



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

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# Soda Spring 1-22 and North Grant Canyon 1-8 Oil Well Projects Environmental Assessment

Tonopah Field Office

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DOI-BLM-NV-B020-2023-0011-EA

A wide-angle photograph of a desert landscape. The foreground is a vast, flat expanse of light-colored, rocky soil with scattered small, green desert shrubs. In the distance, a range of low mountains or hills stretches across the horizon under a clear, bright blue sky.



**HUSSEY OIL & GAS VENTURES, LLC  
SODA SPRING 1-22 OIL WELL PROJECT  
and  
NORTH GRANT CANYON 1-8 OIL WELL PROJECT  
NYE COUNTY, NEVADA**

Environmental Assessment

#DOI-BLM-NV-B020-2023-0011-EA

December 2022

Bureau of Land Management  
Tonopah Field Office  
Battle Mountain District  
1553 South Main Street  
Tonopah, Nevada 89049

**HUSSEY OIL & GAS VENTURES, LLC  
SODA SPRING 1-22 OIL WELL PROJECT  
AND  
NORTH GRANT CANYON 1-8 OIL WELL PROJECT  
ENVIRONMENTAL ASSESSMENT**

**TABLE OF CONTENTS**

	<b>Page</b>
<b>1 INTRODUCTION / PURPOSE OF AND NEED FOR ACTION.....</b>	<b>1-1</b>
<b>1.1 Introduction .....</b>	<b>1-1</b>
1.1.1 Soda Spring 1-22 Oil Well Project.....	1-1
1.1.2 Soda Spring 1-22 Access Road Right-of-Way Project .....	1-3
1.1.3 North Grant Canyon 1-8 Oil Well Project.....	1-3
1.1.4 North Grant Canyon Access Road Project.....	1-3
1.2 Purpose of and Need for Action .....	1-3
1.3 Relationship to BLM and Non-BLM Policies, Plans, and Programs.....	1-3
1.3.1 Land Use Plan Conformance .....	1-6
1.4 Public Involvement.....	1-6
<b>2 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES.....</b>	<b>2-1</b>
<b>2.1 Proposed Action.....</b>	<b>2-1</b>
2.1.1 Location and Access.....	2-1
2.1.2 Wellhead and Pad .....	2-1
2.1.3 Drilling .....	2-5
2.1.4 Water Supply.....	2-6
2.1.5 Solid and Hazardous Waste Disposal.....	2-6
2.1.6 Restoration.....	2-6
2.1.7 Surface Disturbance.....	2-7
2.1.8 Production.....	2-7
2.1.9 Construction, Operation, and Reclamation Standards and Requirements .....	2-7
2.2 No Action Alternative .....	2-7
2.3 Alternatives Considered but Eliminated from Detailed Analysis .....	2-7
<b>3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES.....</b>	<b>3-1</b>
<b>3.1 Introduction .....</b>	<b>3-1</b>
3.1.1 Effects Assessment Definitions.....	3-5
3.2 Air Quality .....	3-6
3.2.1 Affected Environment.....	3-6
3.2.2 Environmental Consequences .....	3-8
3.3 Lands and Realty.....	3-14
3.3.1 Affected Environment.....	3-14
3.3.2 Environmental Consequences .....	3-14
3.4 Migratory Birds.....	3-15
3.4.1 Affected Environment.....	3-15
3.4.2 Environmental Consequences .....	3-16
3.5 Native American Religious and Cultural Concerns .....	3-17
3.5.1 Affected Environment.....	3-17
3.5.2 Environmental Consequences .....	3-18
3.6 Noxious Weeds, Invasive and Non-native Species .....	3-19
3.6.1 Affected Environment.....	3-19
3.6.2 Environmental Consequences .....	3-20
3.7 Recreation .....	3-20
3.7.1 Affected Environment.....	3-20
3.7.2 Environmental Consequences .....	3-20
3.8 Soils.....	3-21

3.8.1	Affected Environment.....	3-21
3.8.2	Environmental Consequences .....	3-21
3.9	Special Status Species.....	3-21
3.9.1	Affected Environment.....	3-21
3.9.2	Environmental Consequences .....	3-25
3.10	Surface and Groundwater Resources.....	3-26
3.10.1	Affected Environment.....	3-26
3.10.2	Environmental Consequences .....	3-35
3.11	Vegetation .....	3-37
3.11.1	Affected Environment.....	3-37
3.11.2	Environmental Consequences .....	3-37
3.12	Visual Resources.....	3-37
3.12.1	Affected Environment.....	3-37
3.12.2	Environmental Consequences .....	3-38
3.13	Wildlife .....	3-38
3.13.1	Affected Environment.....	3-38
3.13.2	Environmental Consequences .....	3-39
4	CUMULATIVE IMPACT ANALYSIS.....	4-1
4.1	Introduction .....	4-1
4.2	Cumulative Effects Study Area.....	4-1
4.2.1	Past, Present, and Reasonably Foreseeable Future Actions.....	4-3
4.3	Evaluation of Potential Cumulative Impacts .....	4-4
4.3.1	Air Quality .....	4-4
4.3.2	Lands and Realty .....	4-5
4.3.3	Migratory Birds.....	4-6
4.3.4	Noxious Weeds, Invasive and Non-native Species.....	4-7
4.3.5	Recreation .....	4-8
4.3.6	Soils.....	4-8
4.3.7	Special Status Species .....	4-9
4.3.8	Surface and Groundwater Resources.....	4-10
4.3.9	Vegetation .....	4-11
4.3.10	Visual Resources .....	4-11
4.3.11	Wildlife.....	4-12
5	CONSULTATION AND COORDINATION.....	5-1
5.1	Native American Consultation .....	5-1
5.2	Persons, Groups, and Agencies Consulted .....	5-1
5.3	List of Preparers and Reviewers.....	5-1
6	REFERENCES .....	6-1

**LIST OF TABLES**

Table 3.1-1:	Elements Associated with Supplemental Authorities and Rationale for Elimination from Detailed Analysis for the Proposed Action .....	3-1
Table 3.1-2:	Resources or Uses Not Associated with Supplemental Authorities.....	3-4
Table 3.2-1:	Air Quality Index, 2017-2021 .....	3-7
Table 3.2-2:	State-level GHG Emissions as Reported to the EPA (Mt) .....	3-7
Table 3.2-3:	Estimated Life of Well Emissions from Well Development and Production Operations (tonnes) .....	3-9
Table 3.2-4:	Comparison of Proposed Action Annual Emissions to Other Sources (megatonnes) .....	3-10

<b>Table 3.2-5:</b>	<b>Comparison of the Life of Well Emissions to other Federal Oil and Gas Emissions (megatonnes).....</b>	<b>3-10</b>
<b>Table 3.2-6:</b>	<b>SC-GHG's Associated with Future Potential Development.....</b>	<b>3-13</b>
<b>Table 3.3-1:</b>	<b>Existing Land Use Authorizations .....</b>	<b>3-14</b>
<b>Table 3.10-1:</b>	<b>Water Rights within Five Miles of the Project Areas.....</b>	<b>3-28</b>
<b>Table 3.10-2:</b>	<b>Monthly Precipitation .....</b>	<b>3-29</b>
<b>Table 3.10-3:</b>	<b>Evapotranspiration Rates in Feet in the Hydrographic Basin .....</b>	<b>3-29</b>
<b>Table 3.10-4:</b>	<b>Groundwater Pumping Inventory .....</b>	<b>3-33</b>
<b>Table 4.2-1:</b>	<b>Past and Present Minerals Action Acreages in the CESA .....</b>	<b>4-3</b>
<b>Table 4.2-2:</b>	<b>Past and Present Rights-of-Way Action Acreages in the CESA .....</b>	<b>4-3</b>

### LIST OF FIGURES

<b>Figure 1.1.1:</b>	<b>Project Location, Access, and Land Status .....</b>	<b>1-2</b>
<b>Figure 1.1.2:</b>	<b>Proposed Off-Lease Right-of-Way: Soda Spring Project .....</b>	<b>1-4</b>
<b>Figure 1.1.3:</b>	<b>Proposed Off-Lease Right-of-Way: NGC Project .....</b>	<b>1-5</b>
<b>Figure 2.1.1:</b>	<b>Proposed On-Lease Access Road: Soda Spring Project.....</b>	<b>2-2</b>
<b>Figure 2.1.2:</b>	<b>Proposed On-Lease Access Road: NGC Project.....</b>	<b>2-3</b>
<b>Figure 2.1.3:</b>	<b>Approximate Well Pad Layouts .....</b>	<b>2-4</b>
<b>Figure 3.2.1:</b>	<b>Estimated GHG Emissions Profile Over the Life of a Lease .....</b>	<b>3-10</b>
<b>Figure 3.10.1:</b>	<b>Surface and Groundwater Features and FEMA Flood Hazard Areas.....</b>	<b>3-27</b>
<b>Figure 3.10.2:</b>	<b>Regional Surface Geology .....</b>	<b>3-31</b>
<b>Figure 3.10.3:</b>	<b>Potentiometric Surface Map.....</b>	<b>3-32</b>
<b>Figure 3.10.4:</b>	<b>Hydrogeologic Model .....</b>	<b>3-34</b>
<b>Figure 4.2.1:</b>	<b>Cumulative Effects Study Area.....</b>	<b>4-2</b>

### LIST OF APPENDICES

<b>Appendix A:</b>	<b>Applicant-Committed Environmental Protection Measures</b>
<b>Appendix B:</b>	<b>General Requirements for Construction, Surface Use, and Operations</b>
<b>Appendix C:</b>	<b>Noxious Weeds</b>
<b>Appendix D:</b>	<b>Spill Contingency Plan</b>

## LIST OF ACRONYMS AND ABBREVIATIONS

2015 ARMPA	Approved Resource Management Plan Amendment – September 2015
2016 EA	DOI-BLM-NV-B020-2016-0015-EA
2016 GHG Guidance	Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews
2022 AEO	EIA 2022 Annual Energy Outlook
3D	three-dimensional
afa	acre-feet annually
AO	Authorized Officer
APD	Application for Permit to Drill
AQI	Air Quality Index
BAPC	Bureau of Air Pollution Control
BLM	Bureau of Land Management
BMP	best management practice
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CESA	cumulative effects study area
CFR	Code of Federal Regulations
CO	carbon monoxide
CO <sub>2</sub>	carbon dioxide
CO <sub>2</sub> e	carbon dioxide equivalent
CX	Categorical Exclusion
dBA	A-weighted decibel
DOI	United States Department of the Interior
EA	Environmental Assessment
EIA	United States Energy and Information Administration
EJ	environmental justice
EMS	EM Strategies, a WestLand Resources, Inc. Company
EO	Executive Order
EPA	Environmental Protection Agency
EPM	environmental protection measure
ESA	Endangered Species Act of 1973, as amended
ET	evapotranspiration
EUR	estimated ultimate recovery
FEMA	Federal Emergency Management Agency
FLPMA	Federal Land Policy and Management Act of 1976
GGCAAS	Great Basin carbonate and alluvial aquifer system
GHG	greenhouse gas
H <sub>2</sub> S	hydrogen sulfide
HAP	hazardous air pollutant

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HFRA	Healthy Forests Restoration Act of 2003
HOGV	Hussey Oil & Gas Ventures, LLC
IM	Instruction Memorandum
IWG	Interagency Working Group
LR2000	Legacy Rehost System
LWC	lands with wilderness characteristics
MBTA	Migratory Bird Treaty Act of 1918
MDM	Mount Diablo Meridian
MMt	million metric tons
MOU	Memorandum of Understanding
mph	miles per hour
Mt	megatonne
NAAQS	National Ambient Air Quality Standards
NAC	Nevada Administrative Code
NAGPRA	Native American Graves Protection and Repatriation Act of 1990
NDA	Nevada Department of Agriculture
NDEP	Nevada Division of Environmental Protection
NDNH	Nevada Division of Natural Heritage
NDOW	Nevada Department of Wildlife
NDWR	Nevada Division of Water Resources
NE	northeast
NEPA	National Environmental Policy Act of 1969
NGC	North Grant Canyon
NGC Project	North Grant Canyon 1-8 Oil Well Project
NHD	National Hydrography Dataset
NHPA	National Historic Preservation Act of 1966, as amended
NO <sub>2</sub>	nitrogen dioxide
NOS	Notice of Staking
NO <sub>x</sub>	nitrogen oxide
NRCS	Natural Resources Conservation Service
NTL	Notice to Lessees
NWIS	National Water Information System
O <sub>3</sub>	ozone
OHMA	Other Habitat Management Area
OHV	off-highway vehicle
OMB	Office of Management and Budget
P.L.	Public Law
PM <sub>10</sub>	particulate matter less than ten microns aerodynamic diameter
PM <sub>2.5</sub>	particulate matter less than 2.5 microns aerodynamic diameter
RFFA	reasonably foreseeable future action
ROW	right-of-way

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RRVS	Railroad Valley springfish
SC-CH <sub>4</sub>	social cost of methane
SC-CO <sub>2</sub>	social cost of carbon dioxide
SC-GHG	social cost of greenhouse gases
SC-N <sub>2</sub> O	social cost of nitrous oxide
SE	southeast
SETT	Sagebrush Ecosystem Technical Team
SO <sub>2</sub>	sulfur dioxide
Soda Spring Project	Soda Spring 1-22 Oil Well Project
SW	southwest
TCP	Traditional Cultural Property
Technical Support Document	<i>Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide: Interim Estimates under Executive Order 13990</i>
TFO	Tonopah Field Office
US	United States
US 6	US Highway 6
USDA	US Department of Agriculture
USFWS	US Fish and Wildlife Service
USGS	US Geological Survey
VOC	volatile organic compound
VRM	Visual Resource Management
WRCC	Western Regional Climate Center
WSA	Wilderness Study Area



**SODA SPRING 1-22 OIL WELL PROJECT  
AND  
NORTH GRANT CANYON 1-8 OIL WELL PROJECT  
ENVIRONMENTAL ASSESSMENT**

## **1 INTRODUCTION / PURPOSE OF AND NEED FOR ACTION**

### **1.1 Introduction**

This EA includes the analysis of the direct, indirect, and cumulative impacts for the following four actions: the Soda Spring 1-22 Oil Well Project (Soda Spring Project); the Soda Spring 1-22 Access Road Right-of-Way Project; the North Grant Canyon (NGC) 1-8 Oil Well Project (NGC Project); and the North Grant Canyon Access Road Project.

