



## United States Department of the Interior

### BUREAU OF LAND MANAGEMENT

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[http://www.blm.gov/nv/st/en/fo/ely\\_field\\_office.html](http://www.blm.gov/nv/st/en/fo/ely_field_office.html)



#### In Reply Refer to:

3160 (NV-043)  
NV-043-08-003  
N82115

Dear Interested Party:

The decision to authorize the EOG Resources, Inc. oil and gas drilling project Sugarloaf 1-17 has been issued full force and effect. Copies of the Decision Record and Finding of No Significant Impacts plus the supporting Environmental Assessment (EA NV-043-08-03) are available on the Ely District website:

[http://www.blm.gov/nv/st/en/fo/ely\\_field\\_office/blm\\_information/nepa2008.2.html](http://www.blm.gov/nv/st/en/fo/ely_field_office/blm_information/nepa2008.2.html)

Implementation of the proposed action will allow EOG Resources, Inc. to exercise its rights under the lease agreement to explore for reserves of oil and gas so as to meet the increasing energy needs of this Nation. Any impacts resulting from the proposed action will be minimized through the carefully planned proposed action developed in the APD, the standard State and Federal operating regulations for oil and gas exploration, and the conditions of approval.

This decision may be appealed to the Interior Board of Land Appeals, Office of the Secretary, in accordance with the regulations at 43 CFR, Part 4. If an appeal is taken, your appeal must be filed with the Bureau of Land Management, Ely Field Office, HC33 Box 33500, Ely, Nevada, 89301, within 30 days from receipt of this decision. The appellant has the burden of showing that the decision appealed from is in error.

If you wish to file a petition pursuant to regulation 43 CFR 4.21 or 43 CFR 3000.4 for a stay (suspension) of the effectiveness of this decision during the time that your appeal is being reviewed by the Board, the petition for a stay must accompany your notice of appeal. Copies of the notice of appeal and petition for a stay must also be submitted to the Interior Board of Land Appeals, Office of Hearings and Appeals, 4015 Wilson Boulevard, Arlington, VA 22203, and to the Office of the Solicitor, U.S. Department of the Interior, Suite 6201, Federal Bldg., 125 South State St., Salt Lake City, Utah, 84138, at the same time the original documents are filed with this office.

If you request a stay, you have the burden of proof to demonstrate that a stay should be granted. A petition for a stay of a decision pending appeals shall show sufficient justification based on the following rules:

- (1) The relative harm to the parties if the stay is granted or denied,
- (2) The likelihood of the appellant's success of the merits,
- (3) The likelihood of immediate and irreparable harm if the stay is not granted, and
- (4) Whether the public interest favors granting the stay.

Thank you for your participation in this EA and your interest in public lands. If you have any questions, please contact Bill Wilson at (775) 289-1882.

Sincerely,

Jeffrey A. Weeks  
Field Manager  
Egan Field Office

NV043,wwilson;9/2/08,Sugarloaf 1-17

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

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**Environmental Assessment NV-043-08-003**

**September 3, 2008**

**APPLICATION FOR PERMIT TO DRILL**

**Sugarloaf 1-17**

LEASE NO. N82115

**Jakes Valley  
White Pine County, Nevada**

EOG Resources, Inc  
Post Office Box 250  
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# Contents

<b>1.0 Introduction .....</b>	<b>1-1</b>
1.1 Project Location and Overview .....	1-1
1.2 Purpose and Need.....	1-4
1.3 Project Conformance with BLM Directives .....	1-4
1.4 Public and Agency Coordination.....	1-4
<b>2.0 Proposed Action .....</b>	<b>2-1</b>
2.1 Surface Disturbance .....	2-1
2.2 Source of Construction Materials.....	2-4
2.3 Drilling and Completion Operations .....	2-4
2.4 Operations and Maintenance .....	2-6
2.5 Interim and Final Reclamation .....	2-7
2.6 Methods of Handling Waste Disposal.....	2-7
2.7 Well Completion or Recompletion Reporting.....	2-8
2.8 No Action Alternative .....	2-8
2.9 Other Alternatives Considered but not Analyzed in Detail .....	2-9
<b>3.0 Affected Environment .....</b>	<b>3-1</b>
3.1 Soils.....	3-2
3.2 Air Quality.....	3-2
3.3 Water Resources.....	3-3
3.4 Vegetation Resources .....	3-3
3.5 Wildlife Resources .....	3-3
3.6 Species of Concern .....	3-5
3.6.1 Special Status Species.....	3-5
3.6.2 Other Species of Interest.....	3-8
3.6.3 Migratory Birds.....	3-8
3.7 Invasive and Non-native Species.....	3-8
3.8 Cultural Resources .....	3-9
3.9 Recreation.....	3-10
3.10 Rangeland.....	3-10
3.11 Socioeconomics.....	3-10
3.11.1 Economy and Employment .....	3-10
3.11.2 Population and Demography.....	3-11

3.12 Visual Resources.....	3-11
3.13 Hazardous Materials and Solid Wastes.....	3-12
<b>4.0 Environmental Consequences.....</b>	<b>4-1</b>
4.1 Soils.....	4-1
4.2 Air Quality.....	4-1
4.3 Water Resources and Surface Water.....	4-1
4.4 Vegetation Resources.....	4-1
4.5 Wildlife Resources.....	4-2
4.6 Species of Concern.....	4-2
4.6.1 Special Status Species.....	4-2
4.6.2 Other Species of Interest.....	4-3
4.6.3 Migratory Birds.....	4-3
4.7 Invasive and Non-native Species.....	4-3
4.8 Cultural Resources.....	4-4
4.9 Recreation.....	4-4
4.10 Rangeland.....	4-4
4.11 Socioeconomics.....	4-4
4.12 Visual Resources.....	4-5
4.13 Hazardous Materials and Solid Wastes.....	4-5
4.14 Mitigation and BLM Stipulations.....	4-5
4.14.1 EOG-committed Environmental Protection Measures.....	4-5
4.14.2 Additional Mitigation.....	4-6
4.15 No Action Alternative.....	4-6
<b>5.0 Cumulative Effects.....</b>	<b>5-1</b>
<b>6.0 References.....</b>	<b>6-1</b>
<b>7.0 List of Contributors and Reviewers.....</b>	<b>7-1</b>

## List of Appendices

Appendix A Interim Seed Mixture

Appendix B Final Seed Mixture

Appendix C Special Status Plant and Animal Species that May be Present Within the Project Area

Appendix D Noxious Weed Risk Assessment

## List of Tables

Table 2-1	EOG Sugarloaf Well 1-17 Surface Disturbance Summary (acres).....	2-4
Table 3-1	Critical Elements and Other Resources of the Human Environment .....	3-1
Table 3-2	Designated Noxious and Invasive Plant Species that may be Found within the Project Area .....	3-9

## List of Figures

Figure 1-1	Project Location .....	1-2
Figure 1-2	Proposed Access Road and Well Pad.....	1-3
Figure 2-1	Access Road Gate at U.S. 50 ROW – View to the North .....	2-2
Figure 2-2	Access Road – View to the Southeast .....	2-3
Figure 3-1	Project Area Habitat – View to the South from the Vicinity of the Stock Watering Tank .....	3-4
Figure 3-2	Sage Grouse Habitat.....	3-6
Figure 3-3	Sage Grouse Lek Locations.....	3-7
Figure 3-4	Livestock Watering Tank and Adjacent Pond.....	3-11

# 1.0 Introduction

EOG Resources, Inc. (EOG) proposes to drill an exploratory well in White Pine County, Nevada. Sugarloaf Well 1-17, the well pad, and an access road would be on land managed by the Bureau of Land Management (BLM). BLM permitting for the project would comply with Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development – The Gold Book (BLM – United States [U.S.] Forest Service [USFS] 2006), the Code of Federal Regulations (CFR) 43 CFR 3000 and 36 CFR 228, Subpart E; Onshore Oil and Gas Orders; Notices to Lessees; and BLM Manual Section 9113 concerning road construction standards on projects subject to federal jurisdiction.

The Environmental Assessment (EA) has been prepared in compliance with National Environmental Policy Act (NEPA) and the Council on Environmental Quality (CEQ) requirements. Contents of the document address potential environmental impacts associated with project implementation, operation, reclamation, and abandonment. Best management practices are applied to mitigate the severity of impacts that cannot be fully avoided.

This EA has been prepared to analyze the impacts to the human environment as a result of the proposed operations and to determine whether there are any significant impacts that cannot be mitigated. If the EA determines that the project would result in significant impacts, an Environmental Impact Statement (EIS) would be required.

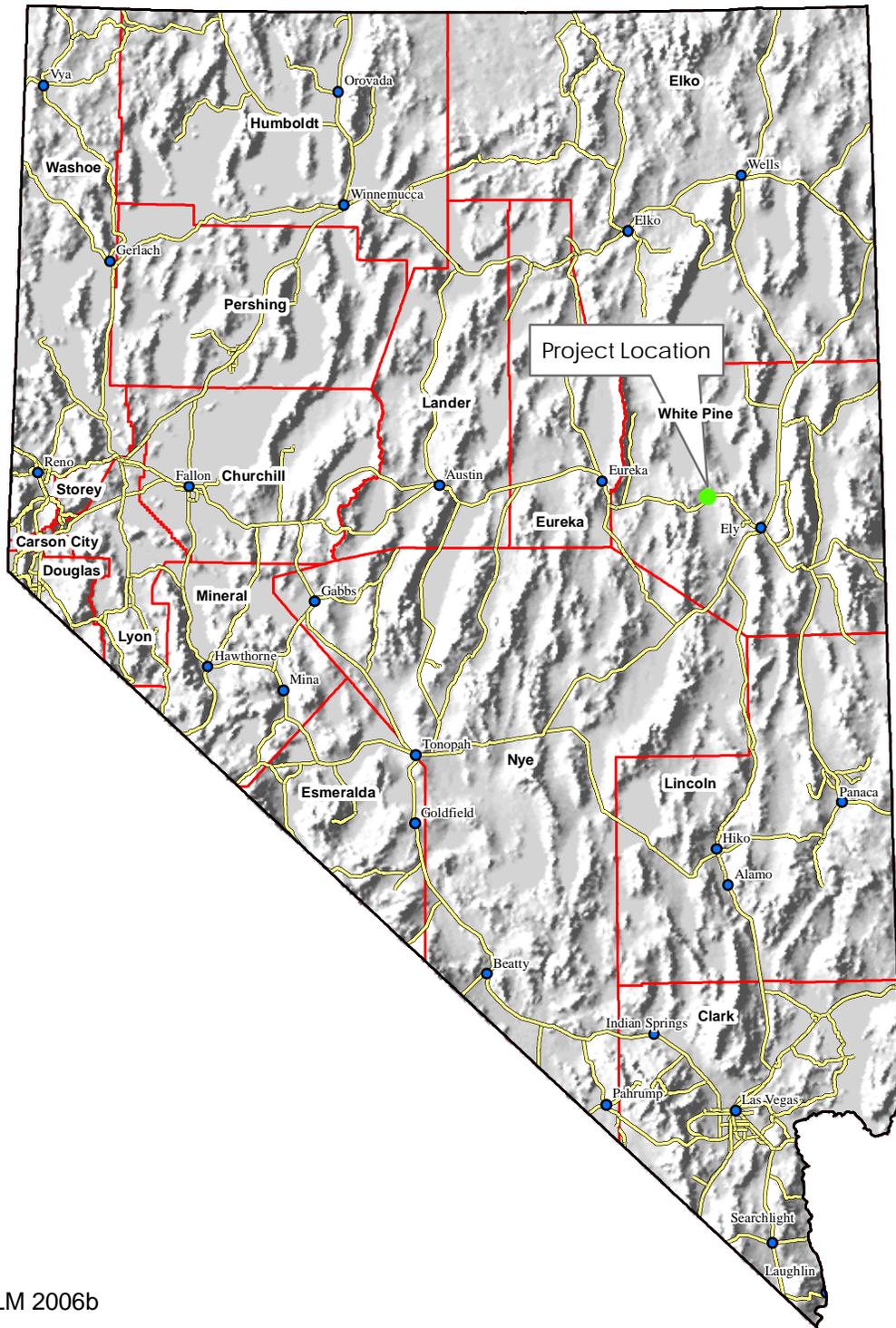
Right-of-way (ROW) serial numbers for other projects and features in the area include:

N63162	Transmission Line, 80-foot-wide ROW
N5253	Transmission Line, 62.5-foot-wide ROW
Nev 04895	Highway, 200-foot-wide ROW
4078	Fiber Optic Line

## 1.1 Project Location and Overview

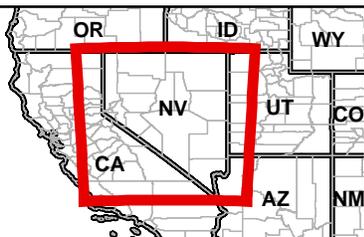
The access road and well pad would be located in the northern end of Jakes Valley in central White Pine County, Nevada, as shown on **Figures 1-1** and **1-2**. The proposed well would be located within the BLM's Ely, Nevada, District and would be accessed from U.S. Route (U.S.) 50. Operations would be performed in compliance with applicable federal, state, and local rules and regulations in addition to procedures and commitments made by EOG in an Application for Permit to Drill (APD). The access road and well pad are entirely within BLM Lease NVN 82115. The access road and well pad are within Sections 17, 20, and 29 of T18N, R60E, Mount Diablo Meridian (MDM).

An on-site inspection was conducted by EOG staff and resource specialists during mid-May 2008. The inspection included discussions regarding the access point along U.S. 50, potential alternative access roads, a review of the proposed access road, a review of drilling pad components, and a review of proposed reclamation plans.



