

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

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September 2016**

**An Environmental Assessment
of Makoil Inc.
Application for Permit to Drill
the Soda Spring 1-22 Oil Well**

File Numbers: N-81152, N-94465

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1.0 INTRODUCTION

FX Nevada LLC has leased a parcel of Federal land for potential oil and gas development (Bureau of Land Management [BLM] case file number N-81152) under the Mineral Leasing Act of 1920 as amended and supplemented, and Part 3100 of Title 43, Code of Federal Regulations (CFR). On November 19, 2015, the BLM Tonopah Field Office received from Makoil, Inc. an Application for Permit to Drill (APD), proposing to drill Soda Spring well 1-22. If the APD is approved the operator would change to Hussey Oil & Gas, Inc. BLM received a revised APD on November 23, 2015. The proposed well would be situated in Section 22, T. 8 N., R. 57 E., SE ¼ of NW ¼ MDM, approximately 22 miles south-southeast of the town site of Currant in Railroad Valley, Nevada (Figures 1, 2, and 3).

On November 23, 2015 Makoil, Inc. filed a road right-of-way (ROW) application (BLM case file number N-94465) with Tonopah Field Office for an existing road which would grant access from a Nye County road to the lease boundary (Figures 1 and 2). The well pad would be directly adjacent to the existing road; no new access road construction would be required.

The approval of the APD and ROW are federal actions subject to analysis under the National Environmental Policy Act (NEPA) of 1969 (Public Law [PL] 1-91-190, as amended [42 United States Code (USC) 4321 *et seq.*]). The BLM Tonopah Field Office determined that an environmental assessment (EA) is required to analyze the Soda Spring 1-22 APD and ROW request. This EA analyzes the direct, indirect, and cumulative impacts of the Proposed Action in order to provide the information needed to determine if it would have significant impacts, in which case an Environmental Impact Statement (EIS) would be required.

Purpose and Need for Action

The purpose of the action is to provide Makoil and, once approved, Hussey Oil & Gas with authorized use of the public land managed by the BLM to drill the Soda Spring 1-22 well and develop associated infrastructure, and to provide legal access to the drill site across BLM-managed public land, in compliance with the Federal Land Policy and Management Act of 1976 (FLPMA) and other applicable federal and state laws. The need for the action is established by BLM's legal responsibility to respond to Makoil's APD and application for a Title V FLPMA ROW for access to drill Soda Spring 1-22 well on Oil and Gas lease N-81152, on which they have valid existing lease rights.

Land Use Plan Conformance

The Proposed Action is in conformance with the Tonopah Resource Management Plan (RMP) and Record of Decision approved on October 2, 1997.

The Fluid Minerals Objective in the Tonopah RMP (page 22) is "To provide opportunity for exploration and development of fluid minerals such as oil, gas, and geothermal resources, using appropriate stipulations to allow for the preservation and enhancement of fragile and unique resources."

The proposal is within an area that is designated as "open to fluid minerals leasing subject to standard lease terms and conditions" (Tonopah RMP, page 22).

The Lands and Rights-of-Way Objective in the Tonopah RMP (page 18) is “To make lands available for community expansion and private economic development and to increase the potential for economic diversity.”

A Standard Operating Procedure (Tonopah RMP, page 33) states, “Unless the land has been dedicated to a specific use or uses, public land within the Tonopah Planning Area is available for consideration for linear rights-of-way for access, and for utility transportation and distribution purposes. Such land is also available for areal rights-of-way purposes.”

Relationship to Statutes, Regulations, Policy, Plans or Other EAs

BLM Onshore Order #1 was established pursuant to the authority prescribed in 43 CFR 3160. It requires that approval of all proposed exploratory, development, and service wells and all required approvals of subsequent well operations and other lease operations be obtained in accordance with 43 CFR 3162.3-1, 3162.3-2, 3162.3-3, 3162.3-4 and 3162.5-1.

Pursuant to 43 CFR 3101.1-2, a lessee shall have the right to use so much of the leased lands as is necessary to explore for, drill for, mine, extract, remove and dispose of all the leased resource in a leasehold, subject to: stipulations attached to the lease; restrictions deriving from specific, nondiscretionary statutes; and such reasonable measures as may be required by the authorized officer to minimize adverse impacts to other resource values, land uses or users not addressed in the lease stipulations at the time operations are proposed.

The exploration must be in conformance with all Nevada State and Federal requirements including, but not limited to, those of the BLM, State of Nevada Division of Minerals, State of Nevada Division of Environmental Protection, Nevada State Engineer, and the Federal Environmental Protection Agency.

National policy under 43 CFR 2801.2 states, “It is BLM’s objective to grant rights-of-way under the regulations in this part to any qualified individual, business, or governmental entity and to direct and control the use of rights-of-way on public lands in a manner that:

- (a) Protects the natural resources associated with public lands and adjacent lands, whether private or administered by a government entity;
- (b) Prevents unnecessary or undue degradation to public lands;
- (c) Promotes the use of rights-of-way in common considering engineering and technological compatibility, national security, and land use plans; and
- (d) Coordinates, to the fullest extent possible, all BLM actions under the regulations in this part with state and local governments, interested individuals, and appropriate quasi-public entities.”

Conformance with the Nye County Plan: The Proposed Action is in conformance with Nye County Policy Plan for Public Lands (2011, page 38) which states, “Oil and gas resources should be inventoried and development encouraged. Public lands with a high potential for oil or gas resources should not be withdrawn from exploration.”

Scoping, Tribal Coordination and Public Involvement

Makoil's Notice of Staking was made available for public review and comment in the Tonopah Field Office public room from October 13, 2015 to November 13, 2015.

A BLM interdisciplinary team (Chapter 6, List of Preparers) conducted internal scoping beginning in March 2016 to identify potentially affected resources (Chapter 3, Tables 1 and 2).

BLM met with Maurice Frank-Churchill, representing the Duckwater Shoshone Tribe, on January 21, 2016 to discuss the Proposed Action and other projects; and discussed it with Mr. Churchill again on August 29, 2016 after an adjustment of the proposed disturbance area within the lease boundary. Tribal coordination for the project is ongoing.

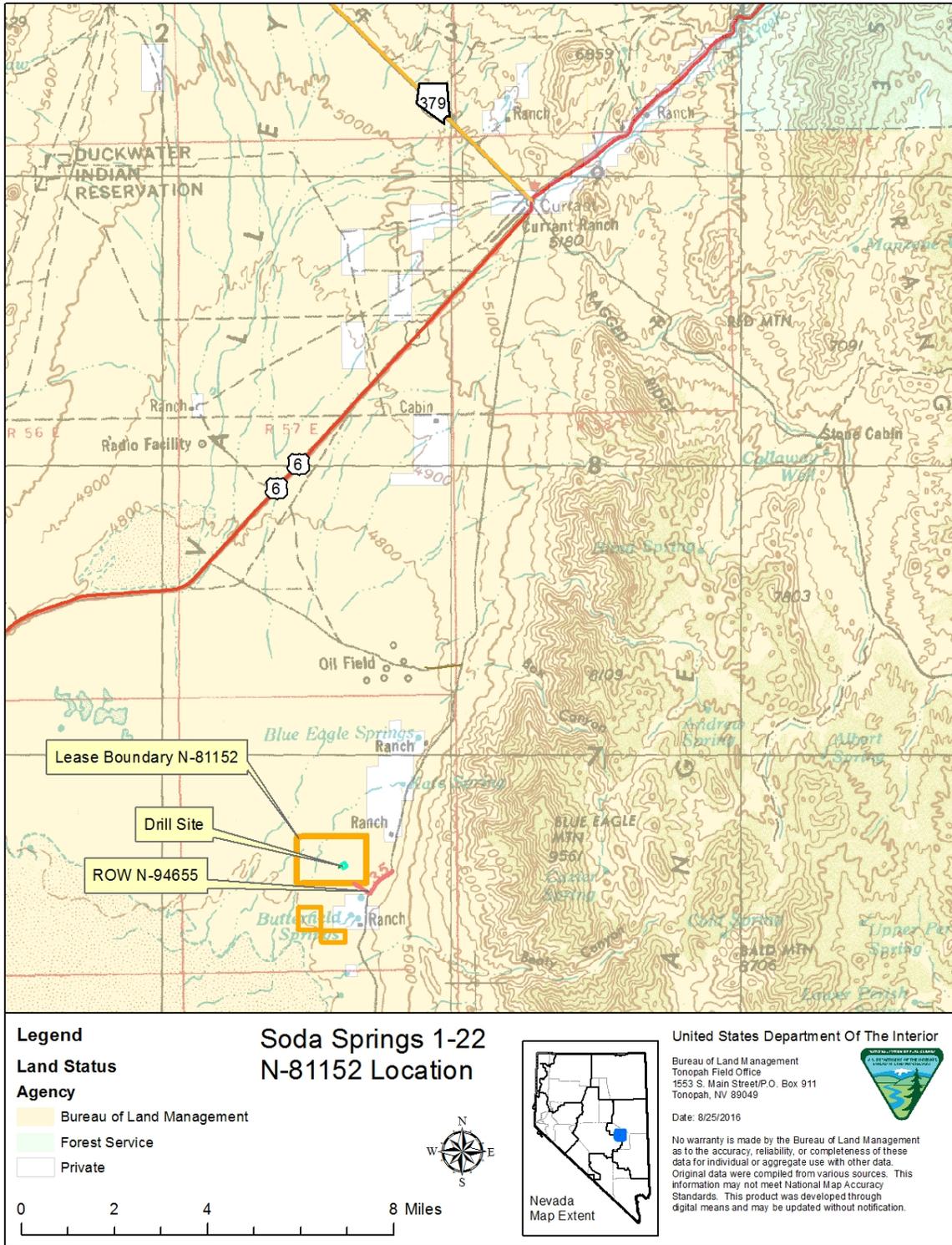
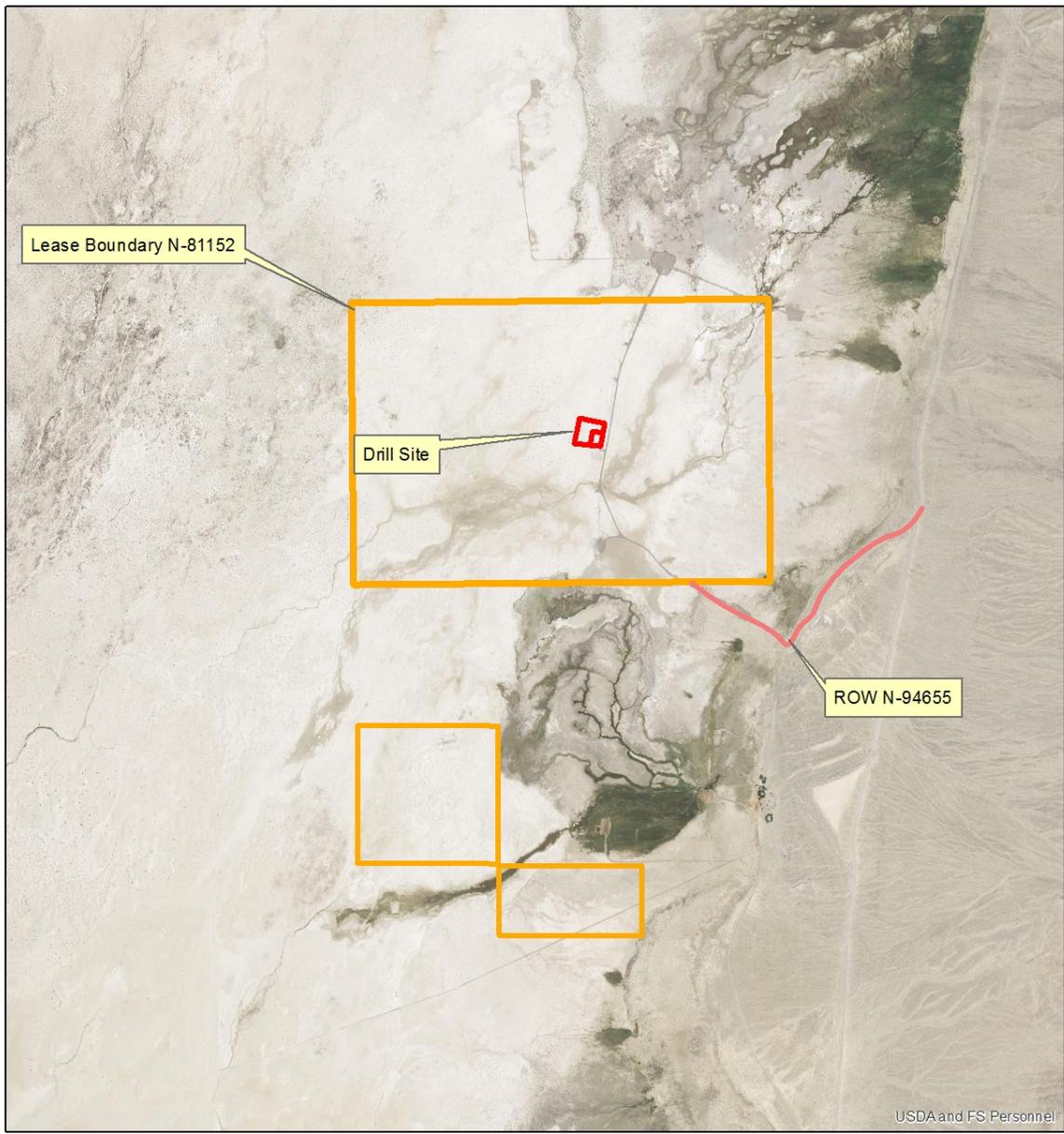