#### **1.1.1 Soda Spring 1-22 Oil Well Project**

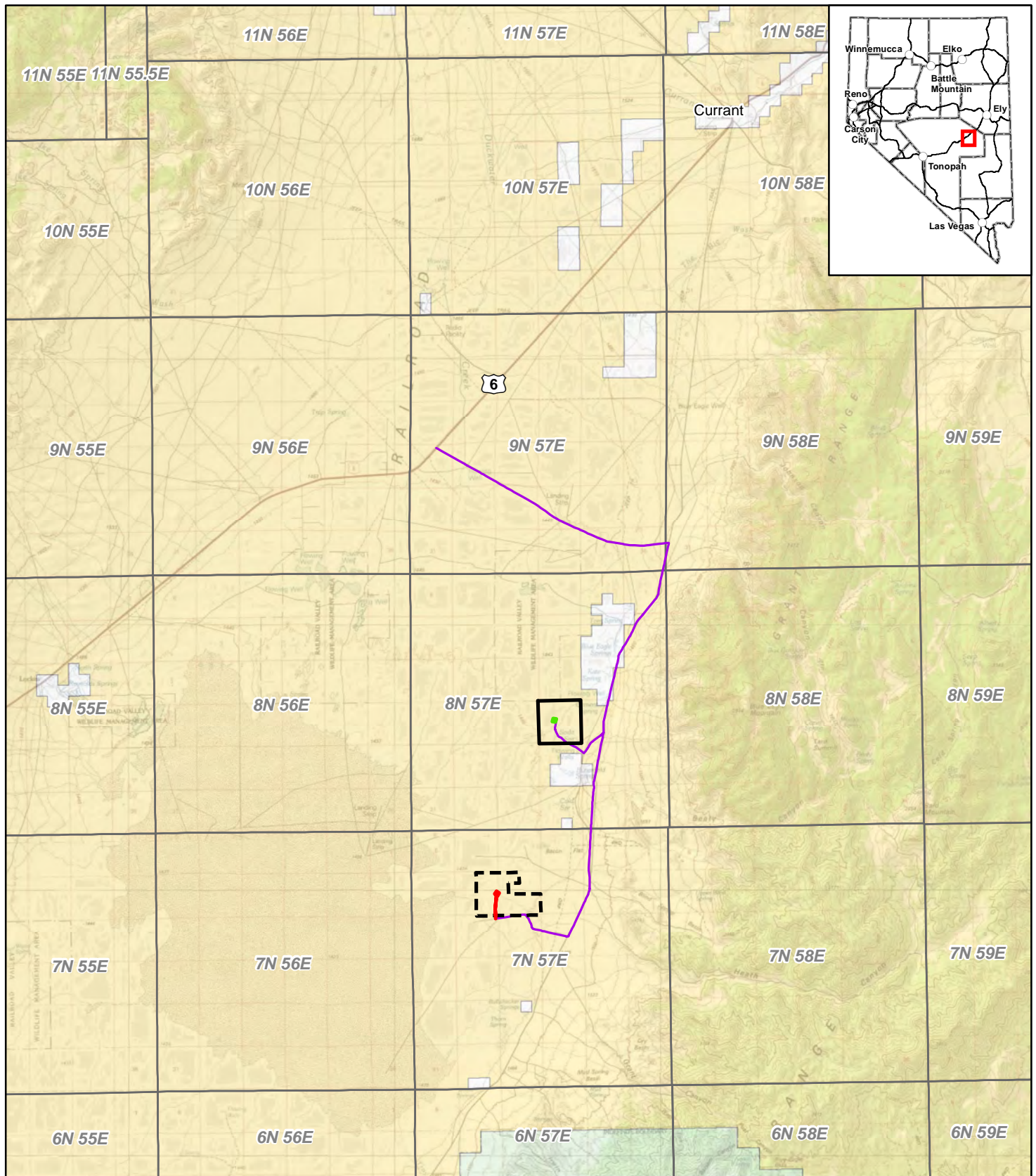
FX Nevada LLC leased a parcel of federal land approximately 1,200 acres in size for potential oil and gas development (Bureau of Land Management [BLM] case file number N-81152) under the Mineral Leasing Act of 1920 as amended and supplemented, and Part 3100 of Title 43, Code of Federal Regulations (CFR). On November 19, 2015, the BLM Tonopah Field Office (TFO) received an Application for Permit to Drill (APD) from Makoil, Inc., proposing to drill Soda Spring Well 1-22 on Lease N-81152. The APD was approved on September 23, 2016; the lease expired on November 22, 2016. West Coast Land Services acquired Lease N-98009, a smaller area of approximately 640 acres within Lease N-81152, on August 26, 2019, encompassing the proposed Soda Spring Well 1-22. The proposed well and well pad disturbance area are located in Section 22, Township 8 North (T8N), Range 57 East (R57E), Mount Diablo Meridian (MDM) (Soda Spring Project Area), approximately 22 miles southwest of the town site of Currant in Railroad Valley, Nevada (Figure 1.1.1). A well was never drilled associated with either lease area.

On November 23, 2015, Makoil, Inc. filed a road right-of-way (ROW) application (BLM case file number N-94465) with the TFO for an existing road which granted access from a Nye County road to the lease boundary. The well pad was directly adjacent to the existing road; no new access road construction was required.

An Environmental Assessment (EA) was prepared in 2016 for the Makoil, Inc. project that analyzed the well pad and associated infrastructure, as well as road ROW for access to the lease (DOI-BLM-NV-B020-2016-0015-EA) (2016 EA). A Decision Record and Finding of No Significant Impact were issued on September 22, 2016. The 2016 EA analyzed direct, indirect, and cumulative impacts for the following resources: Cultural Resources; Floodplains; Soils; Vegetation; Visual Resources; and Wildlife, including Special Status Species.

Hussey Oil & Gas Ventures, LLC (HOGV) entered into an agreement for this smaller lease area of 640 acres with West Coast Land Services in October 2019. On May 24, 2022, HOGV submitted a new APD for the Soda Spring Project.

As stated in the Council on Environmental Quality (CEQ) regulations at 43 CFR 1501.11, tiering to a previously approved EA is appropriate when it would “eliminate repetitive discussion of the same issues, focus on the actual issues ripe for decision, and exclude from consideration issues already decided or not yet ripe at each level of environmental review.” This EA also includes updates to the Soda Spring Project Proposed Action, and includes new information and/or analysis for specific resources, as outlined in Chapter 3.



**Explanation**

- Soda Spring 1-22 Project Area
- North Grant Canyon 1-8 Project Area
- Lease N-94131
- Lease N-98009
- Access

- Land Status**
- BLM
  - Forest Service
  - Private

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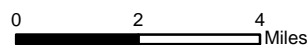
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SODA SPRING 1-22 AND NORTH GRANT CANYON 1-8 OIL WELL PROJECTS

**Project Location, Access, and Land Status**

Figure 1.1.1

11/07/2022



### **1.1.2 Soda Spring 1-22 Access Road Right-of-Way Project**

A new ROW grant would be obtained by HOGV for the same access road as was obtained by Makoil, Inc., outside of Lease N- 98009, from a Nye County road to the lease boundary (Figure 1.1.2). The gravel access road is approximately 5,936 feet long, and approximately 15 feet wide, and is located on BLM-managed public land in Sections 23, 26, and 27, T8N, R57E, MDM. A ROW application and Maintenance Plan was submitted by HOGV for the Soda Spring Access Road Project on July 29, 2022. No new road construction would be necessary. This EA analyzes the impacts from the maintenance of the ROW.

### **1.1.3 North Grant Canyon 1-8 Oil Well Project**

On August 12, 2016, M.S. Johnson leased a parcel of federal land for potential oil and gas development (BLM case file number N-94131) under the Mineral Leasing Act of 1920 as amended and supplemented, and 43 CFR 3100. On June 1, 2022, the BLM TFO received an APD from HOGV proposing to drill the NGC Project on Lease NVN-94131. The well, well pad disturbance area, and access road are located in Sections 8, 9, and 17, T7N, R57E, MDM (NGC Project Area), approximately 26 miles southwest of the town site of Currant in Railroad Valley, Nevada (Figure 1.1.1).

### **1.1.4 North Grant Canyon Access Road Project**

A ROW grant would be obtained for approximately 355 feet of access road outside of Lease N-94131, from an existing ROW N-88197 to Lease N-94131. A ROW application and Plan of Development were submitted on July 29, 2022, for the construction, operation, and maintenance of a 355-foot long, 17-foot wide access road ROW outside Lease N-94131 (Figure 1.1.3). This EA analyzes the impacts from the construction, operation, and reclamation of the ROW.

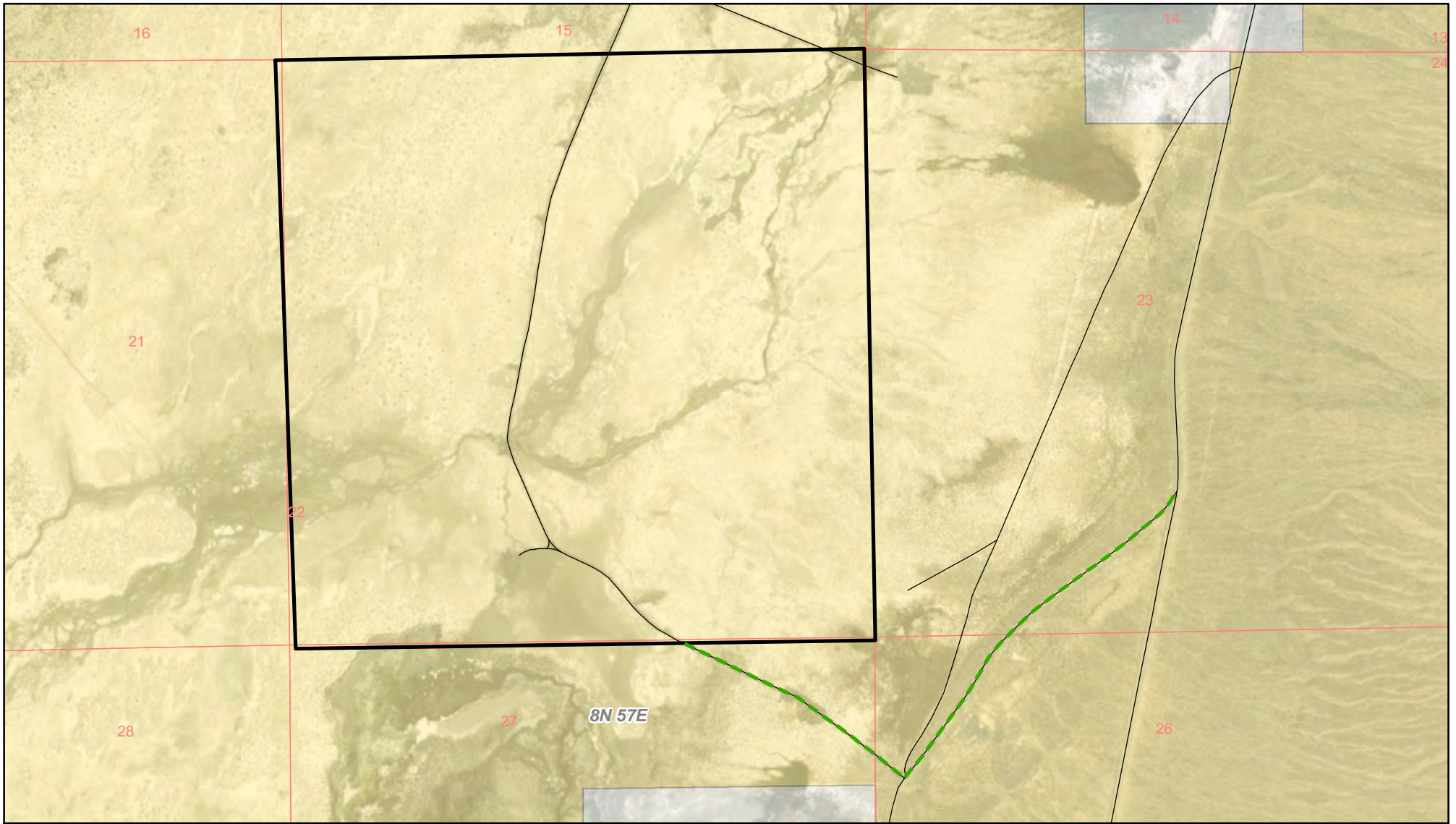
## **1.2 Purpose of and Need for Action**

The purpose of the action is to provide HOGV with authorized use of the public land managed by the BLM to drill the Soda Spring 1-22 and North Grant Canyon 1-8 oil wells and develop associated infrastructure, and to provide legal access to the drill sites 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 HOGV's APDs and applications for a Title V FLPMA ROW for access to drill Soda Spring 1-22 Oil Well on Lease N-98009, and North Grant Canyon 1-8 Oil Well on Lease N-94131, both of which have valid existing lease rights.

## **1.3 Relationship to BLM and Non-BLM Policies, Plans, and Programs**

The BLM is responsible for the preparation of this EA, which was prepared in conformance with the National Environmental Policy Act of 1969 (NEPA), applicable laws and regulations passed subsequently, including the President's CEQ regulations implementing NEPA (40 CFR 1500-1508), United States (US) Department of Interior requirements, and the policy guidance provided in the BLM NEPA Handbook H-1790-1 (BLM 2008a).





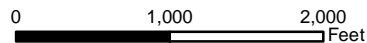
**Explanation**

- |                                      |                 |             |
|--------------------------------------|-----------------|-------------|
| — Existing Road                      | ▭ Lease N-98009 | Land Status |
| — Proposed Right-of-Way (5,936 feet) |                 | ■ BLM       |
|                                      |                 | □ Private   |

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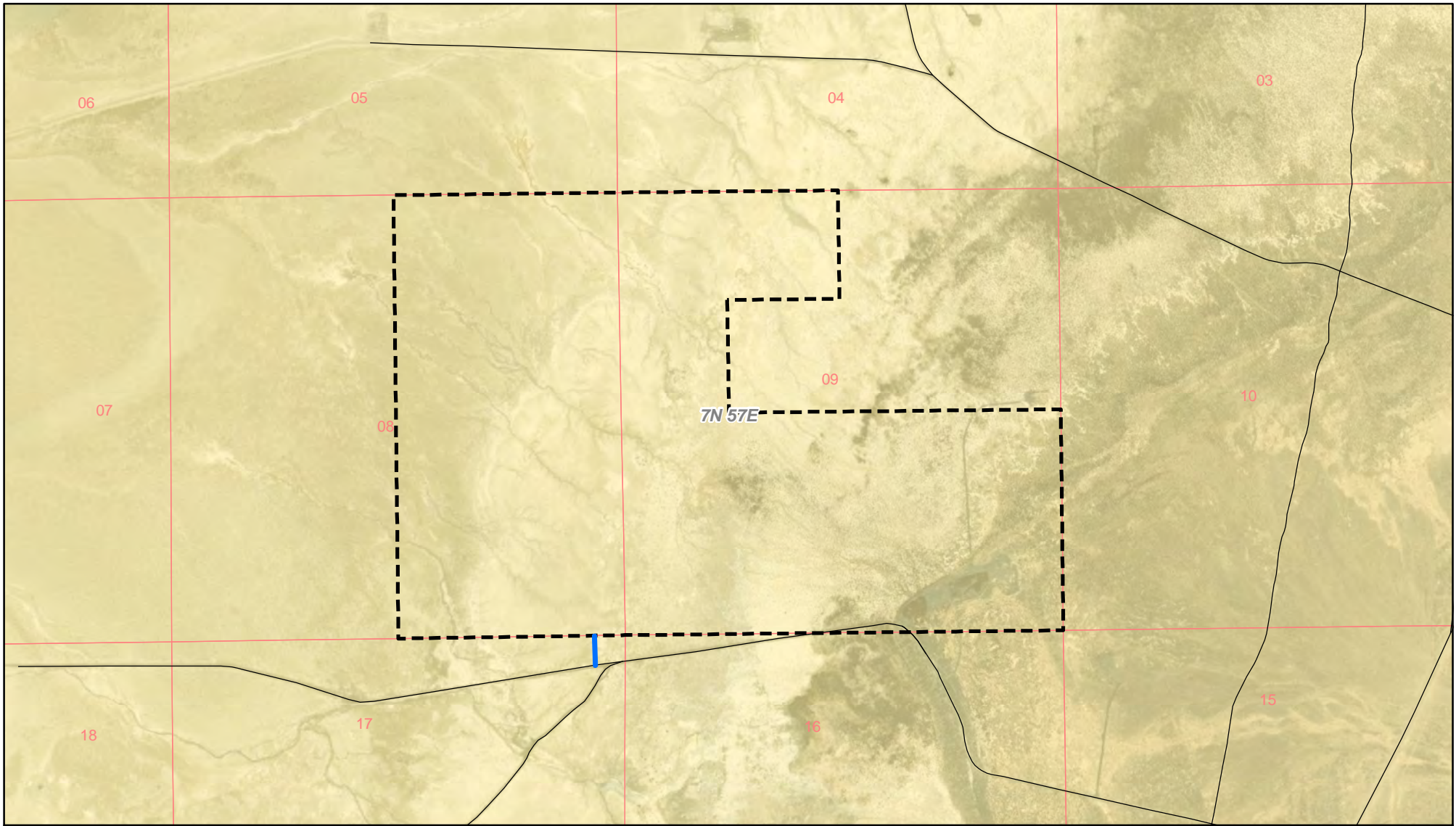
SODA SPRING 1-22 AND NORTH GRANT CANYON 1-8 OIL WELL PROJECTS

**Proposed Off-Lease Right-of-Way: Soda Spring Project**

Figure 1.1.2

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Explanation

Lease N-94131

Existing Road

Proposed Right-of-Way (0.14 acre)

Land Status

BLM

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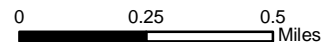
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SODA SPRING 1-22 AND NORTH GRANT CANYON 1-8  
 OIL WELL PROJECTS

**Proposed Off-Lease  
 Right-of-Way: NGC Project**

Figure 1.1.3

11/07/2022



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 as 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 (AO) to minimize adverse impacts to other resource values, land uses or users not addressed in the lease stipulations at the time operations are proposed.