Source: BLM 2006b

Regional Locator Map



Legend

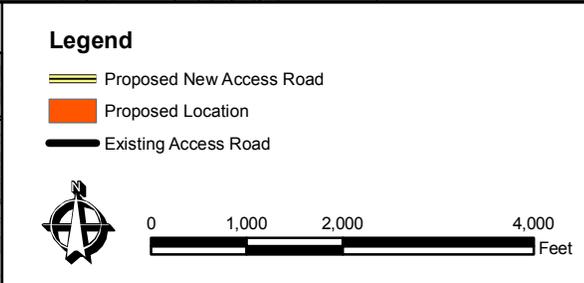
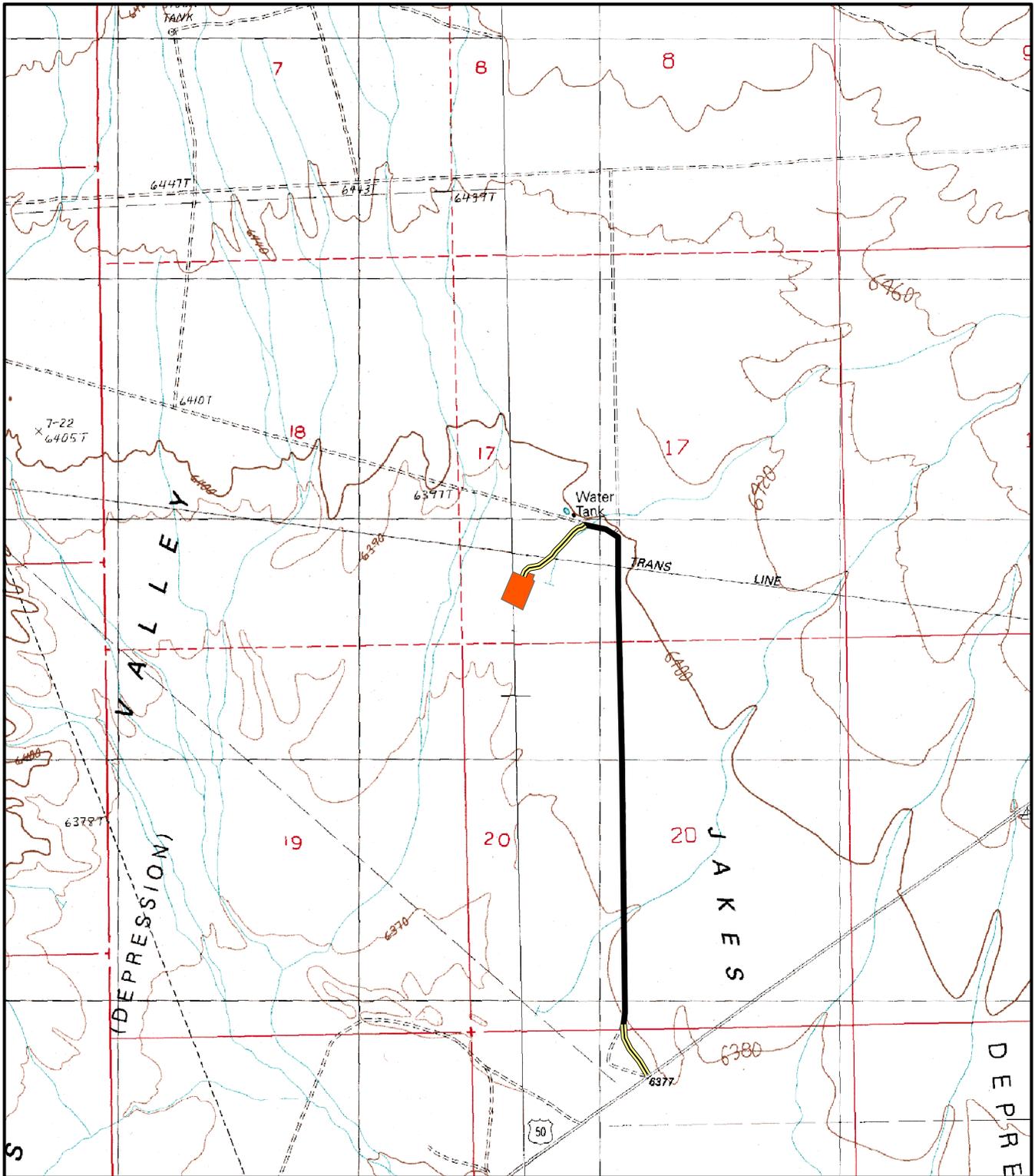
- Cities and Towns
- Major Highways
- County Boundary



EOG Exploratory Well

Figure 1-1

Project Location



**EOG Exploratory Well**

**Figure 1-2**

**Proposed Access Road and Well Pad**

## 1.2 Purpose and Need

EOG seeks an economic use of the public land by drilling an exploratory well for hydrocarbons under a federally owned lease. The successful discovery of commercial hydrocarbon resources would help meet the demand for such resources in the U.S.

## 1.3 Project Conformance with BLM Directives

The project is in conformance with the Federal Land Policy and Management Act of 1976 (43 CFR 1600), which allows for the multiple use of federal lands. The proposed project falls within the Egan Field Office, which administers lands that have potential for oil and gas resources through the Egan Resource Management Plan (RMP) Oil and Gas Leasing Amendment (BLM 1994).

The White Pine County Public Lands Policy Plan (2007), policy 7-1, is to "...encourage the careful development and production of White Pine County's mineral resources while recognizing the need to conserve other environmental resources."

## 1.4 Public and Agency Coordination

Letters of interest were received from the following three individuals/organizations:

- Mr. John Hiatt, Red Rock Audubon Society, who expressed concern regarding site reclamation following drilling and completion of the proposed well. He also expressed concern regarding avian attraction to rig lighting.
- Mr. Eric Maskow, Nevada Natural Heritage Program, who expressed concern regarding potential impacts to the rayless tansy aster (*Machaeranthera grindelioides* var. *depressa*), the pygmy rabbit (*Brachylagus idahoensis*), yucca, cacti, and Christmas trees.
- Ms. Katie Miller, Nevada Department of Wildlife, who expressed concern regarding potential impacts to sage grouse and sharp-tailed grouse leks, upland game birds, pronghorn antelope, and ferruginous hawks. She also expressed concern regarding potential cumulative impacts and site restoration.
- Mr. Robert D. Williams, U.S. Fish and Wildlife Service (USFWS), Reno, Nevada, who expressed concern regarding potential impacts to pygmy rabbit, greater sage-grouse, and migratory birds.

Potential impacts to pygmy rabbit, sharp-tailed grouse, sage grouse, migratory birds, pronghorn antelope, ferruginous hawks, and site restoration have been addressed in text. Yucca and Christmas trees are not present on site and cacti abundance is low. The potential abundance of rayless tansy aster could not be determined. There is general public interest in this type of potential development. The APD was posted at the Nevada BLM State Office on receipt. Notification of the availability of the Notice of Staking was posted on the Ely Field Office website on June 12, 2008 ([http://www.blm.gov/nv/st/en/fo/ely\\_field\\_office/blm\\_information/nepa2008.2.html](http://www.blm.gov/nv/st/en/fo/ely_field_office/blm_information/nepa2008.2.html)). Letters requesting comments for inclusion in the EA were mailed 65 interested parties on June 12, 2008.

## 2.0 Proposed Action

EOG proposes to drill an exploratory natural gas well in Jakes Valley, White Pine County, Nevada. The proposed well would require an EA and authorization through the BLM, Egan Field Office. The drilling pad would be within the SW $\frac{1}{4}$  SW $\frac{1}{4}$  of Section 17, T18N, R60E, MDM.

### 2.1 Surface Disturbance

The proposed access road would roughly follow an existing 1.6-mile-long, 16-foot-wide, 2-track access road from the highway to the water tank. A 0.2-mile-long access road extension would be created through undeveloped land from the water tank to the drilling pad. The existing 1.6-mile-long road occupies 3.1 acres; the proposed 0.2-mile-long roadway extension would occupy 0.4 acres. Two 7-foot-wide roadway shoulders would be created along the existing roadway and along the 0.2-mile-long roadway extension to provide stormwater drainage and sufficient area to stockpile soils that would be used for site reclamation. The existing 16-foot-wide road and the 7-foot-wide shoulders would occupy a 30-foot-wide, 1.6-mile-long corridor totaling 5.8 acres. The 0.2-mile-long roadway extension from the water tank to the drilling pad would be developed as a 16-foot-wide road surface with two 7-foot-wide shoulders, totaling 0.7 acres. Two 100-foot-long, 10-foot-wide turnoffs would be constructed along the roadway from the highway to the water tank to allow for incoming and outgoing truck traffic.

The road would be graveled throughout its total 1.8-mile length and maintained to meet minimum road standards as found in BLM Manual Section 9113. Maintenance would include, but would not be limited to installing, repairing, grading, and maintaining of road surface, drainage structures, ditches, culverts, dust control, and surfacing material. The maximum grade of the new access road would be less than 2 percent.

An existing gate that is located at the highway ROW would be replaced with a cattle guard and the existing 2-track access road would be reoriented to allow a 90-degree access point to U.S. 50. The existing access road and access road gate are shown on **Figures 2-1** and **2-2**, respectively.

If the well were to be economically viable as a producer, long-term disturbance would result from maintaining the proposed access road and related upgrades (i.e., roadway shoulders and drainage features), conversion of the 4.0-acre drilling pad to a 0.5-acre producing site, and removal of 0.4-acre mid pit. Initial disturbance associated with drilling the proposed well (including installation of the proposed mud pit) would total approximately 7.9 acres. Long-term disturbance (throughout the life of the well) would include a modified drilling pad (reduced in size from 4.0 acres to 0.5 acres) and removal of the mud pit. Initial disturbance associated with drilling the exploratory well would total 7.9 acres; long-term disturbance associated with a producing well would total 4.0 acres.

Existing and project-related surface disturbance is summarized in **Table 2-1**.

During construction, the topsoil and vegetation would be windrowed to the edge of the disturbance and would be immediately seeded, using the recommended interim seed mixture (**Appendix A**) and scarified. The access road and associated drainage structures would be constructed and maintained in accordance with road construction guidelines contained in BLM Manual Section 9113 concerning road construction standards on projects subject to federal jurisdiction. During the drilling and production phase of operations, the road surface and shoulders would be kept in a safe and usable condition and drainage ditches and culverts would be kept clear and free-flowing.



**Figure 2-1 Access Road Gate at U.S. 50 ROW – View to the North**



**Figure 2-2 Access Road – View to the Southeast**

**Table 2-1 EOG Sugarloaf Well 1-17 Surface Disturbance Summary (acres)**

	Existing Disturbance	Initial Disturbance <sup>1</sup>	Long-term Disturbance <sup>2</sup>
Existing 1.6-mile-long, 16-foot-wide access road	3.1		
Proposed 7-foot-wide shoulders along existing 1.6-mile-long, 16-foot-wide access road.		2.7	2.7
Proposed two 100-foot-long, 10-foot-wide turnoffs along existing 1.6-mile-long access road		0.1	0.1
Proposed 0.2-mile-long, 16-foot-wide access road and 7-foot-wide shoulders		0.7	0.7
Drilling Pad/Well Pad		4.0	0.5
Mud Pit		0.4	
<b>Total</b>	<b>3.1</b>	<b>7.9</b>	<b>4.0</b>

<sup>1</sup> Drilling and completion of exploratory well.

<sup>2</sup> Life of producing well.

If the access road is dry during construction, water would be applied to help facilitate road compaction. If the access road is dry during drilling and/or completion activities, water would be applied to minimize soil loss as a result of wind erosion.

Aggregate would be added to the existing 1.6-mile-long access road, the proposed 0.2-mile-long access road extension, and the drilling pad. Aggregate would be acquired from a permitted existing source.

EOG would clear existing soil and vegetation from the drilling pad site, placing the topsoil in stockpiles around the margin of the well pad. The proposed drilling pad would be leveled by removing approximately 15,510 cubic yards of material from the central portion of the proposed drilling pad and filling 8,270 cubic yards around the pad perimeter. Approximately 2,890 cubic yards of topsoil would be stockpiled for site restoration. Stockpiled soils would be reseeded with an interim seed mix (**Appendix A**) and scarified.

Earth-moving equipment such as bulldozers, a grader, scraper, and possibly dump trucks would be used to construct the proposed well pad and access road. Construction is expected to take approximately 2 weeks.

## 2.2 Source of Construction Materials

Construction materials that would be required for surfacing of the access road and drilling pad would be obtained from a contractor having a permitted source of materials within the general area. Pit run gravel would be obtained when the reserve pit is dug. No construction material would be removed from federal or Indian lands without prior approval from the appropriate surface management agency.

## 2.3 Drilling and Completion Operations

A rotary rig would be used to drill the well. Drilling operations would take place 24 hours per day, 7 days per week until the final depth is reached, approximately 30 to 45 days from the spud date. An appropriately sized blow-out preventer would be used throughout the drilling phase to ensure safe operations.

Night lighting would be shielded, as much as possible, to avoid visual impacts and prevent attraction of nocturnal birds and other wildlife.

Drilling would require approximately 2.6 acre-feet of fresh water (about 18,825 gallons per day) for drilling that would be obtained from a temporary use water well that would be drilled on the pad. If the proposed access road and proposed drilling pad are dry during drilling and completion, water would be applied to minimize soil loss due to wind erosion. Approximately 6,780 barrels (0.9 acre-feet) of water would be required for dust control during drilling and completion. A permit has been obtained from the Nevada Division of Water Resources. The well also would provide potable water for drilling crew members who would be temporarily housed in trailers that would be placed on the drilling pad.

Following construction, approximately 10 people (rig hands, tool pusher, company representative, geologist, mud loggers) per shift (2 to 3 shifts per day) would be hired over a 4- to 8-week period.

After total depth is reached, a completion rig would replace the drilling rig if the well shows production potential. Completion operations would consist of installing, cementing, and perforating production casing, then stimulating the productive formation(s) with acid and fracturing techniques. Drilling and completion operations would normally require the services of about 9 individuals daily over a period of 6 to 7 weeks.

Technical details of the proposed drilling, completion, and testing operations are included in the APD. The Drilling Plan has been reviewed by a BLM petroleum engineer during its approval process, ensuring that the casing and cementing programs would protect fresh water or mineral bearing zones that may be encountered.

Cuttings and drilling fluids would be contained in the reserve pit. The reserve pit would be constructed so as not to leak, break, or allow discharge in accordance with the APD and its Conditions of Approval. The reserve pit would be constructed in a way that minimizes the accumulation of surface precipitation runoff into the pit by strategic placement of subsoil/topsoil storage areas and/or construction of berms or ditches. Siphons, catchments, drip pans, and absorbent pads would be installed to keep hydrocarbons produced by the drilling and/or completion rigs from entering the reserve pit. Hydrocarbons and used pads would be disposed of in accordance with Nevada Division of Environmental Protection (NDEP) requirements. If operationally necessary, the reserve pit would be used temporarily for storage of produced fluids during testing. Fracture stimulation fluids would be flowed back into the reserve pit for evaporation.

Lining of reserve pits is required to reduce the potential for soil and groundwater contamination. BLM regulations require the proper containment and disposal of waste material resulting from oil and gas drilling and production activities (43 CFR 3162.3-1[f]). The State of Nevada requires that "No operator who conducts oil or gas development and production may use unlined collecting pits for storage and evaporation of brines from the oil field" (Nevada Administrative Code [NAC] 522.255). The reserve pit would be lined with a material that has a permeability less than 10<sup>-7</sup> centimeters per second and has a burst strength equal to or exceeding 300 pounds per square inch (psi) or puncture strength of 160 psi or greater and grab tensile strength of 150 psi or greater. The liner would be intrinsically resistant to deterioration by hydrocarbons and would not be installed directly on rock. If necessary, the pit would be constructed with a layer of bedding material (e.g., sand or geotextile fiber liner) sufficient to prevent contact between the liner and exposed rock.

The project site perimeter would be fenced during drilling operations to keep livestock out of the area. The fence would be a four strand fence with the bottom wire being smooth. The spacing starting at the bottom would be 16, 6, 8, 12 inches. T-post spacing should be a maximum of 16.5 feet apart. The fence would remain in place until the reclamation is completed to BLM specifications.

EOG would maintain a file, per 29 CFR 1910.1200 (g), containing current Material Safety Data Sheets for all chemicals, compounds, and/or substances that would be used during all operations associated with the Proposed Action. A variety of chemicals, including lubricants, paints, and additives are used to drill and produce a well. Some of these chemicals can contain constituents that are hazardous. Hazardous materials

include some greases or lubricants, solvents, acids, paint, and herbicides, among others. The transport, use, storage, and handling of hazardous materials would follow procedures specified by federal and state regulations. Transportation of the materials to the well location is regulated by the Department of Transportation (DOT) under 49 CFR, Parts 171-180. DOT regulations pertain to the packing, container handling, labeling, vehicle placarding, and other safety aspects.

Potentially hazardous substances used in the development or operation of the well would be kept in limited quantities on the well site and at the production facility for short periods of time. None of the chemicals that would be used would meet the criteria for being an acutely hazardous material/substance or meet the quantities criteria per BLM Instruction Memorandum No. 93-344. Chemicals subject to reporting under Title III of the Superfund Amendments and Reauthorization Act in quantities of 10,000 pounds or more would not be used, produced, stored, transported, or disposed of annually during the drilling, completion, or operation of the proposed well. In addition, no extremely hazardous substance, as defined in 40 CFR 355, in threshold planning quantities, would be used, produced, stored, transported, or disposed of while producing the well.