Figure 1. Location map of proposed oil well site.



USDA and FS Personnel

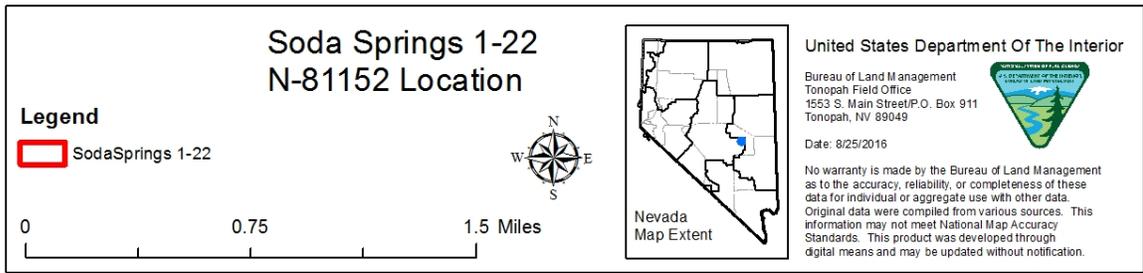


Figure 2. Overview of proposed Soda Spring oil well location, with aerial imagery.

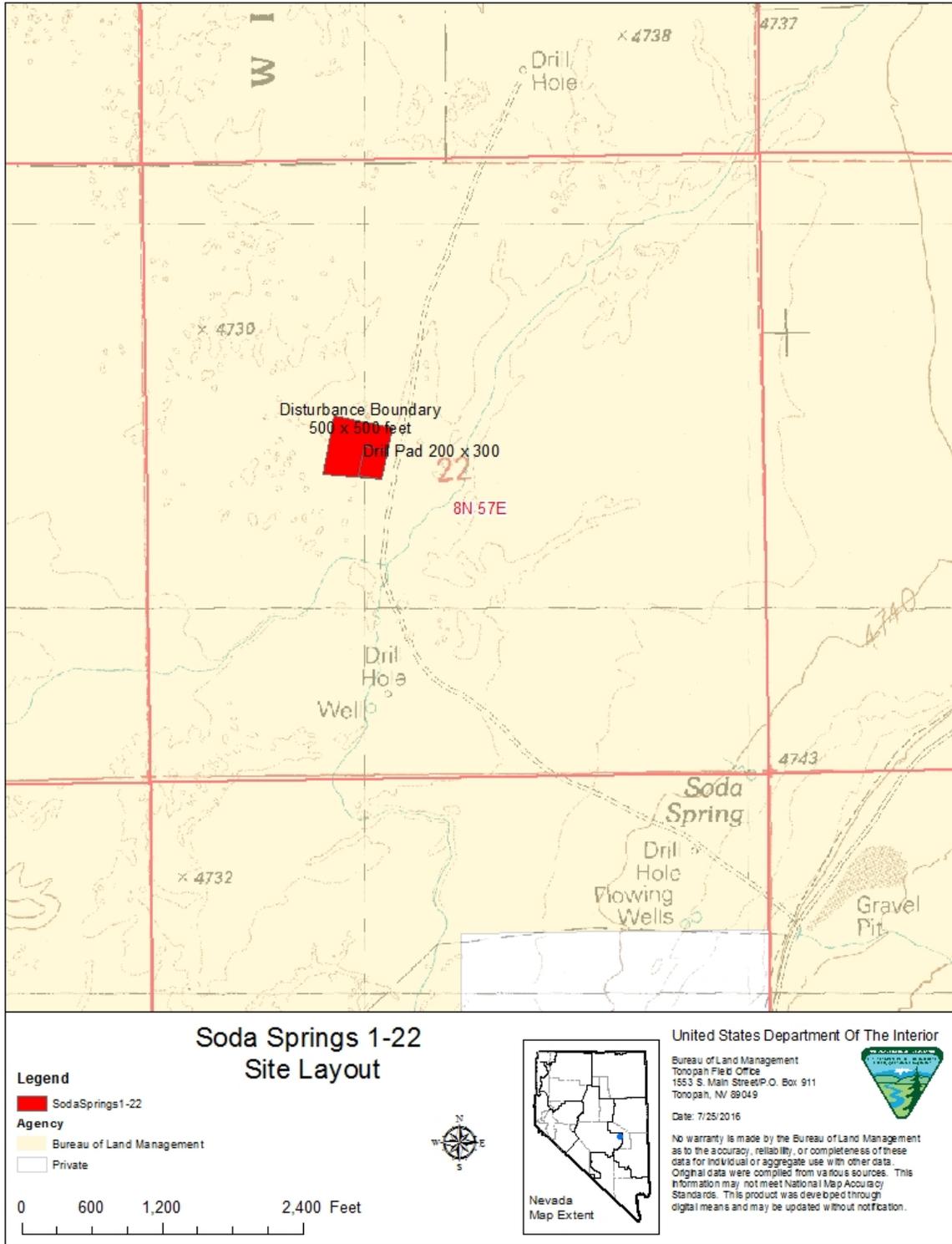


Figure 3. Position of proposed disturbance boundary and drill pad in relation to existing road.

2.0 THE PROPOSED ACTION AND ALTERNATIVES

The Proposed Action

FX Nevada LLC has leased a parcel of Federal land for potential oil and gas development under the Mineral Leasing Act of 1920, as amended and supplemented, and Part 3100 of Title 43, Code of Federal Regulations (CFR). On November 23, 2015 the BLM received a revised APD from Makoil Inc., a principal of FX Nevada LLC, to drill the Soda Spring 1-22 in Railroad Valley, Nevada. Main components of the project relevant to environmental effects are described in this chapter. Also see Conditions of Approval (Appendix A), Standard Operating Procedures (Appendix B) and Lease-specific Stipulations (Appendix C).

Location: The proposed well location would be situated in Section 22, T. 8 N., R. 57 E., SE $\frac{1}{4}$ of NW $\frac{1}{4}$, MDM, approximately 16 miles south-southwest of the town site of Currant in Railroad Valley, Nevada. Access is via Railroad Valley Road which exits U.S. Highway 6 about 10 miles southwest of Currant, and continues south onto Hanks Road. Railroad Valley is a broad valley, part of which is a flat playa, bounded by mountain ranges; the valley's elevation range is approximately 4700 to 5000 feet (Figure 1).

Access roads: Access to the lease area would be via existing roads. Makoil has requested a right-of way (ROW) grant (N-94465) along approximately 0.84 mile of an existing raised gravel bed road where it extends from Railroad Valley Road / Hanks Road to the lease boundary (Figures 1 and 2). This gravel road continues within the lease boundary where a ROW would not be required. This road would be maintained and improved as necessary, both within and outside the lease boundary, but would not need new construction or widening. Road maintenance during the drilling and production phase of operations would include keeping surface and shoulders in a safe and usable condition. No cattle guards or fencing would be needed on the access roads for drilling purposes.

No new access road would need to be constructed to connect the existing gravel road with the Soda Spring well pad, because the existing road and proposed pad site are directly adjacent (Figure 3).

Wellhead and pad: The proposed wellhead would be located on a 1.4-acre gravel pad (200 x 300 feet). A minimum of 6 inches of topsoil would be stripped from the location before pad construction, stored alongside the pad, wetted as necessary to prevent loss to wind, and used in future reclamation of the well site.

Drilling: The proposed oil well would be drilled to an approximate depth of 8000 feet. The drilling mud would be contained in a reserve pit which would cover approximately 0.25 acres (60 x 180 feet) to a proposed depth of 6 feet. The depth to the water table is shallow in this area; therefore, the reserve pit would be lined with bentonite to prevent contamination of the aquifer. If necessary due to soil conditions or high water table, pit dimensions would be adjusted to 180 x 80 feet with a depth of 4 feet. The reserve pit would be fenced on three sides during drilling and netted to prevent access by birds and other wildlife, livestock, and humans (see fencing and netting requirements in Conditions of Approval, Appendix A). Escape ramps, ladders or other methods of escape would be incorporated into the design. The excavated material would be used to fill in the pit after drilling operations.

