid damage to cultural resources. The Native American Graves Protection and Repatriation Act (NAGPRA: 43 CFR 10), protects items of cultural patrimony, Native American funerary items, Native American remains and sacred objects. In addition, The Archaeological Resources Protection Act (ARPA: 43 CFR 7.4, 7.14, 7.15, 7.16) provides for civil and/or criminal penalties for the disturbance of archaeological resources on federal lands and if such disturbance is the result of activities conducted by the operator, they could be liable for such damages. If cultural resources, Native American remains, funerary items, scared items, or objects of cultural patrimony are discovered, the operator must cease operations in the vicinity of the discovery and ensure adequate protection to the discovery, then notify the BLM immediately, by telephone, with written confirmation to follow (43 CFR 10.4 (c), (d), (g); Nevada State Protocol Agreement VIII (b)). Notification should be made to the BLM Battle Mountain District Office, 50 Bastian Road, Battle Mountain, NV, 89820, (775 – 635 – 4000). No activity in the vicinity of the discovery should resume until the operator has been issued a Notice to Proceed by the Authorized Officer.

All Parcels

Paleontological resources

Paleontological resources constitute a fragile and non-renewable scientific record of the history of life on earth. Although no paleontological resources are known or identified in the immediate area, this project may have an unintended adverse effect on such resources. The operator should note that fossils are not part of the mineral estate. Paleontological resources are protected by the Paleontological Resources Protection Act (OPLA-PRP: Omnibus Public Land Management Act of 2009 Paleontological Resources Preservation Subtitle 123 Stat. 1172, 16 U.S.C. 470aaa et seq.) which establishes criminal and civil penalties. The operator should also be aware that if paleontological resources are found in direct association with cultural resources, then such occurrences are subject to Archaeological Resource Protection Act (ARPA: 43 CFR 7.4, 7.14, 7.15, 7.16) provisions. OPLA-PRP requires that the nature and location of paleontological resources on public lands be kept confidential. If paleontological resources are discovered, the operator must cease operations in the vicinity of the discovery and ensure adequate protection to the discovery, then notify the BLM immediately, by telephone, with written confirmation to follow. Notification should be made to the BLM, Battle Mountain District Office, 50 Bastian Road, Battle Mountain, NV, 89820, (775 – 635 – 4000). No activity in the vicinity of the discovery should resume until the operator has been issued a Notice to Proceed by the Authorized Officer.

All Parcels

Native American Consultation

In accordance with the National Historic Preservation Act (P.L. 89-665), the National Environmental Policy Act (P.L. 91-190), the Federal Land Policy and Management Act (P.L. 94-579), the American Indian Religious Freedom Act (P.L. 95-341), the Native American Graves Protection and Repatriation Act (p.L. 101-601) and Executive Order 13007, the BLM must also provide affected tribes an opportunity to comment and consult on the proposed project. BLM must attempt to limit, reduce, or possibly eliminate any negative impacts to Native American traditional/cultural/spiritual sites, activities, and resources.

BLM reserves the right to deny or alter proposed activities associated with any surface occupancy that results from Oil, Gas, and Geothermal leasing. Maintaining physical and spiritual integrity of certain locations within the BMD administrative boundary is detrimental to present and future cultural/spiritual/traditional activities. In accordance with Federal legislation and executive orders, Federal agencies must consider the impacts their actions may have to Native American traditions and religious practices. Consequently, the BLM must take steps to identify locations having traditional/cultural or religious values to Native Americans and insure that its actions do not unduly or unnecessarily burden the pursuit of traditional religion or traditional lifeways.

(All parcels included in Attachment A are recommended to include this stipulation. Due to the sensitivity of the unique resources of the Big Smoky Valley, Native American related stipulations should be applied. Companies or individuals moving forward with lease purchases within or in close proximity to sensitive areas noted above can expect an extensive, complex, and lengthy Native American consultation process.)

Wild Horse and Burro

The use of helicopter below 500' AGL would be prohibited between March 1 and June 30 to prevent disruption during foaling period and orphan or abandoned foals.

The BLM has long standing policy about the use of aircraft during the foaling period, and is essentially restricted from using aircraft to inventory or gather wild horses during the peak foaling season. Wild horses will run when in the presence of aircraft. Mares may not wait for foals, and may abandon them, especially when foals are young.

If operations cause a water source to become unavailable to wild horses, the Authorized Officer may require a new well to be drilled or another water development to be constructed in the general area to provide adequate water for the wild horses. If the lease area is within an HMA, the Field Manager may require additional measures for the protection of wild horses such as seasonal restrictions during the peak foaling period. Additional measures could include placement of equipment away from important water sources, or placement of equipment outside of areas suitable for use or movement by wild horses.

All Parcels Within HMAs

APPENDIX C
DEFERRED PARCELS

TFO Greater Sage-grouse Parcel Deferral List

Pending the US Fish and Wildlife Services (FWS) decision to list the Greater Sage-grouse (GSG) under the Endangered Species Act, the BLM Tonopah Field Office has elected the following parcels for deferral from the oil and gas lease sale of 2014. Further degradation of Preliminary Priority Habitat (PPH) prior to FWS's decision would/could contribute to the lack of habitat protections that the FWS has deemed a contributing factor to the decline in GSG populations. Initially the parcels or portion of parcels listed below were considered Preliminary General Habitat (PGH). During site visit the following parcels were found to have habitat qualities consistent with PPH.

<u>Parcel</u>	<u>Description of Lands</u>
NV-14-07-037	All Lands
NV-14-07-038	All Lands
NV-14-07-039	All Lands
NV-14-07-069	T. 11N., R. 42E Sec. 6 Lots 10-13, 16-19 Sec. 7 Lots 1-4, E1/2 W 1/2
NV-14-07-076	All Lands
NV-14-07-087	T. 12N., R. 43E. Sec. 31 Lots 7-10, 15-18
NV-14-07-121	All Lands
NV-14-07-124	T. 11N., R. 44E. Sec. 15

The aforementioned parcels and/or portions of parcels are located within areas where Wyoming/Mountain Big sage Brush habitat, near perennial water, exists on the eastern and western benches of the Big Smokey Valley within the Tonopah Field Office. The deferred areas are primarily used as winter range for GSG, but some lekking/brood rearing and summer use is likely. Forbs and grasses are prevalent in these areas, compared to areas of lower elevation within Big Smokey Valley.

Habitat is evaluated based on distance from perennial water, sagebrush cover (height and species is considered), amount of grass and forb understory, and contiguity of seasonal habitat (i.e. summer, winter, lekking/brood rearing habitat).

Deferrals identified based on proximity of leks (<4 Miles)

<u>Parcel</u>	<u>Description of Lands</u>
NV-14-07-127	All Lands
NV-14-07-128	T. 12N., R. 44E. Sec. 02 E ½ SE ¼
NV-14-07-132	T. 12N., R. 44E. Sec. 11 E ½ Sec. 23 SE ¼
NV-14-07-135	T. 12N., R. 44E. Sec. 25 Sec. 26 NE ¼

MLFO Sage Grouse Deferral List

Pending the US Fish and Wildlife Services (FWS) decision to list the Great Sage Grouse (GSG) as a “Threatened” species under the Endangered Species Act, the BLM Mount Lewis Field Office has elected the following parcels for deferral from the oil and gas lease sale of 2014. Further degradation of PPH (Preliminary Priority Habitat) prior to FWS’s decision would/could contribute to the lack of habitat protections that the FWS has deemed a contributing factor to the decline in GSG populations. Initially the parcels or portion of parcels listed below were considered PGH (Preliminary General Habitat). During site visits the parcels were found to have habitat qualities consistent with PPH. Parcel suitability for sage-grouse was evaluated based on 1) habitat conditions (i.e., dominated by Wyoming, Mountain, or low sagebrush habitat, 2) habitat continuity with designated PPH, 3) perennial water sources and/or other riparian areas (seeps, springs, meadows) within 1 mile of the parcel, 4) active or unknown leks within 4 miles of the parcel. Site visits indicate that most of the parcels recommended for deferral are primarily used as winter range for GSG, but some brood rearing and summer use is likely.

<u>Parcel</u>	<u>Land Description</u>
NV-14-07-027	T. 17N., R. 41E. Sec. 22
NV-14-07-029	T. 17N., R. 41E. Sec. 27
NV-14-07-040	T. 17N., R 42E. Sec. 1 Lots 1-4; Sec. 1 S2N2, S2; Sec. 12 All
NV-14-07-041	All Lands
NV-14-07-042	All Lands
NV-14-07-100	All Lands
NV-14-07-101	All Lands
NV-14-07-102	T. 17N., R. 43E. Sec. 8 All Sec. 9 Lots 4, 5
NV-14-07-103	T. 18N., R. 43E. Sec. 2 All
NV-14-07-105	All Lands

NV-14-07-106	T. 18N., R. 43E. Sec. 15
NV-14-07-107	T. 18N., R. 43E. Sec. 21 All Sec. 22 NW
NV-14-07-108	T. 18N., R 43E. Sec. 28 Sec. 29
NV-14-07-109	All Lands
NV-14-07-152	Sec. 1 Lot 4 SWNW Sec. 2 Lots 1-3;

Minerals Deferrals

The following parcels lie within a locatable minerals approved Plan of Operations boundary

<u>Parcel</u>	<u>Land Description</u>
NV-14-07-047	All Lands
NV-14-07-048	All Lands
NV-14-07-049	All Lands
NV-14-07-050	All Lands
NV-14-07-061	All Lands
NV-14-07-062	All Lands
NV-14-07-064	All Lands
NV-14-07-065	All Lands
NV-14-07-066	All Lands
NV-14-07-075	All Lands
NV-14-07-077	All Lands
NV-14-07-117	All Lands
NV-14-07-118	All Lands
NV-14-07-119	All Lands
NV-14-07-125	All Lands
NV-14-07-126	All Lands

APPENDIX D

**BATTLE MOUNTAIN DISTRICT
SPECIAL STATUS SPECIES LIST**

BMDO Special Status Plant Species List

Common Name	Scientific Name	Status*
PLANTS		
Eastwood milkweed	<i>Asclepias eastwoodiana</i>	NS
Cima milkvetch	<i>Astragalus cimae</i> var. <i>cimae</i>	NS
Tonopah milkvetch	<i>Astragalus pseudiodanthus</i>	NS
Toquima milkvetch	<i>Astragalus toquimanus</i>	NS
Currant milkvetch	<i>Astragalus uncialis</i>	NS
Elko rockcress	<i>Boechera falcifructa</i>	NS
Monte Neva paintbrush	<i>Castilleja salsuginosa</i>	NS
Tecopa birdbeak	<i>Cordylanthus tecopensis</i>	NS
Goodrich biscuitroot	<i>Cymopterus goodrichii</i>	NS
Nevada willowherb	<i>Epilobium nevadense</i>	NS
Windloving buckwheat	<i>Eriogonum anemophilum</i>	NS
Beatley buckwheat	<i>Eriogonum beatleyae</i>	NS
Tiehm buckwheat	<i>Eriogonum tiehmii</i>	NS
Sand cholla	<i>Grusonia pulchella</i>	NS
Lunar Crater buckwheat	<i>Johanneshowellia crateriorum</i>	NS
Holmgren lupine	<i>Lupinus holmgrenianus</i>	NS
Low feverfew	<i>Parthenium ligulatum</i>	NS
Pahute Mesa beardtongue	<i>Penstemon pahutensis</i>	NS
Lahontan beardtongue	<i>Penstemon palmeri</i> var. <i>macranthus</i>	NS
Bashful beardtongue	<i>Penstemon pudicus</i>	NS

Tiehm beardtongue	<i>Penstemon tiehmii</i>	NS
Clarke phacelia	<i>Phacelia filiae</i>	NS
Williams combleaf	<i>Polyctenium williamsiae</i>	NS
Blaine pincushion	<i>Sclerocactus blainei</i>	NS
Tonopah pincushion	<i>Sclerocactus nyensis</i>	NS
Railroad Valley globemallow	<i>Sphaeralcea caespitosa</i> var. <i>williamsiae</i>	NS
Lone Mountain goldenhead	<i>Tonestus graniticus</i>	NS
Lone Mountain goldenhead	<i>Tonestus graniticus</i>	NS