All garbage and non-flammable waste materials would be stored in a self-contained, portable dumpster or trash cage. Upon completion of operations, or as needed, the accumulated trash would be transported to an approved waste disposal site. Trash would not be placed in the reserve pit. Portable, self-contained chemical toilets would be provided for human waste disposal. Immediately after removal of the drilling rig, all debris and other waste materials not contained in the trash cage would be removed from the location.

## **2.4 Operations and Maintenance**

If commercial production is established from the proposed well, the access road, if not already graveled, would be surfaced to an average minimum depth (after compaction) of 4 inches with 3-inch minus pit run gravel (gravel 3 inches or less in diameter) or crushed rock, if and/or as required by the Authorized Officer (AO). These surfacing material(s) would be purchased from a contractor having a permitted source of materials within the general area of the well. The entire road bed, including inslopes and outslopes, would be seeded with a BLM-approved seed mixture. During the drilling and production phase of operations, the road surface and shoulders would be kept in a safe and useable condition and drainage ditches and culverts would be kept clear and free flowing.

If the well proves capable of producing commercial quantities of natural gas, EOG would install an underground pipeline and production equipment. A separate BLM approval would be required if the well is a producer.

If productive, 1 or more 400-barrel (12-foot by 20-foot) production tanks would be installed on the well pad. Other production equipment would include a 4-foot by 10-foot by 8-foot heater/separator, a 6-foot by 6-foot by 7-foot dehydrator/meter run, and a 500-gallon methanol tank. All production facilities would be located on the disturbed portion of the well pad. All permanent (on site 6 months or longer) aboveground structures constructed or installed on location and not subject to safety requirements would be painted Shale Green (5Y 4/2).

Containment berms would be constructed to surround produced oil and water tanks. The containment berms would be constructed of compacted subsoil to be impervious and would be large enough to contain 110 percent of the capacity of the largest tank, independent of the back cut.

Noxious and invasive weeds would be controlled within the exterior limits of the access road and drilling pad. The control methods would comply with guidelines established by the U.S. Environmental Protection Agency, BLM, state, and local authorities. Approval would be obtained from the BLM AO prior to use of herbicides.

## 2.5 Interim and Final Reclamation

All reclamation activities would be performed at the direction of the BLM AO. Interim reclamation would consist of reclaiming the reserve pit, and other well pad areas that are not needed for production. These areas would be seeded with the recommended final seed mixture, listed in **Appendix B**, following the recontouring, topsoil replacement, and seeding procedures described below. The 7-foot-wide access road shoulders along the 1.6-mile-long existing access road and the 0.2-mile long access road extension, and disturbed areas around the drilling pad (estimated to total approximately 1.0 acres), totaling approximately 4.0 acres would receive interim seeding to stabilize soils. If the well is found to be unsuited for production, final seeding would be applied to all surfaces except the existing 1.6-mile-long access road, a total of 7.9 acres.

The reserve pit would be closed and reclaimed no later than October 1 of the year following drilling and completion activities, reducing the amount of long-term disturbance. After the reserve pit has dried, the reserve pit fence would be removed and the pit would be backfilled. If natural evaporation of the reserve pit is not feasible, alternative methods of drying, removal of fluids, or other treatment may be utilized. If fluids would be disposed of by any method other than evaporation or hauling to an approved disposal pit, prior approval from the AO would be obtained. If disposal requires a discharge or transport, approval would be obtained from the NDEP Bureau of Waste Management. Well-head access would be filled and compacted from bottom to top immediately after release of the drilling rig from the location.

Topsoil from the berms and/or storage piles would be spread along the access road's cut and fill slopes. Drainage ditches or culverts would not be blocked with topsoil and associated organic matter. Disturbed lands along the access road would be recontoured and ripped to a 1-foot depth, using ripping teeth set on 1-foot centers. Topsoil would be spread 6 inches deep, seeded, and scarified. If the well is determined to be less than economically productive, the site would be fully reclaimed.

The topsoil would be seeded using a final seed mixture as identified in **Appendix B**. EOG would, promptly after completion of drilling operations (depending on seasonal/weather constraints), reseed the entire drill pad and access road using a drill equipped with a depth regulator, resulting in reclamation of the drillsite to approximately 0.5 acre. The access road would be reclaimed back to the original (to the extent practicable) running surface. Seeding would take place after well completion between September 1 to November 15 (before ground freeze), or as early as possible the following spring to take advantage of available ground moisture. EOG would repeat seeding until a satisfactory stand, as determined by the AO, is obtained.

If the proposed well is non-productive or incapable of producing hydrocarbons in commercial quantities, the well would be plugged and abandoned in accordance 43 CFR 3162.3-4 and Section V of Onshore Oil and Gas Order No. 1. The plugged and abandoned well would be cut and buried approximately 3 feet below the ground surface. Prior to final abandonment reclamation work, a Sundry Notice describing the proposed reclamation plan would be submitted to the AO for approval. Final reclamation would include re-contouring the well pad and access road to blend with natural topography, reseeding, and monitoring and follow-up to ensure revegetation is successful. The perimeter fence would remain to exclude livestock until the revegetation is successful.

## 2.6 Methods of Handling Waste Disposal

The reserve pit would be constructed in a manner to minimize the accumulation of surface precipitation runoff into the pit. Subsoil/topsoil storage areas and/or construction of berms and/or ditches would be appropriately placed to reduce the possibility of surface runoff to the pit. The reserve pit would be lined with a 12-mil or thicker synthetic liner. The bottom and side walls would be void of any sharp rocks that could puncture the liner. The liner would be installed over smooth fill subgrade that is free of pockets, loose rocks or other materials that could damage the liner. Where necessary, pits would first receive a layer of bedding material that would be sufficient to prevent contact between the liner and exposed rock.

The reserve pit and flair pit would be fenced using 5- to 6-foot high chain-link fencing immediately after the pits are constructed. Three sides of the reserve pit would be fenced during drilling operations. The fourth side would be similarly fenced after the drilling rig moves off the location. Fencing would meet BLM specifications and would preclude entry by antelope, deer, and wild horses. The fencing would be maintained until reclamation of the pits is initiated. If a fracture stimulation pit is needed, it also would be fenced immediately after pit construction.

Siphons, catchments, and absorbent pads would be installed to keep hydrocarbons produced from the drilling rig from entering the reserve pit. Hydrocarbons and contaminated pads would be disposed of in accordance with NDEP regulations. The pits would be continually monitored for visible sheen. If hydrocarbons are identified, they would be vacuumed immediately and hauled to an approved disposal site. Cuttings and drilling fluids would be contained in the reserve pit.

If operationally necessary, the reserve pit would be used for the temporary storage of produced fluids during testing. Fracture stimulation fluids would be flowed back into the reserve pit for evaporation. The pit would be closed and reclaimed within 6 months following drilling and completion activities (weather permitting). In the event that an extension is required, a request will be made accordingly. After the pit is dry, the reserve pit liner would be cut as close as possible to the mud surface and would be hauled to an approved disposal site. The pit would then be backfilled with no less than 5 feet of soil material. Covering soil would be mounded to allow settling.

Portable, self-contained chemical toilets would be provided for human waste disposal. Toilet holding tanks would be pumped and the contents would be disposed of in an approved sewage disposal facility. The project would comply with all state and local laws and regulations that pertain to the disposal of human waste.

All garbage and non-flammable waste materials would be contained in a self-contained, portable dumpster or trash cage. Upon completion of operations, or as needed, the accumulated trash would be transported to a state approved waste disposal site. Trash would not be placed in the reserve pit. All debris and other waste material not contained in the trash cage would be removed from the location, following drilling and completion operations. Fencing around open pits would be maintained until the pits are backfilled.

Material Safety Data Sheets would be maintained on site for all chemicals, compounds, and/or substances that are used during the course of construction, drilling, completion, and production operations. Hazardous materials that may be present on the site may include drilling mud and cementing products that are necessary for well completion/stimulation, such as flammable or combustible substances and acids/gels.

## **2.7 Well Completion or Recompletion Reporting**

If the well is completed as a dry hole or as a producer, Well Completion or Recompletion Report and Log (Form 3160-4) would be submitted within 30 days after completion of the well or after completion operations are performed, in accordance with 43 CFR 3160. Copies of all logs, core descriptions, core analyses, all other surveys or data obtained and compiled during the drilling, completion, and/or workover operations, would be submitted directly to the AO or filed with Form 3160-4.

## **2.8 No Action Alternative**

The No Action Alternative would preclude drilling the exploratory gas well. Under the No Action Alternative, potential natural gas resources within the area may never be adequately explored and production of such resources may not be realized.

## **2.9 Other Alternatives Considered but not Analyzed in Detail**

During the pre-drill inspection, other existing 2-track roads and routes were examined to see if there would be an opportunity to decrease the length of road construction. None was found that would have resulted in less total disturbance.

### Other Alternatives

No other alternatives are necessary to respond to unresolved conflicts concerning alternative uses of available resources.

### 3.0 Affected Environment

Resources that could be affected by development of the proposed project and the No Action Alternative are addressed in the “Affected Environment” chapter of this EA. Baseline information contained in the chapter has been compiled from BLM 2007, 2006, 2005, various state and federal agencies, and field investigations conducted during the spring 2008.

Critical elements of the human environment are specifically required by statute, regulation, executive order (EO), or state guidelines and must be considered in the analysis of the alternatives. Several other resources that may be affected are included in this EA. Critical elements of the human environment are listed in **Table 3-1**.

**Table 3-1 Critical Elements and Other Resources of the Human Environment**

Required Critical Resources	Present Yes/No	Potentially Affected Yes/No	Other Resources	Present Yes/No	Potentially Affected Yes/No
Air Quality	Y	Y	Geology and Minerals	Y	N
Areas of Critical Environmental Concern	N	N	Soils	Y	Y
Cultural Resources	Y	Y	Vegetation Resources	Y	Y
Environmental Justice	N	N	Wild Horse and Burro	N	N
Farmlands, Prime/Unique	N	N	Wildlife Resources	Y	Y
Floodplains	N	N	Range Resources	Y	Y
Wastes, Hazardous/Solid	Y	Y	Lands and Realty	N	N
Invasive, Non-native Species	Y	Y	Visual Resources	Y	Y
Migratory Birds	Y	Y	Recreation	Y	Y
Special Status Species	Y	Y	Noise	Y	N
Native American Religious Concerns	Y	N	Socioeconomics	Y	Y
Water Resources	Y	Y			
Wetlands/Riparian Zones	N	N			
Wild and Scenic Rivers	N	N			
Wilderness	N	N			

#### Resources Not Affected

The following resources would not be affected by construction or operation of the proposed exploratory well and therefore, were excluded from analysis in this EA.

- Areas of Critical Environmental Concern
- Environmental Justice
- Farmlands, Prime/Unique

- Floodplains
- Native American Religious Concerns
- Wetlands/Riparian Zones
- Wild and Scenic Rivers
- Wilderness
- Geology and Minerals
- Wild Horse and Burro
- Lands and Realty
- Noise

### **3.1 Soils**

Bylo-Tulase association and Abgese-Yody-Shabliss association are within the project area. Bylo series consists of very deep soils that were formed in alluvium from mixed rock and in lacustrine sediments and occur on lake plains, alluvial flats, and inset fans with 0 to 4 percent slopes. Tulase soils are very deep; formed in alluvium derived from mixed rocks, loess, and volcanic ash. Tulase soils occur on lagoons, inset fans, fan skirts, stream terraces, and drainageways with 0 to 8 percent slopes. The Bylo-Tulase association is moderately susceptible to wind erosion and the soils are well drained with low or medium surface runoff and may be saline.

The Abgese series consists of very deep soils that formed in alluvium and colluvium from volcanic and sedimentary rocks and occur on terraces, fan remnants, and low hills with 0 to 40 percent slopes. The Yody series consists of moderately deep soils that were formed in alluvium derived from volcanic rocks. Yody soils occur on fan remnants with 0 to 15 percent slopes. The Shabliss series consists of shallow soils that formed in alluvium derived from mixed rock sources with a thin loess mantle high in volcanic ash. Shabliss soils occur on fan aprons, partial ballenas, and fan remnants with slopes of 0 to 50 percent. The Abgese-Yody-Shabliss association is moderately susceptible to wind erosion and the soils are well drained with high or very high surface runoff.

### **3.2 Air Quality**

The proposed project is located in a semi-arid region at an elevation of approximately 6,500 feet amsl. Mountainous areas adjacent to the project area are substantially wetter, receiving 11 to over 15 inches of precipitation, annually. A semi-arid climate is characterized by low rainfall, low humidity, clear sky, and relatively large annual and diurnal temperature ranges (National Oceanographic and Atmospheric Administration 2008). Average minimum and maximum temperatures monitored at Eureka from October 1952 to March 2004 range from a low of 17.6 degrees Fahrenheit (°F) in January to a high of 85.7°F in July.

Bright sunny days and clear nights frequently occur as a result of the typically dry atmosphere. Winds tend to blow upslope during the daytime as a result of rapidly heating of the ground surface. At night, cooler air tends to result in downslope airflow as it sinks. The upslope/downslope cycle is influenced by topographic features that result in low-level winds that are overridden by upper-level wind systems that generally flow from west to east.

The project area has been designated as within attainment for all pollutants that have a national ambient air quality standard. Those pollutants are: ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, particulate matter (PM), lead, and hydrogen sulfide.

### 3.3 Water Resources

There are no water sources within 1 mile of the project area. The nearest well is the Townsend Well, located 3 miles east of the Sugarloaf 1-17 location. There are no defined drainages within Jakes Valley. Surface waters evaporate rapidly or percolate into the ground. Water is piped from a spring approximately 3.5 miles east of Sugarloaf 1-17 to a stock pond just north of Sugarloaf 1-17.

Groundwater sources in the area are typical of the Basin and Range Province. Aquifers are not continuous and are limited regionally because of the complex faulting of the mountain ranges, which also underlie the intermountain basins. Principal aquifers comprising the groundwater flow system within the study area region are:

- Tertiary volcanic-rock aquifers of tuff, rhyolite, or basalt;
- Mesozoic and Paleozoic carbonate-rock aquifers of limestone and dolomite; and
- Quaternary and Tertiary basin fill aquifers of consolidated and unconsolidated sand and gravel.

Basin aquifers are the primary water bearing aquifers that occur in valleys or other low-lying areas for consumptive use, such as agricultural or municipal. Groundwater losses (discharge) in the area is primarily through evapotranspiration and is dependent on several factors such as depth to the water table, soil type, plant type, and plant density. Studies conducted by the U.S. Geological Survey estimated total evapotranspiration to range from 0.13 to 1.60 feet per year for phreatophyte areas with less than 20 percent plant cover.