The blowout preventer (BOP) and related pressure control equipment would be installed, tested and maintained in compliance with *Onshore Oil & Gas Order #2*.

The well should reach its total depth within 21-28 days after drilling commences.

Surface disturbance: The maximum potential total area of surface disturbance for all activities that are part of the Proposed Action is approximately 250,000 ft² or 5.7 acres, within the 500 x 500 foot disturbance boundary; see Figure 3.

Water and gravel supply: On November 23, 2015 Makoil and Hussey Oil & Gas established a water use and gravel use agreement with Carole Hanks of Hanks Ranch. Ms. Hanks holds watering rights from Butterfield Spring on private land in section 27, T. 8 N., R. 57 E., MDM. Water for drilling would be obtained from this source. The operator would obtain and maintain all necessary State of Nevada permits for water use. Approximately 8000 barrels (252,000 gallons) of water would be used during drilling operations.

Under the same agreement, the preferred source for an estimated 6000 cubic yards of gravel to be used as construction material for the proposed well pad would be a gravel pit located on private land belonging to Ms. Hanks in NE¼ Section 14, T. 8 N., R. 57 E. M.D.M.

Secondary sources for gravel are two BLM community pits: one located in Section 31 T. 9 N., R. 58 E. M.D.M. and the other in Section 9, T. 7 N., R. 57 E. M.D.M. The dirt contractor would be responsible for any required gravel permits, and for any required reclamation to the gravel pit(s) used.

Production: If after completion of operations production is obtained, a completion report would be submitted to the authorized officer. Production facilities would be constructed on the gravel fill of the well pad. A dike would be constructed to encompass all the production facilities, designed to contain fluids up to 110% capacity of the largest vessel. Above-ground structures would be designed to visually blend in with the surrounding landscape. Any additional facilities or disturbance beyond the 500 x 500 foot disturbance area (Figure 3) addressed in this EA would be subject to additional NEPA analysis.

Waste disposal:

- A trash dumpster would be placed onsite and waste material would be hauled to a BLM-approved landfill when the dumpster is full.
- Drilling fluids and cuttings would be handled in the reserve pit, which would be fenced per Conditions of Approval (Appendix A) .
- Produced fluids shall be put in test tanks on location during completion work. Produced water will be put in the reserve pit during completion work per Onshore Order #7.
- If formation water is encountered, an appropriate application process would be conducted for water disposal.
- Portable chemical toilets would be rented and installed onsite. The rental company would haul away and dispose of sewage according to BLM specifications.
- All oil, diesel, or hydraulic fluid spills would be cleaned up immediately and removed, including associated contaminated soils. All spill-related materials would

- be hauled to an approved disposal site.
- All hazardous substances would be stored in appropriate containment to prevent site contamination. Current Safety Data Sheets would be on location for all chemical substances which are used during the course of construction, drilling, completion and production operations for this project.

Restoration: When drilling is completed, the fourth side of the reserve pit would be fenced and the pit would be allowed to dry. Fencing materials would be removed, the pit backfilled and recontoured with the topsoil spread over the surface within one year of proper plugging and abandonment of the well. If production is not achieved, the operator would place a dry hole marker; remove excess gravel; backfill, level and recontour; scarify the well pad; and spread the stored topsoil over the surface. If reseeding is needed it would be performed per BLM recommendations. The operator would be responsible for weed control within disturbed areas, using measures approved by the Authorized Officer. If production is obtained, all equipment not needed for production would be removed from the site. Other cleanup would be done as needed.

Construction, operation and reclamation standards and requirements: All authorized construction, operation and reclamation would be consistent with the Gold Book (DOI and USDA 2007). Conditions of Approval of the Proposed Action are presented in Appendix A of this EA, and Standard Operating Procedures (SOPs) are presented in Appendix B. Lease-specific stipulations associated with Oil and Gas Lease N-81152 are presented in Appendix C.

No Action Alternative

Under the No Action alternative, the BLM would not approve the APD or ROW and Makoil and Hussey Oil & Gas would not have access to or an authorization to drill the proposed oil well. BLM's authority to implement the No Action alternative is limited because oil and gas lease holders possess valid existing rights to explore and potentially develop their lease subject to the stipulations of the specific lease agreement. However, BLM can deny the APD if the proposal would violate lease stipulations or applicable laws and regulations, or result in undue or unnecessary environmental degradation.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

The purpose of this section of the EA is to identify resources that may be affected by the Proposed Action, describe the existing environment of the proposed project area in terms of those resources, and disclose the potential consequences of the Proposed Action to each resource.

3.1 Supplemental Authorities

The NEPA Handbook Appendix 1 (BLM 2008) and the Nevada Instruction Memorandum BLM-NV-IM-2009-030 list elements of the environment that are addressed by Supplemental Authorities, i.e. requirements that are specified by statute or Executive Order (EO) and that must be considered in BLM environmental documents. Table 1 lists these elements and provides a determination of whether each element is present in the Project Area and if it would be affected by the Proposed Action or No Action alternative. Elements that do not occur in the Project Area or would not be affected are not discussed further in this EA, based on the rationale provided in the table. The elimination of non-relevant issues follows Council on Environmental Quality (CEQ) policy, as stated in 40 CFR 1500.4. The potential effects of the Proposed Action and No Action Alternative are discussed under Section 3.3.

Table 1. Supplemental Authorities Elements Considered in the Analysis.				
Supplemental Authority element	Not Present	Present/Not Affected	Present/May be Affected	Rationale
Air Quality		•		Standard Operating Procedures (SOPs) presented in Appendix B require dust abatement. These would prevent any measureable effect to air quality.
Area of Critical Environmental Concern (ACEC)	•			There are no ACECs within or near the area of the Proposed Action.
Cultural Resources	•			One archaeological site was identified as a result of the Class III cultural resources inventory; this site is categorically not eligible for listing in the National Register of Historic Places. See further discussion of inventory and rationale under <i>Cultural Resources</i> .
Environmental Justice	•			No minority or low-income populations would be disproportionately affected by the Proposed Action.
Farmlands, Prime or Unique	•			No prime or unique farmlands are located within the area of the Proposed Action.
Noxious Weeds/ Invasive Non-native Species	•			The Proposed Action would have little effect on noxious weed species because there are no weeds in the project area currently. In addition, the Proposed Action incorporates SOPs which

Table 1. Supplemental Authorities Elements Considered in the Analysis.				
Supplemental Authority element	Not Present	Present/Not Affected	Present/May be Affected	Rationale
				commit Makoil to prevent the establishment of weeds and eradicate them where they occur (Appendix B).
Native American Religious Concerns	•			The Proposed Action would not compromise the integrity of any known traditional, spiritual, cultural or ceremonial use area, nor would it limit or prevent access to any traditional or ceremonial sites that may currently be in use. Native American coordination is ongoing.
Floodplains			•	The Project Area is not within a Federal Emergency Management Agency (FEMA) designated 100-year floodplain. It is in a playa area that may be subject to occasional seasonal flooding. See discussion under <i>Floodplains</i> .
Wetlands and Riparian Areas		•		The project area does not intersect any wetland or riparian area and is 300 feet from the mapped boundary of U.S. Army Corps of Engineers designated wetlands. There are several springs and a well within one mile. The proposed drilling is not expected to affect the aquifer(s) supplying water to them, due to the nature of the drilling method, which would seal off formation flow during drilling and would adhere to state law requiring that oil and water bearing strata be kept separated and that if an oil well were to encounter artesian flow, the hole be filled and plugged (NAC 522.260 and 522.445; Nevada Div. of Mineral Res., §§ 212, 301 & 303).
Threatened and Endangered Species	•			No Threatened or Endangered plants or animals or their habitats are known to exist in or near the project area.
Migratory Birds			•	See discussion under <i>Migratory Birds</i> .
Waste – Hazardous/Solid		•		The operator or any contractor working for the operator would have Safety Data Sheets available for all chemicals, compounds, or substances used. All chemicals would be handled in an appropriate manner to prevent leaks or spills to the environment. The project would comply with all applicable

Table 1. Supplemental Authorities Elements Considered in the Analysis.				
Supplemental Authority element	Not Present	Present/Not Affected	Present/May be Affected	Rationale
				federal and state laws concerning hazardous materials and the operator's Spill Prevention, Control, and Countermeasure Plan, and NTL-3A Reporting of Undesirable Events. Solid waste would be disposed offsite as approved by BLM.
Water Quality		•		The Proposed Action would have little potential to affect quality of surface or ground water because the proposed oil well would be cased and cemented from the surface to near the bottom of the hole. After testing, the well would either be set up for production or shut in or plugged in accordance with BLM regulations and Nevada State laws. Recirculated drilling fluids in the reserve pit would be handled according to State regulations and the reserve pit would be lined with bentonite.
Wild & Scenic Rivers	•			There are no rivers or river segments designated, or eligible to be designated, for inclusion in the National Wild and Scenic Rivers System in or near the Project Area.
Wilderness/Wilderness Study Areas/Lands with wilderness characteristics	•			The Project Area is not in a designated Wilderness nor WSA. It is within approximately one mile of both the Blue Eagle and Riodan's Well Wilderness Study Areas (WSAs) but is outside their boundaries, so would not impair their ability to be designated as wilderness. The project area is in wilderness inventory unit NV-060-158 which was found not to possess wilderness characteristics based on inventories conducted in 1980 and 2012.
Human Health and Safety		•		Human health and safety are not expected to be affected by the Proposed Action because the required Conditions of Approval and SOPs (Appendices A and B) include those considered necessary to ensure human health and safety.

3.2 Other Resources Considered in the Analysis

Other elements of the human environment (resources) that have been considered in this environmental assessment (EA) are listed in Table 2. Those that may be affected by the

Proposed Action and alternative are further described in the EA. For those that would not be affected, the rationale for this finding is stated in the table.

Table 2: Other Resources Considered in the Analysis.				
Other Resources	Not Present	Present/Not Affected	Present/May be Affected	Rationale
Grazing Management		•		The Project Area is in the Butterfield Allotment, which is currently stocked at 25.6 acres per Animal Unit Month (AUM). The Proposed Action would affect 5.7 acres in the Butterfield Allotment and would not result in a reduction in AUMs or any other effects to grazing management of the allotment.
Land Use Authorizations		•		The Proposed Action includes a road ROW application, N-94465. It would not affect any other land use authorization.
Minerals	•			There are no active, pending, or expired mining Plans of Operation or Notices, or active or pending sodium or potassium prospecting permits located within a 4 mile radius of the proposed project.
Paleontological Resources	•			Potential Fossil Yield Classification for the proposed location is Class 2 – Low. Appendix A includes a Condition of Approval for paleontological resources in the event fossil-bearing resources are encountered.
Recreation		•		There is no Special Recreation Management Area (SRMA) and there are only dispersed recreation resources in the general project area. Impacts to dispersed recreation opportunities, if any, would be very slight.
Socio-Economic Values		•		The Proposed Action would not be expected to create new jobs or significant revenues for local communities, or impact community services.
Soils			•	See discussion under <i>Soils</i> .
Special Status Species			•	See discussion under <i>Special Status Species (Wildlife)</i> . There are no special status plant species within or near the Project Area.
Vegetation			•	See discussion under <i>Vegetation</i> .
Visual Resources			•	See discussion under <i>Visual Resources</i> .
Wild Horses and Burros	•			No wild horse or burros are known to inhabit the project area, and it is not in a Herd Management Area (HMA).
Wildlife			•	See discussion under <i>Wildlife</i> .