***Status**

FE = Federal Endangered

FE = Federal Proposed
Endangered

FT = Federal Threatened

FC = Federal Candidate

NS = Nevada BLM Sensitive
Species

BMDO Special Status Wildlife Species List

Common Name	Scientific Name	Status*
BIRDS		
Northern goshawk	<i>Accipiter gentilis</i>	NS
Golden eagle	<i>Aquila chrysaetos</i>	NS
Burrowing owl	<i>Athene cunicularia</i>	NS
Ferruginous hawk	<i>Buteo regalis</i>	NS
Swainson's hawk	<i>Buteo swainsoni</i>	NS
Greater sage-grouse	<i>Centrocercus urophasianus</i>	FC, NS
Snowy plover	<i>Charadrius alexandrinus</i>	FT, NS
Yellow-billed cuckoo	<i>Coccyzus americanus</i>	FC
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	FE
Lewis' woodpecker	<i>Melanerpes lewis</i>	NS
Peregrine falcon	<i>Falco peregrinus</i>	NS
Pinyon jay	<i>Gymnorhinus cyanocephalus</i>	NS
Bald eagle	<i>Haliaeetus leucocephalus</i>	NS
Loggerhead shrike	<i>Lanius ludovicianus</i>	NS
Black rosy-finch	<i>Leucosticte atrata</i>	NS
Sage thrasher	<i>Oreoscoptes montanus</i>	NS
Brewer's sparrow	<i>Spizella breweri</i>	NS
FISH		
Railroad Valley Springfish	<i>Crenichthys nevadae</i>	FT
Hot Creek valley tui chub	<i>Gila bicolor ssp. 5</i>	NS
Railroad Valley tui chub	<i>Gila bicolor ssp. 5</i>	NS
Fish Lake Valley tui chub	<i>Gila bicolor ssp. 5</i>	NS
Lahontan cutthroat trout	<i>Oncorhynchus clarki henshawi</i>	FT
Monitor Valley speckled dace	<i>Rhinichthys osculus spp 5</i>	NS
Big Smoky Valley tui chub	<i>Gila bicolor sp. 8</i>	NS
Big Smoky Valley speckled dace	<i>Rhinichthys osculus lariversi</i>	NS
MAMMALS		
allid bat	<i>Antrozous pallidus</i>	NS
Pika	<i>Ochotona princeps</i>	NS
Pygmy rabbit	<i>Brachylagus idahoensis</i>	NS
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	NS
Big brown bat	<i>Eptesicus fuscus</i>	NS

Spotted bat	<i>Euderma maculatum</i>	NS
Silver-haired bat	<i>Lasionycteris noctivagans</i>	NS
Western red bat	<i>Lasiurus blossevillii</i>	NS
Hoary bat	<i>Lasiurus cinereus</i>	NS
California myotis	<i>Myotis californicus</i>	NS
Western small-footed myotis	<i>Myotis ciliolabrum</i>	NS
Long-eared myotis	<i>Myotis evotis</i>	NS
Little brown myotis	<i>Myotis lucifugus</i>	NS
Fringed myotis	<i>Myotis thysanodes</i>	NS
Long-legged myotis	<i>Myotis volans</i>	NS
Big free-tailed bat	<i>Nyctinomops macrotis</i>	NS
Western pipistrelle	<i>Pipistrellus Hesperus</i>	NS
Bighorn sheep	<i>Ovis Canadensis</i>	NS
Brazilian free-tailed bat	<i>Tadarida brasiliensis</i>	NS
Fish Spring pocket gopher	<i>Thomomys bottae abstrusus</i>	NS
San Antonio pocket gopher	<i>Thomomys bottae curatus</i>	NS
Dark kangaroo mouse	<i>Microdipodops megacephalus</i>	NS
Pale kangaroo mouse	<i>Microdipodops pallidus</i>	NS
AMPHIBIANS		
Amargosa toad	<i>Bufo nelson</i>	NS
Columbia spotted frog	<i>Rana luteiventris</i>	FC, NS
REPTILES		
Desert tortoise	<i>Gopherus agassizii</i>	FT, NS
MOLLUSCS		
Southern duckwater pyrg	<i>Pyrgulopsis anatine</i>	NS
Large-gland Carico pyrg	<i>Pyrgulopsis basiglans</i>	NS
Carinate Duckwater pyrg	<i>Pyrgulopsis carinata</i>	NS
Dixie Valley pyrg	<i>Pyrgulopsis dixensis</i>	NS
Oasis Valley pyrg	<i>Pyrgulopsis micrococcus</i>	NS
Vinyards and Humboldt pyrg	<i>Pyrgulopsis vinyardi</i>	NS
Wong's pyrg	<i>Pyrgulopsis wongi</i>	NS

Status*FE** = Federal Endangered**FE** = Federal Proposed
Endangered**FT** = Federal Threatened**FC** = Federal Candidate**NS** = Nevada BLM Sensitive
Species

APPENDIX E

**BATTLE MOUNTAIN DISTRICT
WILDLIFE SURVEY PROTOCOL**

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WILDLIFE SURVEY PROTOCOLS

BLM NEVADA

2013



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Photos on Cover (clockwise from top left): California floater, desert spiny lizard, long-eared owl, Weidermeyer’s admiral, black-crowned night heron, pallid bat, relict leopard frog, desert bighorn sheep, burrowing owl, greater sage-grouse, scrub jay, desert tortoise.

General Guidelines for Wildlife Surveys

Following the Guidelines

This document describes a set of survey standards to determine the occurrence of **target** wildlife species in areas of proposed activities. A goal of wildlife surveys is to gather relevant data to enable the BLM to make an informed NEPA decision regarding the relative magnitude or significance of effects to target species. See *Target Species Survey Protocols* and coordinate with wildlife biologists from the Bureau of Land Management (BLM), Nevada Department of Wildlife (NDOW), and the United States Fish and Wildlife Service (USFWS). Deviation from the survey protocols described in this document requires scientifically valid justification with reference to scientific literature. Surveys must be rigorous (see *Survey Effort*) and meet current scientific standards for the species. BLM must approve any deviation from the survey protocols described in this document before surveys are conducted. NDOW does not require permits for surveys of wildlife. Permits are required for handling. Permit applications are available at: http://www.ndow.org/uploadedFiles/ndoworg/Content/Forms_and_Resources/Application-Scientific-Collection-Possession-Banding-Permit.pdf. The protocols in this document may change or be added to as new information on appropriate species-specific surveys is developed. Alterations of this document may be made at the discretion of the BLM based on new information or site-specific conditions. Target species may be added. This document will be updated annually.

Surveyor Experience

Surveys must be conducted by qualified wildlife biologists or be supervised by someone with experience conducting field surveys. Surveyors need to be able to identify target species and their habitats, as well as any similar species they may be confused with. Surveyors may be required to have or attend protocol training for certain species (i.e., Southwestern willow flycatcher).

Survey Effort

All potential habitats for a given species must be surveyed. See *Habitat Assessment* to identify potential habitats.

- See *Target Species Survey Protocols*. Any deviation from the survey protocols provided in this document must be accepted by BLM before conducting surveys.
- Surveys must be temporally comprehensive. Conduct surveys at the appropriate time of day and season, for appropriate lengths of time, and at the appropriate frequency. Surveys for some species (e.g., migratory birds) must be conducted annually because results from one year do not necessarily carry over to the next. See *Target Species Survey Protocols* to determine acceptable survey times.
- Surveys must be spatially comprehensive. All potential habitats must be surveyed. See *Target Species Survey Protocols* to determine acceptable survey areas.
- **Note:** While the presence of a target species can be confirmed at a location, it is often difficult to confirm a species' absence without extensive survey effort. Regardless of the outcome of species surveys, the occurrence of potential habitats must still be addressed in a NEPA document and any potential effects to habitat analyzed and disclosed. Appropriate mitigation to avoid or minimize effects to habitat will be applied.

Survey Area

The survey area should be accurately identified before beginning field surveys. The survey area will generally be larger than the proposed project area because it includes any adjacent potential habitat where target species could be directly or indirectly affected by proposed activities. See *Target Species Survey Protocols* and consult BLM, NDOW, and USFWS wildlife biologists to determine acceptable survey areas.

Habitat Assessment

A habitat assessment will occur prior to surveys to identify areas of potential habitat. Surveys will focus on areas of potential habitat identified in the habitat assessment. Focused surveys are more efficient because they save time and money, and are more likely to document the occurrence of target species. **A completed Habitat Assessment Form (HAF; Appendix A) with shapefiles must be reviewed and accepted by BLM prior to beginning surveys.**

Determine Which Target Species to Survey

Before surveys begin, proponents should determine which target species have potential to occur in the proposed project area by completing the HAF (Appendix A). The HAF is a tool to evaluate the potential of target species to occur in a project area.

To complete the HAF, proponents need to review the 2012 Nevada Wildlife Action Plan (WAP; WAPT 2012). The WAP describes 22 key habitats and identifies wildlife species assemblages for each (http://www.ndow.org/Nevada_Wildlife/Conservation/Nevada_Wildlife_Action_Plan/). The project area should be compared to the WAP key habitats GIS to determine which key habitats occur in the project area.

Proponents also need to review current NDOW, USFWS, and Nevada Natural Heritage Program (NNHP) wildlife data, and any other current spatial data such as: 1) state- and regional-level data and maps identifying wildlife corridors and crucial habitat (Western Wildlife Crucial Habitat Assessment Tool [CHAT] per BLM IM 2012-039), 2) cave data, 3) mine data, and 4) springs/stream data. Coordinate with NDOW for known historical raptor nests. Proponents can obtain electronic information on federally listed (threatened and endangered) species by referring to the USFWS Information, Planning, and Conservation System (IPaC; <http://ecos.fws.gov/ipac>). The information provided by IPaC is generated by the USFWS. The USFWS will continue to process hard copy requests for species lists if a proponent chooses not to use IPaC. **A completed HAF, along with all spatial data and other information used to complete it, must be reviewed and accepted by BLM prior to beginning surveys. Any deviation from the survey protocols provided in this document must be accepted by BLM before conducting surveys. If any deviation is to occur, include with the HAF a thorough description of the protocols to be used.** As stated above, surveys must be rigorous (see *Survey Effort*) and meet current scientific standards for target species. Justify protocols by referencing scientific literature.

Target species surveys will be done for the species documented on the HAF as having potential to occur in the project area. **If a proponent chooses not to do target species surveys or surveys aren't feasible, then species are assumed present in potential habitat and appropriate mitigation will be applied.**

Survey Report

A Survey Report must be reviewed and accepted by BLM prior to beginning project activities. See the Wildlife Survey Report Template (Appendix B) to ensure that reporting standards are met. All hard copy data sheets and GIS data must be included. The Survey Report will not be reviewed without this data.

If there was deviation from the survey protocols described in this document, thoroughly describe the protocols used. These protocols must have been previously accepted by BLM before conducting surveys.

Include the completed HAF. Provide a detailed map showing UTM coordinates for the project area, survey area, and specific survey route and locations. Surveyors will use GPS units with tracking capabilities to record all surveys. Provide information regarding the survey area covered as well as failed to cover. Discuss significant problems and obstacles that may have interfered with surveys (e.g., weather). Report and map the locations where target species or their sign were observed.

Target Species Survey Protocols

Birds

The need to conduct surveys to determine the presence/absence of target bird species is primarily driven by federal legislation including the Migratory Bird Treaty Act (MBTA), the Bald and Golden Eagle Protection Act (BGEPA), and the Endangered Species Act (ESA). Disturbance of breeding birds at nests, nests, or nestlings during the nesting season risks violation of the MBTA. Actions resulting in the mortality of birds or take of known nest sites are violations of the MBTA. The BGEPA includes “disturb” in its definition of “take.” Disturb means to agitate or bother an eagle to a degree that causes, or is likely to cause, injury, a decrease in productivity, or nest abandonment by substantially interfering with normal breeding, feeding, or sheltering behavior.