### 3.4 Vegetation Resources

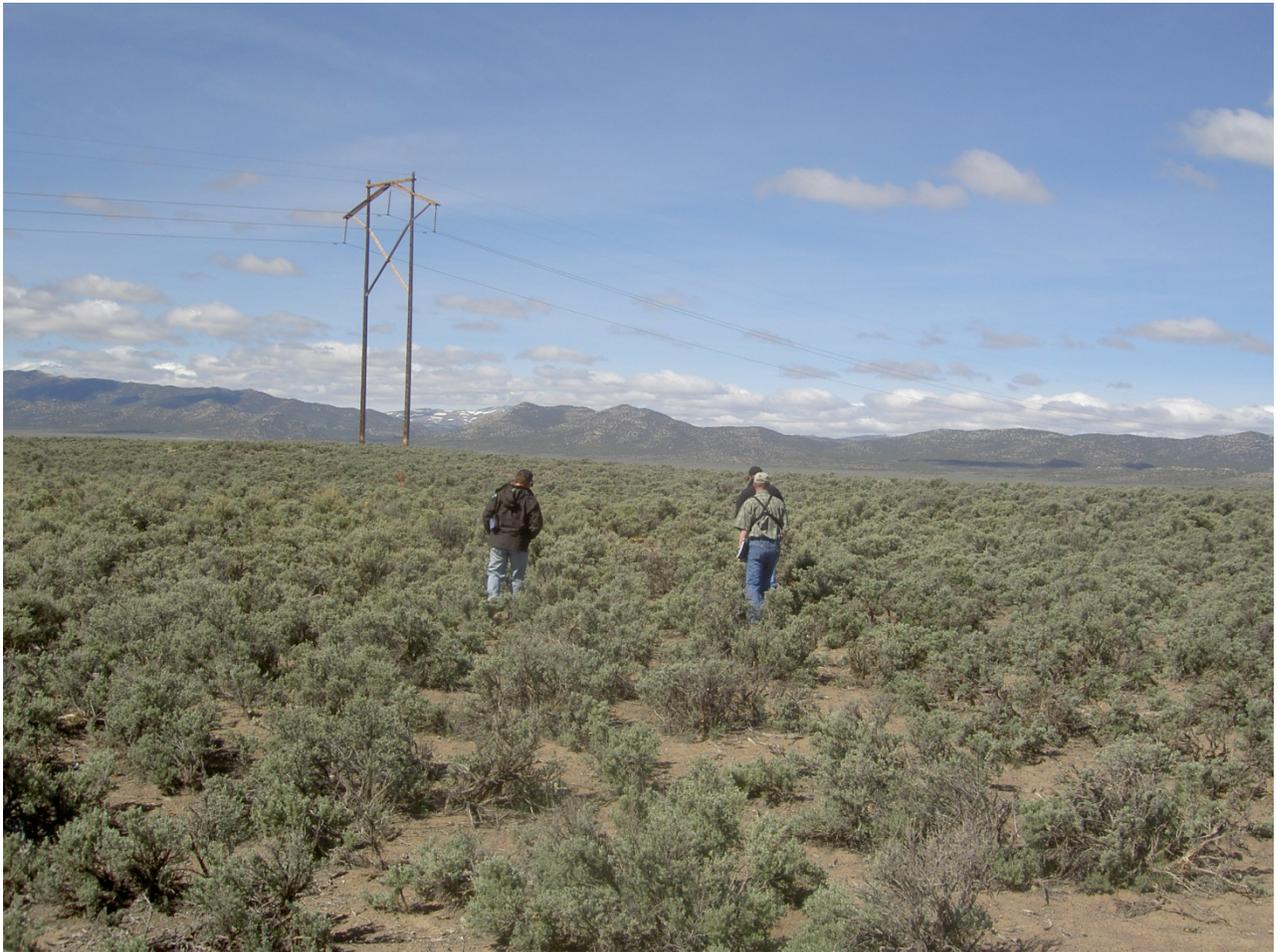
Vegetation within the region is dominated by Wyoming big sagebrush (*Artemisia tridentata wyomingensis*) and generally referred to as the western intermountain sagebrush steppe, Great Basin-Colorado plateau sagebrush, northern desert shrub vegetation, or simply sagebrush/grass habitat. Dominate vegetation at the proposed well location is Wyoming big sagebrush with mixed grasses and forbs. Mature sagebrush measures 15 to 35 inches high within an area that is generally rolling with a few swales and low ridges. Barren ground (8 to 12 feet patches) is common throughout the area. Black greasewood (*Sarcobatus vermiculatus*) and rubber rabbitbrush (*Chrysothamnus nauseosus*) are within two somewhat incised drainages that cross the proposed well location. Relic populations of Indian ricegrass (*Achnatherum hymenoides*) may be present in scattered locations. Habitat within the project area is shown on **Figure 3-1**.

Species found along area highways typically include: Russian thistle (*Salsola kali*), halogeton (*Halogeton glomeratus*), four-wing salt bush (*Atriplex canescens*), and poverty weed (*Iva axillaris*).

### 3.5 Wildlife Resources

Wildlife observations noted during the brief May field reconnaissance failed to identify the presence of greater sage grouse (*Centrocercus urophasianus*) or pygmy rabbit (*Brachylagus idahoensis*) within the immediate vicinity of the proposed project location. However, habitat within the area was suitable to support both species. Habitat within the area also was noted as suitable to support pronghorn (*Antilocarpa americana*), coyote (*Canis latrans*), black-tailed jack rabbit (*Lepus californicus*), sagebrush vole (*Lagurus curtatus*), least chipmunk (*Eutamias minimus*), turkey vulture (*Cathartes aura*), horned larks (*Eremophila alpestris*), Brewer's sparrow (*Spizella breweri*), desert horned lizard (*Phrynosoma platyrhinos*), and sagebrush lizard (*Sceloporus graciosus*). Sharp-tailed grouse (*Tympanuchus phasianellus*) are not currently found in White Pine County; the nearest population is found in northern Elko County.

High voltage transmission lines that are located north of the proposed drilling pad provide roosting and nesting opportunities for raptors. An active common raven (*Corvus corax*) nest was observed on a transmission line structure during the May site visit. The nest was approximately 500 meters west of the pad.



**Figure 3-1 Project Area Habitat – View to the South from the Vicinity of the Stock Watering Tank**

### 3.6 Species of Concern

Species of concern are those that receive protection from federal, state, or local jurisdictions. Federally protected species are those listed by the USFWS as endangered, threatened, or species that are candidates for listing as either threatened or endangered. Special status plant and animal species that may be present within the project area are listed in **Appendix C**.

No federally-listed threatened or endangered species are known to be present in the project area.

#### 3.6.1 Special Status Species

Habitat is suitable to support four species that are listed by the BLM and/or the State of Nevada as special status species.

##### Pygmy Rabbit

The pygmy rabbit is listed by the BLM and the State of Nevada as a sensitive species. Field investigations failed to identify the presence of pygmy rabbit within the project area. Data from the BLM Egan Field Office RMP do not indicate the presence of pygmy rabbit to be in the vicinity of the project site, although no specific pygmy rabbit surveys have been conducted throughout the entire project site. The nearest reported sighting is 7 miles northeast of the project location.

##### Greater Sage Grouse

Greater sage grouse is listed by the BLM and the State of Nevada as a sensitive species. The proposed drilling site does not meet the preferred conditions for a lek; however, the species likely would travel through the area while moving to and from water at, or near a large livestock watering tank. The project site is located within an area that is considered to be both winter range and nesting range for the greater sage grouse. In addition, the area may serve as a loafing ground for grouse during summer due to its proximity to the stock pond and water tank. Approximately 5 leks are known to be within 2 miles of the proposed well site. Sage grouse winter habitat, nesting habitat, and summer habitat in proximity to the project are shown on **Figure 3-2**. The nearest sage grouse lek is located approximately 1,500 feet south of the proposed drilling pad, as shown on **Figure 3-3**.

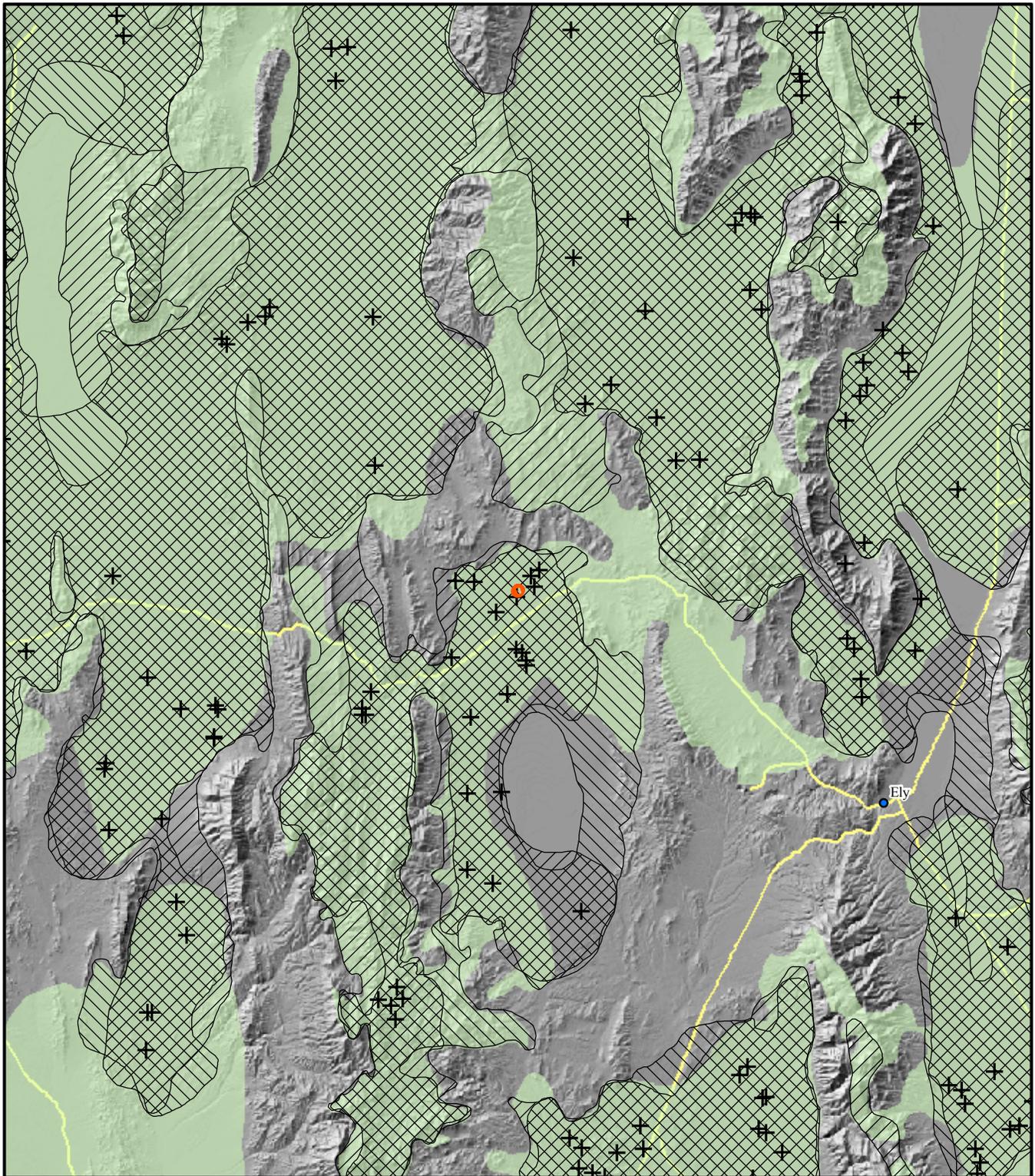
##### Ferruginous Hawk

Ferruginous hawk is listed by the BLM and the State of Nevada as a sensitive species. Ferruginous hawks are relatively common in Nevada with nesting populations found primarily in central Nevada. Nesting birds are found in lower densities elsewhere in the state. Nesting habitat is typically in scattered juniper trees, located at the interface of pinyon-juniper and desert shrub communities, overlooking broad open valleys. Nests are very large, bulky and are often constructed at the top of juniper trees, on a cliff or rock pinnacle, man-made structures, and sometimes, on the ground. Nesting takes place during late February through early March.

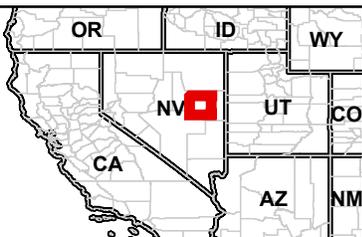
Field observations during the spring 2008 failed to identify ferruginous hawk nests in the vicinity of the proposed project site, although potential nesting habitat could be present in juniper woodlands approximately 1.5 miles to the north. Historic Nevada Division of Wildlife data indicate that a ferruginous hawk nest was located approximately 2.5 miles southeast of the proposed project site in 1992. Due to distances to potential nesting habitat and the historic nest site, it is unlikely that the proposed project would adversely impact the species.

##### Burrowing Owl

Burrowing owl (*Athene cunicularia*) is listed by the BLM and the State of Nevada as a sensitive species. Within Nevada, burrowing owls typically inhabit existing burrows that have been created by mammals such as badgers and coyotes; however, they also have been known to inhabit burrows created by other species. The species feeds on a variety of prey, including large arthropods and small mammals. Nesting season begins



**Regional Locator Map**



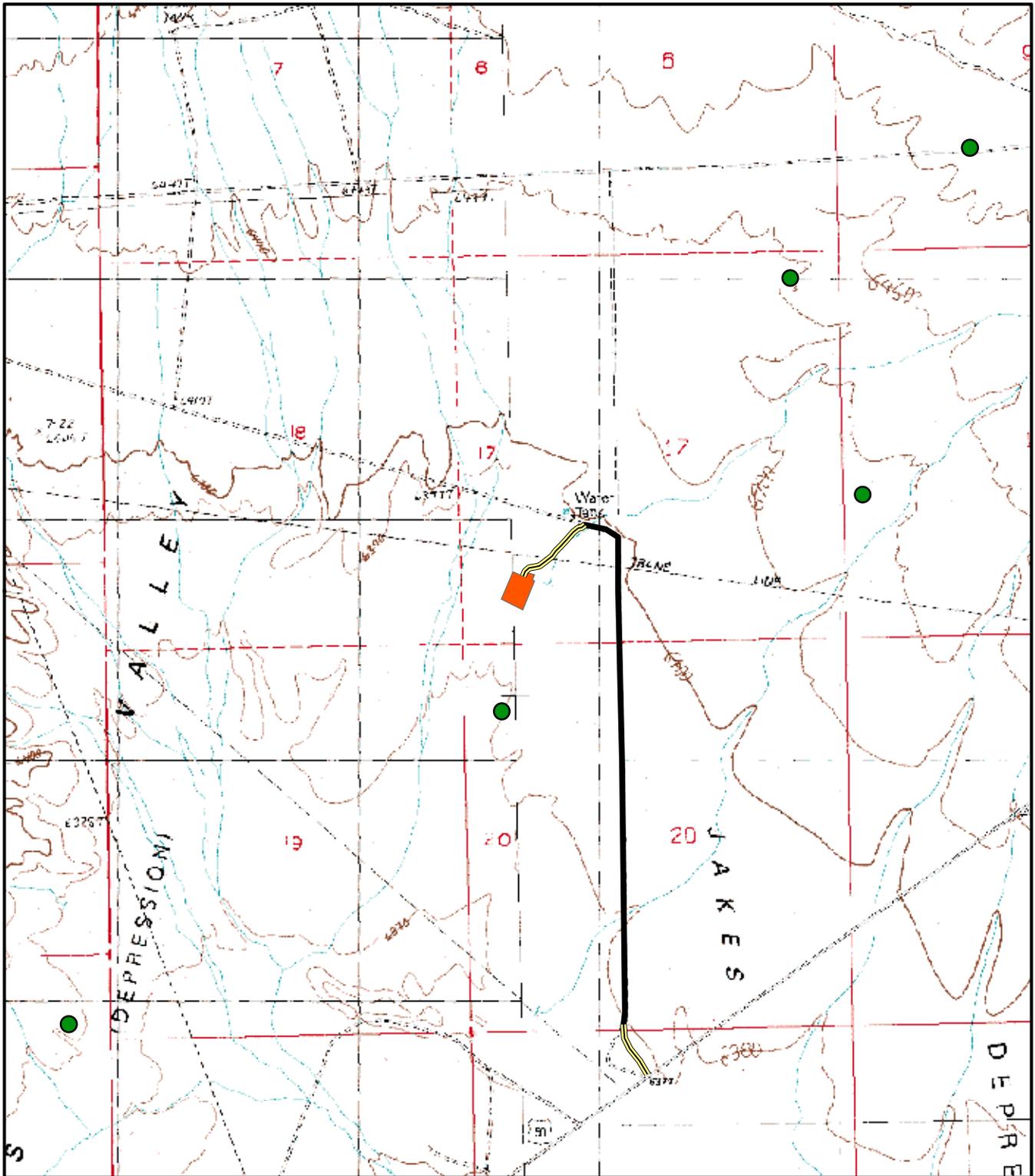
**Legend**

- ◆ Proposed Location
- Cities and Towns
- Major Highways
- +
- Sage Grouse Winter Habitat
- Sage Grouse Nesting Habitat
- Sage Grouse Summer Habitat

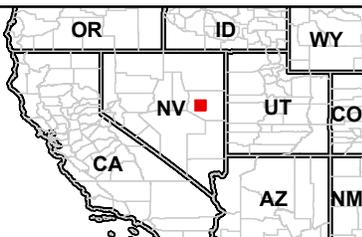


**EOG Exploratory Well**

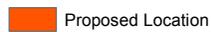
**Figure 3-2**  
**Sage Grouse**  
**Habitat**



Regional Locator Map



Legend

-  Proposed New Access Road
  -  Proposed Location
  -  Existing Access Road
  -  Sage Grouse Leks
-  0 1,000 2,000 4,000 Feet

EOG Exploratory Well

Figure 3-3

Sage Grouse  
Lek Locations

during late March and April. Habitat preference includes open dry grasslands, rangelands, agricultural fields, and desert scrub. The species was not observed to be present on the proposed project site or adjacent lands during the spring field reconnaissance.