3.3 Effects Analysis

Cultural Resources

Affected Environment

Cultural resources in the Great Basin region include prehistoric and historic-period resources such as buildings, sites, structures, objects, and districts. Prehistoric cultural resources are associated with the human occupation and use of Nevada before long-term European occupation and include traces of Native American life such as camp sites, rock art, and trails, some dating to over 12,000 years. Historic-period cultural resources represent both the archaeological and built environment, including structures, historic districts, and the foundations of industrialization.

The BLM conducted a Class III cultural resources inventory of the project's Area of Potential Effects (APE) for Direct Effects on July 22, 2016. The APE for Direct Effects is the 500 x 500 foot disturbance boundary (Figure 3), which includes the proposed drill pad, reserve pit, and pit material and top soil locations. One archaeological site was identified within the Direct Effects APE during the Class III cultural resources inventory. In accordance with section V.B.1.a.(3) of the State Protocol Agreement between the Bureau of Land Management and the Nevada State Historic Preservation Officer for Implementing the National Historic Preservation Act (Protocol; revised December 22, 2014) this site is categorically not eligible for listing in the National Register of Historic Places (NRHP) and is therefore not a historic property requiring further consideration under the National Historic Preservation Act.

For the purposes of the cultural resource effects analysis, the primary visually-obstructive element of the project would be one derrick or drill rig (approximately 24 feet in height) constructed upon the well pad that, together with other project components, would be barely discernible beyond approximately one half mile around the Direct Effects APE. The BLM conducted a review of known archaeological and architectural resources within a one half mile radius surrounding the Direct Effects APE and there are no known resources within this area; as a result, no Indirect Effects APE has been established for this project.

Environmental Consequences of the Proposed Action on Cultural Resources

Direct Effects: One archaeological site was identified within the Proposed Action APE during the Class III cultural resources inventory; however, this site is not eligible for the NRHP. Therefore, there would be no direct effect to a historic property as a result of the Proposed Action.

Indirect Effects: A review of the known archaeological and architectural resources within a one half mile radius surrounding the Direct Effects APE indicates there are no known cultural resources that may be indirectly affected as a result of the Proposed Action. Auditory, atmospheric (e.g., increased dust), and any vibrational effects resulting from the project would be considered intermittent and/or temporary.

Granting a ROW on the existing road would have no effect to cultural resources.

Environmental Consequences of the No Action Alternative on Cultural Resources

Under the No Action Alternative, conditions within the Proposed Action location are expected to remain generally in their current state. No historic properties are located within the Proposed Action location; therefore, there would be no direct effects to such resources under the No Action alternative. Also, under the No Action Alternative there would be no indirect effects to cultural resources as, in its current state, the Proposed Action location introduces no visual, atmospheric, auditory, or vibrational impacts within or beyond the location.

Floodplains

Affected Environment

The proposed Soda Spring 1-22 well site is located in the northeast corner of the Railroad Valley playa, outside of Federal Emergency Management Agency (FEMA) floodplains. During the summer months, thunderstorms develop over the Grant and Quinn Ranges to the east, which can result in ponding in the area of the Proposed Action. During the winter months the depth of the water table becomes very shallow, which can cause ponding of water on the playa surface.

Environmental Consequences of the Proposed Action on Floodplains

The proposed well pad location lies northwest of an ephemeral drainage and would not be expected to block the typical flow of floodwater. The pad and pit areas would be designed to withstand flooding at the 100-year flood level (Appendix A); should floodwaters route outside their normal course, the raised pad would cause floodwaters to be redirected around it. The required reclamation would restore the floodplain to its natural state.

Granting a ROW on the existing road would have no effect to floodplains.

Environmental Consequences of the No Action Alternative on Floodplains

Under the No Action Alternative, the proposed well would not be drilled on the playa and the proposed well pad would not be constructed. Therefore, this alternative would have no effect on the floodplain.

Soils

Affected Environment

The Proposed Action is located within the Nuyobe-Blueagle-Playas complex soil which is characterized by a lacustrine parent material. This complex covers approximately 25,812 acres surrounding the area of the Proposed Action. This soil complex is strongly saline and the surface texture is a silt loam. The soils representative of this complex are poorly drained. Runoff is typically high and water erodibility is slight. Wind erodibility is moderate to high and 86 tons per acre per year of soil can be expected to be lost to wind erosion without

disturbance.

Environmental Consequences of the Proposed Action on Soils

If the Proposed Action is approved, the potential direct and indirect effects on the Nuyobe-Blueagle-Playas complex soils include increased wind erosion potential. The construction of one well pad and a reserve pit using gravel laid down on erodible soils would limit the amount of erosion during exploration. In the case that production is not achieved, the gravel would be removed, the project area would undergo restoration using stockpiled topsoil and the site would be recontoured and reseeded; this action will minimize the effect of wind erosion.

Granting a ROW on the existing road would have no effect to soils.

Environmental Consequences of the No Action Alternative on Soils

Under the No Action alternative, there would be no effects to soil.

Vegetation

Affected Environment

The Proposed Action is mapped as being located in the Saline Meadow (R029XY002NV) Ecological Site, but actually consists almost entirely of black greasewood (*Sarcobatus vermiculatus*). Vegetative cover is less than ten percent. This vegetation is typical of the Nuyobe-Blueagle-Playas complex soil which covers 25,812 acres in and around the project area.

Environmental Consequences of the Proposed Action on Vegetation

Implementation of the Proposed Action would result in the removal of vegetation across approximately 5.7 acres. Due to the small area affected, direct and indirect impacts to the vegetation community would be minimal. Restoration and re-seeding would enable native vegetation to reestablish within several years.

Granting a ROW on the existing road would have no effect to vegetation.

Environmental Consequences of the No Action Alternative on Vegetation

Under the no action alternative, there would be no change to the existing vegetation.

Visual Resources

Affected Environment

The project area is located in a Class IV Visual Resource Management (VRM) area identified in the Tonopah RMP and Record of Decision, dated October 1997. The Class IV objective allows for contrasts that may attract attention and be a dominant feature of the landscape;

however, the change should repeat the basic elements inherent in the characteristic landscape. The level of change to the characteristic landscape can be high.

Environmental Consequences of the Proposed Action on Visual Resources

The visual changes that would result from the Proposed Action are consistent with the objective for VRM Class IV.

The drill rig would be visible and the operation likely noticeable from observation points within 3-5 miles in the foreground-middle ground zone during drilling operations. The drill pad would also be discernible as a change in line and color. At greater distances, the drill rig and pad would fall into the background zone and be less discernible due both to distance and the varying patterns of the mountainous background. These effects would be temporary because if production is not achieved the drill rig would be removed after drilling, which is expected to be completed in 3-4 weeks, followed by recontouring and revegetation.

If production is achieved the drill rig could be replaced by production and storage facilities within the 500 x 500 foot disturbance boundary; this would result in long-term changes in line but inconspicuous changes in color, because the proponent would paint these facilities with a color selected by BLM to blend with the surroundings (Appendix A).

Vehicle travel on the playa surface would be limited to that necessary to construct and reclaim the drill pad (Appendix A); this would limit changes in line that could result from vehicle tracks.

Lighting would follow measures to limit impacts on dark skies (Appendix A).

Granting a ROW on the existing road would have no effect to visual resources.

Environmental Consequences of the No Action Alternative on Visual Resources

Under the No Action alternative, there would be no change to the existing visual environment.

Wildlife, including Special Status Species

Affected Environment

This section addresses wildlife species and habitats that are potentially in the project area, including special status wildlife: migratory birds, eagles, and BLM Sensitive wildlife species. There are no special status plants in the project area. For a complete list of special status species in the BLM Battle Mountain District, refer to Appendix D.

The mapped ecologic site is describe as a saline meadow; however, the actual site is very sparsely vegetated, consisting almost entirely of black greasewood (*Sarcobatus vermiculatus*) with only a few (less than 20) shrubs on the entire 5.7 acre project area and little to no grasses or forbs. The area more closely resembles a playa.

The Migratory Bird Treaty Act (MBTA) of 1918 mandates protection of migratory birds, with the exception of native resident game birds. Under this act, nests with eggs or the young of migratory birds may not be harmed, nor may any migratory birds be killed. Measures to prevent bird mortality and potential disturbance of breeding birds or their nests and young must be incorporated into the design of a given project. To comply with the MBTA, BLM recommends that any land clearing or other surface disturbance associated with proposed actions be conducted outside the avian breeding season, which for most songbirds is March 1 – July 31. If land clearing must be conducted during the avian breeding season, a qualified biologist would survey the area prior to land clearing activities. If nests are located, or if other evidence of nesting (i.e., mated pairs, territorial defense, carrying nesting material, transporting of food) is observed, a protective buffer (the size depending on the habitat requirements of the species) should be delineated and the entire area avoided until young fledge or the nest is no longer occupied. If land clearing is not started within 10 days of the survey, then another survey would be needed. Activities may continue within the surveyed area so long as there are no periods longer than 10 days without any activity. Guidance for raptors differs from migratory songbirds in that the nesting season is extended (January 1 – August 31) and the survey area is larger (surveys will be conducted in the project area in addition to a 1 mile buffer surrounding the proposed surface disturbance). This survey buffer may be reduced or altered based on topography and the presence of other physical barriers.

A wide variety of bird species protected by the MBTA are found throughout the habitat types near the proposed well pad. These include raptors (i.e., hawks, eagles and owls) and many songbirds including, but not limited to, Loggerhead Shrike, Western Meadowlark, Red-winged Blackbird, Marsh Wren, Sage Sparrow and White-crowned Sparrow. Twelve species listed by U.S. Fish and Wildlife Service (USFWS) as Birds of Conservation Concern (BCC) for Great Basin Region 9 have the potential to occur within or near the Project Area, based on their known distribution and habitat associations: Golden Eagle, Snowy Plover, Long-billed Curlew, Calliope Hummingbird, Lewis's Woodpecker, Willow Flycatcher, Loggerhead Shrike, Sage Thrasher, Green-tailed Towhee, Brewer's Sparrow, Black-chinned Sparrow and Sagebrush Sparrow. (Snowy Plover and Willow Flycatcher potentially in the project area belong to subspecies or populations that are not listed by USFWS as Threatened or Endangered.)