BLM 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.”

### **1.3.1 Land Use Plan Conformance**

#### **1.3.1.1 Tonopah Resource Management Plan**

The Proposed Action is in conformance with the Tonopah Resource Management Plan and Record of Decision approved on October 2, 1997. Specifically, the Fluid Minerals Objective on 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 Lands and Rights-of-Way Objective on page 18 is “To make lands available for community expansion and private economic development and to increase the potential for economic diversity.” On page 33, a Standard Operating Procedure under Lands 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” (BLM 1997).

#### **1.3.1.2 Nye County Comprehensive/Master Plan**

The Proposed Action is in conformance with the Nye County Comprehensive/Master Plan, Renewable Energy Goal-4, Objective 2, which states: “Inventory oil and gas resources and encourage development of those resources. Public lands with a high potential for oil and gas resources should not be withdrawn from exploration” (Nye County 2011).

### **1.4 Public Involvement**

HOGV submitted a Notice of Staking (NOS) for the Soda Spring Project on March 11, 2022, and for the NGC Project on March 22, 2022. Site inspections for both projects were coordinated with representatives from Ehni Enterprises, a consultant for HOGV, and BLM; the site inspections were conducted on April 12, 2022. The NOS for both projects were made available for public review and comment in the BLM TFO lobby for 30 days starting on March 24, 2022, and the APDs for both projects were posted for 30 days starting on June 20, 2022. No public comments were received.



## **2 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES**

### **2.1 Proposed Action**

This Proposed Action integrates the description of the proposed activities at both the Soda Spring and NGC projects, as the construction and operation procedures are primarily identical. Differences are described where necessary.

#### **2.1.1 Location and Access**

Both projects are located in Railroad Valley between the Grant Range to the east, and the Pancake Range to the west, and both occur at approximately 4,730 feet above mean sea level. The projects can be accessed from Carrant, Nevada, by traveling approximately 11 miles southwest on US Highway 6 (US 6), then turning southeast on RR Valley Road; travel approximately 11 miles to the turn off for the Soda Spring 1-22 Oil Well Project, then an additional five miles to the turn off for the North Grant Canyon 1-8 Oil Well Project.

##### **2.1.1.1 On-Lease Access Roads**

A new access road would be constructed on Lease N-98009 associated with the Soda Spring 1-22 Oil Well Project, linking an existing road with the well pad. This road would be approximately 147 feet long, with an approximate 12-foot running width, and road base approximately 30 feet wide (Figure 2.1.1), for a total of 0.1 acre of surface disturbance. To control erosion and sedimentation, one culvert would be installed and would be constructed to Gold Book (Department of the Interior [DOI] and US Department of Agriculture [USDA] 2007) standards.

An on-lease access road would also be constructed associated with the NGC Project on Lease N-94131, which connects with the off-lease access road ROW described in Section 1.1.4. The road would be approximately 2,494 feet long, with an approximate 12-foot running width, and approximate 24-foot wide road base (Figure 2.1.2), for a total surface disturbance of approximately 1.4 acres. To control erosion and sedimentation, at least one culvert would be installed, with the potential for additional culverts and/or low-water crossings, to be determined in coordination with the BLM.

#### **2.1.2 Wellhead and Pad**

The proposed wellhead would be located on a gravel pad encompassing approximately 3.7 acres (400 x 400 feet or less) (Figure 2.1.3). A minimum of six 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.

The construction contractor would be responsible for any required gravel permits, and for any required reclamation to the gravel pit(s) used. Approximately 4,000 cubic feet of road base and gravel for pad and road construction for the NGC Project would be from a BLM community gravel pit (NVN-060244) located in the southeast (SE) ¼ of Section 9, T7N, R57E, MDM.

Gravel for road and pad construction for the Soda Spring Project would be from private sources located in Section 26, T7N, R57E, MDM.

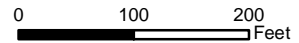


- Explanation**
- Existing Road
  - Soda Spring 1-22 Project Area
  - Soda Spring Access Road (0.10 acre)
  - Culvert
- Land Status**
- BLM

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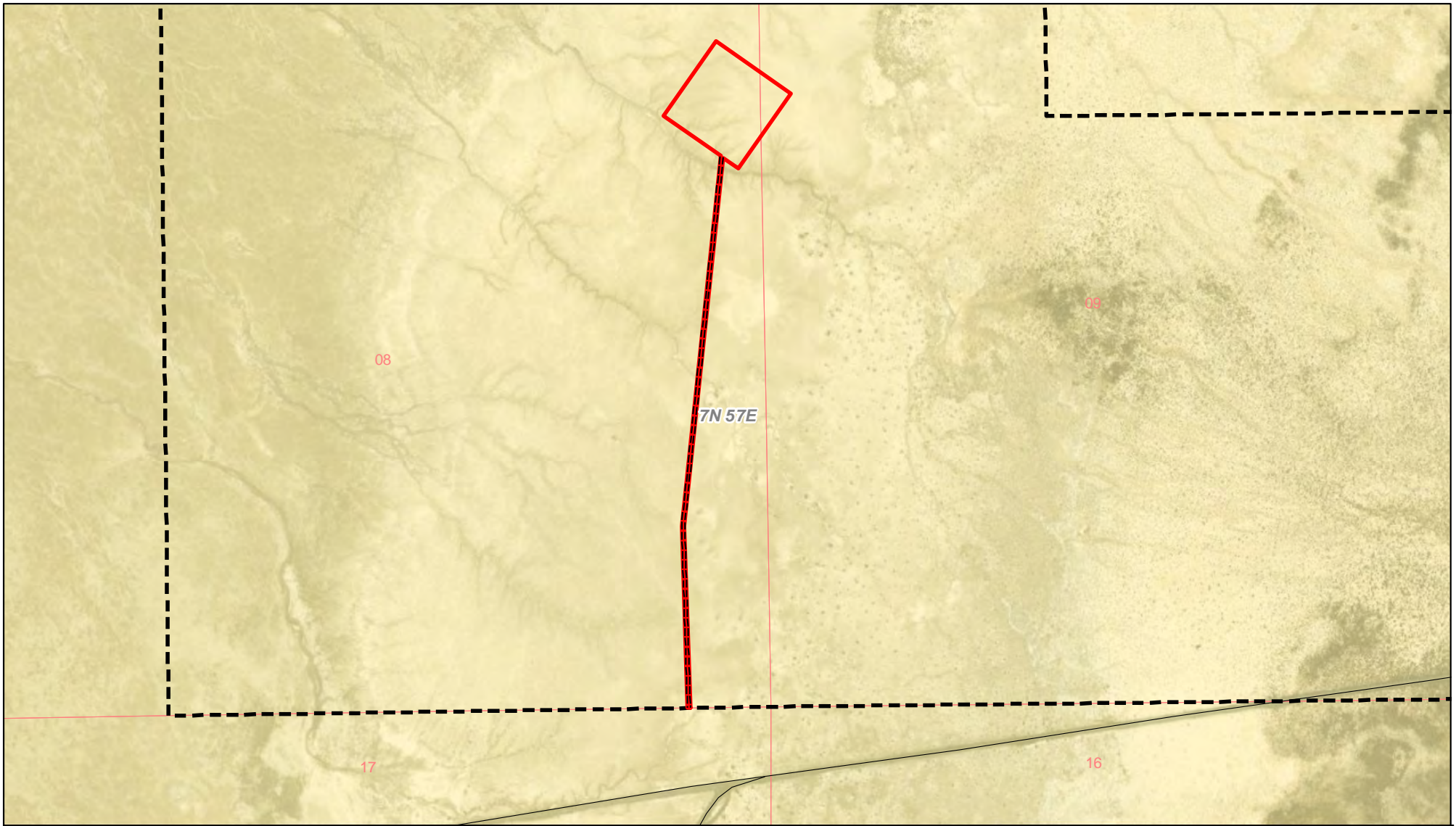
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SODA SPRING 1-22 AND NORTH GRANT CANYON 1-8 OIL WELL PROJECTS

**Proposed On-Lease  
 Access Road: Soda Spring Project**

Figure 2.1.1

11/07/2022



**Explanation**

- Existing Road
- ◆ North Grant Canyon Project Area
- Lease N-94131
- North Grant Canyon Access Road (2,494 feet)
- Land Status
- BLM

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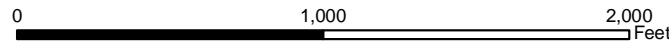
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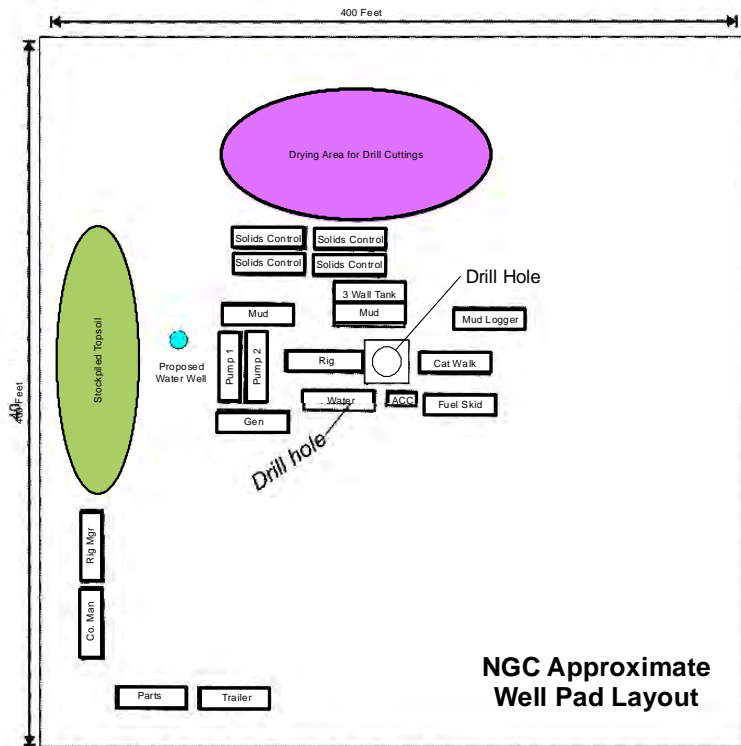
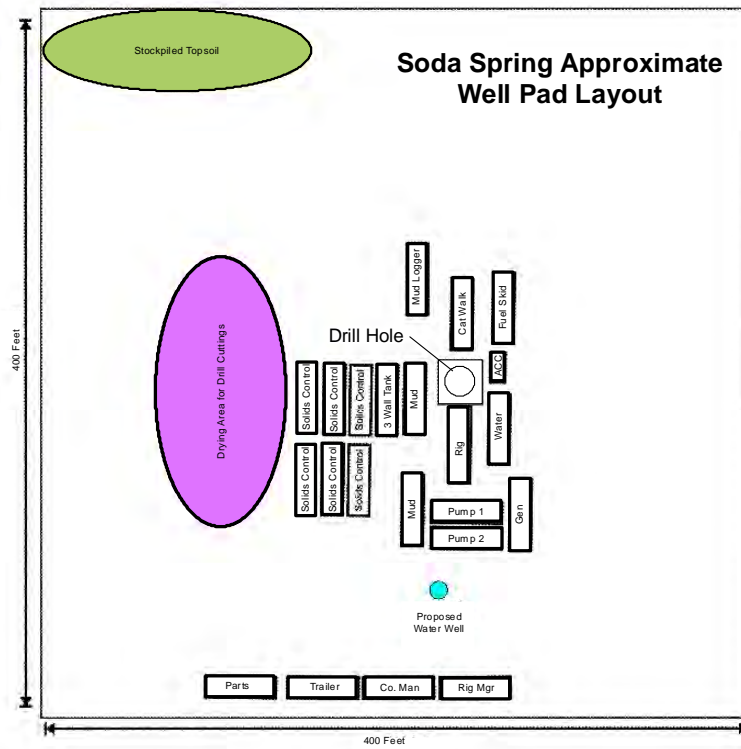
**Proposed On-Lease  
 Access Road: NGC Project**

Figure 2.1.2

12/01/2022







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SODA SPRING 1-22 AND NORTH GRANT CANYON 1-8  
 OIL WELL PROJECTS

### Approximate Well Pad Layouts

Figure 2.1.3

09/29/2022

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.

### 2.1.3 Drilling

The typical drill rig and associated support equipment (rig floor and stands; draw works; mast; drill pipe; trailers; mud, fuel and water tanks; diesel generators; air compressors; etc.) would be brought to the prepared pad on 15 to 20 large tractor-trailer trucks. When constructed, the drill rig would occupy approximately 2,800 square feet and the drill rig mast would be approximately 90 feet tall.

Additional equipment and supplies would be brought to the drill site during ongoing drilling and testing operations. As many as ten or more tractor-trailer truck trips could be expected on the busiest day, although on average about one large tractor-trailer truck (delivering drilling supplies and equipment), and about four small trucks/service vehicles/worker vehicles, would be driven to the site each day throughout the typical ten-day drilling period or rotation.

Difficulties encountered during the drilling process, including the need to workover or redrill the hole, could increase the time necessary to successfully complete a full-size well. Drilling would be conducted 24 hours per day, 7 days per week by a crew of up to 15 workers, including support staff. Occasionally, for short periods, the number of workers on site could be as high as 20.