### 3.6.2 Other Species of Interest

American pronghorn may occur in the area and mule deer (*Odocoileus hemionus*) may frequent the project area, particularly due to the presence of water at the stock tank north of the proposed project location. Although both species likely would avoid the area during drilling pad construction, drilling, and completion, they would return to the area following such activities, unless the exploration operation locates commercially viable hydrocarbon resources and the site becomes continuously active. If the site is not developed for the long-term production of hydrocarbons, long-term impacts to the two species are not anticipated.

Rayless tansy aster (*Machaeranthera grindelioides* var. *depressa*) is a small perennial herb that is endemic to Clark, Elko, Eureka, Lincoln, Nye, and White Pine counties, Nevada. The species has been found on carbonate or calcareous soils that are nearly barren rocky, rocky clay, and clay soils on ridges, slopes, low hills, and badlands in the upper blackbrush, sagebrush, pinyon-juniper, mountain mahogany, and lower subalpine conifer zones. Recorded elevations in Nevada range from 5,000 to 9,200 feet amsl.

Although elements of habitat requirements are present within and in the vicinity of the proposed project site, it appears to be marginal. Additional information is required to determine the presence or absence at the project site.

### 3.6.3 Migratory Birds

Migratory birds are those in 50 CFR 10.13 that include all native species commonly found in the U.S., with the exception of native resident game birds. Migratory birds are protected under the Migratory Bird Treaty Act (MBTA). The MBTA makes it unlawful to take, kill, or possess migratory birds as defined by 16 USC 703-711. Potential for impacting migratory birds may occur during spring to early-summer nesting and foraging period.

Migratory bird species are common throughout the area. Common shrub nesting species include the sage thrasher (*Oreoscoptes montanus*), sage sparrow (*Amphispiza belli*), Brewer's sparrow (*Spizella breweri*), horned lark (*Eremophila alpestris*), and western meadowlark (*Stumella neglecta*). Loggerhead shrike (*Lanius ludovicianus*), common nighthawk (*Chordeiles minor*), various wrens (*Troglodytidae*), warblers (*Sylviidae*), larks (*Alaudidae*), and swallows (*Hirundinidae*) also may be present. Impacts to migratory birds can result from site clearing during nesting season, which extends from May 1 through July 15.

## 3.7 Invasive and Non-native Species

The BLM defines a weed as a non-native plant that disrupts or has the potential to disrupt or alter the natural ecosystem function, composition, and diversity of the site it occupies. A weed's presence deteriorates the health of the site, it makes efficient use of natural resources difficult, and it may interfere with management objectives for that site. It is an invasive species that requires a concerted effort (manpower and resources) to remove from its current location, if it can be removed at all. "Noxious" weeds refer to those plant species which have been legally designated as unwanted or undesirable. This includes national, state, and county or local designations.

Invasive and non-native plant species infestations have been expanding throughout the U.S., including Nevada. Noxious and non-native, invasive weeds often provide poorer wildlife habitat than native vegetation and can result in economic losses to agricultural and rangelands. The proliferation of non-native plant species alters ecosystem processes and can threaten the extirpation of some native species.

In a measure to prevent the spread of noxious weeds, the State of Nevada enacted laws requiring control of weeds (Nevada Revised Statute [NRS] 555.005, NAC 555.010). Additionally, the federal Noxious Weed Act of

1974, as amended (7 USC 2801 et seq.) requires cooperation with federal, state, and local agencies in the application and enforcement of all laws and regulations relating to the management and control of noxious weeds. **Table 3-2** provides a list of noxious and invasive weeds that could be found within the project area.

**Table 3-2 Designated Noxious and Invasive Plant Species that may be Found within the Project Area**

Common Name	Scientific Name	Status
Black henbane <sup>1</sup>	<i>Hysocyamus niger</i>	Noxious
Bull thistle <sup>1</sup>	<i>Cirsium vulgare</i>	Noxious
Canada thistle <sup>1</sup>	<i>Cirsium arvense</i>	Noxious
Cheatgrass	<i>Bromus tectorum</i>	Invasive
Curly dock	<i>Rumex crispus</i>	Invasive
Dalmation toadflax	<i>Linaria dalmatica</i> ssp. <i>dalmatica</i>	Noxious
Field bindweed	<i>Convolvulus arvensis</i>	Invasive
Halogeton	<i>Halogeton glomeratus</i>	Invasive
Hoary cress <sup>1</sup>	<i>Lepidium draba</i>	Noxious
Musk thistle <sup>1</sup>	<i>Carduus nutans</i>	Noxious
Perennial pepperweed	<i>Lepidium latifolium</i>	Noxious
Poison hemlock	<i>Conium maculatum</i>	Noxious
Puncturevine	<i>Tribulus terrestris</i>	Noxious
Russian knapweed <sup>1</sup>	<i>Acroptilon repens</i>	Noxious
Russian olive	<i>Elaeagnus angustifolia</i>	Invasive
Russian thistle	<i>Salsola kali</i> ( <i>Salsola iberica</i> )	Invasive
Saltcedar <sup>1</sup>	<i>Tamarix</i> spp.	Noxious (BLM Invasive)
Scotch thistle <sup>1</sup>	<i>Onopordum acanthium</i>	Noxious
Spotted knapweed <sup>1</sup>	<i>Centaurea stoebe</i>	Noxious
Squarrose knapweed	<i>Centaurea virgata</i> var. <i>Squarrosa</i>	Noxious
Tree of heaven	<i>Ailanthus altissima</i>	Invasive
Water hemlock <sup>1</sup>	<i>Cicuta maculate</i>	Noxious

Sources: State of Nevada 2003.

<sup>1</sup> Listed as present in the White Pine County Wilderness Ground Disturbance Reclamation Plan (BLM 2008).

### 3.8 Cultural Resources

Class I and Class III cultural resources investigations were carried out by Summit Envirosolutions, Inc. during May 13 and 14, respectively. The Class I investigation found that 8 cultural resources investigations have been conducted within 1 mile of the project site, resulting in the identification of 6 recorded sites (Summit Envirosolutions 2008). There are no properties listed on the National Registry of Historic Properties within 1 mile of the project area.

Four isolates were discovered during Class III field investigations. These included one Desert Side-notched (DSN) projectile point, one flake tool, one core, and one flake. All four isolates were located along access roads.

### **3.9 Recreation**

The proposed project site is located within the Loneliest Highway Special Recreation Management Area (SRM) in the BLM Ely District planning area. Located along U.S. 50, the SRM includes popular destinations for recreationists such as Illipah Reservoir, Cold Creek Reservoir, Garnet Hill Rockhounding Area, and the Pony Express Trail (BLM 2007). BLM's management objective for the SRM is to provide recreational opportunities for the public, while minimizing damage to resources, and reducing conflicts with other users. Typical recreational activities occurring in the project area include hunting, hiking, off-road vehicle use, sightseeing, camping, and rockhounding. Recreation use within the area is relatively low.

### **3.10 Rangeland**

Under the Taylor Grazing Act, the Secretary of Interior has authority to place public lands that are considered valuable for grazing into grazing districts. In the State of Nevada, there are six grazing districts, which roughly follow the BLM Field Office boundaries.

The proposed project site is located within the Ely Grazing District and the Moorman Ranch Allotment. The allotment is bounded by the Dry Mountain Allotment to the northwest, the Warm Springs Allotment to the north, the Thirty Mile Spring to the east, the Newark Allotment to the west, the Tom Plain Allotment to the southeast, the Six Mile Allotment to the southeast, and the USFS Illipah Allotment to the south. The Moorman Ranch Allotment comprises 123,491 acres with a total of 4,749 active animal unit months of cattle grazing (BLM 2007).

Spring-fed water sources available to livestock and wildlife species are present north of the proposed well location. The galvanized steel livestock watering tank and adjacent pond are shown in **Figure 3-4**.

### **3.11 Socioeconomics**

The study area is located approximately 27 miles northwest of Ely, Nevada, in White Pine County. White Pine County is approximately 8,903 square miles with a population of 9,181 residents (U.S. Census 2000). White Pine County's economic base primarily consists of farming and ranching, mineral development, recreation and tourism, wholesale and retail, and government services (BLM 2007). Ely, the county seat, is the nearest populated municipality to the proposed well site location, with a population of 4,041 residents in 2000 (U.S. Census 2000).

#### **3.11.1 Economy and Employment**

Mining, farming, and government services are the primary employment sectors in White Pine County (White Pine County 2008). Employment rates typically coincide with trends in the mining industry. Mineral development (copper and gold) is currently on the rise with the reopening of the Robinson mine and the increase in gold prices (BLM 2007). Farming and ranching employment has steadily declined over the last few decades with the effects of an extended drought and rise in production costs. The local business sector in Ely is relatively diverse consisting of government services, wholesale and retail trade, mining, and entertainment including food services and recreation (U.S. Bureau of Economic Analysis 2004). Historically, the area economy and employment expands and contracts in association with the mining industry, which subsequently affects other areas of the economy (BLM 2007).



**Figure 3-4 Livestock Watering Tank and Adjacent Pond**

White Pine County residents lag behind the national benchmarks in terms of per capita income, despite the higher than average wages and salaries paid by the mining industry. In 2000, the national per capita income was \$21,587; White Pine County's per capita income was \$18,309 (U.S. Census 2000). The percent of households with low incomes is slightly higher in White Pine County than the state, 11 percent and 10.5 percent, respectively (BLM 2007).

### **3.11.2 Population and Demography**

According to the U.S. Census Bureau, White Pine County had a population 9,181; of nearly half of the county's residences (4,041) live in Ely. The median age of area residents is 38 years compared to 36 years statewide. Residents over 18 years of age (6,961 residents) comprised the largest age group (U.S. Census 2000).

The racial composition in White Pine County is predominantly white. In 2000, 86.4 percent of the county's area residents identified themselves as white compared to 73.9 percent statewide (U.S. Census 2000).

## **3.12 Visual Resources**

The BLM utilizes Visual Resource Management (VRM) classifications to manage the quality of the landscape by minimizing the impacts to visual resources. Management classes are broken down into four levels

(Classes I to IV), with Class I designated as most protective of the visual resource classes. The management objectives vary from allowing limited activity to allowing major landscape modifications. The proposed drilling pad is located within a VRM Class III. The management objective of a Class III is "...to provide for management activities that partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. These management activities may attract attention but should not dominate the view of the casual observer (BLM 2007)." However, every attempt should be made to minimize the impact of management activities through careful location, minimal disturbance, and repeating the basic elements (BLM 1986).

The proposed project site and surrounding area consists of gently undulating terrain in the valley; background features include gray, rugged mountains. Vegetation consists of sparsely spaced sagebrush of relatively uniform height with colors of varying shades of grey-green. Surface soils are generally buff to grayish-tan hues of light to medium value. There are limited man-made structures within the landscape which include barbed-wire fencing and a round galvanized steel livestock watering tank. Two parallel overhead power lines cross east-west along the valley floor, north of the proposed drilling site. A two-lane black-top highway (U.S. 50) crosses the landscape in a westerly-easterly direction.

### **3.13 Hazardous Materials and Solid Wastes**

Certain defined hazardous materials would be used in the construction of the well pad and access road and the drilling of the well. The major types of hazardous materials that would be used consist of petroleum fuels, lubricants, and drilling mud additives. Fuels would be used to power equipment and vehicles. The drilling fluid to be used is a water-based drilling fluid that consists of mostly water and bentonite. Bentonite is a clay mineral that is used to condition the drilling fluid and provide consistency in fluid properties such as viscosity and filtration control. Caustic soda also would be added to the drilling fluid in small amounts in order to control the pH of the fluid. Depending on hole conditions, other additives may be used such as lost circulation materials (paper and wood products). Other hazardous materials may be used to complete the well such as small amounts of additives in hydraulic fracturing fluids.

The proponent is responsible for clean-up and assumes liability for any and all releases of hazardous substances. Proponent will immediately notify the BLM AO and the National Response Center at 775-687-9485 or 888-331-6337 (NDEP) on all spills/releases in which the reportable quantity for the particular compound is exceeded (40 CFR Part 302). EOG will be required to maintain an Emergency Response Safety Plan at the project site.

The primary wastes that would be generated would consist of Resource Conservation Recovery Act exempt oil field waste (drilling fluid, oil well cement, hydraulic fracturing fluids, and formation water). Other wastes would include trash, sanitary waste, and small amounts of waste generated during equipment maintenance such as lubrication oils. Location sites shall be maintained in a sanitary condition at all times; litter shall be disposed of promptly at an authorized solid waste disposal site. Failure to remove litter may result in assessment of damages by the BLM AO. "Litter" means all discarded matter including but not limited to trash, garbage, refuse, ashes and equipment. Site must be maintained and left in a clean and safe condition.

There shall be no dumping of black water, sewage or litter. The proponent must transport all waste and litter to an approved sanitary landfill. There was no evidence of previous use hazardous materials or disposal of solid wastes at the proposed well location.

## 4.0 Environmental Consequences

### 4.1 Soils

Surface disturbance at the project site could result in reduced vegetation cover that could expose soils to wind and water erosion. Stockpiling and respreading topsoil during construction activities would disrupt soil properties that would lessen the chance of successful revegetation. Movement of heavy equipment also could cause compaction of soils, thus reducing their viability to sustain vegetative cover. Soils erosion would be mitigated through appropriate contouring of slopes and prompt revegetation to minimize erosion of disturbed areas. Soil compaction impacts would be mitigated by the use of stock piled soils for site restoration. Culverts would be installed near U.S. 50 to maintain adequate drainage to down slope areas along the highway.

### 4.2 Air Quality

Construction of the proposed well pad and access road and vehicle movement during drilling is expected to increase airborne PM with an aerodynamic diameter of 10 microns or less (PM<sub>10</sub>). Control of PM<sub>10</sub> to access road would be achieved by periodic applications of water during construction. Revegetation of disturbed areas would reduce the potential for airborne particulate matter, following drilling activities. Shrubs, forbs, and grasses that typically are used for revegetation within sagebrush community are identified in **Appendix C**.