The very sparsely vegetated conditions at the proposed project site do not provide adequate forage or cover for birds to successfully reside in the location of the project area, and only occasional passes through the area are expected.

Shorebirds, wading birds, and waterfowl species would be expected in ephemeral wetlands near the project area only when adequate water for foraging and loafing is seasonally present (normally winter into early spring). The project area itself does not provide habitat for shorebirds, wading birds or waterfowl.

There are very important riparian communities near the area about one mile to the north (Cement Spring) and south (Butterfield Spring). Many songbird species are heavily dependent on healthy riparian systems. Seventy-seven bird species have been identified as either riparian obligate or riparian dependent in the western United States (Rich 2002) and these communities are requisite for a diverse migratory bird community. Both spring areas

support populations of migratory birds, and birds traveling between the two spring areas may pass through the project area.

The Bald and Golden Eagle Protection Act (16 U.S.C. 668) applies primarily to taking, hunting and trading activities that involve any bald or golden eagle. The act prohibits the direct or indirect take of an eagle, eagle part or product, nest, or egg. The term “take” includes “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb.” The USFWS has guidance for proposed projects that have the potential to impact eagles or their habitat. Generally, the steps in these guidelines include 1) surveying for nests within an appropriate radius of the project, 2) developing an eagle conservation plan (ECP) in cases where eagles and/or their nests are likely to be impacted, 3) determining if the project has the potential to disturb breeding behavior and 4) determining if the proponents need to apply for a permit to authorize unintentional take.

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

Although bald and golden eagles have not been documented within the Project Area, they have been observed in other nearby portions of Railroad Valley. The Grant Mountain Range runs north-south approximately three miles east of the project area. This range contains adequate nesting habitat for cliff nesting raptors and eagles. However, the project area does not contain suitable habitat for prey species and would be considered marginal foraging habitat for eagles.

BLM Sensitive species are species listed by the State Director in response to information indicating a downward trend that puts the species, or a distinct population segment, at risk across all or a significant portion of its range. BLM Sensitive species and their habitats are managed so as to improve habitat condition and prevent further decline.

Nevada BLM Sensitive species that are known to occur in the general Railroad Valley area include western snowy plover, burrowing owl, and pale kangaroo mouse. Railroad Valley tui chub is found in aquatic habitat less than one mile away; the project area itself does not provide habitat for aquatic species.

Other wildlife: Based on the Tonopah RMP and a query of the Nevada Natural Heritage Program (NNHP) and Nevada Department of Wildlife (NDOW) databases, the project area and immediate vicinity do not contain any designated critical habitat or key range for any species of wildlife. However, the area is located within mapped year-round pronghorn habitat and may provide occasional incidental range for other wildlife species that occupy the general area, including a basic component of small mammals, reptiles, and predators. The project area and adjacent areas may provide foraging habitat for various raptors.

Environmental Consequences of the Proposed Action to Wildlife

The Proposed Action has the potential to cause mortality, disturbance and displacement to

individual animals; and to affect their habitat within the 500 x 500 foot disturbance boundary until post-project restoration is completed. No population-level effects are anticipated for any species (including migratory birds, eagles, and BLM Sensitive species), for the reasons described below.

Direct mortality, disturbance and displacement: Increased vehicle traffic on roads and highways leading to the project area could cause some wildlife mortalities, particularly to small mammals (including pale kangaroo mouse) that may reside in or around the project area. Collisions with wildlife would be minimized in the project area by the required reduced speeds of travel (25 miles per hour) during project activities.

Other effects to wildlife could include displacement from or avoidance of the general project area due to increased human activity, noise and traffic. Displacement can cause mortality if animals are displaced into areas already at carrying capacity. It can also affect breeding success if activities are conducted during the breeding season.

Noise and human activity can cause birds to abandon nests (including eagles, snowy plover and burrowing owl, and other migratory birds and raptors). As noted above, habitat for migratory songbirds at the proposed project site itself is very marginal and these birds would generally be expected to pass through but not to nest. Also, adherence to BLM Statewide Wildlife Survey protocols in conducting nest clearance surveys (including surveys for snowy plover and burrowing owl nests) prior to any ground disturbing activities would prevent any disturbance during the breeding season. The project area provides only marginal foraging habitat and no nesting habitat for eagles and raptors, and there is a sufficient amount of foraging habitat in Railroad Valley surrounding the project area to support these species if they were displaced from the project area. The conditions of approval as described in Appendix A would dramatically reduce if not eliminate any of these effects to birds.

Effects of reserve pits and hazardous fluids: In general, oil drilling activities can expose wildlife to a risk of poisoning resulting from the ingestion of toxic chemicals. During the drilling process, human activity and noise discourage aquatic migratory birds such as waterfowl from accessing reserve pits; but once the drilling rig and other equipment are removed from the well pads, reserve pits become attractive to birds and other wildlife. The longer the reserve pit is left on site, the greater the probability that aquatic birds will land on the pit (Ramirez 2009). Birds travelling back and forth between the nearby riparian areas at Cement Spring and Butterfield Spring could potentially pass the project area; this increases the likelihood that birds would be in the project area and potentially attracted to portions of the well pad, including any open water, flat surfaces, or holes for building nests. Therefore, netting and fencing per USFWS recommendations is required (see Appendix A). This and other measures described in Appendix A would deter birds and other wildlife from using the well pad and nearby areas. Also, the proposed well would include blow-out preventers that are designed to prevent the release of hydrocarbon-contaminated fluids to the environment (Appendix A). Therefore, there would be minimal potential for wildlife to encounter any hazardous materials.

Habitat effects: In general, potential habitat effects of drilling activities include removal of migratory bird nesting and foraging habitat during the core nesting season (March 1 – July

31); long-term loss of shrub cover, reducing nesting cover and substrate for birds and cover for small animals; and degradation of habitats due to invasive and noxious weed infestations that could alter native vegetation cover and plant species composition. However, loss of shrub cover would be confined to the 500 x 500 foot disturbance boundary, which has very few shrubs (fewer than 20). Removal of nesting substrate during the nesting season would be eliminated by the requirement (Appendix A) to either avoid the nesting season or conduct nest surveys and avoid ground disturbing activities within 300 feet of active nests. Standard operating procedures (Appendix B) require adherence to measures for the control and eradication of weeds within the Project Area in accordance with the Battle Mountain Integrated Weed Management Plan. Given these requirements and the already-sparse vegetation, habitat effects are expected to be minimal.

Effects of drilling on nearby aquatic habitats: Drilling activities near spring systems could have the potential to disrupt source waters by providing alternate pathways for groundwater, resulting in adverse impacts to spring system function and related consequences to the Railroad Valley Tui Chub. The likelihood of such impacts is limited by the nature of the drilling method, which would seal off formation flow during drilling and would adhere to state law requiring that any water is excluded from oil-bearing strata, and that wells be capped if artesian flow is encountered (see Wetlands and Riparian Areas, Table 2).

Effects of road ROW: Granting a ROW on the existing road would not affect wildlife.

Environmental Consequences of the No Action Alternative to Wildlife

Under the No Action alternative, there would be no effects to wildlife populations or their habitat.

4.0 CUMULATIVE EFFECTS

The Council on Environmental Quality (CEQ) regulations for implementing NEPA

(40 CFR 1508.7) define cumulative impacts as:

“. . . the impact on the environment which results from the incremental impact of the action when added to other past, present, or reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.”

The following analysis identifies past, present, or reasonably foreseeable future actions which, together with the proposed project, may incrementally impact the environment. In order to provide structure to the analysis, a geographic scope and a timeframe were established. The geographic scope or the Cumulative Effects Study Area (CESA) is the playa, which covers approximately 65,862 acres surrounding the Project Area (Figure 4). This CESA was selected because it represents the maximum spatial extent of effects that could overlap in space and time with those of the Proposed Action.

A 5-year timeframe, both in the past and into the future, was selected for the analysis. This timeframe for considering cumulative effects was selected because it represents the maximum amount of time that effects associated with the Proposed Action are likely to persist.

Past and Present Actions

Past and present actions that have occurred or are occurring in the CESA include dispersed cattle ranching and oil exploration. The CESA is located within the Nyala and Butterfield Allotments. The permitted use is the following:

Table 3. Permitted livestock use in allotments intersecting CESA.				
Allotment Name	Allotment Public Acres	Number of Authorizations	Kind	AUMs
Butterfield	120,474	1	Cattle	4,776
Nyala	321,211	1	Cattle	13,255

Past (within the past 5 years) and present oil exploration in the CESA is limited to two oil wells (12-23X and 13-34) located in Sections 12 and 13, T 9N R 56E. Makoil Inc. applied for a permit to drill these wells in 2008. The permit expired and was renewed June 9, 2015. Environmental effects analyzed for these wells included total new disturbance of approximately 2.5 acres. Work under this permit is ongoing. See Environmental Assessment NV065-EA08-199 and Determination of NEPA Adequacy DOI-BLM-NV-B020-2015-0036 DNA.