Migratory Birds

Regulatory Setting – In 2001, President Clinton signed Executive Order (EO) 13186 placing emphasis on the conservation and management of migratory birds. The BLM management for migratory birds is based on Information Bulletin (IB) 2010-110 which transmits the Memorandum of Understanding (MOU) between the BLM and USFWS concerning conservation of migratory bird populations. For MOU implementation, BLM Priority Migratory Birds are those that are listed in the periodic USFWS report Birds of Conservation Concern and game birds below desired condition (GBBDC) as identified by the USFWS Division of Migratory Bird Management.

Clearance Surveys – Clearance surveys will be conducted when a proposed activity would occur during the nesting season and potential impacts to nesting birds are not mitigated by applying seasonal restrictions (Table 1). Clearance surveys are appropriate for those proposed activities where activity disturbance ends with activity completion and effects to migratory birds are not ongoing. If effects to birds from the proposed activity are expected to continue to occur after activity completion, then additional surveys may be required (see *Pre- and Post-Activity Surveys*).

Table 1 provides the dates when clearance surveys are to occur. Clearance surveys are to occur in the project area including a 300-ft buffer around the project area unless the BLM or FWS recommends a different distance. Surveys must be conducted a maximum of 2 weeks prior to disturbance. These

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surveys are then adequate for a maximum of 2 weeks. Additional surveys will need to be repeated after 2 weeks have elapsed if proposed activities have not been initiated. If breeding behavior or nests are observed, proposed activities should not occur until after young have fledged or nests are abandoned unless a 300-ft buffer can be provided around nests. Buffered nests need to be tied to contiguous habitat and not left as islands within project areas.

Table 1. Avian seasonal periods by BLM District Office. Disturbance periods equate to the nesting seasons; this is the time when disturbance should be avoided to prevent risking violation of the MBTA. Survey periods occur during the portion of the nesting seasons when birds are most likely to be observed at nests.

District	Seasonal Periods	Migratory Birds	Raptors (including Bald and Golden Eagles)	Burrowing Owl
Battle Mountain	Disturbance period	April 1 - July 31	March 1 - July 31	April 1 - July 31
	Survey period			
Carson City	Disturbance period	May 15 - July 15	March 1 - August 15	March 1 - August 15
	Survey period			
Elko	Disturbance period	April 1 - July 30	Dec 1 - Sept 30	March 1 - August 31
	Survey period			
Ely	Disturbance period	April 1 - July 31	March 1 - July 31	April 1 - July 31
	Survey period			
Southern Nevada	Disturbance period	March 1 - August 1	January 1 - August 31	March 1 - July 31
	Survey period			
Winnemucca	Disturbance period	March 1 - August 31	March 1 - August 31	March 1 - August 31
	Survey period			

Pre- and Post-Activity Surveys – Pre- and post-activity surveys may be required for target species when data is needed to adequately evaluate expected ongoing (long-term) negative effects from proposed activities. If proposed activities are expected to have ongoing (long-term) negative effects, then multiple years of pre- and post-activity surveys may be required. A Bird and Bat Conservation Strategy (BBCS) may be required (see *BLM and/or USFWS Direction*). **Coordinate with BLM and USFWS to determine whether these surveys and a BBCS are needed for the proposed activity.**

Surveys are to occur in the project area including a 300-ft buffer unless the FWS recommends a different buffer distance. For wind energy, surveys are to occur in a 1-mile buffer (see *BLM and/or USFWS Direction*). A variety of survey methods are available (Emlen strip, belt transect, point counts, area

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searches, spot mapping, etc.). Selection of transects or plots will often depend on the size of the area to be surveyed, local topography and biotic features. Some BLM Districts may choose to provide contractors with survey protocols and other Districts may have the contractors develop and submit protocols, therefore it is important to contact the local BLM District early in the process and remain in contact throughout the process.

No physical marking of nests should occur (only UTM coordinates) because predatory birds and mammals may associate flagging or other markers with nests.

Determine what time of year surveys should occur based on the seasonal presence of species in Nevada. Coordinate with BLM, NDOW, FWS, and Great Basin Bird Observatory (GBBO), and refer to the Nevada Comprehensive Bird Conservation Plan (GBBO 2010) to determine seasonal presence. Surveys during the breeding/migration seasons should span the seasons to capture both early and late breeders/migrants as well as cover the height of the breeding/migration season. Nevada BLM District Offices have different nesting seasons for migratory birds (see Table 1). In sagebrush habitat, many important bird species initiate breeding in April and continue through July. However, some species that nest in riparian areas, deciduous trees, and forested areas do not begin breeding activity until mid-May. Surveys should be conducted a minimum of three times per season to adequately span the entire breeding/migration period. Surveys are to be conducted for at least two consecutive years immediately prior to and immediately following project implementation.

Conduct surveys during periods of calm and dry weather. Birds may delay breeding during extended periods of precipitation; windy and wet weather can interfere with detection capabilities.

BLM and/or USFWS Direction

USFWS – For ground-disturbing activities, the USFWS recommends that proponents develop a Bird and Bat Conservation Strategy (BBCS; previously known as an Avian Protection Plan [APP]), which indicates a “good faith” effort to conserve migratory birds and address the MBTA. A BBCS is not necessary for activities that do not involve any new ground disturbance (i.e., activities restricted to existing roads and trails). Livestock grazing is not considered a ground-disturbing activity. A BBCS is described in the USFWS Land-Based Wind Energy Guidelines (USFWS 2012).

For wind energy, the USFWS Land-Based Wind Energy Guidelines (USFWS 2012) describe a process by which wind energy developers can collect and analyze information that could lead to a programmatic permit to authorize incidental take of eagles at wind energy facilities. The Guidelines provide recommendations for the development of ECPs to support issuance of take permits for wind facilities.

For utility and energy facilities, the USFWS has developed a special collection permit for migratory bird carcass collection. The USFWS requires this salvage permit to collect carcasses as part of monitoring post-construction mortality. The company or operating entity applies and holds the permit, not the BLM.

BLM – Per BLM IM NV-2010-063 for renewable energy, the BLM is required to have concurrence from the USFWS for an Avian Protection Plan (APP; now known as a Bird and Bat Conservation

Strategy [BBCS]) if there are listed species and the USFWS makes it a condition of the biological opinion.

Per BLM IM NV-2010-024 for wildlife monitoring protocols **for wind energy development**, pre- and post- construction surveys should occur within the project area including a 1-mile buffer. Spring (March-May) and fall (September-November) migration surveys should be conducted. Breeding bird surveys should be conducted using the GBBO protocol.

Bald and Golden Eagles

The USFWS has guidance for proposed activities that have the potential to impact bald (*Haliaeetus leucocephalus*) or golden (*Aquila chrysaetos*) eagles or their habitat (Pagel et al. 2010, USFWS 2011, USFWS 2012). Generally, the steps in these guidelines include: 1) determining if an activity has the potential to disturb breeding behavior, 2) surveying for nests within a maximum 10-mile radius of the activity footprint (see *Raptors* for survey protocol), and 3) developing an Eagle Conservation Plan (ECP) in cases where eagles and/or their nests are likely to be impacted. **Coordinate with the USFWS and BLM prior to beginning any surveys.** Depending on the proposed project, this process may be modified. The 10-mile survey buffer may be reduced based on the specific proposed project and/or topography and the presence of other physical barriers. An ECP may not be developed. **Coordinate with the BLM and USFWS on the appropriate survey buffer and the need to develop an ECP.**

BLM and/or USFWS Direction

USFWS – For ground-disturbing activities, the USFWS recommends that proponents develop an ECP. **An ECP is not necessary for activities that do not involve any new ground disturbance (i.e., activities restricted to existing roads and trails). Livestock grazing is not considered a ground-disturbing activity.** An ECP is described in the USFWS Land-Based Wind Energy Guidelines (USFWS 2012) and the USFWS Eagle Conservation Plan Guidance (USFWS 2013).

For wind energy, the USFWS Land-Based Wind Energy Guidelines (WEG; USFWS 2012) provide a broad overview of wildlife considerations for siting and operating wind energy facilities, but does not address the in-depth guidance needed for the specific legal protections afforded to bald and golden eagles. The Eagle Conservation Plan Guidance (ECPG; USFWS 2013) fills this gap and supplements the WEG. The ECPG provides guidance for conserving bald and golden eagles in the course of siting, constructing, and operating wind energy facilities.

Like the WEG, the ECPG calls for wind project developers to take a staged approach to siting new projects. Both call for preliminary landscape-level assessments to assess potential wildlife interactions and proceed to site-specific surveys and risk assessments prior to construction. They also call for monitoring project operations and reporting eagle fatalities to the Service and state and tribal wildlife agencies.

Compliance with the ECPG is voluntary, but the Service believes that following the guidance will help project operators in complying with regulatory requirements and avoiding the unintentional “take” of eagles at wind energy facilities, and will also assist the wind energy industry in providing the biological data needed to support permit applications for facilities that may pose a risk to eagles.

For utility and energy facilities, the USFWS has developed a special collection permit for migratory bird carcass collection. The USFWS requires this salvage permit to collect carcasses as part of monitoring post-construction mortality. The company or operating entity applies and holds the permit, not the BLM.

BLM – Per BLM IMs NV-2010-063 and NV-2010-156 **for golden eagles and renewable energy**, it is critical to determine if breeding territories and nests, feeding areas, or roosts are present in the analysis area to determine whether a proposed action has the potential to impact eagles or their habitat. The analysis area should be determined on a project-specific basis with FWS. **An Avian Protection Plan (APP; now known as an ECP) will be required by the BLM as a condition of the right-of-way grant if the proposed project has the potential to impact golden eagles or their habitat.**

Burrowing Owl

Burrowing owl (*Athene cunicularia*) habitat can be found in annual and perennial grasslands and scrublands characterized by low-growing vegetation (Conway and Simon 2003). Suitable owl habitat may also include trees and shrubs if the canopy covers less than 30 percent of the ground surface. Burrows of fossorial mammals such as ground squirrels or badgers are typically used, but man-made structures such as cement culverts can be an essential component of burrowing owl habitat. Burrows provide protection, shelter, and nest sites.

Clearance Surveys – Clearance surveys will be conducted when the proposed activity would occur during the nesting season and potential impacts to nesting owls are not mitigated by applying seasonal restrictions (Table 1). Clearance surveys are appropriate for those proposed activities where activity disturbance ends with activity completion and effects to burrowing owls are not ongoing. If effects to owls from the proposed activity are expected to continue to occur after activity completion, then additional surveys may be required (see *Pre- and Post-Activity Surveys*).

Table 1 provides the dates when clearance surveys are to occur. Surveys must be conducted a maximum of 2 weeks prior to disturbance. These surveys are then adequate for a maximum of 2 weeks. Additional surveys will need to be repeated after 2 weeks have elapsed if proposed activities have not been initiated.

Pre- and Post-Activity Surveys – Pre- and post-activity surveys will be conducted when data is needed to adequately evaluate expected ongoing (long-term) negative effects from proposed activities. If proposed activities are expected to have ongoing (long-term) negative effects, then multiple years of pre- and post-activity surveys may be required. **Coordinate with BLM and USFWS to determine whether these surveys are needed for the proposed activity.** **Note:** Surveys may need to be done year-round if migratory status is not known. Burrowing owls in more northern areas will migrate and spend the fall and winter in southern Nevada. Burrows may be occupied by owls throughout the year in southern Nevada.

Survey Methodology – A survey for burrows and owls should be conducted by walking through suitable habitat over the entire project area including a 150-m buffer (USFWS 2003; California Report on Burrowing Owl Mitigation 2012). This buffer zone is included to account for adjacent burrows and foraging habitat outside of the project area and impacts from such factors as noise and vibration due to heavy equipment.