### 4.3 Water Resources and Surface Water

EOG Sugarloaf Well 1-17 is not expected to affect groundwater in the region. Surface casing will be to a depth of 3,500 feet, which is well below typical aquifer depths. Gas condensate is expected at 10,000 feet. Cementing programs are planned for surface, intermediate, and production strings, which are expected to isolate well fluids from groundwater resources. There are no wells within 1 mile of the location and appropriate procedures would be taken to avoid aquifer contamination from produced fluids. Pumping of 2.6 acre feet of water from the temporary use water well would have a negligible affect of groundwater resources. The stockpond north of the proposed drilling site is topographically higher than the project area and would not be affected by project activities. There are no other surface waters in the northern portion of Jakes Valley.

### 4.4 Vegetation Resources

Approximately 7.9 acres of sagebrush habitat would be directly affected during drill pad and access road construction. The disturbance would be short-term as it would result from the construction of the drill pad and drilling of the well. If commercial hydrocarbons are not found, then the entire location and road would be reclaimed. The impact would be considered short-term (2 to 3 years until full restoration). EOG has a bond in place to ensure that the site would be appropriately restored.

If commercial hydrocarbons are found and the well is completed as a producer, the location would be partially reclaimed with enough pad left to provide for staging of production equipment. The road also would stay in place as long as the well is produced. A well may have a productive life of 10 to 20 years and such impact would be considered long-term. Long-term impacts are expected to affect 4.0 acres.

The short-term loss of 7.9 acres and long-term loss of 4.0 acres of sagebrush habitat represents a minimal portion of the community as a whole. Revegetation of the project site would likely result in the introduction of some species, including invasive, non-native species that are not presently in the area. Restoration would be carried out using a native seed mix that is weed-free.

## 4.5 Wildlife Resources

Wildlife that presently occupy the proposed drilling pad and access road would be displaced or lost during pad and road construction and drilling. The Proposed Action would likely result in some habitat fragmentation; however, movement around the project by wildlife would not be restricted. The proposed project is not expected to result in increased loss of individuals along the highway. The well site access road would be unpaved and it is likely that wildlife mortality would be minimal. Those species most vulnerable include small mammals and reptiles. Pronghorn antelope may use the nearby water source; however, displacement that could occur during drilling site construction, drilling, and well completion would be temporary and would not result in long-term impacts.

Human activity at the project site is likely to displace many mobile species. Less mobile species may be crushed by heavy equipment movement. Coyote may frequent the project site after drilling and testing activities cease or at other times when the site is unoccupied. EOG's drilling contractor would be required to contain and remove waste foods and trash on a daily basis. Removal of trash would reduce the likelihood that coyote and other scavengers would be present. Shielding of lighting sources would lessen the attraction of nocturnal animals.

## 4.6 Species of Concern

### 4.6.1 Special Status Species

#### Pygmy Rabbit

Although no pygmy rabbit sign was observed in the immediate vicinity of the proposed drilling pad site during a brief site visit, impacts to the species cannot be determined without additional surveys. On January 8, 2008, the USFWS published a substantial 90-day finding on a petition to list the pygmy rabbit as threatened or endangered under the Endangered Species Act, thus initiating a status review of the species. The USFWS encourages the survey of pygmy rabbits prior to any ground disturbing activities and consideration of the needs of the species as part of project planning and implementation (Williams 2008).

#### Greater Sage Grouse

Direct impacts to breeding sage grouse on leks are not anticipated because leks are not located in close proximity to road construction or drilling activities. If lek locations are established closer to the well site, breeding could be impacted if well workover or other major activities were to take place during the breeding season. BLM has established timing limitations for oil and gas activities that would prohibit such work during spring breeding, between March 1 and May 15 during the period of 30 minutes before sunrise until 10:00 a.m. The timing limitation would be in effect for a 2-mile radius from each known active lek. While winter habitat was not recognized in the project area when the lease was issued, recent studies have identified some winter use. Timing limitations designed to protect winter habitat are in place from November 1 through March 31. Drilling operations are scheduled to begin in September and are expected to last into November when there would be minimal disruption to sage grouse.

In addition, because the entire project site is located within nesting and winter grouse habitat, nesting hens may be disturbed or displaced from preferred habitat within the site, and wintering populations also may be disturbed or displaced. Greater sage grouse hens and their associated broods are known to congregate near mesic areas such as springs and stockponds during summer. The extent of use of the stockpond and water tank north of the drill pad site is not known, but grouse could be prevented from using the area as a summer loafing/foraging site.

### Ferruginous Hawk

Direct impacts to ferruginous hawk are not anticipated because none are present around the proposed project area. Should the species begin nesting in proximity to the well site, workover and other activities on the site may be suspended during the nesting period of any individual nesting pair.

### Burrowing Owl

Direct impacts to burrowing owl are not anticipated because none were found to be present in the project area. Furthermore, project construction would begin during the fall when the species would not be present. Nesting begins during late March or April and extends into early summer.

## **4.6.2 Other Species of Interest**

Access road, drilling pad preparation, and drilling would likely result in a temporary displacement of pronghorn and mule deer. Long-term impacts to the species are not anticipated.

It is unknown if populations of the rayless tansy aster are present at or in the vicinity of the proposed project site; however, available habitat at the site appears to be marginal. If the species is present, earthmoving and heavy equipment operations could result in adverse impacts. Given the marginal habitat, the species relatively wide range of distribution in relation to the project site, and relatively limited amount of area to be disturbed, it is unlikely that the proposed project would jeopardize the species survival.

## **4.6.3 Migratory Birds**

Many avian species are protected by the MBTA (16 USC 703-711) and EO 13186 (66 Federal Register 3853), which makes it unlawful to take, kill, or possess migratory birds.

Migratory birds, as well as permanent resident species, are known to nest in the project area during early spring through mid-summer. Some long-term (life of the project) loss of nesting habitat would result from clearing the drilling pad and access road. Modifications to native vegetation could directly or indirectly affect mortality rates and/or reproductive success or changes that could affect predation of specific species. Indirect impacts also would result from construction activities on lands that are adjacent to nesting sites. Although impacts associated with long-term and short-term loss of habitat cannot be avoided, impacts to nesting species would be reduced by scheduling clearing and earth moving activities to avoid the early spring through mid-summer nesting periods. Long-term and short-term impacts that would result from project development or operation is likely to result in a negligible impact to migratory species as a whole, when compared to overall habitat availability in the area.

Operations are scheduled to begin in September and last into November. Operations would not be allowed to commence during the period May 1 to July 15 due to the provisions of the Ely District policy management actions for the conservation of migratory birds. An exception to this policy would be made if a qualified wildlife biologist surveys the project area for nesting migratory birds and determined that the impacts would be negligible.

## **4.7 Invasive and Non-native Species**

Movement of heavy equipment could contribute to the spread of weed species to the site or to other locations. Precautions to reduce the spread of noxious weeds can be taken by requiring the washing of equipment before and after going on-site. The BLM completed a Weed Risk Assessment for the project, which is included in **Appendix D**.

Prior to construction activities, an inventory would be conducted to identify the existence of specific invasive species. Prior to entering public lands, the contractor will provide information and training regarding noxious weed management and identification to all personnel who will be affiliated with the implementation and

maintenance phases of the project. The importance of preventing the spread of weeds to uninfested areas and of controlling existing populations of weeds will be explained. To eliminate the transport of vehicle-borne weed seeds, roots, or rhizomes, all vehicles and heavy equipment used for the completion, maintenance, inspection, or monitoring of ground disturbing activities will be free of soil and debris capable of transporting weed propagules. All such vehicles and equipment will be cleaned with power or high-pressure equipment prior to entering or leaving the work site or project area. Cleaning efforts will concentrate on tracks, feet and tires, and on the undercarriage. Special emphasis will be applied to axels, frames, cross members, motor mounts, on and underneath steps, running boards, and front bumper/brush guard assemblies. Vehicle cabs will be swept out and refuse will be disposed of in waste receptacles. Cleaning sites will be recorded using global positioning systems or other mutually acceptable equipment and provided to the District Weed Coordinator or designated contact person.

All seed mixes used for reclamation would be tested for noxious weed seeds and only weed-free seed would be used. Any gravel or other mineral materials used for project activities would be obtained from sites free of noxious weed infestations. Disturbed areas would be monitored for weed re-infestation during the exploratory well operations. All noxious and invasive weed infestations would be treated throughout the life of the project.

#### **4.8 Cultural Resources**

Class I and Class III surveys of the project site did not reveal important resources to be present. If cultural resources are discovered as part of well pad or access road construction, work in the area would be discontinued and the BLM would be notified.

Should the location of the access road and/or well pad shift during construction and outside of the cultural survey corridor, a new cultural resource survey would be conducted.

#### **4.9 Recreation**

Impacts to recreation resources during drill pad construction, access road construction, and drilling would be minimal. Exploration activities at the proposed well site would be limited to use of access roads which could result in recreational users using the same roads. Impacts to recreation activities are expected to be low, due to relatively low traffic numbers associated with recreational users and that of the proposed project. The project is not expected to result in adverse impacts to hunting in the area as ample hunting areas are available on area lands.

#### **4.10 Rangeland**

The proposed well site is within the BLM-managed Moorman Ranch Allotment. Approximately 7.9 acres (access road -- 3.5 acres; drilling pad – 4.4 acres) grazing forage would be removed as a result of exploratory well activities. Upon completion of reclamation, vegetation would be reestablished over the project area. Due to the small number of disturbed acres, impacts to livestock would be minimal; therefore, decreases in livestock numbers would not occur.

#### **4.11 Socioeconomics**

Construction of the access and road and drill pad would be completed by local contractors. Following construction, approximately 10 people (rig hands, tool pusher, company representative, geologist, mud loggers) per shift (2 to 3 shifts per day) would be hired over a 4- to 8-week period. Because of the proposed well site's proximity to Ely, workers would spend money in that local community for food and miscellaneous supplies. Workers would be housed on-site in trailer homes during the construction period. Some beneficial economic impacts to the community would result, but they would be minimal and of short duration. No impacts to housing, population, or community facilities and services are expected as a result of the proposed project.

Construction of the proposed well pad and access road and drilling of Well ORG 1-17 would increase traffic along U.S. 50 during a 2-month period. Given the limited amount of traffic along the highway (approximately 600 vehicles per day), impacts to traffic are not anticipated. Pilot cars could be used for the movement of heavy equipment on U.S. 50 and elsewhere, if warranted. Workers at the project site would not appreciably increase traffic along the highway because EOG would house them at the drilling site.

#### **4.12 Visual Resources**

Visual impacts are assessed based on the degree of contrast to the existing landscape resulting from construction of the proposed project. The degree of contrast is then compared to the visual resource management objectives for a Class III. Construction and drilling equipment at the proposed well site would introduce short-term visual impacts to drivers and passengers traveling U.S. 50; however at a distance of 1.6 miles and brief view durations, impacts would be minimal. On-site equipment also would be viewable by drivers and passengers traveling U.S. 50, but impacts would be minimal and short in duration.

A VRM objective for a Class III allows for a moderate degree of modification to the landscape; therefore, activities associated with the proposed project would not adversely affect the character of the existing landscape. The project site would be reclaimed if exploration results in a non-producing well. Over time, reclamation would return the site to its original form, contours, and vegetation color.

#### **4.13 Hazardous Materials and Solid Wastes**

The reserve pit would be lined reducing the potential for drilling and fracturing fluids to infiltrate into the ground. The drilling fluid is non-toxic, either as a fluid or when dried. Upon completion of the well, the drilling fluid and drill cuttings (essentially rock chips) would be contained within the lined reserve pit and allowed to dry, then covered with stockpiled fill and topsoil, and seeded. Unused additives would be hauled off site during rig demobilization. Other wastes would be removed from site and disposed of in properly permitted disposal facilities.

Petroleum products and other hazardous materials would be stored and used in such a manner as to reduce the potential of releases. Spills would be cleaned-up according to protocols regulated by the NDEP (NRS 445A). No hazardous waste is expected to be generated. Solid wastes would be disposed of properly in accordance with the standard Conditions of Approval and other applicable regulations.

The precautions and mitigating measures in the Proposed Action are adequate to prevent impacts from hazardous materials and solid wastes.

#### **4.14 Mitigation and BLM Stipulations**

The following represent EOG-committed environmental protection measures for the proposed project and additional mitigation measures associated with fire management for the proposed project.

##### **4.14.1 EOG-committed Environmental Protection Measures**

###### Air Quality

If the access road and well pad are dry during construction, drilling, and completion activities, water would be applied to facilitate compaction during construction and to minimize soil loss from wind erosion.

###### Cultural Resources

A Class III archeological survey for the location was performed on the well pad and access road during May 2008 by Summit Envirosolutions, Inc. Results of the survey indicated that there are no cultural resources present that would be eligible for inclusion in the National Register of Historic Places. If previously unknown cultural resources are found during project construction, all activities that are 100 meters of the discovery

would be halted and the discovery would be appropriately protected until the BLM AO issues a Notice to Proceed (State Protocol Agreement Section VIII.B.1). In the case of an unplanned discovery, the BLM Archaeologist will be notified as well as the project manager.

#### Soils

EOG would not construct or perform maintenance activities when soils are saturated such that construction equipment is unable to stay within the boundaries of the approved surface or irreparable harm to roads and/or soils would result. EOG would not construct or perform maintenance activities if they would result in sedimentation of any potentially affected lakes, reservoirs, or live flowing streams.

#### Reclamation and Monitoring Plan

A photo record of the site would be maintained to show the site before construction and provide documentation of the reclamation progress. EOG or the operator of record would monitor reclamation success by inspecting the site three times a year to confirm desired vegetative growth. If the inspection shows unsuccessful revegetation and/or invasive weeds, appropriate remedial work would be implemented.

### **4.14.2 Additional Mitigation**

#### Fire Management

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.

- a. All vehicles should carry fire extinguishers.
- b. Adequate fire fighting equipment (i.e., shovel, pulaski, extinguisher[s]) and/or an ample water supply should be kept at the drill site(s).
- c. Vehicle catalytic converters should be inspected often and cleaned of all brush and grass debris.
- d. When conducting welding operations, they should be conducted in an area free from or mostly free from vegetation. An ample water supply and shovel should be on hand to extinguish any fires created from the sparks. Extra personnel should be at the welding site to watch out for fires created by welding sparks.
- e. Report wildland fires immediately to the BLM Central Nevada Interagency Dispatch Center at (775) 623-3444.
- f. When conducting operations during the months of May through September, the operator must contact the BLM 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.

The area is prone to wildfires; therefore, a 37.5-foot defensible space around the proposed well pad would be established.

### **4.15 No Action Alternative**

If EOG does not proceed with drilling Sugarloaf 1-17, the potential for producing hydrocarbons from the area could be lost. The No Action Alternative would preclude permitting for the exploratory well. No ground-disturbing activities such as construction of the access road or drilling pad would take place. Under a No Action Alternative scenario, potential adverse impacts to air quality, wildlife habitat, and visual resources, invasive, non-native species, and potential beneficial impacts to socioeconomic resources would not take place.

## 5.0 Cumulative Effects

NEPA defines “cumulative impact” as an impact that results from “... the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency ... or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time” (40 CFR 1508.7). CEQ (1977) states that cumulative effects analysis should be conducted within the context of physical resource, ecosystem, and human community thresholds. Those thresholds are characterized from the CEQ (1997) in the following phrases.