Several supervisors (including, but not limited to, the drilling engineer, company representative, and project geologist) might remain on site 24 hours while the well is being drilled. The drilling crew may also live on site during the drilling operations. Housing for the drill crew and supervisors would be in self-contained trailers or "skid units" with sleeping quarters, a galley, and septic systems.

The wells would be drilled and cased to a design depth of approximately 8,000 feet; total depth to be determined by the project geologist. Blowout preventer equipment, which is typically inspected and approved by the BLM, would be utilized while drilling below the surface casing. The blowout preventer and related pressure control equipment would be installed, tested and maintained in compliance with *Onshore Oil & Gas Order #2*. Approximately 42,200 gallons of water would be used per day during drilling operations, assuming the well is completed in approximately 45 days. A minimum of 5,000 gallons of water and 5,000 pounds of inert, non-toxic, non-hazardous barite (barium sulfate) would likely be stored at the well site for use in preventing uncontrolled well-flow (killing the well). The well would be drilled with a closed mud system. All drilling mud would be maintained in aboveground solids control tanks that are up to ten feet tall. Cuttings would be dried on location and disposed of according to federal, state, and local regulations.

The well bore would be drilled using non-toxic, temperature-stable, drilling mud composed of a bentonite clay/water or polymer/water mixture. Variable concentrations of non-toxic additives would be added to the drilling mud as needed to prevent corrosion, increase mud weight, and prevent mud loss. Additional drilling mud would be mixed and added to the mud system as needed to maintain drilling circulation medium.

In the event that very low pressure areas are encountered, compressed air may be added to the drilling mud, or used instead of drilling mud, to reduce the weight of the drilling fluids in the hole and assist in carrying the cuttings to the surface. The air, any drilling mud, rock cuttings, and any fluids brought to the surface would be diverted through a separator/muffler to separate and discharge the air and water vapor to the outside environment and to divert the drilling mud and cuttings to the solids control tanks and equipment.

The wells may need to be worked over or re-drilled if mechanical or other problems are encountered while drilling or setting casing. Additionally, reentering and re-drilling the proposed well bore, sliding the rig over a few feet on the same well pad, or drilling a new well bore through a new conductor casing may be required.

#### **2.1.4 Water Supply**

Water during construction of the North Grant Canyon Access Road would initially be obtained from a private source. Once the access road (only for the NGC Project) and well pad are constructed, water for drilling and fugitive dust control would be obtained from a temporary water well drilled on the proposed drill pad (Figure 2.1.2). Water would be taken directly from the temporary well or from the water tanks and would be distributed around the well pad site by hoses and pipes. The operator would obtain and maintain all necessary permits for water use from the Nevada Division of Water Resources (NDWR). The temporary water well would be constructed of steel casing, and drilled using standard mud-rotary methods, to a depth of approximately 200 feet. Slotted casing and gravel filter pack would be installed from approximately 50 feet below ground surface to the bottom of the hole. Approximately 420,000 gallons of water would be used during drilling and construction operations. Water would be stored in water tanks up to ten feet tall. The well would be abandoned in accordance with Nevada Administrative Code (NAC) 534.420.

#### **2.1.5 Solid and Hazardous Waste Disposal**

HOGV would follow the following procedures for solid and hazardous waste disposal:

- A trash dumpster would be placed on site and waste material would be hauled to a BLM-approved landfill when the dumpster is full.
- Drilling fluids and cuttings would be dried on location and disposed of according to federal, state, and local regulations.
- Produced fluids shall be put in test tanks on location during completion work. Produced water would be stored in aboveground solids control storage tanks.
- Portable chemical toilets would be rented and installed on site. The rental company would haul away and dispose of sewage according to federal, state, and local regulations.
- 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. See Appendix A, Applicant-Committed Environmental Protection Measures (EPMs), and Appendix D, Spill Contingency Plan, for spill reporting procedures.
- 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 construction, drilling, completion, and production operations for this Project. Additional details on spill containment are contained in the Spill Contingency Plan (Appendix D).

#### **2.1.6 Restoration**

When drilling is completed, and if the well is determined to be commercially productive, the drill pad would be reclaimed to approximately one acre in size. If production is not achieved, the operator would place a dry hole marker; 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 BLM AO. If production is obtained, all equipment not needed for production would be removed from the site. Other cleanup would be done as needed.



### **2.1.7 Surface Disturbance**

The maximum potential total surface disturbance associated with the Soda Spring Project for the on-lease access road and well pad would be approximately 3.8 acres. The maximum potential total surface disturbance associated with the NGC Project for the off-lease access road ROW, the on-lease access road, and well pad, would be approximately 5.2 acres.

### **2.1.8 Production**

If after completion of exploratory operations, production is obtained, a completion report would be submitted to the BLM AO. 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 percent capacity of the largest vessel. Above-ground structures would be designed to visually blend in with the surrounding landscape. Any additional facilities, activities, or disturbance beyond the 400 by 400 foot disturbance area addressed in this EA would be subject to additional NEPA analysis.

### **2.1.9 Construction, Operation, and Reclamation Standards and Requirements**

***Construction, operation and reclamation standards and requirements:*** All authorized construction, operation and reclamation would be consistent with the Gold Book (DOI and USDA 2007). Applicant-committed EPMs are included in Appendix A and General Requirements for Construction, Surface Use, and Operations are included in Appendix B.

### **2.2 No Action Alternative**

Under the No Action Alternative, the BLM would not approve the APD and HOGV 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.

### **2.3 Alternatives Considered but Eliminated from Detailed Analysis**

No other alternatives were considered. Internal and external scoping did not provide any need or reasoning for an alternate proposal.

### 3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

#### 3.1 Introduction

The purpose of this section of the EA is to describe the existing environment of the Project Area, as well as environmental consequences from implementation of the Proposed Action or any of the listed alternatives of affected resources including the No Action Alternative, as well as potential cumulative impacts. Applicant-committed EPMs (Appendix A) and other requirements (Appendix B) are incorporated as necessary in the relevant resource section.

Supplemental Authorities that are subject to requirements specified by statute or executive order (EO) must be considered in all BLM environmental documents. The elements associated with the supplemental authorities listed in the NEPA Handbook (BLM 2008a, Appendix 1) and in the Nevada Instruction Memorandum (IM) 2009-030, Change 1, are listed in Table 3.1-1. The following elements have been determined as Not Present in the Project Area, Present/Not Affected, or Present/May Be Affected by Project activities, and the following table provides the rationale for those determinations, or the section of the EA where the resource is discussed. The elimination of non-relevant elements complies with CEQ policy.

**Table 3.1-1: Elements Associated with Supplemental Authorities and Rationale for Elimination from Detailed Analysis for the Proposed Action**

Supplemental Authority Element	Not Present	Present/ Not Affected	Present/May Be Affected	Rationale for Elimination
Air Quality			X	See Section 3.2.
Areas of Critical Environmental Concern	X			This element is not present within either Project Area or vicinity.
Cultural Resources	X			This element is not present within either Project Area or vicinity. However, an EPM is included in Appendix A for inadvertent discoveries.

Supplemental Authority Element	Not Present	Present/ Not Affected	Present/May Be Affected	Rationale for Elimination
Environmental Justice (EJ)		X		According to BLM guidance (IM 2022-059 and attachments), the BLM is committed to determining if its proposed and alternative actions would adversely and disproportionately impact minority, low-income, or Tribal populations. To determine if an action or alternative disproportionately and adversely impacts an EJ population, the BLM analyzes aggregate effects of all proposed actions and resources and cumulative effects of all proposed actions when compounded by an impact when added to other past, present, and reasonably foreseeable future actions. These projects would result in the exploration of oil from one exploratory oil well at each site and minor amounts of surface disturbance associated with road and well pad construction. The projects are located in a rural area, and EJ communities would not experience disproportionate and adverse effects associated with the projects. There would only be a maximum of 20 people working at the sites at any one time, and their presence in the area would be temporary. Conversations concerning unforeseen impacts should continue with members of the Duckwater Reservation. This determination may change as further information becomes available. There are no cultural resources of concern or Traditional Cultural Properties in either project areas. This element is not analyzed further in this EA.
Farm Lands (Prime or Unique)	X			This element is not present within either Project Area or vicinity.
Fish Habitat	X			Fish habitat is not present within either Project Area or vicinity.
Floodplains		X		See Section 3.10.
Forests and Rangelands (Healthy Forests Restoration Act of 2003 [HFRA] projects only)	X			The projects do not meet the requirements to qualify as HFRA projects; therefore, this element is not analyzed further in this EA.
Human Health and Safety (Herbicide Projects)	X			The projects may use herbicides to eradicate noxious weeds; however, EO 13045, "Protection of Children from Environmental Health Risks and Safety Risks," would not apply to these projects as there would be no children at the sites during application of the herbicides.
Migratory Birds			X	Soda Spring Project: The BLM has determined that the analysis included in the approved 2016 EA (DOI-BLM-NV-B020-2016-0015-EA) was adequate. No new analysis has been conducted in this EA.  NGC Project: See Section 3.4.

<b>Supplemental Authority Element</b>	<b>Not Present</b>	<b>Present/ Not Affected</b>	<b>Present/May Be Affected</b>	<b>Rationale for Elimination</b>
Native American Religious and Cultural Concerns		TBD		See Section 3.5.
Noxious Weeds, Invasive and Non-native Species		X		Soda Spring Project: The BLM has determined that the analysis included in the approved 2016 EA (DOI-BLM-NV-B020-2016-0015-EA) was adequate. No new analysis has been conducted in this EA.  NGC Project: See Section 3.6.
Surface and Groundwater Resources			X	See Section 3.10.
Wastes – Hazardous/Solid		X		Soda Spring Project: The BLM has determined that the analysis included in the approved 2016 EA (DOI-BLM-NV-B020-2016-0015-EA) was adequate. No new analysis has been conducted in this EA.  NGC Project: 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 federal and state laws concerning hazardous materials and the operator’s Spill Contingency Plan, and Notice to Lessees (NTL) 3A Reporting of Undesirable Events. Solid waste would be disposed offsite at an applicable facility.
Wetlands and Riparian Zones	X			This element is not present within either Project Area or vicinity.
Wild and Scenic Rivers	X			This element is not present within either Project Area or vicinity.
Wilderness/Wilderness Study Area (WSA)	X			Wilderness or WSAs are not present within either Project Area. The Blue Eagle WSA is located in the vicinity, but would not be affected by either project. This element is not analyzed further in this EA.

Potentially affected elements are analyzed in Sections 3.2 through 3.13. Those elements listed under the supplemental authorities that do not occur in the Project Area and elements present but would not be affected are not evaluated further in this EA, based on the rationale provided in Table 3.1-1.

In addition to the elements listed under supplemental authorities, the BLM considers other resources and uses that occur on public lands and the issues that may result from the Proposed Action. Other resources or uses of the human environment considered for this EA are listed in Table 3.1-2 below.

**Table 3.1-2: Resources or Uses Not Associated with Supplemental Authorities**

Other Resources or Uses	Not Present	Present/ Not Affected	Present/May Be Affected	Rationale/Reference Section
Climate Change			X	See Section 3.2.
Geology and Mineral Resources		X		Geology and mineral resources are present in the project areas; however, Project activities would not preclude the exploration and/or development of other mineral resources. This resource is not analyzed further in this EA.
Lands and Realty			X	See Section 3.3.
Lands with Wilderness Characteristics (LWC)	X			Both projects are located in LWC unit NV-060-186. The BLM has determined that this unit does not contain wilderness characteristics. This resource is not analyzed further in this EA.
Paleontological Resources	X			This resource is not present within either Project Area or vicinity. However, Appendix A includes an EPM for undiscovered paleontological resources.
Rangeland Management		X		Both projects are in the Butterfield grazing allotment, but would not result in a reduction of animal unit months or management of the allotment. This resource is not analyzed further in this EA.
Recreation			X	See Section 3.7.
Socioeconomics		X		Due to the short and temporary nature of the exploratory activities at each Project, the workforce would not create a demand for additional public or private services and would not impact public schools, the permanent housing market, or other services otherwise associated with permanent workers. There is potential for small, temporary economic impacts that may result from use of lodging and other accommodations in the study area, but those impacts are anticipated to be temporary and minor. This resource is not further analyzed in the EA. Should either Project move beyond the exploratory phase, further analysis would be warranted.
Soils			X	Soda Spring Project: The BLM has determined that the analysis included in the approved 2016 EA (DOI-BLM-NV-B020-2016-0015-EA) was adequate. No new analysis has been conducted in this EA.  NGC Project: See Section 3.8.

Other Resources or Uses	Not Present	Present/ Not Affected	Present/May Be Affected	Rationale/Reference Section
Special Status Species (including bald and golden eagles and threatened and endangered species)			X	Soda Spring Project: The BLM has determined that the analysis included in the approved 2016 EA (DOI-BLM-NV-B020-2016-0015-EA) was adequate for most special status species. Updates from agency data responses and spring surveys for special status aquatic species have been included in Section 3.9 for the Soda Spring Project.  NGC Project: See Section 3.9.
Vegetation			X	Soda Spring Project: The BLM has determined that the analysis included in the approved 2016 EA (DOI-BLM-NV-B020-2016-0015-EA) was adequate. No new analysis has been conducted in this EA.  NGC Project: See Section 3.11.
Visual Resources			X	See Section 3.12.
Wild Horses and Burros	X			Neither Project Area is located within a Herd Management Area.
Wildlife			X	Soda Spring Project: The BLM has determined that the analysis included in the approved 2016 EA (DOI-BLM-NV-B020-2016-0015-EA) was adequate. No new analysis has been conducted in this EA.  NGC Project: See Section 3.13.

Potentially affected resources or uses are discussed and analyzed in Sections 3.2 through 3.13. Those other resources listed that do not occur in the Project Area and resources present but would not be affected are not evaluated further in this EA, based on the rationale provided in Table 3.1-2.

The potential effects of the No Action Alternative on both supplemental authorities and other resources or uses are also discussed in these sections.

### 3.1.1 Effects Assessment Definitions

The effects assessment definitions used for analysis were mainly derived from oil and gas exploration drilling projects.

- Intensity
  - Negligible: Impacts to resources, adverse or beneficial, would be barely noticeable or perceptible. Any mitigation efforts would be small, and success would be almost guaranteed.
  - Minor: Impacts to resources, adverse or beneficial, would be measurable and perceptible, but small in consequence. Impacts would be easily managed and controlled through mitigation and the probability of success would be moderate to high.



- Moderate: Impacts to resources, adverse or beneficial, would be measurable and perceptible, but large and of consequence. Mitigation efforts would need to be implemented repeatedly and there would be slight risk of failure.
- Major: Impacts to resources, adverse or beneficial, would be readily apparent and would substantially change the resource in the context of the Project Area. Changes would be large and/or widespread and could have permanent consequence for the resource. Mitigation to offset adverse impacts may be extensive and success is not assured.
- Duration
  - Short-term: Effects would last for the duration of the Proposed Action.
  - Long-term: Effects would last beyond the duration of the Proposed Action.
- Context
  - Localized: Effects would be limited to resources in the Project Area.
  - Regional: Effects would occur outside the Project Area.