Survey transects should be spaced to allow for 100 percent visual coverage of the ground surface while walking transects. Typically, the distance between transect lines should be no more than 30-m. To efficiently survey large project areas (over 100 acres), 2 or more surveyors should conduct concurrent surveys.

Burrowing owls are active throughout the day, however peaks in activity in the morning and evening make these the best times for conducting surveys (Conway and Simon 2003; Arizona Burrowing Owl Working Group 2007).

Call-broadcast methods should be incorporated into surveys to increase the likelihood of detecting burrowing owls (see Conway and Simon 2003 or Arizona Burrowing Owl Working Group 2007 for appropriate methods).

Raptors

See separate sections for Bald and Golden Eagles, and Burrowing Owl.

Raptor nest surveys will be conducted when a proposed activity would occur during the nesting season and potential impacts to nesting raptors are not mitigated by applying seasonal restrictions (Table 1) or the proposed activity occurs outside the nesting season, but there may be negative effects that impact raptors when they return to their nest(s) the following nesting season. If breeding behavior or nests are observed during surveys, proposed activities should not occur until after young have fledged or nests are abandoned unless a buffer can be provided around nests.

Nest Survey Methodology – Two surveys should be conducted:

- 1) First survey – conduct aerial or ground survey to determine if nests are present and occupied, and
- 2) Second survey – conduct a follow-up ground search to confirm species identification and determine nest occupancy and success. **If the second survey is not conducted, any nests found during the first survey are assumed active for the year and appropriate mitigation will be applied.**

Aerial searches are most useful for large raptors with prominent nests. Ground surveys are more useful for smaller, less prominent raptors. **NDOW has a raptor nest site protocol and survey form (primarily for aerial surveys) that is available upon request.**

The following are important characteristics of adequate nest surveys:

- Surveys will be done whenever nesting habitat is present within or adjacent to the project area. Nesting habitat includes rock outcrops, cliffs, ridges, knolls, stream banks, conifers, aspen groves, riparian woodlands, and man-made structures (e.g., power lines and buildings).
- Table 1 provides the dates when nest surveys are to occur.
- Generally, surveys will be conducted in the project area including within a 1-mile buffer of the proposed activity. This survey buffer may be reduced based on the specific proposed project and/or topography and the presence of other physical barriers. Coordinate with the BLM and USFWS on the appropriate survey buffer. If active nests are found, disturbance will not occur until after young have fledged or nests are abandoned unless a 1-mile buffer (or other appropriate buffer) can be provided around nests. For wind energy, surveys are to occur in a 1-mile buffer (see *BLM and/or USFWS Direction*).

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- At least two surveys per nesting season prior to initiation of the proposed activity. One month of elapsed time is required between surveys. If the second survey is not conducted, any nests found during the first survey are assumed active for the year and appropriate mitigation will be applied.
- Optimum weather conditions for surveys are clear, calm days. Nests will not be visited during adverse weather conditions (e.g., extreme hot or cold, rainy or snowy days, or high winds).
- Playback of calls can be a useful survey tool. Ground surveys should include broadcast calls of conspecific vocalizations.
- Aerial surveys of deciduous trees (e.g., aspen and cottonwoods) should be conducted as early as possible in the spring prior to leaf-out.
- Aerial surveys should be flown at slow speeds (30-40 knots; USFWS Land-Based Wind Energy Guidelines, 2012).
- During ground surveys, extreme caution should be given to make sure that breeding/nesting/fledging raptors are not disturbed. Monitoring will be conducted from the farthest distance possible that allows the surveyor to determine the nest activity using a spotting scope.
- Nest visits should be as brief as possible.
- Photographs of the nests will be taken to illustrate nest shape, condition, and substrate.
- Status of nesting birds will be recorded. Note whether there are eggs or young in the nest, whether fledged young were observed, or if the adult is incubating/brooding.
- Data will be summarized for project reports in a table format. Tables should include species of raptor, nesting stage, nest type (stick, scrape, or cavity), nest substrate (species of tree, cliff, ground), location (UTM coordinates) and other characteristics (e.g., nest height, nesting material).

Pre- and Post-Activity Surveys – Pre- and post-activity surveys may be required when data is needed to adequately evaluate expected ongoing (long-term) negative effects from proposed activities. If proposed activities are expected to have ongoing (long-term) negative effects, then multiple years of pre- and post-activity surveys may be required. A Bird and Bat Conservation Strategy (BBCS) may be required (see *BLM and/or USFWS Direction*). **Coordinate with BLM and USFWS to determine whether these surveys and a BBCS are needed for the proposed activity.**

BLM and/or USFWS Direction

USFWS – For ground-disturbing activities, the USFWS recommends that proponents develop a Bird and Bat Conservation Strategy (BBCS; previously known as an Avian Protection Plan [APP]), which indicates a “good faith” effort to conserve migratory birds and address the MBTA. A BBCS is not necessary for activities that do not involve any new ground disturbance (i.e., activities restricted to existing roads and trails). Livestock grazing is not considered a ground-disturbing activity. A BBCS is described in the USFWS Land-Based Wind Energy Guidelines (USFWS 2012).

For wind energy, the USFWS Land-Based Wind Energy Guidelines (USFWS 2012) describe a process by which wind energy developers can collect and analyze information that could lead to a programmatic permit to authorize incidental take of eagles at wind energy facilities. The Guidelines provide recommendations for the development of ECPs to support issuance of take permits for wind facilities.

For utility and energy facilities, the USFWS has developed a special collection permit for migratory bird carcass collection. The USFWS requires this salvage permit to collect carcasses as part of monitoring post-construction mortality. The company or operating entity applies and holds the permit, not the BLM.

BLM – Per BLM IM NV-2010-063 **for renewable energy**, the BLM is required to have concurrence from the USFWS for an Avian Protection Plan (APP; now known as a Bird and Bat Conservation Strategy [BBCS]) if there are listed species and the USFWS makes it a condition of the biological opinion.

Per BLM IM NV-2010-024 for wildlife monitoring protocols **for wind energy development**, raptor nest surveys should occur if their habitat exists within the project area including a 1-mile buffer. Spring and fall migration surveys for raptors should be conducted using Bildstein et al. (2007).

Greater Sage-Grouse

Regulatory Setting – BLM IMs 2012-044 and 2012-043 provide direction on managing greater sage-grouse (*Centrocercus urophasianus*) preliminary priority habitat (PPH) and preliminary general habitat (PGH). Proponents should review these IMs. Per IM 2012-043, BLM Field Offices, in coordination with NDOW, must determine that proposed projects, with mitigation measures, cumulatively maintain or enhance priority habitat (PPH). For PGH, BLM must reduce and mitigate adverse effects on sage-grouse and its habitat. If a project area is in PPH or PGH, coordinate with BLM and NDOW to determine if the following surveys are needed.

Lek Surveys – Coordinate with NDOW to determine if lek surveys are necessary. Surveys may be required for ground-disturbing activities or activities that occur during the breeding season (March 1 – May 15) within 4 miles of active and unknown leks, as defined by NDOW.

- **Active leks** – A lek that had two or more birds present during at least one of three or more visitations in a given breeding season. Additionally, the lek must have had two or more birds present during at least two years in a five-year period.
- **Unknown leks** – A lek that may not have had birds present during the last visitation, but could be considered viable due to the presence of sign at the lek. This designation could be especially useful when weather conditions or observer arrival at a lek could be considered unsuitable to observe strutting behavior. The presence of a single strutting male would invoke the classification of the lek as unknown. A lek that was active in the previous year, but was inadequately sampled (as stated above) in the current year with no birds observed could also be classified as unknown.

Searches for New Leks – Searches may be required for ground-disturbing activities. Lek searches should be conducted within 4 miles of the project area. Project areas should be searched from the ground or air (helicopters or fixed-wing aircraft can be used) from March 1 – May 15. If aerial searches are conducted, the search area should be flown on north-south transects with lines a maximum of 1km apart. Transects should be flown 100 to 150m above ground level. Special attention should be paid to old lakebeds, stock-watering areas, and other relatively open sites largely surrounded by sagebrush of 15 to 25% cover. Conduct ground searches by driving along roads and stopping every 1km to listen for displaying grouse. On a calm morning, breeding sage-grouse may be heard at a distance of 1.5km.

Noise Monitoring – Recent studies suggest that chronic anthropogenic noise contributes to chronic stress and declines in sage-grouse populations (Blickley et al. 2012a; Blickley et al. 2012b). The primary mechanism causing population reductions is not clear. However, it is hypothesized that exposure to anthropogenic noise at leks could have indirect or direct impacts on male fitness by reducing lek attendance, masking important vocalizations, or increasing their susceptibility to predators.

The potential of project-related noise to impact sage-grouse should be evaluated if there is an active or unknown lek within 4 miles of the project boundary, and if noise levels from project activities are likely to exceed 10dB (A weighted) above ambient noise levels during March 1 – May 15. This evaluation involves ambient noise collection at the lek and modeling potential noise at an active lek(s) from project activities to determine whether noise is likely to be above the minimum disturbance threshold (10dB). The minimum disturbance threshold may change as new information becomes available concerning the impacts of noise on sage-grouse.

Ambient acoustic data should be collected during the breeding season (March 1 to May 15) for a minimum of 7 consecutive days from 1 hour before sunrise until late morning when sage-grouse are most likely to be at leks. Noise data should be collected 1.5 ft. above ground level at the edge of each lek closest to the potential noise source. Acoustic equipment should be capable of collecting critical metrics including L_{50} , L_{90} , L_{10} , L_{eq} and L_{max} . Sound pressure levels should be recorded at intervals no greater than five (5) seconds and recorded at 1/3 octave band intervals across the audible spectrum. Since atmospheric conditions are key noise modeling inputs, weather conditions should also be measured at data collection sites (i.e., temperature, humidity and wind in real time with the sound pressure level). Camouflage monitoring set-ups so that wildlife are not deterred from or artificially attracted to the area.

To determine baseline ambient levels, A-weight L_{90} should be used. As a measure of median noise exposure, A-weighted L_{50} should be used.

PaSoftware is available that estimates noise levels from industrial and vehicle sources. Currently, the only BLM requirement is that non-proprietary noise modeling software be used for impact analysis. This provides an opportunity for modeling replication by a third party. Noise modeling software should factor in the effects from weather (primarily wind), atmosphere (temperature, humidity), substrate type (rock, water, and bare earth), vegetation, and topography. Noise modeling software must also be capable of robust outputs including a broad spectrum of frequencies represented, several weightings (A, C, flat) and L_{eq} .

Southwestern Willow Flycatcher

The southwestern willow flycatcher (SWWF; *Empidonax traillii extimus*) was federally listed as Endangered in 1995 (USFWS 1995). The main cause of population decline is related to riparian habitat degradation. In Nevada, potential populations are relegated primarily to the extreme southern portions of the state along the Muddy and Virgin Rivers, Meadow Valley Wash, and Pahrnagat Valley, as well as along the Colorado River (NDOW, pers. comm.).

Coordinate with the USFWS prior to conducting surveys. Permits from the USFWS are required before beginning surveys. Permits require attendance at USFWS-approved protocol training. Instructions for completing SWWF survey reports can be found at the USGS Colorado Plateau web site (<http://sbsc.wr.usgs.gov/cprs/research/projects/swwf/cprsmain.asp>).

Yellow-Billed Cuckoo

The yellow-billed cuckoo (*Coccyzus americanus*; the Western U.S. Distinct population segment) is a Candidate for listing under the ESA. In western North America, yellow-billed cuckoo populations have

declined primarily as a result of riparian habitat loss and degradation. In Nevada, yellow-billed cuckoos are rare. Few recent documented records of this species were recorded in *The Atlas of the Breeding Birds of Nevada* (Floyd et al. 2007), although it is possible that this secretive bird breeds in suitable riparian woodlands throughout the state.