- Cumulative effects are caused by the aggregate of past, present, and reasonably foreseeable future actions.
- Cumulative effects are the total effect, including both direct and indirect effects on a given physical resource, ecosystem, and human community of all actions taken, no matter who has taken the action.
- Cumulative effects are analyzed in terms of the specific physical resource, ecosystem and human community being affected. Environmental effects are often evaluated from the perspective of the Proposed Action.
- Cumulative effects are not practical to analyze the cumulative effects of an action on the universe; the list of environmental effects must focus on those that are truly meaningful.
- Cumulative effects on a given physical resource, ecosystem, and human community are rarely aligned with political or administrative boundaries.
- Cumulative effects may result from the accumulation of similar effects or the synergistic interaction of different effects.
- Cumulative effects may last for many years beyond the life of the action that caused the effects.
- Each affected physical resource, ecosystem, and human community must be analyzed in terms of its capacity to accommodate additional effects, based on its own time and space parameters.

Cumulative effects are determined through spatial (geographic) and temporal (time) parameters as related to the scope of resources that are evaluated. The scope of resources to be evaluated is derived from project-specific impacts as related to past actions and conditions that are expected to result from reasonably foreseeable future projects. The Cumulative Effects Study Area (CESA) is limited to Jakes Valley for all resources.

Cumulative impacts are discussed in the Egan RMP Proposed Oil and Gas Leasing Amendment and Final EIS (BLM 1993). Typical oil and gas activities, including exploration, wildcat drilling, production and field development, and abandonment, are described in Appendix A of that document and are incorporated by reference into this environmental analysis. No additional analysis is necessary to address cumulative impacts for the proposed action.

The reasonable development scenario for the Egan Resource Area assumed that 175 wells would be drilled during the life of the plan and that only 10 percent of these would be producers. Approximately 35 wells have been drilled in the area analyzed in the Egan RMP since 1993. One has been put into production.

Resources that were identified in the leasing amendment as potentially being affected in a cumulative sense consist of wildlife habitat, woodland products, cultural resources, recreational and visual resources, livestock and vegetation, wild horses and burros, soils and air quality. There would be little impact to these resources from the proposed action.

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## **Appendix A**

### **Interim Seed Mixture**

APPENDIX A

Sugarloaf 1-17  
Interim Stabilization Seed Mix  
For Topsoil Stockpiles and Roadside Berms

Species	Seeds/Lb	Seed Rate (lbs/ac)	Seeds/Sq. ft.
<i>Elymus lanceolatus</i> spp. <i>dasystachyum</i> (Thickspike wheatgrass)	154,000	10.0	35
<i>Secale cereale</i> Cereal rye	18,000	40	16
<i>Psathyrostachys juncea</i> (Russian Wildrye, variety – Bozoisky Select)	175,000	5	20
<b>Total</b>		<b>55 lbs/ac</b>	<b>71 seeds/sq. ft.</b>

Seeds should be planted immediately after disturbance. If there is very hot weather, may need repeated seeding in fall or spring.

Substitutions can be made depending on seed price and availability. Contact the BLM if substitutions are required.

\* Seed rate – Adjust listed pounds/acre for pure live seed.

Pure Live Seed pounds/acre =  $\frac{\text{Seed rate (listed above lbs/acre)}}{(\% \text{germination}) (\% \text{purity})}$

**Appendix B**

**Final Seed Mixture**

**APPENDIX B**

**Recommended Final Seed List for Sugarloaf 1-17**

<u>Species</u>	<u>Seeds/Lb</u>	<u>Seed rate*</u> <u>PLS lbs/ac</u>	<u>Seeds/sq ft</u>
Agropyron smithii (Western wheatgrass)	110,000	3.0	8.0
Elymus cinerus (Great Basin wildrye)	130,000	3.0	9.0
Indian ricegrass (Oryzopsis hymenoides)	141,000	1.0	3.0
Elymus lanceolatus spp. dasystachyum (Thickspike wheatgrass)	154,000	3.0	10.0
Squirrel tail (Sitanion hystrix)	192,000	1.0	4.0
Poa sandbergii (Sandberg bluegrass)	925,000	0.5	10.0
Linum lewisii (Appar Blue Flax)	293,000	0.5	3.0
Onobrychus viciafolia (Remont Sainfoin)	30,000	2.0	1.0
Penstemon palmeri (Palmer penstemon)	610,000	0.1	1.0
Shadscale (Atriplex confertifolia)	64,900	1.0	1.0
<b>Total</b>		<b>15.1 lbs/ac</b>	<b>50</b>

Seeds should be planted between October 1 and March 15.  
Substitutions can be made depending on seed price and availability. Contact the BLM if substitutions are required.

\* Seed rate - Adjust listed pounds/acre for pure live seed.

Pure Live Seed pounds/acre =  $\frac{\text{Seed rate (listed above lbs/acre)}}{(\%germination) (\%purity)}$

## **Appendix C**

### **Special Status Plant and Animal Species that May be Present Within the Project Area**

**Table C-1 Special Status Plant Species that Potentially Occur in the Project Area**

<b>Common Name/ Scientific Name</b>	<b>Status<sup>1</sup></b>	<b>Range/Habitat Requirements</b>	<b>Potential for Occurrence in or Near the Project Area</b>	<b>Eliminate from Detailed Analysis</b>
Dainty moonwort <i>Botrychium crenulatum</i>	BLM	Range: Most western states, including Nevada.  Habitat: Hydrophyllic species. Saturated soils, wet roadside ditches, partially shaded	Low. The project area is in an upland setting without saturated soils.	Yes
Eastwood milkweed <i>Asclepias eastwoodiana</i>	BLM	Range: Reported from central Lander County and northern Nye County, Nevada.  Habitat: Open barren type clay and calcerous slopes frequently in small washes or other moisture-accumulating micro sites.	Unlikely to none. The project area is located approximately 90 miles east and north of the areas of reported occurrences. During a recent field survey conducted in the project area for weed species, no <i>Asclepias</i> species were observed.	Yes
Monte neva paintbrush <i>Castilleja salsuginosa</i>	BLM	Range: Eureka and White Pine counties.  Habitat: 5,965-6,130 feet amsl. Damp, open, alkaline to saline clay soils of hummocks and drainages.	Unlikely to none. Project area lacks appropriate soil types.	Yes
White River catseye <i>Cryptantha welshii</i>	BLM	Range: Lincoln, Nye, and White Pine counties.  Habitat: 4,540-6,660 feet amsl. Dry, open, sparsely vegetated outcrops and sandy to silty or clay soils of whitish calcareous carbonate deposits.	Unlikely to none. Project area lacks appropriate soil types.	Yes
Sunnyside green gentian <i>Frasera gypsicola</i>	BLM	Range: Nye and White Pine counties.  Habitat: 5,180-5,510 feet amsl. Open, dry whitish, alkaline, often salt-crusted and spongy silty-clay soils.	Unlikely to none. Project area lacks appropriate soil types.	Yes
Waxflower <i>Jamesia tetrapetala</i>	BLM	Range: Lincoln, Nye, and White Pine counties.  Habitat: 7,000-10,720 feet amsl. Crevice in limestone cliffs.	None: Elevation difference, lack of limestone cliffs.	Yes

**Table C-1 Special Status Plant Species that Potentially Occur in the Project Area**

<b>Common Name/ Scientific Name</b>	<b>Status<sup>1</sup></b>	<b>Range/Habitat Requirements</b>	<b>Potential for Occurrence in or Near the Project Area</b>	<b>Eliminate from Detailed Analysis</b>
Tunnel Springs beardtongue <i>Penstemon concinus</i>	BLM	Range: Western Utah and Northern Nevada.  Habitat information not available	Low: Range would indicate that the species is not present in central Nevada.	Yes
Lahontan beardtongue <i>Penstemon palmeri var. macranthus</i>	BLM	Range: Churchill, Lander, Nye, and Pershing counties.  Habitat: 3,428-4,550 feet amsl. Along washes, roadsides and canyon floors, particularly on carbonate substrates. Usually where soil moisture is available all year.	Low: Elevation not suitable, lack of carbonate substrate.	Yes
Parish phacelia <i>Phacelia parishii</i>	BLM	Range: Clark, Lincoln, Nye, and White Pine counties.  Habitat: 2,190-5,922 feet amsl. Moist to superficially dry open, flat to hummocky, mostly barren soils around playa margins.	None: Elevation not suitable, soils not suitable.	Yes
Nachlinger catchfly <i>Silene nachlingerae</i>	BLM	Range: Elko, Nye, and White Pine counties.  Habitat: 7,160-11,250 feet amsl. Dry, exposed or sheltered carbonate crevices in ridgeline outcrops.	None: Elevation not suitable, soils not suitable.	Yes

<sup>1</sup>BLM = BLM sensitive species.

NNHP = NNHP – Vulnerable.

**Table C-2 Special Status Animal Species that Potentially Occur in the Project Area**

Common Name/ Scientific Name	Status <sup>1</sup>	Range Habitat Requirements	Potential for Occurrence on or Near the Project Area	Eliminated From Detailed Analysis
<b>BIRDS</b>				
Northern goshawk <i>Accipiter gentilis</i>	BLM	Range: Throughout Nevada. Habitat: Generally occupies montane forests in spring and summer, with some altitudinal migration into foothills and valleys in the winter. Montane and foothill aspen groves are the species' preferred nesting sites in Nevada, generally near perennial streams.	None.	Yes. No suitable habitat occurs within or near the project area.
Golden eagle <i>Aquila chrysaetos</i>	BLM	Range: Throughout Nevada and the West. Habitat: Occupies a variety of habitats. Nest on cliffs or rock outcrops, less commonly in trees, usually in isolated undisturbed areas.	Low. No nest sites for the species have been documented within or near the project area. However, this species could forage within the project vicinity.	Yes
Short-eared owl <i>Asio flammeus</i>	BLM	Range: Throughout the United States. Habitat: Open areas where prey can be taken. Nests in trees	None: Lack of woodlands.	Yes.
Long-eared owl <i>Asio otus</i>	BLM	Range: Throughout much of the United States. Habitat: Woodlands and along tree-lined streams. Forages in open areas with low vegetation.	None. Lack of habitat	Yes.
Juniper titmouse <i>Baeolophus griseus</i>	BLM	Range: To northeastern Nevada. Habitat: Pinion-juniper woodlands	None. Insufficient range and lack of habitat	Yes.
Prairie falcon <i>Falco mexicanus</i>	BLM	Range: Western North America to Baja, transitory in Project area. Habitat: Nests on cliff ledges, forages in open lands.	Low. Would only be in Project area as a transient.	Yes.
Greater Sandhill Crane <i>Grus Canadensis tabida</i>	BLM	Range: Summer resident of northern United States; winter resident near the Gulf Coast. Habitat: Open water and sloughs	None. Lack of water	Yes.

**Table C-2 Special Status Animal Species that Potentially Occur in the Project Area**

Common Name/ Scientific Name	Status <sup>1</sup>	Range Habitat Requirements	Potential for Occurrence on or Near the Project Area	Eliminated From Detailed Analysis
Pinyon jay <i>Gymnorhinus cyanocephalus</i>	BLM	Range: Mountainous areas of the western U.S. Habitat: Mountains and pinyon pine.	None	Yes.
Yellow-breasted chat <i>Icteria virens</i>	BLM	Range: North Dakota, New England, Texas. Habitat: Tree-lined streamsides.	None.	Yes.
Loggerhead shrike <i>Lanius ludovicianus</i>	BLM	Range: Midwest Habitat: Open fields and hedgerows.	None.	Yes.
Black rosy-finch <i>Leucosticte atrata</i>	BLM	Range: High mountains of the Great Basin. Habitat: High mountains	None.	Yes.
Lewis' woodpecker <i>Melanerpes lewis</i>	BLM	Range: Rocky Mountains Habitat: Woodlands.	None.	Yes.
Long-billed curlew <i>Numenius americanus</i>	BLM	Range: Summer in Canada, winter in South America. Transitory in Nevada. Habitat: Marshlands, wetlands, riverine, and estuarine.	None.	Yes
Ferruginous hawk <i>Buteo regalis</i>	BLM	Range: Primarily in eastern and central Nevada. Habitat: Edge of pinyon-juniper habitat at interface with low shrub grasslands.	Low. Potential nesting habitat is located several miles from the proposed project site.	Yes.
Swainson's hawk <i>Buteo swainsonii</i>	BLM	Range: Throughout Nevada and the west. Habitat: Open habitats, including agricultural areas. Generally nests in trees overlooking these habitats, particularly in cottonwoods overlooking pasture and agricultural lands.	None. No suitable nest trees occur within the project vicinity.	Yes.

**Table C-2 Special Status Animal Species that Potentially Occur in the Project Area**

Common Name/ Scientific Name	Status <sup>1</sup>	Range Habitat Requirements	Potential for Occurrence on or Near the Project Area	Eliminated From Detailed Analysis
Greater sage grouse <i>Centrocercus urophasianus</i>	BLM	Range: Throughout Nevada where sagebrush occurs. Habitat: The species occurs in healthy sagebrush habitats. Leks are located in open areas. Nesting is within sagebrush habitats near leks. Chicks are raised in moist meadows within sagebrush communities.	High. The closest identified lek occurs less than 1 mile south of the project area. The project site could be crossed when birds visit a water source.	No.
Snowy plover <i>Charadrius alexandrinus</i>	BLM	Range: Much of the Great Basin portion of Nevada. Habitat: The species selects barren salt pans or dry mudflats for nesting, usually at playas in the valley bottoms.	None.	Yes. No potentially suitable nesting habitat occurs within or near the project area.
Black tern <i>Chlidonias niger</i>	BLM	Range: Alaska to South America. Likely to be a transient in the Project area. Habitat: Wetlands, marshlands, open water.	None	Yes
Western burrowing owl <i>Athene cunicularia hypugaea</i>	BLM	Range: Throughout Nevada and the West. Habitat: The owls select open areas with low vegetation in grassland, shrubland, and agricultural areas. The owls often select cut banks or berms along roads and field and cut banks along washes. Nest sites include abandoned burrows of prairies dogs, ground squirrels, foxes, and badgers.	Low. Although no occupied burrows or owl sign was recorded during the 2006, the shrubland vegetation that would be disturbed is suitable for supporting breeding and foraging birds.	No.
Flammulated owl <i>Otus flammeolus</i>	BLM	Range: The Sierra Nevada, Utah, Arizona, New Mexico, Colorado, and isolated mountain ranges in the Nevada portion of the Great Basin. Habitat: Mature ponderosa and Jeffrey pine forest with large trees. Nests in snags of large dead trees.	None.	Yes. No potentially suitable nesting habitat occurs within or near the project area.

**Table C-2 Special Status Animal Species that Potentially Occur in the Project Area**

Common Name/ Scientific Name	Status <sup>1</sup>	Range Habitat Requirements	Potential for Occurrence on or Near the Project Area	Eliminated From Detailed Analysis
<b>MAMMALS</b>				
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	BLM	Range: Most of Nevada and the west. Habitat: Maternity and hibernation colonies typically are in caves and mine tunnels. Prefers relatively cold places for hibernation, often near entrances and in well-ventilated areas. Forages over a wide variety of habitats from coniferous forests to sagebrush to grasslands.	Low. The project area lacks water and roosting habitat.	Yes.
Small-footed myotis <i>Myotis ciliolabrum</i>	BLM	Range: Most of Nevada and the west. Habitat: Roosts in caves, tunnels, mines, buildings, and rock crevices. Primarily uses grassland and desert scrub habitats.	Low. The project area lacks water and roosting habitat.	Yes.
Long-eared myotis <i>Myotis evotis</i>	BLM	Range: Widespread over the western U.S. Apparently occurs regularly in low numbers throughout the range. Habitat: Roosts in a wide variety of situations—caves, tunnels, and under tree bark. Primarily uses coniferous forest habitats, but does occur over shrublands.	Low. The project area lacks water and roosting habitat.	Yes.
Fringed myotis <i>Myotis thysanodes</i>	BLM	Range: Throughout Nevada and the west. Thought to normally occur in low numbers throughout range. Habitat: Roosts in a variety of habitats, caves, tunnels, mines, and trees. Uses a variety of habitats, forests, shrublands, and agricultural land.	Low. The project area lacks water and roosting habitat.	Yes.