## 3.2 Air Quality

### 3.2.1 **Affected Environment**

#### 3.2.1.1 Air Quality

Ambient air quality may be characterized by comparing the concentration of various pollutants in the ambient air with the standards set by federal and state agencies. Under the authority of the Clean Air Act (CAA), the US Environmental Protection Agency (EPA) has established nationwide air quality standards, known as the National Ambient Air Quality Standards (NAAQS) for six air pollutants. Pollutants for which standards have been set are called criteria pollutants, and include carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), ozone (O<sub>3</sub>), particulate matter less than ten microns aerodynamic diameter (PM<sub>10</sub>), and particulate matter less than 2.5 microns aerodynamic diameter (PM<sub>2.5</sub>), sulfur dioxide (SO<sub>2</sub>), and lead. Two additional pollutants of concern, nitrogen oxides (NO<sub>x</sub>) and volatile organic compounds (VOCs) contribute to the formation of ozone in the atmosphere, which is a regulated criteria pollutant with a NAAQS. Additionally, greenhouse gases (GHGs) became regulated pollutants on January 2, 2011, because of their contribution to global climate change. Many air quality permitting and regulation activities under the CAA are delegated to the state. The Nevada Division of Environmental Protection (NDEP) Bureau of Air Pollution Control (BAPC) is tasked with permitting and maintaining air quality data for Nevada, as well as long-term strategies for air quality improvement. The well sites are located in Nye County. The County is designated as in attainment with all criteria pollutant NAAQS and the projects are not subject to Federal Conformity rule requirements.

CAA regulations also control the release of hazardous air pollutants (HAPs): chemicals that are known or suspected to cause cancer or other serious health effects, such as reproductive effects, birth defects, or adverse environmental effects. The EPA currently lists 189 compounds as HAPs, some of which, such as benzene, toluene, and formaldehyde, can be emitted from oil and gas development operations. NAAQS have not been set for HAPs; rather HAP emissions are controlled by source type- or industrial sector-specific regulations. Hydrogen sulfide (H<sub>2</sub>S) gas is not regulated under the NAAQS or as a HAP. However, it is known to be hazardous, and is monitored for health and safety at oil and gas sites. There has been no H<sub>2</sub>S discovered in oil wells drilled in Nevada since required monitoring began in 2000.

The EPA air quality index (AQI) is used for reporting daily criteria pollutant levels to the public (<https://www.airnow.gov/>). The AQI index is one way to evaluate how clean or polluted an area's air is and whether associated health effects might be a concern. The EPA calculates a daily AQI based on local air

monitoring data. When the AQI value is between zero and 50, air quality is categorized as “good” and criteria air pollutants pose little or no risk. Air monitoring data and daily AQIs are available near the lease areas in the County shown in Table 3.2-1. AQI data show air quality is generally good within Nye County and that there is little risk to the general public from poor air quality based on available data for the most recent five-year period (2017-2021).

**Table 3.2-1: Air Quality Index, 2017-2021**

County	Avg Days with AQI per year	Avg Days Rated Good	Avg Days Rated Moderate	Avg Days Rated unhealthy <sup>1</sup>	% Days Rated Good	% Days Rated Moderate	% Days Rated Unhealthy
Nye	365	345	18	1.2	94.5%	4.9%	<1%

<sup>1</sup> includes days rated Unhealthy for Sensitive Groups, Unhealthy, Very Unhealthy, and Hazardous  
 Source: EPA 2022a

### 3.2.1.2 Greenhouse Gas

Climate change is a global process that is affected by the sum total of GHGs in the Earth’s atmosphere. The incremental contribution to global GHGs from a single proposed land management action cannot be accurately translated into its potential effect on global climate change or any localized effects in the area specific to the action. Currently, global climate models are unable to forecast local or regional effects on resources. However, there are general projections regarding potential impacts on natural resources and plant and animal species that may be attributed to climate change from GHG emissions over time. GHGs influence the global climate by increasing the amount of solar energy retained by land, water bodies, and the atmosphere. GHGs can have long atmospheric lifetimes, which allows them to become well mixed and uniformly distributed over the entirety of the Earth’s surface no matter their point of origin.

The continued increase of anthropogenic GHG emissions over the past 60 years has contributed to global climate change impacts. A discussion of past, current, and projected future climate change impacts is described in Chapters 8 and 9 of the Annual GHG Report (BLM 2021). These chapters describe currently observed climate impacts globally, nationally, and in each State, and present a range of projected impact scenarios depending on future GHG emission levels. These chapters are incorporated by reference in this analysis.

Table 3.2-2 shows GHG emissions data for the state. State energy-related carbon dioxide (CO<sub>2</sub>) emissions include emissions from fossil fuel use across all sectors (residential, commercial, industrial, transportation, and electricity generation) and are released from each location or vehicle that uses the fossil fuels.

**Table 3.2-2: State-level GHG Emissions as Reported to the EPA (Mt)**

Scale	2016	2017	2018	2019
State (Nevada)	44.3	44.1	45.5	46.3

Source: BLM 2021, Annual GHG Report, Chapter 6, Table 6-3  
 Mt (megatonne) = 1 million metric tons (MMt)

### **3.2.2 Environmental Consequences**

#### **3.2.2.1 Proposed Action**

##### *Direct Criteria Pollutant and HAP Emissions*

All proposed activities associated with, or part of, exploratory drilling activities would be subject to applicable local, State, Tribal, and Federal air quality laws and regulations. Any disturbance is expected to cause increases in fugitive dust and potentially inhalable particulate matter (specifically PM<sub>10</sub> and PM<sub>2.5</sub>). These impacts are likely to occur during the drill pad construction and drilling phases. Utilization of the access roads, surface disturbance, and construction activities such as equipment operation, maintenance, and travel to and from the drill site would all impact air quality through the generation of dust related to travel, transport, and general construction. These phases would also produce short-term emissions of criteria, hazardous, and GHG pollutants from vehicle and construction equipment exhausts.

Well-site sources would contribute to potential short- and long-term increases in the following criteria pollutants: CO; O<sub>3</sub>; NO<sub>2</sub>; and SO<sub>2</sub>. During drilling, if oil is encountered, the oil could contain VOCs and HAPs, which could also be emitted by oil in the tanks located at the sites. The BLM encourages industry to incorporate and implement BMPs to reduce impacts to air quality by reducing emissions, surface disturbances, and dust from field operations. Measures may also be required as Conditions of Approval on permits by either the BLM or the applicable state air quality regulatory agency. The BLM manages venting and flaring of gas from federal wells as described in the provisions of NTL 4A, Royalty or Compensation for Oil and Gas Lost.

Once well pad construction is complete the daily activities at the sites would be reduced to well construction, operational and maintenance checks which may be as frequent as daily visits. Emissions would result from vehicle exhausts from the maintenance and process technician visits. Fugitive VOC and HAP emissions may also result from pressure relief valves and working and breathing losses from any tanks located at the site, as well as any flanges, seals, valves, or other infrastructure connections used at the site. Liquid product load-out operations would also generate fugitive emissions of VOCs and HAPs and vehicular emissions. Most operations would be subject to some portions of the pollution control regulations and thus the proponent may be required to have control equipment installed or inspection and maintenance measures implemented at the sites to minimize some or all of the expected fugitive emissions from load-outs and leaks.

Although oil development and production can result in emissions that may affect ambient concentrations of PM, O<sub>3</sub>, and NO<sub>x</sub> from construction, development, and production activities, no significant impacts from these activities have been observed in the ongoing State NAAQS monitoring data. The BLM estimates that reasonably foreseeable criteria pollutant emissions from each of the projects would total less than seven tons for each pollutant. This is well below regulatory thresholds that indicate potential for air quality impacts. HAPs may also be emitted from oil operations, including well drilling and well completion. However, no ambient standards have been established for HAPs associated with oil and gas development in this area and ambient monitoring data is not available. The BLM estimates that reasonably foreseeable HAP emissions would total less than 100 pounds for each project. Oil and gas production sources have the potential to release air pollutant emissions that contribute to ozone formation, regional haze, atmospheric deposition. These issues are monitored and regulated at the Federal level.

##### *Greenhouse Gas Emissions*

There are four general phases of development that would generate GHG emissions from the proposed action including: 1) well development (well site construction, well drilling, and well completion); 2) well production operations (extraction, separation, gathering); 3) mid-stream (refining, processing, storage, and

transport/distribution); and 4) end-use (combustion or other uses) of the fuels produced. Emissions are presented for each of the four phases described above.

- Well development emissions occur over a short period and include emissions from heavy equipment and vehicle exhaust, drill rig engines, completion equipment, pipe venting, and well stimulation treatments that may be used.
- Well production operations, mid-stream, and end-use emissions occur over the entire production life of a well, which is assumed to be 30 years for this analysis.
- Production emissions may result from storage tank breathing and flashing, truck loading, pump engines, heaters and dehydrators, pneumatic instruments or controls, flaring, fugitives, and vehicle exhaust.
- Mid-stream emissions occur from the transport, refining, processing, storage, transmission, and distribution of produced oil and gas. Mid-stream emissions are estimated by multiplying the estimated ultimate recovery (EUR) of produced oil and gas with emissions factors from the US Department of Energy National Energy Technology Laboratory life cycle analysis of US oil and natural gas (Littlefield et. al. 2019). Additional information on emission factors can be found in the Annual GHG report (Chapter 4, Table 4-7 and 4-9) (BLM 2021). Actual mid-stream emissions may differ from the estimates made using these national scale emissions factors.
- For the purpose of this analysis, end-use emissions are calculated assuming all produced oil and gas is combusted for energy use. End-use emissions are estimated by multiplying the EUR of produced oil and gas with emissions factors for combustion established by the EPA (Tables C-1 and C-2 to Subpart C of 40 CFR § 98). Additional information on emission factors and EUR factors can be found in the Annual GHG Report (Chapter 4) (BLM 2021).

For purposes of estimating end-use emissions, wells are assumed to produce oil and gas in similar amounts as existing nearby wells. BLM data from wells drilled over the preceding decade on public land in Nevada show that less than 20 percent of wells drilled in Nevada contribute to increased oil production. It is therefore not reasonably foreseeable that the projects would result in increased air pollutant or GHG emissions related to oil production. While the BLM has no authority to direct or regulate the end-use of the products, for this analysis, the BLM assumes all produced oil would be combusted (such as for domestic heating or energy production).

Table 3.2-3 lists the estimated direct (well development and production operations) and indirect (mid-stream and end-use) GHG emissions in metric tons (tonnes) for an estimated 30-year production life of the wells. Emissions are based on 100 percent of the well bore being Federal minerals.

**Table 3.2-3: Estimated Life of Well Emissions from Well Development and Production Operations**

Activity	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> e (100-yr)	CO <sub>2</sub> e (20-yr)
Well Development	1,412	13.53	0.008	1,817	2,530
Well Production Operations	0	0.00	0.000	0	0
Mid-Stream	0	0.00	0.000	0	0
End-Use	0	0.00	0.000	0	0
<b>Total (tonnes)</b>	<b>1,412</b>	<b>13.53</b>	<b>0.008</b>	<b>1,817</b>	<b>2,530</b>

Source: BLM Lease Sale Emissions Tool; CO<sub>2</sub>e = carbon dioxide equivalent

GHG emissions vary over the production life of a well due to declining production over time. Figure 3.2.1 shows the estimated GHG emissions profile over the production life of a typical well including well development, well production operations, mid-stream, end-use, and gross (total of well development, well production, mid-stream, and end-use) emissions.

**Figure 3.2.1: Estimated GHG Emissions Profile Over the Life of a Lease**

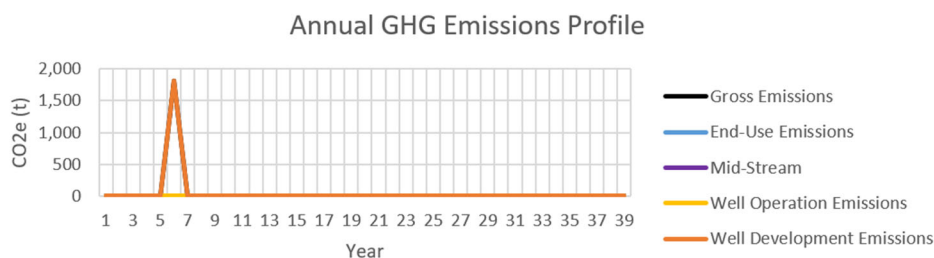


Table 3.2-4 compares the estimated Proposed Action emissions to existing Federal fossil fuel (oil, gas, and coal) emissions, and State and US total GHG emissions from all sectors as reported in the EPA Inventory of US GHG Emissions and Sinks: 1990-2020.

**Table 3.2-4: Comparison of Proposed Action Annual Emissions to Other Sources (megatonnes)**

Reference	Mt CO2e <sup>1</sup> (Per Year)	Average Year % of Reference
Proposed Action Emissions (Average Year)	0.002	-
NV Onshore Federal (Oil & Gas) <sup>2</sup>	0.12	1.514%
US Onshore Federal (Oil & Gas) <sup>2</sup>	465.63	0.000%
US Federal (Oil & Gas) <sup>2</sup>	844.27	0.000%
US Federal (Oil, Gas and Coal) <sup>2</sup>	1,292.57	0.000%
NV Total (all sectors) <sup>3</sup>	0.1	2.501%
US Total (all sectors) <sup>3</sup>	6,270.94	0.000%

1 – Estimates are based on 100-Global Warming Potential values.

2 – Federal values come from the BLM Specialist Report on Annual Greenhouse Gas Emissions. Tables ES-1 and ES-2.

3- Values comes from the EPA Inventory of U.S. GHG Emissions and Sinks: 1990-2020 (EPA 2022b) and use IPCC Fourth Assessment Report Global Warming Potentials. From EPA: State GHG Emissions and Removals. <https://www.epa.gov/ghgemissions/state-ghg-emissions-and-removals>.

Table 3.2-5 compares emission estimates over the 30-year life of the wells compared to the 30-year projected Federal emissions in the state and nation from existing wells, the development of approved APDs, and emissions related to reasonably foreseeable Federal actions.

**Table 3.2-5: Comparison of the Life of Well Emissions to other Federal Oil and Gas Emissions (megatonnes)**

Reference	Mt CO2e (30-yr)	Life of Well % of Reference
Life of Well(s)	0.002	100.000%
NV Reasonably Foreseeable Short-term Federal (Oil & Gas)	0.90	0.202%
NV EIA Projected Long-term Federal (Oil & Gas)	4.84	0.038%
US Reasonably Foreseeable Short-term Federal (Oil & Gas)	4,614.81	0.000%
US EIA Projected Long-term Federal (Oil & Gas)	13,570.16	0.000%

Source: US and Federal emissions from BLM Lease Sale Emissions Tool and Annual GHG Report (BLM 2021) Tables 5-17 and 5-18; EIA – US Energy and Information Administration

Compared to emissions from other existing and foreseeable Federal oil and gas development, the life of lease emissions for either project is between 0.202 percent to 0.038 percent of Federal fossil fuel authorization emissions in the state and zero percent of Federal fossil fuel authorization emissions in the nation (EPA 2022).

In summary, potential GHG emissions from the Proposed Action could result in GHG emissions of 0.002 MT CO<sub>2</sub>e over the life of the lease.

### *Mitigation Strategies*

Emission controls (e.g., vapor recovery devices, no-bleed pneumatics, leak detection and repair, etc.) can substantially limit the amount of GHGs emitted to the atmosphere, while offsets (e.g., sequestration, low carbon energy substitution, plugging abandoned or uneconomical wells, etc.) can remove GHGs from the atmosphere or reduce emissions in other areas. Chapter 10 of the Annual GHG Report (BLM 2021) provides a more detailed discussion of GHG mitigation strategies.