Surveys for yellow-billed cuckoos should be conducted in potential habitat. Preferred nesting habitat is characterized by riparian woodlands with an understory of dense, scrubby vegetation (Wiggins 2005). Coordinate with NDOW and USFWS prior to conducting surveys. Instructions for completing surveys are described by Halterman et al. (2009).

Small Mammals

Bats

Bats roost and hibernate in cliffs, rock faces, talus slopes, caves, mine tunnels, adits, buildings, abandoned structures, tree branches, and cavities.

Understand decontamination protocol for white-nose syndrome prior to site entry or handling of bats (see *BLM Direction*).

Habitat Surveys – Any buildings/structures, mine workings, or caves identified from spatial data during completion of the HAF should be externally surveyed to assess condition and determine habitat potential for bats if a proposed project involves any disturbance to these features or bats using these features. All features will be examined, photographed, and GPS locations will be obtained. Proposed activities should avoid any features with bats or the potential for bats. If proposed activities would occur within ¼ mile of features with bats or the potential for bats, then more extensive bat surveys may be required to identify species, population size, season of use, et cetera.

Bat Surveys – Survey methods include live capture with mist nets, acoustic surveys, and techniques using night vision equipment or infrared cameras. Before undertaking a specific survey approach, review standard bat survey protocols outlined in The Revised Nevada Bat Conservation Plan (Bradley et al. 2006) and coordinate with BLM and NDOW. Biological consultants should consider and be prepared to defend their study design concerning the following issues in particular:

- Expertise of survey personnel
- Location of surveys
- Timing, length (i.e., number of hours spent), and frequency of surveys

Permits are required for handling. Permit applications are available at: http://www.ndow.org/uploadedFiles/ndoworg/Content/Forms_and_Resources/Application-Scientific-Collection-Possession-Banding-Permit.pdf.

BLM Direction – Per IM 2010-024 for wildlife monitoring protocols **for wind energy development**, bat surveys of caverniculous roosting habitat (i.e., mines and caves) is necessary to identify maternity use and/or hibernacula use. Bat capture surveys (i.e., mist nets) at water sources and roosting habitats within/adjacent to the project area would be necessary to supplement long-term acoustic monitoring stations to determine species richness and diversity of the area, as well as insight into seasonal use activity patterns. Surveys should occur within the project area including a 1-mile buffer.

Per BLM IM NV-2010-063 **for renewable energy facilities**, development of an Avian and Bat Protection Plan (ABPP; now known as a Bird and Bat Conservation Strategy [BBCS]) may be developed for wind project at the discretion of the applicant, unless a candidate, threatened, or endangered bat may be affected. In this situation, an ABPP should be prepared and may be required as a condition of the Right-of-Way. A BBCS is described in the USFWS Land-Based Wind Energy Guidelines (USFWS 2012).

Per BLM IM 2010-181 **for white-nose syndrome (WNS)**, BLM offices will implement BLM-WNS containment and decontamination procedures to all site entries. The BLM states and district offices apply containment and decontamination procedures for all caves and abandoned mine feature entries. Also refer to the USFWS White-Nose Syndrome Decontamination Protocol available at: <http://whitenosesyndrome.org/topics/decontamination>.

Pygmy Rabbit

Pygmy rabbits (*Brachylagus idahoensis*) are sagebrush obligates that use sagebrush for food and shelter throughout the year. While the species occurs throughout most of the Great Basin, it exhibits extremely specialized habitat requirements, and thus occupies only a small subset of locations within this range. Pygmy rabbits occur in areas within their broader distribution where there are tall, dense big sagebrush stands and soils sufficiently deep and loose to allow burrowing. Surveys should be focused within these habitat types. Suitable habitat can be recognized by distinctly taller patches of mature sagebrush, which are indicative of deeper soils. Burrows and pellets are excellent indicators of the occurrence of pygmy rabbits (Himes and Drohan 2007). Pygmy rabbits spend the majority of their time close to their burrows resulting in high concentrations of pellets around burrows. Pygmy rabbits are active all year above ground therefore surveys may be conducted at any time of year.

Existing data on locations of known occurrence should be used to screen areas for the presence of suitable habitat. Coordinate with BLM and NDOW to determine whether surveys are needed.

BLM Direction – IM NV-2003-064 directs all field offices **to survey for pygmy rabbits** in relation to all proposed ground disturbing activities, including issuance of rights-of-ways in suitable habitat. Accepted methods for surveys are outlined in a BLM document (Ulmschneider 2008). Recommendations include:

- Surveys will include searches for pygmy rabbits, burrows and pellets.
- In patchy habitat, walk in loops, triangles or a generally meandering line (avoid edges).
- In uniform or extensive patches, walk in straight lines or in a spiral. Spiral transects should start at the center of a search area and spiral out while gradually increasing the diameter of the circle.
- Burrow systems can be widely spaced, and searches should be conducted carefully and methodically before the absence of pygmy rabbits can be confidently determined.
- Record rabbit, burrow and pellet locations in UTM's.

Rodents, Insectivores

Several rodents and insectivores are listed as Nevada BLM sensitive species and could warrant surveys for ground-disturbing activities. Coordinate with BLM and NDOW biologists to determine whether surveys are needed.

To determine presence/absence of these small mammals within a project area, review Manley et al. (2006). The primary method recommended by Manley et al. entails the placing of Sherman live traps along eight transects, each 200m in length, arrayed in a hexagonal pattern. It is recommended that traps are 20m apart and within 2m of habitat features such as logs, burrows, the base of trees, and runways. Trapping should occur over three consecutive days, as a pilot study conducted by Manley et al. (2002) determined that the largest gains for the detection of small mammals occurred within the first three days of trapping.

As stated in Manley et al. (2006), transects are the preferred method, since Pearson and Ruggiero (2003), Read et al. (1988), and Steele et al. (1984) documented more effective detection when using transects over a trapping grid with similar effort. Using a large hexagonal pattern increases the probability of intersecting a variety of habitats/microhabitats containing different species when compared to a trapping grid (Pearson and Ruggiero 2003). Though setting Sherman live traps along transects in a hexagonal pattern is the preferred method, coordinate with BLM and NDOW biologists to determine the adequate transect lengths, spacing between traps, and duration of trapping to determine presence/absence of rodents and insectivores within a project area.

Ungulates

Bighorn Sheep

Three subspecies of bighorn sheep (*Ovis canadensis*) occur in Nevada: Rocky Mountain (*O. c. canadensis*), desert (*O. c. nelsoni*), and California (*O. c. californiana*):

- California bighorn sheep occupy areas north of Interstate 80 in the central and western portions of the state.
- Rocky Mountain bighorn sheep occupy portions of Elko and White Pine counties.
- Desert bighorn sheep occur throughout Nevada south of Interstate 80.

Bighorn sheep habitat is characterized by rugged terrain that includes canyons, gulches, talus cliffs, steep slopes, mountaintops, and river benches.

For projects in occupied bighorn sheep habitat (based on NDOW GIS data), coordinate with BLM and NDOW to determine if survey data on seasonal use and movement corridors within a project area is needed. Field determinations of bighorn sheep presence within a project area should be accomplished through photographs of animals or their sign (e.g. scat, tracks).

For projects that have the potential to physically disturb bighorn sheep (i.e., SRP events), coordinate with NDOW to implement appropriate seasonal restrictions or survey data may be required to show they are not present in the project area during project implementation.

Elk

Elk (*Cervus elaphus*) populations occur in the central, southern, eastern, and northeastern portions of Nevada. More specifically, elk will generally occupy mountain forests and meadows during the summer months and foothills and valley grasslands during the winter months. Also, riparian areas are crucial during the calving period, which generally occurs from mid-May to mid-June.

Elk presence/absence, as well as the identification of seasonal use and movement corridors within a project area if present, should be determined through contact with NDOW and field observations. Field determinations of elk presence within a project area should be accomplished through the noting of sign (e.g. scat, tracks, or foraging) during surveys for other species.

Mule Deer

Although mule deer (*Odocoileus hemionus*) occur in a variety of ecosystems throughout Nevada, there are many similarities in diet and habitat composition among subpopulations. Mule deer are secondary successional species that often prefer vegetation communities resulting from some type of disturbance (except areas dominated by cheatgrass; Wasley 2004). High quality habitat is generally characterized by areas of thick brush or trees that provide thermal and protective cover interspersed with more open shrub or grasslands that provide forage.

For projects in mule deer habitat (based on NDOW GIS data), coordinate with BLM and NDOW to determine if survey data on seasonal use and movement corridors within a project area is needed. Field observations of mule deer presence within a project area should be verified via photographs of animals or their sign (e.g. scat, tracks).

Pronghorn Antelope

Pronghorn antelope (*Antilocapra americana*) occur throughout Nevada, with the exception being the southernmost part of the state. Habitat selection is influenced by the vegetative height, cover, and community type, as well as the elevation, topography, and distance to water. Vegetation height is important, as pronghorn prefer areas with lower vegetation to provide long-range visibility of predators.

For projects in pronghorn habitat (based on NDOW GIS data), coordinate with BLM and NDOW to determine if survey data on seasonal use and movement corridors within a project area is needed. Field determinations of pronghorn presence within a project area should be accomplished through photographs of animals or their sign (e.g. scat, tracks).

Endemic Fish

Endemic fish populations throughout Nevada are surveyed and monitored by NDOW. If the project area contains perennial water sources with potential fish habitat, consult with NDOW and the BLM to determine if fish populations are known to occur, and if surveys are required to determine presence/absence. NDOW will determine the appropriate fish survey protocols.

Reptiles

Banded Gila Monster

The banded Gila monster (*Heloderma suspectum cinctum*) is the subspecies that occurs in Clark, Lincoln, and Nye counties of Nevada. The species is primarily found below 1,525 m (5,000 ft) in elevation in desert wash, spring and riparian areas that occur in rocky landscapes of upland desert scrub habitats. Occasionally, Gila monsters will use gentler terrain of alluvial fans (bajadas).

Contact NDOW for specific directions and survey protocols for determining Gila monster presence/absence in a project area. NDOW has a gila monster handling protocol available

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at: http://www.ndow.org/uploadedFiles/ndoworg/Content/public_documents/Nevada_Wildlife/Gila%20Monster%20Status,%20Identification%20and%20Reporting%20Protocol%20for%20Observations.pdf.

A State Special Purpose Permit is required for individuals to handle Gila monsters.

Desert Tortoise

The Mojave population of the desert tortoise (*Gopherus agassizii*) was listed by the USFWS as threatened in 1990. Proposed actions within the range of the desert tortoise fall under purview of the ESA. For detailed information on the ecology of the tortoise or protocols that have been developed for presence/absence surveys for proposed projects within the range of the desert tortoise, see USFWS (2010). Consult the Desert Tortoise Recovery Office for information (http://www.fws.gov/nevada/desert_tortoise/dtro/).

Amphibians

Several amphibian species, including 6 Nevada sensitive species (Appendix A), have the potential to occur on BLM land throughout Nevada (see NNHP for a list of Nevada amphibian species). Two of these species are federal candidate species (Columbia spotted frog and relict leopard frog) and 1 is proposed as endangered (mountain yellow-legged frog; see Appendix A). Coordinate with BLM and NDOW biologists to determine whether surveys for amphibians are needed.

Columbia Spotted Frog

The Columbia spotted frog Great Basin distinct population segment (DPS) is listed as a Candidate species by the USFWS. In Nevada, Columbia spotted frogs are currently found in Nye, Elko and Eureka counties, typically at elevations between 5600 and 8700 feet. Based on geography, Columbia spotted frogs in Nevada can be further subdivided into three well-defined subpopulations: 1) Jarbidge, Independence and Tuscarora Mountains in Elko and Eureka County; 2) an isolated subpopulation in the Ruby Mountains in Elko County; and 3) an isolated subpopulation in the Toiyabe Range in Nye County.

Mountain Yellow-legged Frog

The northern mountain yellow-legged frog distinct population segment (DPS) has been proposed for listing as federally endangered species by the USFWS. Although this species primarily occurs in California within the Sierra Nevada, there is potential for occurrence within Carson City, Douglas and Washoe Counties in Nevada (see NNHP). Conservation plans for this species are pending and largely depend on the USFWS listing decision.