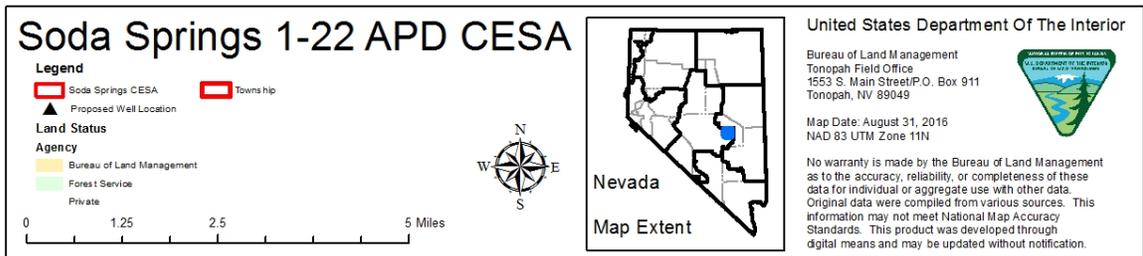
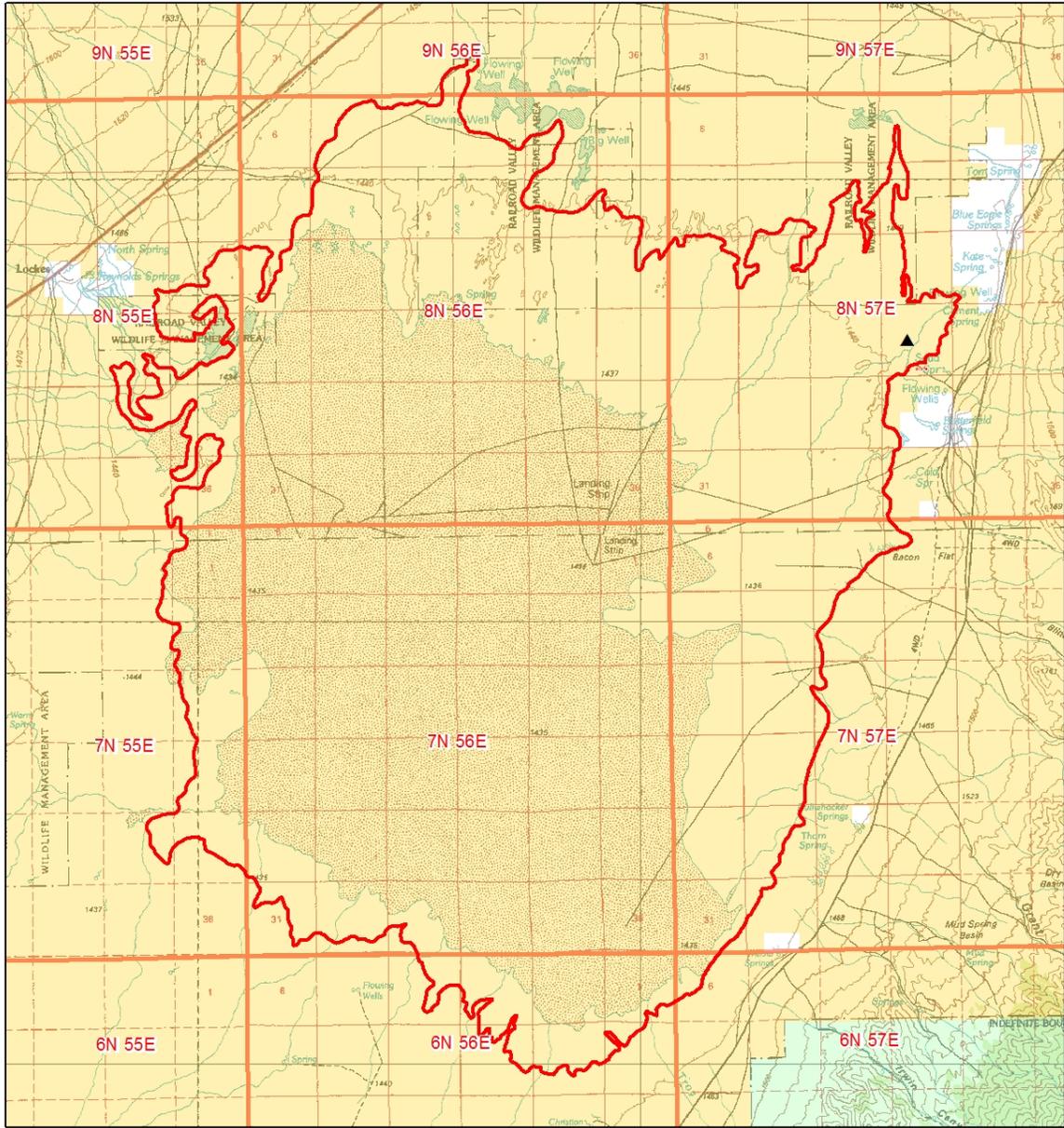


Figure 4. Cumulative Effects Study Area boundary for Soda Spring APD.

Reasonably Foreseeable Future Actions

A permit was granted to True Oil LLC in October 2013 to drill one oil well (DY Fed 13-31) located in the CESA at Section 31, T. 7 N., R. 57 E. M.D.M. Total new disturbance analyzed for this project was 1.6 acres, including a graveled well pad and graveled road.

Other than the continuation of highly dispersed cattle grazing, there are no other reasonably foreseeable future actions anticipated in this area during the 5-year timeframe under consideration. At this time, there are no other proposals for projects, pending decisions, nor allocated funding for land management actions in the CESA.

Cumulative impacts associated with past, present, and reasonably foreseeable future actions, including the Proposed Action

Cumulative Impacts to Cultural Resources

No historic properties are located within the Proposed Action APE, and no Indirect APE for cultural resources has been established, as discussed in Chapter 3. As such, a CESA for cultural resources is not established and past, present, and reasonably foreseeable future actions within the Proposed Action area would not contribute to any direct or indirect cumulative effect to cultural resources.

Cumulative Impacts to Floodplains

Past, present and reasonably foreseeable grazing activity has contributed and will contribute little to cumulative impacts to the floodplain since there is little to no forage on the playa and adjacent areas of the allotments to attract cattle. While cattle may use the floodplain as a water source during certain times of the year, which may create minor disturbance to surface soils, these impacts would not be cumulative with impacts from past, present and reasonably foreseeable future actions because the impacts would be seasonal and temporary.

Ongoing and reasonably foreseeable future oil exploration under current permits is expected to result in a total of 4.1 acres of disturbance to the Railroad Valley's seasonally-flooded areas, parts of which (outside of the Project Area) are within a FEMA-designated 100-year flood zone. These disturbed areas were graveled as part of access road and well pad construction, which has increased the potential for damming. These areas will be reclaimed after the projects are completed.

The Proposed Action would result in 5.7 acres of disturbance associated with the proposed well pad construction which would be cumulative with the 4.1 acres associated with currently permitted oil exploration. These areas would also be graveled, which would increase the potential for damming in this area. The cumulative effect would be temporary, however, because all well pads and access roads would be reclaimed.

Cumulative Impacts to Soils

Past, present and reasonably foreseeable grazing activity has resulted in localized areas of soil disturbance and compaction where cattle congregate, such as trails, trough locations, springs and salting grounds. Oil exploration has resulted in similar impacts to those of livestock grazing, but localized in the areas of well pads and roads. These impacts have increased wind and water erosion potential in these areas. However, due to the localized

nature of oil exploration and of livestock areas of congregation, these impacts are limited to relatively few intensively impacted areas within the CESA. Since cattle tend to congregate habitually in the same areas it is likely that the areas that have been impacted by cattle in the past will be repeatedly impacted into the foreseeable future.

As described in the Soils section of Chapter 3, the Proposed Action would temporarily disturb 5.7 acres of surface soils due to well pad construction, increasing erosion potential in these areas. Once reclamation and seeding are completed, the project area should return to a natural condition, which could take several years.

Taken together, the cumulative impact to soils associated with past, present and reasonably foreseeable future actions have been minor. Although there are some localized areas of increased erosion potential and compaction, the intensity of the impact has been, and would remain, very low because so few acres have been impacted relative to the size of the CESA.

Cumulative Impacts to Vegetation

Past, present and reasonably foreseeable grazing activities and oil exploration has resulted in denuding the soil of vegetation in areas of intensive use including trails, trough locations, salting grounds and oil pads. Though native vegetation is unlikely to return to these areas due to ongoing use, they tend to be dispersed widely across the landscape which reduces the intensity of the collective effect.

Considered together, the intensity of the cumulative impacts to vegetation associated with past, present and reasonably foreseeable future actions would be very slight because such a small amount of the vegetation has been and would be impacted relative to the total amount of vegetation in the CESA.

Cumulative Impact to Visual Resources

Due to the lack of available forage and the sporadic, seasonal nature of water availability, past, present and reasonably foreseeable grazing activity has resulted in few impacts to visual resources because areas of intensive grazing activity rarely, if ever, occur on the CESA.

Currently permitted oil exploration will create visual effects similar to those of the Proposed Action if drilling is ongoing at the same time, since the drill rigs, pad and access road would be noticeable in the foreground-middle ground zone from observation points within 3-5 miles during drilling operations. These impacts would be consistent with the VRM IV designation throughout the CESA.

Cumulative Impacts to Wildlife, including Special Status Species

Past, present, and reasonably foreseeable present grazing activity has contributed and will contribute little to cumulative effects on wildlife, including special status species, because the CESA provides only marginal habitat for these species and little to no forage for cattle. While shorebirds, wading birds, and waterfowl species may be disturbed by cattle attracted to standing water, the effect would be seasonal and short-term, not cumulative. The CESA provides only marginal foraging habitat for bald and golden eagles and grazing activity is not likely to contribute to cumulative effects.

Currently permitted oil exploration activity has the potential to disturb 4.1 acres of marginal special status species habitat and the Proposed Action would disturb another 5.7 acres. Given the marginal nature of the habitat, these activities have contributed and, together with the Proposed Action, would contribute little to the cumulative effect to wildlife including special status animal species.

Since there is little to no forage within the CESA and abundant forage outside the CESA boundaries, impacts associated with past, present and reasonably foreseeable grazing activity would be very minor because there would be little competition for forage within the CESA.

Given its isolated and usually temporary nature, past, present and reasonably foreseeable oil exploration activity, including the Proposed Action, has not contributed and would not contribute in any substantial way to cumulative impacts to wildlife. Construction of access roads and drill pads and increased vehicular traffic in the vicinity of an active drilling operation could temporarily impede the passage of a variety of wildlife that may pass through the area, and some mortality may occur. However, the usually short duration of these activities, both past and proposed, and subsequent reclamation of disturbed areas would eliminate any long-term impact to wildlife.

5.0 TRIBES, PERSONS, ORGANIZATION, or AGENCIES CONSULTED

Duckwater Shoshone Tribe

6.0 LIST OF PREPARERS (BLM)

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7.0 LITERATURE CITED

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Rich, T.D., 2002. Using breeding land birds in the assessment of western riparian systems. Wildl. Soc. Bull. 30, 1128–1139.

Appendix A: Conditions of Approval

Construction and reclamation standards

Any authorized construction and reclamation is to be consistent with the Gold Book (2007 ed.) and BLM Manual 9113 (Engineering Road Standards).

Livestock and wildlife, including migratory birds and other protected species

The operator would notify the Bureau of Land Management (BLM) authorized officer and nearest Fish and Wildlife Service (USFWS) Law Enforcement office within 24 hours, if the operator discovers a dead or injured federally protected species (i.e., migratory bird species, bald or golden eagle, or species listed by the FWS as threatened or endangered) in or adjacent to a pit, trench, tank, exhaust stack, or fence. (If the operator is unable to contact the FWS Law Enforcement office, the operator must contact the nearest FWS Ecological Services office.)

Impacts to sensitive and migratory bird species would be reduced or eliminated by one of the following mitigation measures:

1. Construction or other ground disturbing activities would be limited to August 1 through February 29, *or*
2. If construction or other ground disturbing activities would occur during March 1 to July 31, a survey for all migratory bird species, including the snowy plover and burrowing owl, would be required to be completed by a certified wildlife biologist (approved by the BLM) prior to ground disturbing activities. If active migratory bird nests were found, avoidance of the nest location with a 300-foot radius buffer during construction would be required.

Impacts to eagles would be reduced or eliminated by one of the following mitigation measures:

1. Construction or other ground disturbing activities would be limited to September 1 through December 31, *or*
2. If construction or other ground disturbing activities would occur during January 1 to August 31, a survey for eagles would be required within a 5-mile radius of the project area, and an eagle conservation plan (ECP) would be required in cases where eagles and/or their nests are likely to be impacted. A certified wildlife biologist (approved by the BLM) would determine if the project has the potential to disturb breeding behavior and if the proponents need to apply for a permit to authorize unintentional take.