The Federal government has issued regulations that would reduce GHG emissions from any development related to either project. These regulations include the New Source Performance Standard for Crude Oil and Natural Gas Facilities (49 CFR 60, subpart OOOOa) which imposes emission limits, equipment design standards and monitoring requirements on oil and gas facilities.

The BLM's regulatory authority is limited to those activities authorized under the terms of the APD which primarily occur in the "upstream" portions of natural gas and petroleum systems. This decision authority is applicable when development is proposed on public lands and BLM assesses its specific location, design and proposed operation. In carrying out its responsibilities under the NEPA, the BLM has developed Best Management Practices (BMPs) designed to reduce emissions from field production and operations. BMPs may include limiting emissions on stationary combustion sources, mobile combustion sources, fugitive sources, and process emissions occurring on a lease parcel. Analysis and approval of future development may include application of BMPs within BLM's authority, as Conditions of Approval, to reduce or mitigate GHG emissions. Additional measures may also be incorporated as applicant-committed measures by the project proponent or added to necessary air quality permits.

### *Noise*

Both projects would result in increases of ambient noise levels due to increased human presence, vehicles, heavy equipment, and generators. Heavy equipment, including the drill rig, would result in a dBA (A-weighted decibel) of approximately 120, which is considered the threshold of sensation or feeling. Exposure to 120 dBA for longer than one minute could result in permanent hearing loss. A heavy truck at 50 feet would produce a dBA of approximately 90, considered to be very annoying and exposure for eight hours or longer would result in hearing damage. Increases in noise levels would occur mostly at the construction phase where crews, vehicles, and heavy equipment are concentrated, but would extend into the production phase where heavy trucks workover rigs, and crews would still access the site at less regular intervals. A dBA of approximately 120 could also be expected nearby any heavy equipment used during production. Additionally, the well sites might be powered by diesel generators until HOGV submits a Sundry Notice of Intent proposing to construct underground or above ground power lines and BLM approves the project through an additional NEPA process. Any future construction, operations and maintenance utilizing vehicles, workover rigs, and human crews during the production phase would result in increases to noise levels in the short-term. Landscape features such as rolling hills and vegetation are likely to reduce the attenuation of sound surrounding either project area. To minimize impacts to humans and wildlife, noise reduction measures including engine exhaust mufflers, engine housing acoustic shielding and acoustic shielding would be installed.

### *Monetized Impacts from Greenhouse Gas Emissions*

The “social cost of carbon”, “social cost of nitrous oxide”, and “social cost of methane” – together, the “social cost of greenhouse gases” (SC-GHG) are estimates of the monetized damages associated with incremental increases in GHG emissions in a given year.

On January 20, 2021, President Biden issued EO 13990, *Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis*. Section 1 of EO 13990 establishes an Administration policy to, among other things, listen to the science; improve public health and protect our environment; ensure access to clean air and water; reduce GHG emissions; and bolster resilience to the impacts of climate change. Section 2 of the EO calls for Federal agencies to review existing regulations and policies issued between January 20, 2017, and January 20, 2021, for consistency with the policy articulated in the EO and to take appropriate action.

Consistent with EO 13990, the CEQ rescinded its 2019 “Draft National Environmental Policy Act Guidance on Considering Greenhouse Gas Emissions” and has begun to review for an update to its “Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews” issued on August 5, 2016 (2016 GHG Guidance). While the CEQ works on updated guidance, it has instructed agencies to consider and use all tools and resources available to them in assessing GHG emissions and climate change effects including the 2016 GHG Guidance.

Regarding the use of Social Cost of Carbon or other monetized costs and benefits of GHGs, the 2016 GHG Guidance noted that the NEPA does not require monetizing costs and benefits. It also noted that “the weighing of the merits and drawbacks of the various alternatives need not be displayed using a monetary cost-benefit analysis and should not be when there are important qualitative considerations.”

Section 5 of EO 13990 emphasized how important it is for federal agencies to “capture the full costs of greenhouse gas emissions as accurately as possible, including by taking global damages into account” and established an Interagency Working Group (IWG) on the Social Cost of Greenhouse Gases. In February of 2021, the IWG published *Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide: Interim Estimates under Executive Order 13990* (Technical Support Document) (IWG 2021). This is an interim report that updated previous guidance from 2016.

In accordance with this direction, this subsection provides estimates of the monetary value of changes in GHG emissions that could result from selecting each alternative. Such analysis should not be construed to mean a cost determination is necessary to address potential impacts of GHGs associated with specific alternatives. These numbers were monetized; however, they do not constitute a complete cost-benefit analysis, nor do the SC-GHG numbers present a direct comparison with other impacts analyzed in this document. SC-GHG is provided only as a useful measure of the benefits of GHG emissions reductions to inform agency decision-making.

For Federal agencies, the best currently available estimates of the SC-GHG are the interim estimates of the social cost of carbon dioxide (SC-CO<sub>2</sub>), methane (SC-CH<sub>4</sub>), and nitrous oxide (SC-N<sub>2</sub>O) developed by the IWG on the SC-GHG. Select estimates are published in the Technical Support Document (IWG 2021) and the complete set of annual estimates are available on the Office of Management and Budget’s (OMB) website (OMB 2021).

The IWG’s SC-GHG estimates are based on complex models describing how GHG emissions affect global temperatures, sea level rise, and other biophysical processes; how these changes affect society through, for example, agricultural, health, or other effects; and monetary estimates of the market and nonmarket values of these effects. One key parameter in the models is the discount rate, which is used to estimate the present

value of the stream of future damages associated with emissions in a particular year. A higher discount rate assumes that future benefits or costs are more heavily discounted than benefits or costs occurring in the present (i.e., future benefits or costs are a less significant factor in present-day decisions). The current set of interim estimates of SC-GHG have been developed using three different annual discount rates: 2.5 percent, three percent, and five percent (IWG 2021).

As expected with such a complex model, there are multiple sources of uncertainty inherent in the SC-GHG estimates. Some sources of uncertainty relate to physical effects of GHG emissions, human behavior, future population growth and economic changes, and potential adaptation (IWG 2021). To better understand and communicate the quantifiable uncertainty, the IWG method generates several thousand estimates of the social cost for a specific gas, emitted in a specific year, with a specific discount rate. These estimates create a frequency distribution based on different values for key uncertain climate model parameters. The shape and characteristics of that frequency distribution demonstrate the magnitude of uncertainty relative to the average or expected outcome.

To further address uncertainty, the IWG recommends reporting four SC-GHG estimates in any analysis. Three of the SC-GHG estimates reflect the average damages from the multiple simulations at each of the three discount rates. The fourth value represents higher-than-expected economic impacts from climate change. Specifically, it represents the 95<sup>th</sup> percentile of damages estimated, applying a three percent annual discount rate for future economic effects. This is a low probability, but high damage scenario, which represents an upper bound of damages within the three percent discount rate model. The estimates below follow the IWG recommendations.

The SC-GHGs associated with estimated emissions from either the Soda Spring Project or NGC Project are based on the emissions shown in Table 3.2-3, and are shown in Table 3.2-6. These estimates represent the present value of future market and nonmarket costs associated with CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O emissions. Estimates are calculated based on IWG estimates of social cost per metric ton of emissions for a given emissions year and BLM’s estimates of emissions in each year. They are rounded to the nearest \$1,000.

**Table 3.2-6: SC-GHGs Associated with Future Potential Development**

Social Cost of GHGs (2020\$)			
Average Value, 5% discount rate	Average Value, 3% discount rate	Average Value, 2.5% discount rate	95 <sup>th</sup> Percentile Value, 3% discount rate
\$28,000	\$90,000	\$132,000	\$263,000

3.2.2.2 No Action Alternative

Under the No Action Alternative, the BLM would not authorize the APDs, and new wells at either project site would not be drilled. No direct or indirect GHG emissions would occur. Although no new GHG emissions occur under the No Action Alternative, Federal production levels are expected to remain static or even increase in the short-term and non-Federal oil and gas supply would likely increase if the wells were not developed. The most recent short-term energy outlook published by the EIA (EIA 2022a) projects that the world’s oil and gas supply and consumption would increase through 2023. EIA studies and recent US activities regarding short-term domestic supply disruptions or sudden increases in demand demonstrate that reducing domestic supply (in the near-term under the current supply/demand scenario) may result in the import of more oil and natural gas from other countries, including countries with lower environmental and emission control standards than the US (EIA 2021). In addition, current supply



disruptions have led to multiple releases from Strategic Petroleum Reserve to meet consumer demand and curb price surges.

The EIA 2022 Annual Energy Outlook (2022 AEO) (EIA 2022b) projects energy consumption increases through 2050 as population and economic growth outweighs efficiency gains. As a result, US production of petroleum liquids would rise amid growing demand for exports and industrial uses. In the 2022 AEO, crude oil production is forecast to rise in 2022 and 2023 to record high levels with production then remaining relatively flat through 2050. However, renewable energy would be the fastest-growing US energy source through 2050. Energy-related CO<sub>2</sub> emissions are projected to decrease from 2022 to 2037 due to a transition away from more carbon-intensive coal to less carbon-intensive natural gas and renewable energy for electricity generation. After 2037, CO<sub>2</sub> emissions begin to trend upward as increasing energy consumption, resulting from population and economic growth, outpace continuing reductions in energy intensity and CO<sub>2</sub> intensity. A detailed discussion of past, present and projected global and state GHG emissions can be found in Chapter 6 of the GHG Annual Report (BLM 2021).

### 3.3 Lands and Realty

#### 3.3.1 Affected Environment

Both projects are located entirely on public lands managed by the BLM TFO. Figure 1.1.1 shows the Project location, access, and land ownership status. The current land uses in the vicinity of both projects primarily consist of oil and gas exploration, wildlife habitat, power transmission, dispersed recreation, and private ranches. Table 3.3-1 lists the authorized land uses near the projects.

**Table 3.3-1: Existing Land Use Authorizations**

Serial Number	Type of ROW	ROW Width/Acres	ROW Holder
N-088197	Access Road	16 feet	Grant Canyon Oil & Gas LLC
N-005638	Power distribution line	24.9 kilovolt	Mt. Wheeler Power
N-000134	Underground telephone line		Nevada Bell

ROW = Right-of-Way

#### 3.3.2 Environmental Consequences

##### 3.3.2.1 Proposed Action

HOGV would obtain a ROW grant for the Soda Spring Project for the use and maintenance of an approximately 5,936 feet portion of an existing 15-foot wide road, leading to Lease N-98009, located in Sections 23, 26, and 27, T8N, R57E, MDM (Figure 1.1.2). The proposed ROW disturbance area for maintenance totals approximately two acres. The ROW would be watered by a water truck as necessary for dust suppression. Since this road is an existing road that connects with and provides access to other roads in the vicinity, this road would not be reclaimed at the end of the Project (exploration or production), but left in similar or better than pre-Project conditions. Impacts from the use and maintenance of this existing road would be negligible, short-term, and localized.

HOGV would also obtain a ROW grant for the construction and maintenance of approximately 355 linear feet or an approximate 17-foot wide access road for the NGC Project, leading to Lease N-94131. The constructed road would have a 12-foot running width. Road base and gravel would be placed on top of native soil, compacted and bladed. The road would be crowned in the center to allow for drainage off the road. The road base and gravel in some areas would be approximately two feet above the valley floor, resulting in a road width of approximately 14 to 16 feet. If the BLM determines that culverts or low water crossings are necessary, HOGV would coordinate with the BLM to develop design and construction

specifications, which comply with the BLM Roads Design Handbook (BLM 2011) prior to construction. Routine road maintenance would include smoothing ruts, filling holes with fill material, grading, snow plowing, and maintaining drainage ditches. HOGV would utilize water to control fugitive dust to the extent practicable during maintenance.

If exploratory activities are not successful at the NGC Project, this ROW would be reclaimed by removing gravel, and recontouring the surface. Following recontouring, the ROW would be seeded with a BLM approved certified weed-free seed mix at the appropriate time of year and at an application rate for optimum seed sprouting and plant growth. The seeding would be completed using a broadcast method and then raked, or as otherwise directed by the BLM. Seeded areas would be monitored for stability and revegetation success according to BLM specifications. If oil production is achieved, the ROW would be maintained until such time as it is not needed. Impacts from the construction, use, maintenance, and reclamation of this ROW would be minor, short-term, and localized.

### 3.3.2.2 No Action Alternative

If the APDs for both projects were not approved, there would not be the need for ROWs to either lease boundary. The access road ROW to the Soda Spring Project would not be used or maintained. The access road ROW to the NGC Project would not be constructed or maintained. There would be no changes to lands and realty under the No Action Alternative as the proposed drill pads would not be constructed, and the access roads would not be used, maintained, or constructed.

## 3.4 Migratory Birds

### 3.4.1 Affected Environment

"Migratory bird" means any bird listed in 50 CFR 10.13. All native birds found commonly in the US, with the exception of native resident game birds that do not migrate, are protected under the Migratory Bird Treaty Act of 1918 (MBTA). The MBTA prohibits the taking of migratory birds, their parts, nests, eggs, and nestlings. EO 13186, signed January 10, 2001, directs federal agencies to protect migratory birds by integrating bird conservation principles, measures, and practices into projects.

Additional direction comes from a Memorandum of Understanding (MOU) between the BLM and US Fish and Wildlife Service (USFWS), signed January 17, 2010. The purpose of this MOU is to strengthen migratory bird conservation through enhanced collaboration between the BLM and USFWS, in coordination with state, tribal, and local governments. The MOU identifies management practices that impact populations of high priority migratory bird species, including nesting, migration, or over-wintering habitats, on public lands, and develops management objectives or recommendations that avoid or minimize these impacts.

The Nevada Department of Wildlife (NDOW), Nevada Division of Natural Heritage (NDNH), and the USFWS were contacted to request information regarding wildlife use and nesting raptors in the area. In a response letter provided on May 31, 2022, for both projects, the NDOW identified the following migratory birds as being known to reside in the vicinity (four-mile radius) of both projects: American kestrel (*Falco sparverius*); bald eagle (*Haliaeetus leucocephalus*); barn owl (*Tyto alba*); burrowing owl (*Athene cunicularia*); Cooper's hawk (*Accipiter cooperii*); ferruginous hawk (*Buteo regalis*); golden eagle (*Aquila chrysaetos*); great horned owl (*Bubo virginianus*); long-eared owl (*Asio otus*); merlin (*Falco columbarius*); northern goshawk (*Accipiter gentilis*); northern harrier (*Circus cyaneus*); northern saw-whet owl (*Aegolius acadicus*); osprey (*Pandion haliaetus*); peregrine falcon (*Falco peregrinus*); red-tailed hawk (*Buteo jamaicensis*); rough-legged hawk (*Buteo lagopus*); sharp-shinned hawk (*Accipiter striatus*); turkey vulture (*Cathartes aura*); and western screech-owl (*Megascops kennicottii*). The short-eared owl (*Asio flammeus*) and Swainson's hawk (*Buteo swainsoni*) are also known to reside in the vicinity of the NGC Project. Bald

eagle and peregrine falcon have been directly observed in the vicinity of the Soda Spring Project Area, and golden eagle has been directly observed in the vicinity of the NGC Project Area. The NDOW has identified the bald eagle, burrowing owl, ferruginous hawk, golden eagle, northern goshawk, peregrine falcon, and short-eared owl, as NDOW species of special concern and are target species for conservation. The NDOW identified 12 known raptor nest sites within ten miles of the Soda Spring Project Area and 17 known raptor nest sites within ten miles of the NGC Project Area. The NDNH stated there are no at risk taxa recorded within either project area and within five kilometers of either project area; however, the NDNH has records of the western snowy plover (*Charadrius nivosus nivosus*) within five miles of the Soda Spring Project Area and potential habitat in the vicinity of the NGC Project Area. The USFWS reported that no critical habitats occur in either project area or vicinity.