Relict Leopard Frog

The northern mountain yellow-legged frog distinct population segment (DPS) has been proposed for listing as federally endangered species by the USFWS. Although this species primarily occurs in California within the Sierra Nevada, there is potential for occurrence within Carson City, Douglas and Washoe Counties in Nevada (see NNHP). Conservation plans for this species are pending and largely depend on the USFWS listing decision.

Molluscs

Numerous molluscs are listed as Nevada BLM sensitive species and proposed activities with potential effects to aquatic habitat could warrant presence/absence surveys for these species. Existing data (e.g., Nevada Natural Heritage Program [NNHP]) on locations of known occurrence should be used to screen areas for the presence of sensitive molluscs. Coordinate with BLM and NDOW to determine whether surveys are needed.

Lotic Habitats (greater than 500 feet in length)

IM OC-2011-044 standardized BLM field methods for collection and submission of aquatic macroinvertebrate samples in lotic habitats (wadeable, perennial streams). This IM requires that aquatic macroinvertebrate samples follow sampling outlined by the National Aquatic Monitoring Center (NAMC) at <http://www.usu.edu/buglab/Monitoring/monitoringProtocols.cfm>. The NAMC protocol is only applicable to wadeable, perennial streams. The NAMC website provides a sampling protocol designed to generate data sufficient to: 1) characterize the status and trend of macroinvertebrate assemblages, and 2) quantify effects of anthropogenic disturbances and/or restoration actions.

Lentic Habitats (and Lotic Habitats under 500 feet in length)

These habitats exhibit such a high spatial variation in water quality and quantity, landscape setting, and macroinvertebrate assemblages that correlation to other sites does not provide significant insight into the condition of any individual site. Because of this, the National Aquatic Monitoring Center (NAMC) analysis does not apply. The NAMC protocol is only applicable to wadeable, perennial streams. BLM, NDOW, and NAMC should be consulted to determine if general macroinvertebrate collection and analysis is necessary and if a site-specific monitoring plan should be developed. In these cases, a modification of the protocol described in IM OC-2011-044 will be used, but has yet to be developed.

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Appendix A: Habitat Assessment Form

Common Name	Scientific Name	Status*	BLM District Office	Key Habitat Type (from Nevada WAP)	Potential to Occur In Project Area (Y/N)	Rationale for Occurrence/Non-occurrence	Description of Wildlife Use (Year-round, breeding, wintering, migratory/Stop Over, Etc.)
BIRDS							
Northern goshawk	<i>Accipiter gentilis</i>	NS	BM, Carson, Elko, Ely, Winnemucca				
Golden eagle	<i>Aquila chrysaetos</i>	NS	Statewide				
Burrowing owl	<i>Athene cunicularia</i>	NS	Statewide				
Ferruginous hawk	<i>Buteo regalis</i>	NS	Statewide				
Swainson's hawk	<i>Buteo swainsoni</i>	NS	Statewide				
Greater sage-grouse	<i>Centrocercus urophasianus</i>	FC, NS	BM, Carson, Elko, Ely, Winnemucca				
Snowy plover	<i>Charadrius alexandrinus</i>	FT, NS	Statewide				
Yuma clapper rail	<i>Rallus longirostris yumanensis</i>	FE, NS	Southern				
Lewis' woodpecker	<i>Melanerpes lewis</i>	NS	BM, Carson, Elko, Ely, Winnemucca				
Yellow-billed cuckoo	<i>Coccyzus americanus</i>	FC, NS	Carson, Ely				
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	FE, NS	Ely				
Peregrine falcon	<i>Falco peregrinus</i>	NS	Statewide				
Pinyon jay	<i>Gymnorhinus cyanocephalus</i>	NS	Statewide				
Bald eagle	<i>Haliaeetus leucocephalus</i>	NS	Statewide				
Loggerhead shrike	<i>Lanius ludovicianus</i>	NS	Statewide				
Black rosy-finch	<i>Leucosticte atrata</i>	NS	BM, Elko, Ely, Winnemucca				
Sage thrasher	<i>Oreoscoptes montanus</i>	NS	BM, Carson, Elko, Ely, Winnemucca				
Le Conte's thrasher	<i>Toxostoma lecontei</i>	NS	Southern				
Bendire's thrasher	<i>Toxostma bendirei</i>	NS	Southern				
Brewer's sparrow	<i>Spizella breweri</i>	NS	Statewide				
MAMMALS							
Pallid bat	<i>Antrozous pallidus</i>	NS	Statewide				
Pika	<i>Ochotona princeps</i>	NS	BM, Elko, Ely, Winnemucca				

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Common Name	Scientific Name	Status	BLM District Office	Key Habitat Type (from Nevada WAP)	Potential to Occur In Project Area (Y/N)	Reasoning for Potential to Occur
Pygmy rabbit	<i>Brachylagus idahoensis</i>	NS	BM, Elko, Ely, Winnemucca			
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	NS	Statewide			
Big brown bat	<i>Eptesicus fuscus</i>	NS	Statewide			
Spotted bat	<i>Euderma maculatum</i>	NS	BM, Elko, Ely, Winnemucca			
Greater western mastiff bat	<i>Eumops perotis californicus</i>	NS	Southern			
Allen's big-eared bat	<i>Odionycteris phyllotis</i>	NS	Southern			
Silver-haired bat	<i>Lasionycteris noctivagans</i>	NS	Statewide			
Western red bat	<i>Lasiurus blossevillii</i>	NS	BM, Ely, Southern			
Hoary bat	<i>Lasiurus cinereus</i>	NS	Statewide			
California leaf-nosed bat	<i>Macrotos californicus</i>	NS	Southern			
California myotis	<i>Myotis californicus</i>	NS	Statewide			
Western small-footed myotis	<i>Myotis ciliolabrum</i>	NS	Statewide			
Long-eared myotis	<i>Myotis evotis</i>	NS	Statewide			
Little brown myotis	<i>Myotis lucifugus</i>	NS	BM, Elko, Ely, Winnemucca			
Fringed myotis	<i>Myotis thysanodes</i>	NS	Statewide			
Cave myotis	<i>Myotis velifer</i>	NS	Southern			
Long-legged myotis	<i>Myotis volans</i>	NS	Statewide			
Yuma myotis	<i>Myotis yumanensis</i>	NS	Elko, Ely			
Big free-tailed bat	<i>Nyctinomops macrotis</i>	NS	Southern			
Western pipistrelle	<i>Pipistrellus Hesperus</i>	NS	Statewide			
Bighorn sheep	<i>Ovis Canadensis</i>	NS	Statewide			
Preble's shrew	<i>Sorex preblei</i>	NS	Elko			
Brazilian free-tailed bat	<i>Tadarida brasiliensis</i>	NS	Statewide			
Fish Spring pocket gopher	<i>Thomomys bottae abstrusus</i>	NS	BM			
San Antonio pocket gopher	<i>Thomomys bottae curatus</i>	NS	BM,			
Dark kangaroo mouse	<i>Microdipodops megacephalus</i>	NS	Statewide			
Pale kangaroo mouse	<i>Microdipodops pallidus</i>	NS	BM, Winnemucca			
Pahrnagat valley montane vole	<i>Microtus montanus foccusus</i>	NS	Ely			
AMPHIBIANS						
Dixie Valley toad	<i>Bufo boreas ssp.</i>	NS	Carson			
Amargosa toad	<i>Bufo nelson</i>	NS	BM, Southern			

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Columbia spotted frog	<i>Rana luteiventris</i>	FC, NS	BM, Elko, Winnemucca			
Mountain yellow-legged frog	<i>Rana muscosa</i>	FC*, NS	Carson			
Relict leopard frog	<i>Rana onca</i>	FC, NS	Ely, Southern			
Northern leopard frog	<i>Rana pipiens</i>	NS	Carson, Elko, Ely, Winnemucca			

REPTILES

Shasta alligator lizard	<i>Elgaria coerulea shastaensis</i>	NS	Carson			
Desert tortoise	<i>Gopherus agassizii</i>	FT, NS	BM, Ely, Southern			
Banded Gila monster	<i>Heloderma suspectum cinctum</i>	NS	Ely, Southern			
Sonoran mountain kingsnake	<i>Lampropeltis pyromelana</i>	NS	Ely			
Chuckwalla	<i>Sauromalus ater</i>	NS	Southern			
Nevada shovel-nosed snake	<i>Chionactis occipitalis talpina</i>	NS	Southern			
Mojave shovel-nosed snake	<i>Chionactis occipitalis occipitalis</i>	NS	Southern			
Desert glossy snake	<i>Arizona elegans eburnata</i>	NS	Southern			
Mojave Desert sidewinder	<i>Crotalus cerastes cerastes</i>	NS	Southern			

MOLLUSCS

Ash Meadows naucorid	<i>Ambrysus amargosus</i>	NS	Southern			
California Floater	<i>Anodonta californiensis</i>	NS	Elko			
Duckwater Pyrg	<i>Pyrgulopsis aloba</i>	NS	Ely			
Southern duckwater pyrg	<i>Pyrgulopsis anatine</i>	NS	BM, Ely			
Moapa pebblesnail	<i>Pyrgulopsis avernalis</i>	NS	Southern			
Large-gland Carico pyrg	<i>Pyrgulopsis basiglans</i>	NS	BM			
Moapa valley pyrg	<i>Pyrgulopsis carinifera</i>	NS	Southern			
Carinate Duckwater pyrg	<i>Pyrgulopsis carinata</i>	NS	BM			
Transverse gland pyrg	<i>Pyrgulopsis cruciglans</i>	NS	Ely			
Crystal springsnail	<i>Pyrgulopsis crystalis</i>	NS	Southern			
Spring Mountains pyrg	<i>Pyrgulopsis deaconi</i>	NS	Southern			
Dixie Valley pyrg	<i>Pyrgulopsis dixensis</i>	NS	BM, Winnemucca			
Ash Meadows pebblesnail	<i>Pyrgulopsis erythropoma</i>	NS	Southern			
Fairbanks springsnail	<i>Pyrgulopsis fairbanksensis</i>	NS	Southern			
Landyes pyrg	<i>Pyrgulopsis landyei</i>	NS	Ely			
Squat mud meadows pyrg	<i>Pyrgulopsis limaria</i>	NS	Winnemucca			
Pahrnagat pebblesnail	<i>Pyrgulopsis merriami</i>	NS	Ely			

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Oasis Valley pyrg	<i>Pyrgulopsis micrococcus</i>	NS	BM			
Northern soldier meadow pyrg	<i>Pyrgulopsis militaris</i>	NS	Winnemucca			
Elongate mud meadows springsnail	<i>Pyrgulopsis notidicola</i>	FC, NS	Winnemucca			
Sub-globose Steptoe ranch pyrg	<i>Pyrgulopsis orbiculata</i>	NS	Ely			
Bifid duct pyrg	<i>Pyrgulopsis peculiaris</i>	NS	Ely			
Ovate Cain Spring pyrg	<i>Pyrgulopsis pictilis</i>	NS	Carson			
Median gland Nevada pyrg	<i>Pyrgulopsis pisteri</i>	NS	Southern			
Flat-topped Steptoe pyrg	<i>Pyrgulopsis planulata</i>	NS	Ely			
Northern Steptoe pyrg	<i>Pyrgulopsis serrata</i>	NS	Ely			
Southern soldier meadow pyrg	<i>Pyrgulopsis umblicata</i>	NS	Winnemucca			
Southeast Nevada pyrg	<i>Pyrgulopsis turbatrix</i>	NS	Southern			
Duckwater Warm Springs pyrg	<i>Pyrgulopsis villacampae</i>	NS	Elko, Ely			
Vinyards and Humboldt pyrg	<i>Pyrgulopsis vinyardi</i>	NS	BM, Elko			
Wong's pyrg	<i>Pyrgulopsis wongi</i>	NS	BM, Winnemucca			
Grated tryonia	<i>Tryonia clathrata</i>	NS	Elko			
Sportinggoods tryonia	<i>Tryonia angulata</i>	NS	Southern			
Point of Rocks tryonia	<i>Tryonia elata</i>	NS	Southern			
Minute tryonia	<i>Tryonia ericae</i>	NS	Southern			
Amargosa tryonia	<i>Tryonia variegata</i>	NS	Southern			