The operator would minimize or preclude releases of oil into open pits. Unless the authorized officer approves the release, no oil should go into a pit except in an emergency. The operator must remove any accumulation of oil or condensate in a pit within 48 hours of discovery.

The operator would design, construct, and maintain enclosure fencing for all open cellars and pits containing freestanding fluids to prevent access by livestock and large forms of wildlife such as deer, elk, and pronghorn. At a minimum, the operator would adequately fence all

fluids pits and open cellars during and after drilling operations until the pit is free of fluids and the operator initiates backfilling. The operator would maintain the fence in order to protect public health and safety, wildlife, and livestock.

Adequate fencing includes all of the following:

- a. Construction materials would consist of steel and/or wood posts. Use a fence with five separate wires (smooth or barbed) or hog panel (16-foot length by 50-inch height) with connectors such as fence staples, quick-connect clips, hog rings, hose clamps, twisted wire, etc. Do not use electric fences.
- b. Set posts firmly in the ground. Stretch the wire, if used, tightly and space it evenly, from the ground level to the top wire, effectively keeping out animals. Tie hog panels securely into posts and to one another using fence staples, clamps, etc. Construct the fence at least 2 feet from the edge of the pit.
- c. Reserve pits shall be fenced on three sides during drilling. Upon completion of the well, when the site is not occupied, the fourth side of the pit shall be fenced. The pit shall remain fenced until reclaimed
- d. Maintain the erect fences in adequate condition until the pit has been closed.

The operator would prevent wildlife and livestock access (including avian wildlife) to fluids pits that contain or have the potential of containing salinity sufficient to cause harm to wildlife or livestock, hydrocarbons, surfactants, or Resource Conservation and Recovery Act-exempt hazardous substances. At a minimum, the operator would install approved netting in these circumstances, in accordance with the requirements below, immediately following release of the drilling rig. Refer to:

<http://www.fws.gov/mountain-prairie/contaminants/contaminants1c.html>.

Note: The BLM does not approve of the use of flagging, strobe lights, metal reflectors, or noisemakers as techniques for deterring wildlife.

Minimum Netting Requirements: The operator would:

- a. Construct a rigid structure made of steel tubing or wooden posts with cable strung across the pit at no more than 7-foot intervals along the X- and Y-axes to form a grid of 7-foot squares.
- b. Suspend netting a minimum of 4 to 5 feet above the pit surface.
- c. Use a maximum netting mesh size of 1½ inches to allow for snow loading while excluding most birds in accordance with USFWS recommendations.
- d. Cover the top and sides of the netting support frame with netting and secure the netting at the ground surface around the entire pit to prevent wildlife entry at the netting edges. **Note:** Hog wire panels or other wire mesh panels or fencing used on the sides of the netting support frame is ineffective in excluding small wildlife and songbirds unless covered by smaller meshed netting.
- e. Monitor and maintain the netting sufficiently to ensure the netting is functioning as intended, has not entrapped wildlife, and is free of holes and gaps greater than 1½ inches.

The operator would construct and maintain pits, cellars, open-top tanks, and trenches, that are not otherwise fenced, screened, or netted, to exclude livestock, wildlife, and humans (for

example, lined, clean water pits; well cellars; or utility trenches) to prevent livestock, wildlife, and humans from becoming entrapped. At a minimum, the operator would construct and maintain escape ramps, ladders, or other methods of avian and terrestrial wildlife escape in pits, cellars, open-top tanks, or at frequent intervals along trenches where entrapment hazards may exist.

Immediately following active drilling or completion operations, the operator would take actions necessary to prevent wildlife and livestock access, including avian wildlife, to all open-topped tanks that contain or have the potential to contain salinity sufficient to cause harm to wildlife or livestock; hydrocarbons; or Resource Conservation and Recovery Act of 1976-exempt hazardous substances. At a minimum, the operator would net, screen, or cover open-topped tanks to exclude wildlife and livestock and prevent mortality. If the operator uses netting, the operator would cover and secure the open portion of the tank to prevent wildlife entry. The operator would net, screen, or cover the tanks until the operator removes the tanks from the location or the tanks no longer contain substances that could be harmful to wildlife or livestock.

Cultural resources

Any cultural or paleontological resource (historic or prehistoric site or object) or Native American human remains, funerary item, sacred object, or objects of cultural patrimony discovered by the permit holder, or any person working on their behalf, during the course of the road and pad construction shall be immediately reported to the Authorized Officer by telephone, with written confirmation. The permit holder shall suspend all operations in the immediate area of such discovery and protect it until an evaluation of the discovery is made by the Authorized Officer.

For cultural resources other than Native American human remains, funerary item, sacred object, or objects of cultural patrimony, this evaluation will determine the significance of the discovery and what mitigation measures are necessary to allow activities to proceed. The permit holder is responsible for the cost of evaluation and mitigation. Any decision on treatment and/or mitigation will be made by the Authorized Officer after consulting with the permit holder. Operations may resume only upon written authorization to proceed from the Authorized Officer.

Soils reclamation

Upon the proper plugging and abandonment of the well, the proponent would remove as much gravel as practicable from the proposed well pad and scarify the area.

If the gravel to construct the proposed drill pad is removed from a nearby abandoned well site and access road, the previously disturbed site would be scarified prior to vacating the site.

Visual resources

To mitigate the effects to visual resources if production is obtained, the proponent would paint the production and storage facilities with Covert Green or Sand Beige paint if the well

produces oil (additional environmental analysis would be required if production and/or storage facilities are necessary and exceed the 500 x 500 acre disturbance boundary).

Limit vehicle travel on the playa surface to that necessary to construct and reclaim the drill pad.

Utilize consistent lighting mitigation measures that follow “Dark Sky” lighting practices. Effective lighting should have screens that do not allow the bulb to shine up or out. All proposed lighting shall be located to avoid light pollution onto any adjacent lands as viewed from a distance. All lighting fixtures shall be hooded and shielded, face downward, located within soffits and directed on to the pertinent site only, and away from adjacent parcels or areas.

Any required FAA lighting should be consolidated and minimized wherever possible.

Flood protection

The operator would construct and maintain flood protection to the 100-year flood level for the pad, reserve pit, open top, tanks and associated structures.

Water quality

Onshore Order No. 2, Drilling Operations, requires that all formations containing usable quality water (not exceeding 10,000 ppm total dissolved solids) be protected via cement. If usable quality water is encountered while drilling below the surface casing shoe, yet above the anticipated cement top for the usable quality water, it would require protection by bringing the cement at least $\pm 200'$ above the usable quality water zone. Results (cementing reports, CBL, depth of flow, rate of flow, water quality, if available, etc.) will be reported to the BLM. Any necessary remedial operations will be conducted prior to drilling out that casing shoe.

Due to the shallow water table, the reserve pit shall be lined with bentonite to prevent contamination of the aquifer.

Other approval, testing, and reporting requirements

A Tonopah Field Office Authorized Officer shall be contacted for a verbal approval prior to commencing remedial work, plugging operations on newly drilled boreholes, changes within the drilling plan, changes or variances to the blowout preventer equipment (BOPE), deviating from conditions of approval, and conducting other operations not specified within the APD. The contact number for the Authorized Officer (Field Manager) is 775-482-7800 for verbal approvals. The secondary contact is the Assistant Field Manager for Non-Renewable Resources, at 775-482-7800.

If after drilling of the well is completed hydraulic fracturing is proposed, prior approval and further NEPA analysis will be needed.

Any well control issues shall be addressed according to the terms of Onshore Order #1 and #2.

The BOPE shall be installed, tested and operated in conformance with Order #2.

Ram type preventers and associated equipment shall be tested to approved stack working pressure if isolated by test plug or to 70 percent of internal yield pressure of casing if BOP stack is not isolated from casing (see item I.D.1. of Onshore Order # 2). Pressure shall be maintained for at least 10 minutes or until requirements of test are met, whichever is longer. If a test plug is utilized, no bleed-off of pressure is acceptable. **For a test not utilizing a test plug, if a decline in pressure of more than 10 percent in 30 minutes occurs, the test shall be considered to have failed.** Valve on casing head below test plug shall be open during test of BOP stack.

Annular type preventers shall be tested to 50 percent of rated working pressure. Pressure shall be maintained at least 10 minutes or until provisions of test are met, whichever is longer.

Prior approval will be required if the operator drills beyond the depth indicated in the APD.

If the well is productive and it is determined that the reservoir extends beyond the lease boundary a Communization Agreement may be set up.

After running and cementing the production casing and in order to determine cement top and quality, a cement bond log, cement evaluation tool, or equivalent shall be run. Results will be reported to BLM, Attn: Tonopah Field Office. Any necessary remedial operations will be conducted prior to drilling out of the casing shoe.

The operator shall submit the (a) mud/drilling log (e.g. Pason disc), (b) driller's event log/operations summary report, (c) production test volumes, (d) directional survey, and (e) Formation Integrity Test (FIT) results with the well completion report. Please contact the AO for clarification.

In accordance with 43 CFR 3162.4(b), the operator shall submit a complete set of electrical/mechanical logs in .LAS format or hard copies with standard Form 3160-4, Form 3260-4 Well Completion or Recompletion Report and Log. Please contact John Menghini at 775-861-6573 if there are any questions.

Two copies of all logs, and a single copy of core descriptions, core analyses, drill stem tests, well-test data, geologic summaries, sample descriptions, and all other surveys or data obtained and compiled during the drilling and/or completion operations shall be submitted to the BLM, Tonopah Field Office.

Daily drilling and completion progress reports shall be submitted to the BLM, Nevada State Office and Tonopah Field Office on a daily basis, and shall include daily mud reports, details of casing that has been run and its cementing, water flows, lost circulation zones, hydrocarbon shows and other information that describes drilling conditions.

A formation integrity test shall be performed at the surface casing shoe. Prior to drilling more than 20 feet below the shoe, the test shall expose the shoe to the minimum mud weight equivalent necessary to control anticipated pressure at the next casing point or total depth.

Gamma Ray Log shall be run from total depth to surface.

All cement bond logs shall be run by the logging company at zero pressure. Logs determined to be run under pressure shall be re-run.

Nevada State Office personnel shall be contacted for approval prior to running non-API (American Petroleum Institute) Standard casing downhole. Please contact John Menghini at 775-861-6573 with the specifications and manufacturer of the pipe, and a decision will be made whether the pipe can be used.

Prior to running used or reconditioned API-grade casing downhole, a petroleum engineer in the Nevada State Office shall be contacted to obtain approval. Approval will be granted if the pipe has been tested and shown to have retained 87½ (or greater) of its original wall thickness.

Appendix B: Standard Operating Procedures

The operator shall obtain and maintain all necessary State of Nevada permits as well as local permits applicable to drilling the well.