Wildlife field surveys, which included migratory birds, occurred in May 2022 for the NGC Project. There were no migratory birds observed during the surveys (EM Strategies, a WestLand Resources, Inc. Company [EMS] 2022a). Even though there were no avian species observed in the Project Area during the May 2022 field surveys, there is potential habitat for several avian species.

### Raptor Surveys

A spotting scope survey was conducted within one mile of the NGC Project Area during the May 2022 field surveys. There were no raptor nests detected within one mile of the NGC Project Area. There are isolated artificial structures and trees associated with private land parcels, but none of these were observed within one mile of the NGC Project Area. The Grant Range mountains have substantial rock outcrops and cliff faces that could offer potential nesting habitat for raptor species, but they are approximately 2.5 miles east of the NGC Project Area. Additionally, powerlines south of US 6, approximately ten miles northwest of the NGC Project Area, offer potential nesting habitat.

## **3.4.2 Environmental Consequences**

### **3.4.2.1 Proposed Action**

The NGC Project would create surface disturbance and associated removal of vegetation, which could potentially result in the destruction of active nests or disturb the breeding behavior of migratory bird species. Vegetation removal and ground disturbance would result in a temporary reduction of up to 5.2 acres of foraging and breeding habitat for migratory birds and foraging habitat for raptors within the NGC Project Area. As outlined in the EPM in Appendix A, HOGV has committed to providing a qualified biologist to conduct nest surveys prior to any surface disturbing activities associated with exploration activities during the avian breeding season. This measure would ensure that no direct impacts to migratory bird nests would occur associated with Project activities. Indirect impacts associated with habitat removal could lead to temporary spatial redistribution of individuals or habitat-use patterns during the life of the Project; however, it is unlikely that implementing the Project would result in a decline in local or regional migratory bird populations because birds would be able to redistribute and undisturbed and suitable habitat exists outside of the NGC Project Area. All surface disturbance associated with Project-related activities would be reclaimed, and the post-exploration land use is expected to return disturbed land to a level of productivity comparable to pre-exploration levels. Impacts to the loss of potential foraging and breeding habitat in the NGC Project Area would be minor, short-term, and localized. Impacts to individual migratory birds in the NGC Project Area would be minor, short-term, and localized.

### 3.4.2.2 No Action Alternative

Under the No Action Alternative, the APDs submitted by HOGV for both projects would not be approved. There would be no surface disturbance associated with the projects; therefore, no effects to migratory birds or their habitat would occur.

## 3.5 Native American Religious and Cultural Concerns

### 3.5.1 Affected Environment

Located within the traditional territory of the Western Shoshone, the TFO administrative boundary contains spiritual, traditional, and cultural resources, and sites to engage in social practices that aid in maintaining and strengthening the social, cultural, and spiritual integrity of the Tribes. Recognized Tribes with known interests near the Project Area include the Timbisha Shoshone Tribe, the Yomba Shoshone Tribe, the Duckwater Shoshone Tribe, and the Ely Shoshone Tribe. The BLM TFO initiated government-to-government consultation with the four Tribes for both projects on September 30, 2022.

Social activities of Native Americans continue to define places of cultural importance across lands currently administered by the BLM. Some Western Shoshone maintain cultural, spiritual, and traditional activities, visit their sacred sites, hunt game, and gather available medicinal and edible plants. Through oral history (the practice of handing down knowledge from the elders to the younger generations), some Western Shoshone continue to maintain a world view similar to that of their ancestors.

Cultural, traditional, and spiritual sites and activities of importance to Tribes include, but are not limited to the following:

- Existing animal traps;
- Certain mountain tops used for vision questing and prayer;
- Medicinal and edible plant gathering locations;
- Prehistoric and historic village sites and gravesites;
- Sites associated with creation stories;
- Hot and cold springs;
- Collection of materials used for basketry and cradle board making;
- Locations of stone tools such as points and grinding stones (mano and matate);
- Chert and obsidian quarries;
- Hunting sites;
- Sweat lodge locations;
- Locations of pine nut ceremonies, traditional gathering, and camping;
- Rock collecting for use in offerings and medicine gathering;
- Tribally identified Traditional Cultural Properties (TCPs);
- TCPs found eligible to the NRHP;
- Rock shelters;
- Lands or resources that are near, within, or bordering current reservation boundaries; and
- Actions that conflict with tribal land acquisition efforts.

In accordance with the National Historic Preservation Act of 1966, as amended (NHPA), the NEPA, the FLPMA (Public Law [P.L.] 94-579), the American Indian Religious Freedom Act of 1978 (P.L. 95-341), the Native American Graves Protection and Repatriation Act of 1990 (NAGPRA) (P.L. 101-601), and EO 13007, the BLM must provide affected Tribes an opportunity to comment and consult on the proposed Project. The NHPA allows that “properties of traditional, religious, and cultural importance to an Indian tribe or Native Hawaiian organization may be determined eligible for inclusion on the NRHP.” Section 106

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of the NHPA requires federal agencies to take into account the effects to historic properties (including those with religious, traditional, or cultural significance) posed by federal undertakings. In addition, under the NAGPRA, culturally affiliated Indian tribes and the BLM jointly may develop procedures to be undertaken when Native American human remains are discovered on federal lands. The BLM must attempt to limit, reduce, or possibly eliminate any negative impacts to Native American traditional/cultural/spiritual sites, activities, and resources. Standard regulations for implementing Section 106 of the NHPA are outlined in 36 CFR 800.

### **3.5.2 Environmental Consequences**

#### **3.5.2.1 Proposed Action**

Various Tribes and Bands of the Western Shoshone have stated federal projects and land actions might have widespread effects to their culture and religion as they consider the landscape as sacred and as a provider. Various locations throughout the TFO administrative area host certain traditional, spiritual, and cultural use activities today, as in the past. TCPs, designated by the Tribes, are not known to exist in or within the vicinity of the Project Area. The TFO continues to solicit input from local tribal entities. The TFO is continuing to coordinate with the Tribes to identify any other sites or artifacts, or cultural, traditional, and spiritual use resources and activities that might experience an impact.

If any TCPs, tribal resources, sacred sites, etc. are identified within or in close proximity to the Project Area, a protective “buffer zone” may be acceptable, if doing so satisfies the needs of the BLM, the proponent, and affected Tribe. The size of any “buffer zone” would be determined through coordination and communication between all participating entities.

The BLM Native American Coordinator or Cultural Resource Specialist, accompanied by designated tribal representatives, may periodically visit identified cultural resources sites within or near the Project Area. Native American Consultation and monitoring by the BLM and Tribal Representatives may occur throughout the life of a project to ensure that any identified TCPs are not deteriorating.

If a subsequent amendment to these projects are submitted to the BLM as a result of an approval of these specific proposals, the BLM would again initiate consultation with the local Tribes and utilize any data collected during these proposals.

During the Project's activities, if any cultural properties, items, or artifacts (i.e., stone tools, projectile points, etc.) are encountered, it must be stressed to those involved in the proposed Project activities that such items are not to be collected. The EPMs in Appendix A state all activities would be halted immediately in the event of a discovery of a cultural resource. Cultural and archaeological resources are protected under the ARPA and the FLPMA.

Though the possibility of disturbing Native American gravesites within most project areas is extremely low, inadvertent discovery procedures must be noted. Under the NAGPRA, Section (3)(d)(1), the discovering on-site manager must notify the AO in writing within 48 hours of such a discovery. If the discovery occurs in connection with an authorized use, the activity, which caused the discovery, is to cease and the materials are to be protected until the land manager can respond to the situation.

At this time, no impacts related to Native American Religious and Cultural Concerns have been identified by the Tribes and are not anticipated from the Project. However, Tribal consultation would continue throughout the life of the Project.

### 3.5.2.2 No Action Alternative

Under the No Action Alternative, the APDs submitted by HOGV for both projects would not be approved. There would be no surface disturbance associated with the projects; therefore, Tribal concerns would not be anticipated.

## 3.6 Noxious Weeds, Invasive and Non-native Species

### 3.6.1 Affected Environment

#### 3.6.1.1 NGC Project

Noxious weeds, invasive and non-native species are species that are highly competitive, aggressive, and spread easily. They typically establish and infest disturbed sites along roadsides and waterways. Changes in plant community composition from native species to non-native species can change fire regimes, negatively affect habitat quality, biodiversity, and ecosystem structure and function.

The Federal Noxious Weed Act of 1974 (7 United States Code 2801-2813) as amended by Sec. 15, Management of Undesirable Plants on Federal Lands 1990, requires that each federal agency: 1) Designate a lead office and person trained in the management of undesirable plants; 2) Establish and fund an undesirable plant management program; 3) Complete and implement cooperative agreements with State agencies; and 4) Establish integrated management systems to control undesirable plant species.

The BLM defines noxious weeds as plant species that “are designated by federal or state law as generally possessing one of more of the following characteristics: aggressive and difficult to manage; parasitic; a carrier or host of serious insect or disease; or non-native, new, or not common to the US” (BLM 2007). The BLM Battle Mountain District recognizes the current noxious weed list designated by the State of Nevada Department of Agriculture (NDA) statute, found in NAC 555.010. When considering whether to add a species to the list, the NDA makes a recommendation after consulting with outside experts and a panel comprising Nevada Weed Action Committee members. Per NAC 555.005, if a species is found probable to be “detrimental or destructive and difficult to control or eradicate,” the NDA, with approval from the Board of Agriculture, designates the species as a noxious weed. The species is then added to the noxious weed list in NAC 555.010. Upon listing, the NDA would also assign a rating of “A,” “B,” or “C” to the species. The rating reflects the NDA view of the statewide importance of the noxious weed, the likelihood that eradication or control efforts would be successful, and the present distribution of noxious weeds within the state.

In addition to noxious weeds, some weed species are considered “invasive species.” An “invasive species” is defined as a species that is non-native to the ecosystem under consideration and whose introduction causes or is likely to cause economic or environmental harm or harm to human health (EO 13112, signed February 3, 1999).

The BLM’s policy relating to the management and coordination of noxious weed and invasive plant species is set forth in the BLM Manual 9015 – Integrated Weed Management (BLM 1992). The BLM’s primary focus is “providing adequate capability to detect and treat smaller weed infestations in high-risk areas before they have a chance to spread.”

According to the 2022 field surveys and the baseline report prepared for the NGC Project (EMS 2022a), no noxious weed species were identified within the NGC Project Area. One nuisance weed species (Hefner and Kratsch 2018) was observed within the NGC Project Area: halogeton (*Halogeton glomeratus*).

### **3.6.2 Environmental Consequences**

#### **3.6.2.1 Proposed Action**

New surface disturbance of approximately 5.2 acres within the NGC Project Area could increase the potential for the spread and establishment of noxious weeds, invasive and non-native species. These impacts would be minimized based on implementation of the EPMs outlined in Appendix A, which include the use of certified weed-free seed for reclamation and monitoring and treatment programs to detect and halt the spread of any noxious or invasive weed species. In addition, should a new population of noxious or invasive weeds be detected at either project, HOGV would coordinate with the BLM on methods for weed management. Impacts from noxious weeds, invasive and non-native species would be minor, long-term, and localized.

#### **3.6.2.2 No Action Alternative**

Under the No Action Alternative, the APDs submitted by HOGV for both projects would not be approved. There would be no surface disturbance associated with the projects; therefore, there would be no potential for the introduction of noxious or invasive weed species into the project areas.

### **3.7 Recreation**

#### **3.7.1 Affected Environment**

Recreational uses of the public land in the vicinity of the Project Area consist primarily of dispersed recreation activities including the following: off-highway vehicle (OHV) use; camping; hiking; biking; sightseeing; hunting; wildlife viewing; and wind sailing. The projects are located within NDOW Hunt Unit 134. Hunting of pronghorn antelope (*Antilocapra americana*), desert bighorn sheep (*Ovis canadensis nelsoni*), mule deer (*Odocoileus hemionus*), and mountain lion (*Felis concolor*) occurs in this hunt unit (NDOW 2022), as well as hunting of small mammals and upland and migratory game birds.

#### **3.7.2 Environmental Consequences**

##### **3.7.2.1 Proposed Action**

The Soda Spring Project would result in up to 3.8 acres of temporary surface disturbance and the NGC Project would result in up to 5.2 acres of temporary surface disturbance, which would reduce opportunities for dispersed recreation within the Project Area. There is other similar land available to dispersed recreational visitors in the vicinity of the Project Area. All Project Area roads would remain open during Project activities, except during construction of the NGC Project access road, and there would be no fencing to preclude use. Any potential impacts to recreation would be negligible, short-term, and localized.

##### **3.7.2.2 No Action Alternative**

Under the No Action Alternative, the APDs submitted by HOGV for both projects would not be approved. There would be no surface disturbance associated with the projects; therefore, there would be no impacts to dispersed recreation in either project area.

### **3.8**      **Soils**

#### **3.8.1**      **Affected Environment**

##### **3.8.1.1**      **NGC Project**

Information regarding soils within the NGC Project Area was obtained from the US Department of Agriculture Natural Resources Conservation Service (NRCS). One soil association occurs within the NGC Project Area: Nuyobe-Blueagle-Playas complex, zero to 30 percent slopes.

The Nuyobe-Blueagle-Playas complex, zero to 30 percent slopes, is primarily comprised of 45 percent Nuyobe silt loam, zero to two percent slopes, 30 percent Blueagle silt loam, four to 30 percent slopes, and 15 percent playas silty clay loam, zero to one percent slopes. The Nuyobe series consists of very deep, poorly drained soils that formed in lacustrine sediments derived from mixed rock sources and volcanic ash. The Blueagle series consists of very deep, well-drained soils that formed in eolian material from mixed sources (NRCS 2002).

#### **3.8.2**      **Environmental Consequences**

##### **3.8.2.1**      **Proposed Action**

Approximately 5.2 acres of soils would be disturbed associated with the NGC Project. Project activities have the potential to result in increased water and wind erosion potential and compaction of soils in and around the NGC Project Area (on-lease and off-lease). Soils would be cut and used as temporary construction fill as part of road and drill pad construction. The use of gravel on the constructed well pad and access road would limit the amount of erosion during Project activities. Potential impacts to soils would additionally be reduced by the applicant-committed EPMS outlined in Appendix A requiring the use of BMPs to limit soil erosion and to reduce sediment runoff from disturbed areas during construction and operations. If production is not achieved, or when the NGC Project Area is no longer needed for the Project, the gravel would be removed and the surface reclaimed according to the Gold Book (DOI and USDA 2007). Soil disturbance and loss due to Project activities would be minor, short-term, and localized.

##### **3.8.2.2**      **No Action Alternative**

Under the No Action Alternative, the APDs submitted by HOGV for both projects would not be approved. There would be no surface disturbance associated with the projects; therefore, there would be no impacts to soils in either project area.