FE = Federal Endangered
FE* = Federal Proposed Endangered
FT = Federal Threatened
FC = Federal Candidate
NS = Nevada BLM Sensitive Species

Appendix B: Wildlife Survey Report Template

Project Name:

Legal Location:

Applicant:

Consultant:

Contact Information:

1. Introduction

- a. Description of the proposed activity and the project area
- b. Species surveyed (use HAF to include rationale for why the species were or were not surveyed)
- c. Objectives of survey (e.g., presence/absence, abundance)

2. Methods

- a. Description of survey protocols
- b. Rationale for the routes selected and explanation why surveys did not cover certain areas
- c. Dates of surveys
- d. Survey effort

3. Results

- a. Report survey results for each species
- b. Locations where species or their sign were observed

4. Discussion – Compare survey results to other studies

5. Other Materials (electronic copies are preferred)

- a. HAF
- b. Completed data forms and/or copies of field notes
- c. Photos of survey area and wildlife species and/or sign
- d. Maps
- e. Shapefiles and metadata

APPENDIX F
COMMENT LETTERS

HC 61 Box 6275
Austin, NV 89310-9301
Tel. (775) 964-2463

Doug Furtado
District Manager
BLM – Battle Mountain District
50 Bastian Road
Battle Mountain, Nevada 89820

January 7, 2014

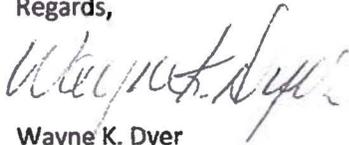
RE: Gas and Oil Leasing

Dear Mr. Doug Furtado:

I am writing in response to the BLM, Battle Mountain District proposal to make 167 Oil and Gas lease parcels in the area covering approximately 285,179 acres of federal land in the Smokey Valley and surrounding areas. We do have concerns and would like further government to government consultation with the BLM. We would also like be a part of the identification of cultural and environmental resources that will be impacted during the drilling process, such as burial site, sage grouse leks, water sources, etc.

Our Tribal Council meets on the second Friday of the month. Please schedule a consultation session with our Tribal Council, to discuss any comments or concerns that we may have. A council agenda is available upon request, and must be submitted the Thursday before the Tribal Council meets.

Regards,



Wayne K. Dyer
Tribal Chairman
YOMBA SHOSHONE TRIBE
HC 61 Box 6275
Austin, NV. 89310
775-964-2463 EXT. 102



BRIAN SANDOVAL
Governor

STATE OF NEVADA
DEPARTMENT OF WILDLIFE

1100 Valley Road
Reno, Nevada 89512
(775) 688-1500 • Fax (775) 688-1595

TONY WASLEY
Director

RICHARD L. HASKINS, II
Deputy Director

PATRICK O. CATES
Deputy Director

January 27, 2014

NDOW-SR #: 14-086
LVO-14-020

Mr. Timothy J. Coward, Field Manager
BLM Tonopah Field Office
P.O. Box 911
Tonopah, NV 89049

RECEIVED

JAN 29 2014

Re: July 2014 Oil and Gas Lease Sales

**Bureau of Land Management
Tonopah Field Office**

Dear Mr. Coward:

Thank you for providing the Nevada Department of Wildlife (Department) input opportunity as the Environmental Assessment (EA) is being prepared for BLM's proposed July 2014 Oil & Gas Lease Sales for the Battle Mountain District Office. Unfortunately, a comprehensive review for the entire Battle Mountain District was not possible. Hence, the following preliminary observations and thoughts for your presented for your consideration are (with one exception) limited to the Tonopah Field Office area.

All proposed lease areas provide habitat for fish and wildlife at some level of biological importance in space and/or time and should receive reasonable consideration to avoid unnecessary disruptions where practicable. The parcels proposed are or potentially used by numerous migratory species including raptors and breeding neo-tropical birds protected under the federal Migratory Bird Treaty Act, and for bald and golden eagles protections are also afforded under the Bald and Golden Eagle Protection Act. Resident birds (e.g. Greater Sage-grouse) and several bat species also receiving heightened conservation awareness and attention may also make use of the proposed parcels. Wildlife considerations relative to geographic areas include but are not limited to:

- The majority of proposed parcels would affect species of nesting raptors, notably the golden eagle, prairie falcon, and ferruginous hawk. All parcels may receive foraging use by raptors on a year-round or seasonal basis. For example, wintering rough-legged hawks and bald eagles have been observed on the northwest end of Reese River. And although the Antelope Range has not been recently surveyed for nesting raptors, northern goshawk and golden eagles have been observed in the proposed lease area there.
- All lease parcels within the Big Smoky Valley contain yearlong or seasonally used pronghorn habitats.
- There are three endemic fish species at four locations within the Big Smoky Valley in potential range of the lease parcels. Endemic fish include the Big Smoky Valley Speckled Dace (*Rhinichthys osculus lariversi*), Big Smoky Valley Tui Chub (*Gila bicolor ssp. 8*) and the Charnock Ranch Tui Chub (*Gila bicolor ssp. 10*). The Big Smoky Valley Speckled Dace and Big Smoky Valley Tui Chub are State protected and BLM sensitive species. Drilling activities, especially fracking, near any spring system has the potential to disrupt source waters resulting in adverse impacts to spring system function and related consequences to native fish and wildlife.

- The desert horned lizard (*Phrynosoma platyrhinos*) is well distributed in the Tonopah region, and the Big Smoky Valley seems to support notably higher horned lizard densities compared to surrounding valleys. The Big Smoky Valley also supports the densest population of breeding turkey vultures in central Nevada. Further, the valley bottom supports some of the only buffaloberry bushes in the region. The shrub provides food, cover and nest sites for songbirds and is a browse source for big game animals and rodents.
- There is strong potential for the pale kangaroo mouse (*Microdipodops pallidus*) and dark kangaroo mouse (*M. megacephalus*) to occur in the lease parcels located east of Lone Mountain. Both species of kangaroo mouse are State protected (NAC 503.030) and BLM sensitive species.

Should lease sales go forward for the proposed parcels, the following measures and considerations are recommended to become part of general sales stipulations.

- Birds protected under the Migratory Bird Treaty Act (MBTA) including eagles and hawks, are also State Protected (NAC 503.050). Ground disturbing activities should avoid the breeding and nesting season which roughly occurs from March 1 through July 31. If this seasonal avoidance is not practicable, then the Department recommends a qualified biologist survey the project site prior to any ground disturbing activities to determine if nesting is underway. In the event an active nest (containing eggs or young) is discovered or frequently attended by adult birds, a buffer area around the nest appropriate for the species involved must be identified and avoided until young birds have fledged. This measure would be consistent with preventive actions advocated by the U.S. Fish & Wildlife Service concerning MBTA-protected birds.
- Field visits should be conducted to:
 - Identify best localities for exploration activities while avoiding sensitive habitats; and,
 - Ensure access routes create minimal disturbance by using existing roads where possible and avoid unnecessary inroads into wildlife habitats.
- Simple surveys for bats performed exterior to caves or historic mine workings are inadequate for determining presence or absence. Ensuring adequate surveys are performed is especially cogent where mine workings are slated for physical disturbance or closure. In the absence of more rigorous survey:
 - Mines or caves that may be used by roosting bats should remain undisturbed, especially during hibernation periods.
 - Avoid direct and indirect disturbance (e.g. excessive noise, vibration) to historic mine workings having potential to house bats.
 - A helpful reference to consult is the *Revised Nevada Bat Conservation Plan* (online at www.heritage.nv.gov)
- Regarding any reserve pit fluids produced as by-products of oil and gas exploration drilling,
 - Human activities and noise associated with drilling operations underway would probably discourage use of reserve pits by birds like waterfowl. However, once the drilling rig and other equipment are removed from the well pads, reserve pits become attractive to birds and other wildlife (Ramirez 2009). Ramirez also reported that the longer the reserve pit is left on site, the greater the probability that aquatic birds will land on the pit;
 - Therefore, immediate removal of drilling fluids after well completion is the key to preventing wildlife mortality at reserve pits.
 - If immediate removal is not possible, then the Department recommends monitoring and closure of reserve pits within 30 days of releasing the drilling rig.

- The Department prefers that drilling fluids produced are stored in a closed Baker Tank or container of comparable design.
- Pitless drilling or closed-loop drilling methods are encouraged thereby reducing the amount of drilling waste, facilitating recycling of drilling fluids, and reducing drilling costs (Rogers *et al* 2006a and b). Pitless drilling can reduce the volume of waste by 60 to 70 percent (Rogers *et al* 2006b). Pitless drilling also conserves water and prevents soil contamination. Though, attention is still needed with closed-loop systems to prevent water to pond in the solids disposal trenches.

Comments and recommended surface use designations for specific Parcel Number(s) are:

Parcel 029

No Surface Occupancy. Two sage-grouse leks are located within 1.5 miles and 3.5 miles of the eastern boundary of Parcel 029. Findings by Coates *et al* (2013) support the No Surface Occupancy request. In addition, all the lease parcels located in the Reese River Valley are within Preliminary General Habitat (PGH) for sage-grouse.

Parcels 031, 035 and 036

Timing Limitations. These parcels overlap with desert bighorn sheep lambing habitat, desert bighorn sheep yearlong important habitat, and mule deer winter/spring habitat located in the south end of the Toiyabe Range from Peavine Canyon northward to about Boyd Canyon. The Department strongly recommends a seasonal restriction for protecting the bighorn sheep lambing area during the period of February 1 through May 15 of any calendar year. We also believe protection of this area *outside* of the lambing season is warranted. Construction of drill pads and roads outside the seasonal restriction time period has potential to physically affect lambing habitat rendering the area less attractive or available to the local bighorn population. At minimum, potential habitat-altering activities should be avoided, especially those in or in close proximity to precipitous terrain where lambing would occur.

Parcels 037, 038, 039, 069, 076, and 087

No Surface Occupancy. Carver's Bench is crucial mule deer winter range. It is the most heavily used and most important winter range in all of northwestern Nye County. We have enclosed additional information concerning the importance and management of this habitat from a previous action.

Parcels 121, 122 and 124

Timing Limitations. These parcels overlap with desert bighorn sheep lambing habitat in the Toquima Range beginning at approximately Barker Creek and extending northward 2 miles. The Department strongly recommends a seasonal restriction for protecting the bighorn sheep lambing area during the period of February 1 through May 15 of any calendar year. We also believe protection of this area *outside* of the lambing season is warranted. Construction of drill pads and roads outside the seasonal restriction time period has potential to physically affect lambing habitat rendering the area less attractive or available to the local bighorn population. At minimum, potential habitat altering activities should be avoided, especially those in or in close proximity to precipitous type terrain where lambing would occur.

Parcel 127

No Surface Occupancy. This parcel is intersected by sage-grouse Preliminary Priority Habitat (PPH) and a sage-grouse lek is located approximately 3 miles from the parcel boundary.

Parcels 156, 157, 158, 159 and 160

Timing Limitations (at a minimum). The Little Smoky Valley is designated PPH for sage-grouse. As communicated to BLM's Egan Field Office in regard to the Term Permit Renewal for the Little Smoky Valley Use Area of the Duckwater Allotment, the extent of sage-grouse use/activity is not fully

understood at this time. However, monitoring efforts are underway and surveys conducted in 2013 yielded the following valuable information:

- A previously unknown lek was identified and named the North Snowball Lek with 34 sage-grouse present on April 13.
- A short distance north of the North Snowball Lek, 25 sage-grouse flushed including 12 strutting males on April 10.
- Approximately 4.5 miles south of the North Snowball Lek, 15 male sage-grouse (not strutting) were observed on May 1.