The operator shall follow all applicable state and federal laws.

The operator shall stockpile a volume equivalent to at least 6 inches of topsoil from the pad and reserve pit for use in reclamation.

The operator shall be responsible for the control and eradication of weeds within the Project Area in accordance with the Battle Mountain Integrated Weed Management Plan (NV062-EA08-075).

Maximum width of any road, including drainage ditches and berms, is 30 feet. Culverts and turnouts may be installed if deemed necessary by the Field Manager, Tonopah Field Office.

A 25-mph speed limit shall be required for all project vehicles on the project site and unposted access roads.

Water shall be the exclusive means to control dust; no dust palliatives shall be used.

The mud pit shall be fenced on three sides during drilling. Upon completion of the well, when the site is not occupied, the fourth side of the pit shall be fenced. The pit shall remain fenced until reclaimed (see Appendix A).

Trash shall be contained on-site and hauled to an approved landfill. Burial of trash on-site is not permitted.

Portable toilets shall be used for human waste. The latter may not be chemically treated or buried on site.

Any additives to the drilling mud that are considered hazardous substances will be stored in appropriate containment to prevent site contamination.

Upon abandonment, the operator shall:

- Remove all trash and debris from the site and dispose of it properly.
- Recontour the mud pit to as near original grade as possible, and spread stockpiled topsoil over the covered pit.
- Remove any culverts installed.
- Rehabilitate the drill pad by stripping as much gravel as possible from the pad and recontouring. The operator shall also reduce the berm and cover any remaining gravel with the soil from the pad and mud pit excavation. The drill pad will be scarified and re-seeded with the BLM recommended seed mix.
- Reclaim existing roads that are improved to their original condition. Berms shall be reduced and all widths in excess of the original width shall be scarified and revegetated.

Interim reclamation of the drill pad and mud pit, reducing the surface disturbance to the minimum area required to place a workover rig on the site, will be required within 1 year if the well is a producer.

All reclamation of the disturbed areas shall be completed within one (1) year from the date of the proper plugging and abandonment of the well.

The Authorized Officer of the Bureau of Land Management shall be notified in writing when reclamation operations commence and when reclamation is completed and shall accept the reclamation in writing.

Appendix C: Lease-specific Stipulations

The following lease-specific stipulations were included in the Oil and Gas Lease N-81152 issued December 28, 2005.

Archaeological Stipulation

Lands fall within the Tonopah RMP and the Archaeological Predictive Model, management Plan and Treatment Plans for Northern Railroad Valley, Nevada. Operations must follow all applicable management prescriptions and laws. NEPA analysis, potential cultural resource mitigation and Native American consultation may delay timeliness of permit approvals.

Native American Consultation Required

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

Appendix D: Special Status Species, Battle Mountain District

Common Name	Scientific Name	Status*
PLANTS		
Eastwood milkweed	<i>Asclepias eastwoodiana</i>	NS
Cima milkvetch	<i>Astragalus cimae</i> var. <i>cimae</i>	NS
Tonopah milkvetch	<i>Astragalus pseudiodanthus</i>	NS
Toquima milkvetch	<i>Astragalus toquimanus</i>	NS
Currant milkvetch	<i>Astragalus uncialis</i>	NS
Elko rockcress	<i>Boechera falcifructa</i>	NS
Monte Neva paintbrush	<i>Castilleja salsuginosa</i>	NS
Tecopa birdbeak	<i>Cordylanthus tecopensis</i>	NS
Goodrich biscuitroot	<i>Cymopterus goodrichii</i>	NS
Nevada willowherb	<i>Epilobium nevadense</i>	NS
Windloving buckwheat	<i>Eriogonum anemophilum</i>	NS
Beatley buckwheat	<i>Eriogonum beatleyae</i>	NS
Lewis buckwheat	<i>Eriogonum lewisii</i>	SS
Tiehm buckwheat	<i>Eriogonum tiehmii</i>	NS
Smooth dwarf greasbush	<i>Glossopetalon pungens</i> var. <i>glabrum</i>	SS
Sand cholla	<i>Grusonia pulchella</i>	NS
Rock purpusia	<i>Ivesia arizonica</i> var. <i>saxosa</i>	SS
Waxflower	<i>Jamesia tetrapetala</i>	SS
Lunar Crater buckwheat	<i>Johanneshowellia crateriorum</i>	NS
Holmgren lupine	<i>Lupinus holmgrenianus</i>	NS
Low feverfew	<i>Parthenium ligulatum</i>	NS
Pahute Mesa beardtongue	<i>Penstemon pahutensis</i>	NS
Lahontan beardtongue	<i>Penstemon palmeri</i> var. <i>macranthus</i>	NS
Bashful beardtongue	<i>Penstemon pudicus</i>	NS
Tiehm beardtongue	<i>Penstemon tiehmii</i>	NS
Clarke phacelia	<i>Phacelia filiae</i>	NS
Least phacelia	<i>Phacelia minutissima</i>	SS
Williams combleaf	<i>Polycytenium williamsiae</i>	NS
Blaine pincushion	<i>Sclerocactus blainei</i>	NS
Tonopah pincushion	<i>Sclerocactus nyensis</i>	NS
Nachlinger catchfly	<i>Silene nachlingerae</i>	SS
Railroad Valley globemallow	<i>Sphaeralcea caespitosa</i> var. <i>williamsiae</i>	NS
Lone Mountain goldenhead	<i>Tonestus graniticus</i>	NS
Currant Summit clover	<i>Trifolium andinum</i> var.	SS
Rock violet	<i>Viola lithion</i>	SS
BIRDS		

Northern goshawk	<i>Accipiter gentilis</i>	NS
Golden eagle	<i>Aquila chrysaetos</i>	NS
Western Burrowing owl	<i>Athene cunicularia</i>	NS
Ferruginous hawk	<i>Buteo regalis</i>	NS
Swainson's hawk	<i>Buteo swainsoni</i>	NS
Greater sage-grouse	<i>Centrocercus urophasianus</i>	NS
Snowy plover	<i>Charadrius alexandrinus</i>	FT, NS
Yellow-billed cuckoo	<i>Coccyzus americanus</i>	FT, NS
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	FE
Peregrine falcon	<i>Falco peregrinus</i>	NS
Pinyon jay	<i>Gymnorhinus cyanocephalus</i>	NS
Bald eagle	<i>Haliaeetus leucocephalus</i>	NS
Loggerhead shrike	<i>Lanius ludovicianus</i>	NS
Black rosy-finch	<i>Leucosticte atrata</i>	NS
Lewis' woodpecker	<i>Melanerpes lewis</i>	NS
Sage thrasher	<i>Oreoscoptes montanus</i>	NS
Brewer's sparrow	<i>Spizella breweri</i>	NS
FISH		
Railroad Valley springfish	<i>Crenichthys nevadae</i>	FT
Hot Creek Valley tui chub	<i>Gila bicolor ssp. 5</i>	NS
Railroad Valley tui chub	<i>Gila bicolor ssp. 7</i>	NS
Fish Lake Valley tui chub	<i>Gila bicolor ssp. 4</i>	NS
Lahontan cutthroat trout	<i>Oncorhynchus clarki henshawi</i>	FT
Monitor Valley speckled dace	<i>Rhinichthys osculus ssp. 5</i>	NS
MAMMALS		
Pallid bat	<i>Antrozous pallidus</i>	NS
Pygmy rabbit	<i>Brachylagus idahoensis</i>	NS
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	NS
Big brown bat	<i>Eptesicus fuscus</i>	NS
Spotted bat	<i>Euderma maculatum</i>	NS
Silver-haired bat	<i>Lasionycteris noctivagans</i>	NS
Western red bat	<i>Lasiurus blossevillii</i>	NS
Hoary bat	<i>Lasiurus cinereus</i>	NS
Dark kangaroo mouse	<i>Microdipodops megacephalus</i>	NS
Pale kangaroo mouse	<i>Microdipodops pallidus</i>	NS
California myotis	<i>Myotis californicus</i>	NS

Western small-footed	<i>Myotis ciliolabrum</i>	NS
Long-eared myotis	<i>Myotis evotis</i>	NS
Little brown myotis	<i>Myotis lucifugus</i>	NS
Fringed myotis	<i>Myotis thysanodes</i>	NS
Cave myotis	<i>Myotis velifer</i>	NS
Long-legged myotis	<i>Myotis volans</i>	NS
Big free-tailed bat	<i>Nyctinomops macrotis</i>	NS
Western pipistrelle	<i>Pipistrellus hesperus</i>	NS
Pika	<i>Ochotona princeps</i>	NS
Bighorn sheep	<i>Ovis canadensis</i>	NS
Brazilian free-tailed bat	<i>Tadarida brasiliensis</i>	NS
Fish Spring pocket gopher	<i>Thomomys bottae abstrusus</i>	NS
San Antonio pocket gopher	<i>Thomomys bottae curatus</i>	NS
AMPHIBIANS		
Amargosa toad	<i>Anaxyrus nelsoni</i>	NS
Columbia spotted frog	<i>Rana luteiventris</i>	FC, NS
REPTILES		
Desert tortoise	<i>Gopherus agassizii</i>	FT, NS
INSECTS		
Crescent Dunes aegialian scarab	<i>Aegialia crescenta</i>	NS
Aegialian scarab beetle	<i>Aegialia knighti</i>	NS
Crescent Dunes aphodis scarab	<i>Aphodius sp.2</i>	NS
Big Smoky wood nymph	<i>Cercyonis oetus alkalorum</i>	NS
White river wood nymph	<i>Dercyonis pegala pluvialis</i>	NS
White Mountains skipper	<i>Hesperia miriamae longaevicola</i>	NS
Railroad Valley skipper	<i>Hesperia uncas fulvapalla</i>	NS
White River valley skipper	<i>Hesperia uncas grandiosa</i>	NS
Great Basin small blue	<i>Philotiella speciosa septentrionalis</i>	NS
Crescent Dunes serican scarab	<i>Serica ammomenisco</i>	NS
Sand Mountain serican scarab	<i>Serica psammobunus</i>	NS
MOLLUSCS		
California floater	<i>Anodonta californiensis</i>	SS

Southern duckwater pyrg	<i>Pyrgulopsis anatine</i>	NS
Large-gland carico pyrg	<i>Pyrgulopsis basiglans</i>	NS
Carinate duckwater pyrg	<i>Pyrgulopsis carinata</i>	NS
Dixie Valley pyrg	<i>Pyrgulopsis dixensis</i>	NS
Oasis Valley pyrg	<i>Pyrgulopsis micrococcus</i>	NS
Wong's pyrg	<i>Pyrgulopsis wongi</i>	NS
*Status		
FE = Federal Endangered	FC = Federal Candidate	
FP = Federal Proposed Endangered	NS = Nevada BLM Sensitive Species	
FT = Federal Threatened	SS = NNHP vulnerable or imperiled	