**Table C-2 Special Status Animal Species that Potentially Occur in the Project Area**

Common Name/ Scientific Name	Status <sup>1</sup>	Range Habitat Requirements	Potential for Occurrence on or Near the Project Area	Eliminated From Detailed Analysis
Long-legged myotis <i>Myotis volans</i>	BLM	Range: Widespread distribution in western North America; considered locally abundant. Habitat: Primarily in montane coniferous forests, seasonally in riparian and desert habitats. Roosts in exfoliating tree bark, tree snags, and rock crevices. Hibernates in tunnels and mines.	Low. The project area lacks water and roosting habitat.	Yes.
Pallid bat <i>Antrozous pallidus</i>	BLM	Range: Central Canada to Mexico. Habitat: Mountainous areas with available water. Forages in open areas.	None. Lack of mountainous habitat and lack of open water	Yes.
Silver-haired bat <i>Lasionycteris noctivagans</i>	BLM	Range: Throughout most of the United States. Habitat: Prefers northern hardwood forests. Roosts in forests, old buildings, abandoned structures.	None. Lack of habitat	Yes.
Hoary bat <i>Lasiurus cinereus</i>	BLM	Range: Throughout the United States. Habitat: Coniferous forests, dense woodlands.	None. Lack of habitat	Yes.
Western pipistrelle <i>Pipistrellus hesperus</i>	BLM	Range: Western United States from Washington to southern California. Habitat: Rock outcroppings. Also forages in desert shrublands	Low. May forage in the desert flatlands.	No.
Brazilian free-tailed bat	BLM	Range: Texas and Mexico Habitat: Under bridges, abandoned buildings.	None. Range limited.	Yes.

**Table C-2 Special Status Animal Species that Potentially Occur in the Project Area**

Common Name/ Scientific Name	Status <sup>1</sup>	Range Habitat Requirements	Potential for Occurrence on or Near the Project Area	Eliminated From Detailed Analysis
Pygmy rabbit <i>Brachylagus idahoensis</i>	BLM	Range: Throughout the range of sagebrush in the intermountain West. Habitat: Consists of dense Great Basin sagebrush with a dense understory and having soils suitable for burrowing. The rabbit's burrows are distinctive and typically are placed at the base of sagebrush.	High. Suitable habitat for the species occurs in areas of tall, dense sagebrush associated with ephemeral drainages at the site. The species was observed during 2006 field investigations.	No.
<b>FISH</b>				
None				
<b>AMPHIBIANS</b>				
None				
<b>INVERTEBRATES</b>				
None				

<sup>1</sup>Status:

FT - Federally threatened species.

FC - Federal candidate species.

BLM - BLM sensitive species.

Source: BLM 2005.

## **Appendix D**

### **Noxious Weed Risk Assessment**

# **RISK ASSESSMENT FOR NOXIOUS & INVASIVE WEEDS**

## **EOG Sugarloaf White Pine County, Nevada**

On April 28<sup>th</sup>, 2008 a Noxious & Invasive Weed Risk Assessment was completed for the Sugarloaf oil well project located in Jakes Valley of White Pine County, Nevada. EOG has submitted a Notice of Staking, to be followed by an APD for a 350' x 500' wildcat oil well in Jakes Valley. The hole would be located at the center of the seismic lines that were conducted by Green River Exploration in the fall of 2007. Within the drill pad a water well is proposed on the northeast edge. The project area would be located approximately 1.5 miles north of US 50. Approximately 1.6 miles of existing 2-track road will need to be reconstructed to 24' in width and 1,000' of new road will need to be constructed. The total disturbance for the project is projected to be around 9.3 acres.

No field surveys were completed for this project. Instead the Ely District weed inventory data was consulted. While there are no known noxious weeds within the project area, the following species are found nearby:

<i>Acrotilon repens</i>	Russian knapweed
<i>Centaurea stoebe</i>	Spotted knapweed
<i>Carduus nutans</i>	Musk thistle
<i>Cirsium arvense</i>	Canada thistle
<i>Cirsium vulgare</i>	Bull thistle
<i>Lepidium draba</i>	Hoary cress

There is also cheatgrass (*Bromus tectorum*), halogeton (*Halogeton glomeratus*), and Russian thistle (*Salsola kali*) scattered along roads in the area. This area was last inventoried for noxious weeds in 2002.

**Factor 1 assesses the likelihood of noxious/invasive weed species spreading to the project area.**

None (0)	Noxious/invasive weed species are not located within or adjacent to the project area. Project activity is not likely to result in the establishment of noxious/invasive weed species in the project area.
Low (1-3)	Noxious/invasive weed species are present in the areas adjacent to but not within the project area. Project activities can be implemented and prevent the spread of noxious/invasive weeds into the project area.
Moderate (4-7)	Noxious/invasive weed species located immediately adjacent to or within the project area. Project activities are likely to result in some areas becoming infested with noxious/invasive weed species even when preventative management actions are followed. Control measures are essential to prevent the spread of noxious/invasive weeds within the project area.
High (8-10)	Heavy infestations of noxious/invasive weeds are located within or immediately adjacent to the project area. Project activities, even with preventative management actions, are likely to result in the establishment and spread of noxious/invasive weeds on disturbed sites throughout much of the project area.

For this project, the factor rates as Moderate (4) at the present time. With the amount of ground disturbance associated with this type of facility it is probable that the project activities will result in new weed infestations to the area.

**Factor 2 assesses the consequences of noxious/invasive weed establishment in the project area.**

Low to Nonexistent (1-3)	None. No cumulative effects expected.
Moderate (4-7)	Possible adverse effects on site and possible expansion of infestation within the project area. Cumulative effects on native plant communities are likely but limited.
High (8-10)	Obvious adverse effects within the project area and probable expansion of noxious/invasive weed infestations to areas outside the project area. Adverse cumulative effects on native plant communities are probable.

This project rates as High (9) at the present time. If new infestations establish within the project area this could adversely impact those native plant communities since the area is currently considered to be weed-free. Also, any increase of cheatgrass could alter the fire regime in the area.

**The Risk Rating is obtained by multiplying Factor 1 by Factor 2.**

None (0)	Proceed as planned.
Low (1-10)	Proceed as planned. Initiate control treatment on noxious/invasive weed populations that get established in the area.
Moderate (11-49)	Develop preventative management measures for the proposed project to reduce the risk of introduction of spread of noxious/invasive weeds into the area. Preventative management measures should include modifying the project to include seeding the area to occupy disturbed sites with desirable species. Monitor the area for at least 3 consecutive years and provide for control of newly established populations of noxious/invasive weeds and follow-up treatment for previously treated infestations.
High (50-100)	Project must be modified to reduce risk level through preventative management measures, including seeding with desirable species to occupy disturbed site and controlling existing infestations of noxious/invasive weeds prior to project activity. Project must provide at least 5 consecutive years of monitoring. Projects must also provide for control of newly established populations of noxious/invasive weeds and follow-up treatment for previously treated infestations.

For this project, the Risk Rating is Moderate (36). This indicates that the project can proceed as planned as long as the following measures are followed:

- Prior to the entry of vehicles and equipment to a project area, areas of concern will be identified and flagged in the field by a weed scientist or qualified biologist. The flagging will alert personnel or participants to avoid areas of concern. These sites will be recorded using global positioning systems or other Ely Field Office approved equipment and provided to the Field Office Weed Coordinator or designated contact person.
- Prior to entering public lands, the contractor, operator, or permit holder will provide information and training regarding noxious weed management and identification to all personnel who will be affiliated with the implementation and maintenance phases of the project. The importance of preventing the spread of weeds to uninfested areas and importance of controlling existing populations of weeds will be explained.
- To eliminate the transport of vehicle-borne weed seeds, roots, or rhizomes all vehicles and heavy equipment used for the completion, maintenance, inspection, or monitoring of ground disturbing activities; or for authorized off-road driving will be free of soil and debris capable of transporting weed propagules. All such vehicles and equipment will be cleaned with power or high pressure equipment prior to entering or leaving the work site or project area. Cleaning efforts will concentrate on tracks, feet and tires, and on the undercarriage. Special emphasis will be applied to axels, frames, cross

members, motor mounts, on and underneath steps, running boards, and front bumper/brush guard assemblies. Vehicle cabs will be swept out and refuse will be disposed of in waste receptacles. Cleaning sites will be recorded using global positioning systems or other mutually acceptable equipment and provided to the Field Office Weed Coordinator or designated contact person.

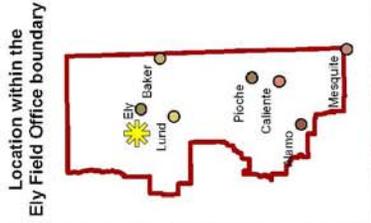
- To eliminate the introduction of noxious weed seeds, roots, or rhizomes all interim and final seed mixes, hay, straw, hay/straw, or other organic products used for reclamation or stabilization activities, feed, bedding will be certified free of plant species listed on the Nevada noxious weed list or specifically identified by the BLM Ely Field Office.
- To eliminate the introduction of noxious weed seeds, roots, or rhizomes all source sites such as borrow pits, fill sources, or gravel pits used to supply inorganic materials used for construction, maintenance, or reclamation will be inspected and found to be free of plant species listed on the Nevada noxious weed list or specifically identified by the BLM Ely Field Office. Inspections will be conducted by a weed scientist of qualified biologist.
- Removal and disturbance of vegetation would be kept to a minimum through construction site management (e.g. using previously disturbed areas and existing easements, limiting equipment/materials storage and staging area sites, etc.)
- Reclamation would normally be accomplished with native seeds only. These would be representative of the indigenous species present in the adjacent habitat. Rationale for potential seeding with selected nonnative species would be documented. Possible exceptions would include use of non-native species for a temporary cover crop to out-compete weeds. Where large acreages are burned by fires and seeding is required for erosion control, all native species could be cost prohibitive and/or unavailable. In all cases, seed mixes would be approved by the BLM Authorized Officer prior to planting.
- Mixing of herbicides and rinsing of herbicide containers and spray equipment would be conducted only in areas that are safe distance from environmentally sensitive areas and points of entry to bodies of water (storm drains, irrigation ditches, streams, lakes, or wells).
- Methods used to accomplish weed and insect control objectives would consider seasonal distribution of large wildlife species.
- No noxious weeds will be allowed on the site at the time of reclamation release. Any noxious weeds that become established will be controlled.

Reviewed by: \_\_\_\_\_

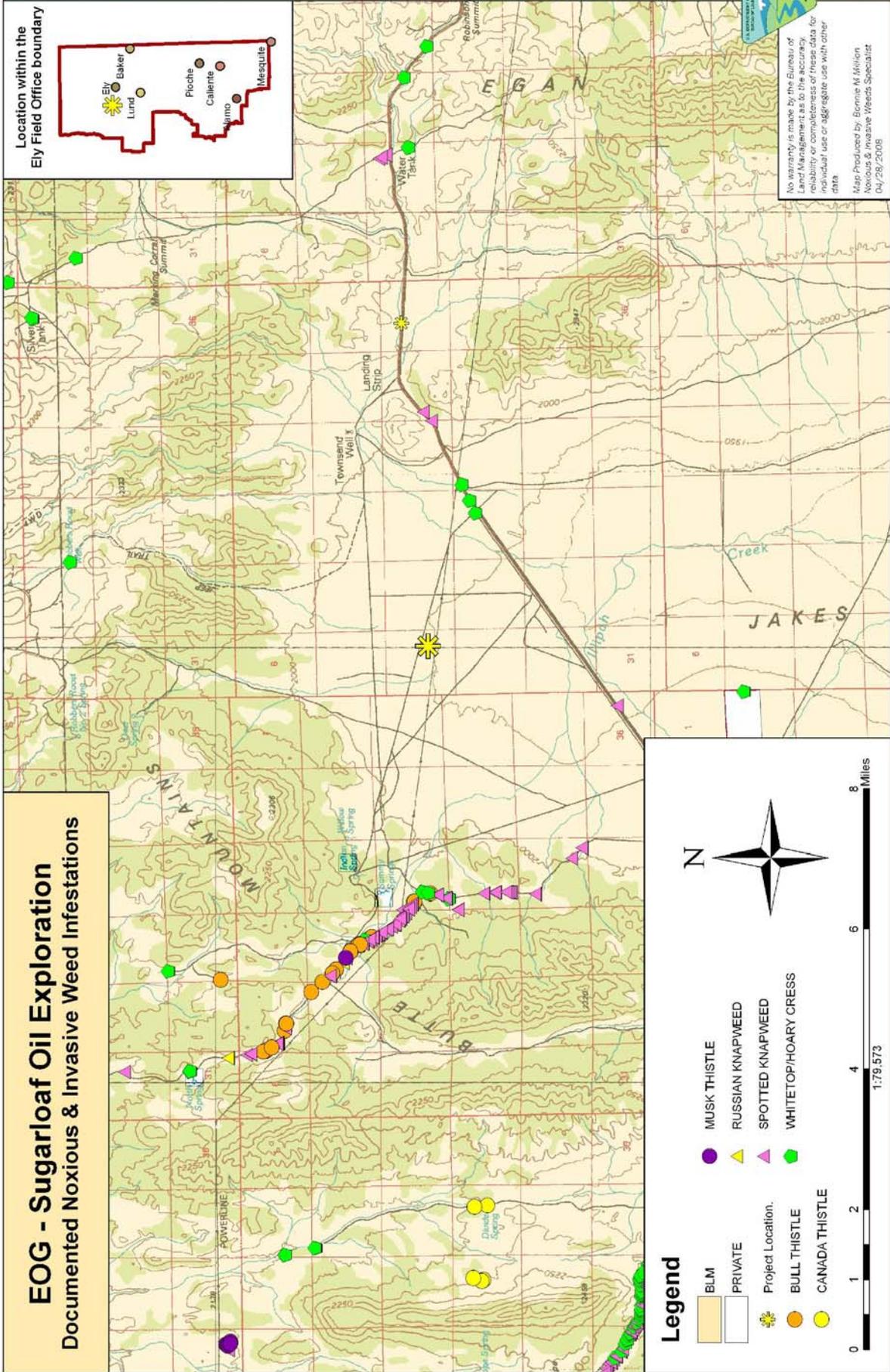
Bonnie M Million  
Ely District Noxious & Invasive Weeds Coordinator

4/28/2008

Date

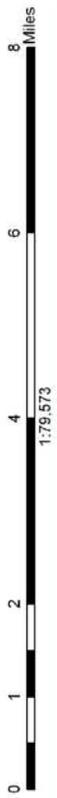


**EOG - Sugarloaf Oil Exploration**  
 Documented Noxious & Invasive Weed Infestations



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

Map Produced by: Bonnie M. Milion  
 Noxious & Invasive Weeds Specialist  
 04/28/2008



**Legend**

- BLM
- PRIVATE
- Project Location.
- MUSK THISTLE
- RUSSIAN KNAPWEED
- SPOTTED KNAPWEED
- WHITETOP/HOARY CRESS
- BULL THISTLE
- CANADA THISTLE