Parcel 161

Both the Pale Kangaroo Mouse (*Microdipodops pallidus*) and Dark Kangaroo Mouse (*M. megacephalus*) have been trapped in the proposed parcel located in Big Sand Springs Valley. Both species have restrictive habitat requirements causing a patchy distribution across the Nevada landscape and are State protected mammals (NAC 503.030) and Species of Conservation Priority (WAPT 2012). Relevant to the proposed lease parcels, determination of these species' presence and local habitat, then avoidance of occupied habitat is strongly recommended.

Thank you again for this opportunity to provide input on these proposals. Please contact Tracy Kipke at 702-486-5127 x3612 or tkipke@ndow.org at the Department's Las Vegas office for further assistance regarding this letter.

Sincerely,



D. Bradford Hardenbrook
Supervisory Habitat Biologist
Nevada Department of Wildlife, Southern Region
4747 Vegas Drive, Las Vegas, Nevada 89108
702.486.5127 x3600; 702.486.5133 FAX
bhrdnbrk@ndow.org

TK:tk

Enclosure

cc: NDOW, Files

References Cited

Coates, P.S., M. L. Casazza, E.J. Blomberg, S.C. Gardner, S.P. Espinosa, J.L. Yee, L. Wiechman, and B.J. Halstead. 2013. Evaluating Greater Sage-Grouse Seasonal Space Use Relative to Leks: Implications for Surface Use Designations in Sagebrush Ecosystems. *J. Wildlife Mgt.* 77(8):1598–1609.

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WAPT (Wildlife Action Plan Team). 2012. Revised Nevada Wildlife Action Plan. Nevada Department of Wildlife, 1100 Valley Road, Reno, Nevada 89512. Online at: http://www.ndow.org/Nevada_Wildlife/Conservation/Nevada_Wildlife_Action_Plan/.

From: Brad Hardenbrook
Sent: Wednesday, February 04, 2009 12:01 PM
To: 'Douglas R Clarke'
Cc: 'nhummer@nv.blm.gov'; 'Susan_Cooper@blm.gov'; 'aryba@fs.fed.us'; 'jrigby@fs.fed.us'; Tom Donham; Tracy Kipke; Steven Kimble
Subject: RE: Darrough's geothermal

Doug,

The enclosed comments address pending lease application NVN 074289 located in Nye County, Nevada. The Department welcomes this present opportunity to share additional information for aiding decision makers in furthering determinations related to lease sale activities. We understand the decision to issue a lease is a separate and discretionary decision from the allocation decision made through the land use plan amendment process. Additionally, the authorized officer retains the discretion to issue leases with stipulations imposing moderate to major constraints on surface use of any leased areas in order to mitigate the impacts to other land uses or resource objectives as defined in the guiding resource management plan.

The Department would like to emphasize that it is not opposed to alternative energy development. Geothermal produced energy translates into furthering the Nation's lessened reliance on fossil fuels and reduction in carbon dioxide emissions. At the same time, we must also evaluate the consequences posed by proposed land uses on important wildlife resource values. It is the Department's goal to clearly articulate an informative picture of the existing environment and bring forth reasonable recommendations relative to wildlife and habitat protection and conservation.

As you know, the Department provided the Austin/Tonopah Ranger Districts last August and October with wildlife considerations related to an anticipated geothermal seismic project on the Forest Service's portion of the subject lease area (i.e. Smoky Valley Geothermal Seismic Exploration Project: Scoping Document and Notice of Proposed Action, U.S. Forest Service-Tonopah Ranger District NOPA). At that time, the crucial mule deer winter and spring range on the Carver's (Toiyabe) Bench was the primary issue brought forth.

Background and Existing Environment

The western-most portion of the pending lease area lies within the Forest Service's Management Area 8. As cited in the Record of Decision for the Toiyabe National Forest Land and Resources Management Plan (Forest Plan), as amended, wildlife values are high in Management Area 8 and the area supports significant populations of mule deer, chukar, blue grouse, and sage grouse. The Toiyabe Bench is identified in the Forest Plan as a key deer winter range. It is relatively long and narrow at approximately 12 x 1.5 miles. The Department recognizes the Toiyabe Bench as crucial mule deer winter and spring range. It is the most heavily used and most important winter range in all of northwestern Nye County. The Forest Service identifies the mule deer as a management indicator species. The existing Forest Plan provides the following forest management direction in relation to wildlife resources and habitats:

- Page IV-124, "Livestock grazing and development of minerals will be done in a manner that protects key dispersed recreation, wildlife, and fisheries resources.
- Page IV-124, "Habitat improvement projects will be initiated on key deer winter ranges, such as the Toiyabe Bench."
- Page IV-126, "Discourage activities on the Point-of-Rocks and Toiyabe Bench winter ranges that will disturb mule deer in the spring and winter."
- Page IV-126, "Coordinate with the BLM when implementing management actions for deer winter range on Toiyabe Bench."
- Page IV-126, "Develop wildlife habitat improvement projects to improve deer winter ranges."
- Page IV-50, "Minimize disturbing activities (grazing, timber, mining, etc.) on key mule deer habitat (fawning areas, winter range, riparian areas, holding areas, migration corridors, etc.)."

The remainder of the proposed lease area is on public land administered by the BLM. In September 1983, prior to the above-mentioned 1985 Forest Plan, the BLM and Forest Service entered into MOU #61 with the Department drawing priority management attention to the important deer use area in poor condition on "approximately 8,130 acres of BLM land within the Tonopah Resource Area, north of Carver's, west of State Highway 376 and south of Summit Canyon, along the east Toiyabe Front." Cattle-grazing was formally discontinued on the Toiyabe Bench in 1983 because of the crucial nature of the winter mule deer habitat.

More recently the BLM's 1996 Tonopah Resource Management Plan (RMP) and Record of Decision (ROD) provide the following RMP Determinations for wildlife habitat management relative to the Toiyabe Bench:

- Page 7, "The Toiyabe Bench will continue to be managed in cooperation with the Nevada Division of Wildlife and the U.S. Forest Service in accordance with the *Toiyabe Bench Deer Winter Range Management Plan*. Livestock grazing would be excluded on 9,127 acres of crucial deer winter range until the objectives in the *Toiyabe Bench Deer Winter Range Management Plan* have been met. (The Toiyabe Bench has been managed in cooperation with the Nevada Division of Wildlife and the U.S. Forest Service since 1985)."
- On page A-56, Appendix 14 identifies legal descriptions for land use planning/management actions with, "No Surface Occupancy (Seasonal Restrictions) for deer habitat includes T11N R43E S18, parts W1/2W1/2E1/2." (This is the majority of the lease site located on BLM public lands).

Multiple habitat factors in most of the Toiyabe Bench led to the area becoming classified as degraded mule deer habitat. The term degraded, confers a *reduction in potential* for the habitat to produce and support mule deer. Generally, habitat factors include range conditions such as plant senescence, pinyon-juniper encroachment, excessive livestock grazing, undesirable exotic invasive species, adverse fire, or cyclic phenomena like drought, and habitat type conversions including human population factors such as housing, roads, mining, and other structural barriers to deer migration. Degraded habitat condition is not singular to mule deer; it has relevance to other species and proper functioning of ecological processes.

Unfortunately, the ability of the habitat to recover naturally from past disturbance has been exacerbated or extenuated by unfavorable climatic conditions. According to the U.S. Drought Monitor, the Smoky Valley area has been recorded as "Abnormally Dry" to "Drought-Severe" from June 5, 2001 to August 19, 2008. Even with discontinuation of grazing, anticipated vegetative responses like increased plant vigor by desirable species has shown little improvement. And, long-term loss of valuable browse potential is continuing with pinyon pine and juniper encroachment. Deer using the Toiyabe Bench varied from 1,000 to 1,500 animals during the 1980's, whereas numbers now vary from 300-640. Not surprising is that objectives identified in the 1985 *Toiyabe Bench Deer Winter Range Management Plan* have not been achieved, i.e. increase deer utilization level (carrying capacity) from the 1985 level of 1,215 deer to a level of 1,520 deer.

Based on current habitat and environmental conditions, the level of previous rest and restoration efforts undertaken over the past 26 years have proved unsuccessful. Allowing additional land uses incompatible with mule deer winter range goals and objectives through fragmentation, degradation, and/or loss of habitat should not be acceptable. Even a seemingly insignificant habitat disturbance will contribute in a cumulative effects sense to the adverse consequences of past, present and reasonably foreseeable environmental conditions.

Access

Another aspect of the proposed lease area is the public's use of ATV's in collecting shed antlers; this is a resource management problem in the western portion of the pending lease area. The Forest Plan suggests that access should be closed or obliterated unless identified to become part of the transportation system after mineral activity is complete (see page IV-57). We understand the BLM will issue a non-discretionary restriction on any leases within roadless areas inventoried by the National Forest Service. Specifically, no new road construction or reconstruction would be allowed in designated roadless areas. However, the potential for noticeable inroads from exploration, as subjective as they may be, could become well-used, user-defined thoroughfares further degrading deer winter range. Should the Forest Service provide a consent determination for the pending lease application, discouraging subsequent unauthorized use of exploration survey paths by the motorized public is a significant consideration. For example, effectiveness of impact minimization measures taken for addressing any footprints left from geothermal seismic exploration last autumn will not be known until later this spring. Proactive monitoring and education should be undertaken by the Forest Service to

preclude or minimize such incursions would seem reasonable. Similar actions may be desirable on the BLM's portion of the area west of State Route 376.

Water Resources

As the PEIS acknowledges, the indirect use of geothermal sources requires large amounts of water during all phases of a project from exploration through closeout. Potential impacts from groundwater pumping on spring habitats, including wet meadows and riparian areas, and localized water tables are of particular concern. Additional to deer, migratory and breeding raptors, songbirds and shore birds, special status bat species and endemic fish populations are among other wildlife dependent on these unique habitat features. We concur with Best Management Practices and mitigation measures identified in the ROD and RMP Amendments for Geothermal Leasing in the Western United States, e.g. information gathering, monitoring and adaptive management for protection of water resources.

Leasing Stipulations

The Department would prefer to see no geothermal resource exploration (e.g. temperature gradient holes, new roads or cross-country travel), drilling operations, or other surface utilization west of State Route 376. For this western portion of the lease area on Forest Service land, the Department believes leasing impacts cannot be mitigated and therefore lease boundaries should be adjusted in the decision to avoid unacceptable impacts on sensitive resources. Section 14.2.4 on page 14-9 of the PEIS states, "The NFS lands portion of the lease site (western portion) are within an Inventoried Roadless Area, making it unlikely that any development would occur in that area." The Department would like assurance that no development would occur. Therefore, we request that the lease boundary be adjusted so that the Forest Service boundary is the western limit of the lease area. If this is deemed excessively restrictive, our alternative would be to seek a year-round No Surface Occupancy stipulation for Forest Service lands west of State Route 376.

For the BLM portion of the proposed lease area west of State Route 376, similar leasing stipulations for year-round No Surface Occupancy would seem reasonable. Should this be considered too restrictive, timing limitations to avoid disturbance to wintering deer are recommended at minimum. The Tonopah RMP and ROD identifies this time period to be from "January 15 – May 15 No Surface Occupancy (Seasonal Restrictions)" for deer habitat which includes the proposed lease area as contained in T11N R43E S18, parts W1/2W1/2E1/2, the western portion of the proposed lease site.

Thank you again for this opportunity to provide input. The Department welcomes additional opportunity to discuss this matter with the Forest Service and BLM to reach a reasonable resolve. Please do not hesitate to contact Habitat Biologist Tracy Kipke at the Department's Southern Region Office in Las Vegas. She can be contacted at 702-486-5127 ext. 3612 or by e-mail at tkipke@ndow.org.

Sincerely,

Brad

"Do you not know that when in the service, one must always choose the lesser of two evils?" - CAPT. "LUCKY" JACK AUBREY

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