### **3.9**      **Special Status Species**

#### **3.9.1**      **Affected Environment**

The BLM's policy for management of special status species is in BLM Manual Section 6840 (BLM 2008b). Special status species include the following:

- Federally Threatened or Endangered Species: Any species the USFWS has listed as an endangered or threatened species under the Endangered Species Act of 1973, as amended (ESA) throughout all or a significant portion of its range;
- Proposed Threatened or Endangered Species: Any species the USFWS has proposed for listing as a federally endangered or threatened species under the ESA;



- Candidate Species: Plant and animal taxa under consideration for possible listing as threatened or endangered under the ESA;
- Delisted Species: Any species in the five years following their delisting;
- BLM Sensitive Species: Native species found on BLM-administered lands for which the BLM has the capability to significantly affect the conservation status of the species through management, and either: 1) there is information that a species has undergone, is undergoing, or is predicted to undergo a downward trend such that the viability of the species or a distinct population segment of the species is at risk across all or a significant portion of the species range; or 2) the species depends on ecological refugia or specialized or unique habitats on BLM administered lands, and there is evidence that such areas are threatened with alteration such that the continued viability of the species in that area would be at risk (BLM 2008b); and
- State of Nevada Listed Species: State-protected animals that have been determined to meet BLM's Manual 6840 policy definition.

The USFWS, the NDNH, and NDOW were contacted to obtain lists of threatened and endangered and special status species that have the potential to occur within the vicinity of both projects. In addition, the 2017 BLM Sensitive Species List for the Battle Mountain District, which includes threatened and endangered species, was evaluated to determine if any species had the potential to occur within the NGC Project Area (EMS 2022a).

In the responses to the 2022 agency data requests, the USFWS reported that one Endangered species, the southwestern willow flycatcher (*Empidonax traillii extimus*), two Threatened species, the yellow-billed cuckoo (*Coccyzus americanus*) and Railroad Valley springfish (*Crenichthys nevadae*), and one Candidate species, the Monarch butterfly (*Danaus plexippus*) may be affected by anthropogenic alterations within either Project Area. No critical habitats were reported by USFWS in either Project Area. The NDNH has records of three BLM special status species within five miles of the Soda Spring Project Area: Railroad Valley skipper (*Hesperia unca fulvapalla*); thistleleaf pepperweed (*Lepidium integrifolium*); and western snowy plover. There were no known occurrences of special status species in the vicinity of the NGC Project Area, but habitat may be present for the following five species: Eastwood milkweed (*Asclepias eastwoodiana*), a BLM sensitive plant species; clokey pincushion (*Coryphantha vivipara* var. *rosea*), a state-protected cacti under NAC 503; western snowy plover, a BLM sensitive species; Railroad Valley tui chub (*Siphateles bicolor* ssp. 7), a BLM sensitive species; and Townsend's big-eared bat (*Corynorhinus townsendii*), a BLM sensitive species.

In the response to the 2022 NDOW data requests, NDOW reported that there are no known greater sage-grouse (*Centrocercus urophasianus*) lek sites within the vicinity of either Project Area. NDOW also identified there is occupied bighorn sheep (*Ovis canadensis*) distribution within four miles of the NGC Project Area, but not within four miles of the Soda Spring Project Area. The NDOW identified 12 known raptor nest sites within ten miles of the Soda Spring Project Area and 17 known raptor nest sites within ten miles of the NGC Project Area. NDOW reported that the following special status wildlife species have also been directly observed in the vicinity of both project areas: desert horned lizard (*Phrynosoma platyrhinos*); Great Basin collared lizard (*Crotaphytus bicinctores*); and long-nosed leopard lizard (*Gambelia wislizenii*). The Railroad Valley tui chub and white-faced ibis (*Plegadis chihi*) have been directly observed in the vicinity of the Soda Spring Project.

### 3.9.1.1 BLM Sensitive Species

#### *BLM Sensitive Plant Species*

The following three BLM sensitive plant species were identified as having potential habitat within the NGC Project Area: Nevada dune beardtongue (*Penstemon arenarius*); Tecopa bird's beak (*Cordylanthus tecopensis*); and Tonopah milkvetch (*Astragalus pseudiodanthus*). No BLM sensitive plant species were observed in the NGC Project Area during the May 2022 field surveys (EMS 2022a).

#### *BLM Sensitive Wildlife Species*

The following five avian, four mammalian, and five reptilian BLM sensitive wildlife species were identified as having potential habitat in the NGC Project Area: Brewer's sparrow (*Spizella breweri*); burrowing owl; ferruginous hawk; loggerhead shrike; western snowy plover; California myotis (*Myotis californicus*); canyon bat (*Parastrellus hesperus*); pale kangaroo mouse (*Microdipdops pallidus*); pallid bat (*Antrozous pallidus*); common chuckwalla (*Sauromalus ater*); desert horned lizard; Great Basin collared lizard; long-nosed leopard lizard; and western red-tailed skink (*Plestiodon gilberti rubricaudatus*). No BLM sensitive wildlife species were observed during the May 2022 wildlife field surveys (EMS 2022a).

#### Golden Eagles

A spotting scope survey was conducted within one mile of the NGC Project Area during the May 2022 field surveys. There were no golden eagle (*Aquila chrysaetos*) or other special status raptor nests detected within one mile of the NGC Project Area. Potential nesting habitat for golden eagles is not present, as the area is an alkali flat with sparse vegetation and no trees or rock outcrops. There are isolated artificial structures and trees associated with private land parcels, but none of these were observed within one mile of the NGC Project Area. The Grant Range mountains have substantial rock outcrops and cliff faces that could offer potential nesting habitat for golden eagles and other special status raptor species, but they are approximately 2.5 miles east of the NGC Project Area. Additionally, powerlines south of US 6, approximately ten miles northwest of the NGC Project Area, offer potential nesting habitat.

#### Aquatic Spring Survey and Habitat Assessment

A spring survey and habitat assessment was conducted at springs mapped by the National Hydrography Dataset (NHD) within one mile of each Project's well pad in the afternoon of May 24, 2022, at both projects, as well as the night of May 25, 2022, at the Soda Spring Project. One spring, Soda Spring, was identified within one mile of the Soda Spring Project, and two springs, NGC SP-01 and NGC SP-02, were identified within one mile of the NGC Project (EMS 2022a, 2022b).

A habitat assessment was performed for the following target species within one mile of the Soda Spring Project well pad: *Anaxyrus* toads; Railroad Valley springfish (RRVS) (*Crenichthys nevadae*); and springsnails (*Pyrgulopsis* sp.) (EMS 2022b). The RRVS is adapted to warmer water temperatures and lower dissolved oxygen contents, but requires connectivity between springhead and outflows so that they can move seasonally to areas of preferred temperatures (86 to 100 degrees Fahrenheit) (USFWS 2009).

A spring survey and habitat assessment was performed for the following species within one mile of the NGC Project well pad: Railroad Valley tui chub (*Siphateles bicolor* ssp. 7); Railroad Valley toad (*Anaxyrus nevadensis*); and various springsnail species (e.g., *Pyrgulopsis*) (EMS 2022a).

All toad surveys followed the protocol outlined in Appendix 7 of the *Instruction Manual and Frog Survey Protocols for Region 1 National Wildlife Refuges, East-side Zone* (Rombough 2012). The protocol consists of visual encounter surveys around potential habitat, searching among and under cover and looking for

eggs, tadpoles, and adults. Springsnail surveys followed Protocol 1, *Springsnail Detection: Observed or Not Observed*, from the Nevada Springsnail Survey Protocol developed by Helmig et al. (2018). This protocol calls for a ten-minute timed search for springsnails (*Pyrgulopsis* sp.) by two observers.

### Soda Spring Project

Soda Spring is a small, non-thermal spring with no outflow and is heavily impacted by cattle grazing, with severe hummocking. As a result, the majority of the water was in disconnected small pockets and stagnant, without discernable flow. There was one pool that is approximately three feet by five feet that averages less than one inch deep. The water in this pool was murky, and the substrate was silty with no gravel or rock.

Macroinvertebrate diversity was moderate, with dragonfly larvae (Odonata), small aquatic beetles (Dysticidae), numerous spiders (Arachnida), and various flies (Diptera) recorded. Beetles were only seen during the nighttime survey when water appeared less cloudy. The pool and small hummock pockets were intensively searched for any amphibian eggs, larvae, or adults, but none were seen during day or night surveys of the spring. No snails of any kind were detected during the protocol-level timed search that was conducted. The spring is not appropriate habitat for fish and no fish were seen.

Soda Spring is located in a flat area with very sparse cover. Generally, toads of the genus *Anaxyrus* prefer areas with cover near water. Cover can be in the form of shrubs or other vegetation and rocks or artificial cover like sheet metal, plywood, or cardboard. Anything with potential to hide a toad was flipped over or investigated, mostly consisting of cow patties and domestic cow bones. Snake sticks were used to methodically disturb the grass patches on the hummocks and check for any toads that might be hiding within. No *Anaxyrus* toads or other amphibians at any life stage were detected.

### NGC Project

A spring survey and habitat assessment was conducted in the afternoon of May 24, 2022, to evaluate presence and potential habitat for aquatic species. These species included the local endemics Railroad Valley tui chub (*Siphateles bicolor* ssp. 7) and the Railroad Valley toad (*Anaxyrus nevadensis*), along with various springsnail species.

Two springs were evaluated during the survey: SP01 and SP02 (Figure 3.10.1). Water at spring SP01 was limited to one small pocket in the center of hummocked grassy vegetation, and spring SP02 was dry. Evidence of cattle grazing was present in the form of tracks and scat, and the spring appears to be heavily impacted. No macroinvertebrates were seen, and no springsnails were detected during a ten-minute intensive search of the small water pocket. The spring is not suitable habitat for fish. No toads were detected, and no cover (e.g., rocks, dense vegetation, burrows) was nearby that would offer hiding places for toads.

### Greater Sage-grouse

In September 2015, the BLM approved the Nevada and Northeastern California Greater Sage Grouse Approved Resource Management Plan Amendment and Record of Decision (2015 ARMPA) (BLM 2015). On May 16, 2022, the BLM Nevada State Office completed Plan Maintenance Action #5 for the 2015 ARMPA through Categorical Exclusion (CX) (DOI-BLM-NV-0000-2022-0006-CX) to update the GRSG habitat management area maps and habitat objectives for GRSG (Table 2-2 in the 2015 ARMPA). According to these maps, all the Soda Spring Project Area is mapped as Other Habitat Management Area (OHMA) and throughout a majority of a four-mile radius, and a portion of the NGC Project Area is mapped as OHMA, with a portion of mapped OHMA in the four-mile radius.

As required by Nevada state law, HOGV provided information to the Sagebrush Ecosystem Technical Team (SETT) for the two projects. The SETT provided responses which state the following:

The SETT has completed a preliminary analysis (using the Conservation Credit System's Habitat Quantification Tool) of the North Grant Canyon Oil Well [and Soda Spring Oil Well] exploration project[s] as currently planned and based on the project data provided by the project proponent. The proposed project[s] are currently outside of Greater Sage Grouse habitat and have resulted in zero debits. The proponent is compliant with State Mitigation Regulation NAC 232.400–232.480, and the SETT will not request further consultation due to the finding of no residual impacts to greater sage-grouse habitats at this time.

### **3.9.2 Environmental Consequences**

#### **3.9.2.1 Proposed Action**

Direct impacts to special status wildlife species with suitable habitat in the Project Area would consist of disturbance from human activity and noise, and indirect impacts would consist of temporary habitat loss. Mortality to special status wildlife species such as small mammals and reptiles may occur from surface disturbing activities. Collisions with special status wildlife species would be minimized in the NGC Project Area by maintaining speed limits of 25 miles per hour (mph) or less during Project activities. The proposed well would include blow-out preventers that are designed to prevent the release of hydrocarbon-contaminated fluids to the environment, and all fluids would be directed to aboveground solids control tanks. Direct impacts to special status wildlife species are expected to be negligible, long-term, and localized.

Up to 5.2 acres of special status wildlife species habitat would be disturbed during the life of the NGC Project, which includes the off-lease access road, due to land clearing and other surface disturbing activities. If the exploration is not successful, the NGC Project Area would be reclaimed and revegetated, returning the 5.2 acres of lost habitat back to special status wildlife species use. No noxious weed species were identified in the NGC Project Area; however, the following invasive and non-native plant species was observed: halogeton. This invasive, non-native species reduces the quality of habitat for special status wildlife species. NGC Project-related activities increase the potential for the spread of these species and additional noxious weed species, further reducing the quality of special status wildlife species habitat in the NGC Project Area. HOGV would implement EPMs for noxious weeds, outlined in Appendix A, which would minimize the impact of noxious weeds and invasive species to special status wildlife species habitat.

After Project activities have terminated, the NGC Project Area would be reclaimed according to the Gold Book (DOI and USDA 2007), and reseeded with a BLM-authorized weed free seed mix, which would minimize indirect impacts from the loss of habitat. Therefore, indirect impacts to special status wildlife species are minor, long-term, and localized.

If the NGC Project goes into production, additional facilities would be needed such as pumping equipment, a separation system, pipelines (within the lease area), storage facilities, water treatment and injection facilities, and compressor stations. There would be continual vehicular traffic and noise because oil would need to be trucked off site. There could be an increase of vehicular mortality. Increased vehicular traffic from production would also increase movement and displacement of special status wildlife species, resulting in avoidance of adjacent suitable habitat and an expenditure of energy potentially reducing reproduction and survivorship.

### 3.9.2.2 No Action Alternative

Under the No Action Alternative, the APDs submitted by HOGV for both projects would not be approved. There would be no surface disturbance associated with the projects; therefore, no effects to special status wildlife species or their habitat would occur.

## 3.10 Surface and Groundwater Resources

### 3.10.1 **Affected Environment**

#### 3.10.1.1 Surface Water Features

The projects are located in Railroad Valley between the Grant Range to the east, and the Pancake Range to the west, and both occur at approximately 4,730 feet above mean sea level. Surface waters in the vicinity of the project areas are ephemeral where the local topographic relief creates a network of drainages that primarily flow east to west towards the playa.

No US Geological Survey (USGS) or NDWR surface water monitoring stations are currently located within the project areas or Five-mile study areas.

Figure 3.10.1 shows the mapped springs within the Five-mile study areas. The NDWR mapped a total of 15 springs in both Five-mile study areas. The USGS NHD mapped a total of 68 springs/seeps in both Five-mile study areas.

#### *Flooding Hazards*

The Federal Emergency Management Agency (FEMA) maps for Nye County, Nevada (FEMA 2022), show that both Five-mile study areas include portions characterized as the following: Zone A, or an area with a one percent annual chance flood hazard, but with no base flood elevations determined; Zone D, or areas in which flood hazards are undetermined, but possible; and Zone X, or areas determined to be outside the 0.2 percent annual chance floodplain (or with a one-in-500-year frequency [chance] of flooding). Project activities are only proposed to be conducted in areas characterized as Zone X.

#### 3.10.1.2 Groundwater Features

Twenty-four inactive monitor wells have been identified in the USGS National Water Information System (NWIS) within the overlapping Five-mile study areas (USGS NWIS 2022); 15 are within the Soda Spring Five-mile Study Area, and 18 are within the NGC Five-mile Study Area. The USGS well locations are shown on Figure 3.10.1.

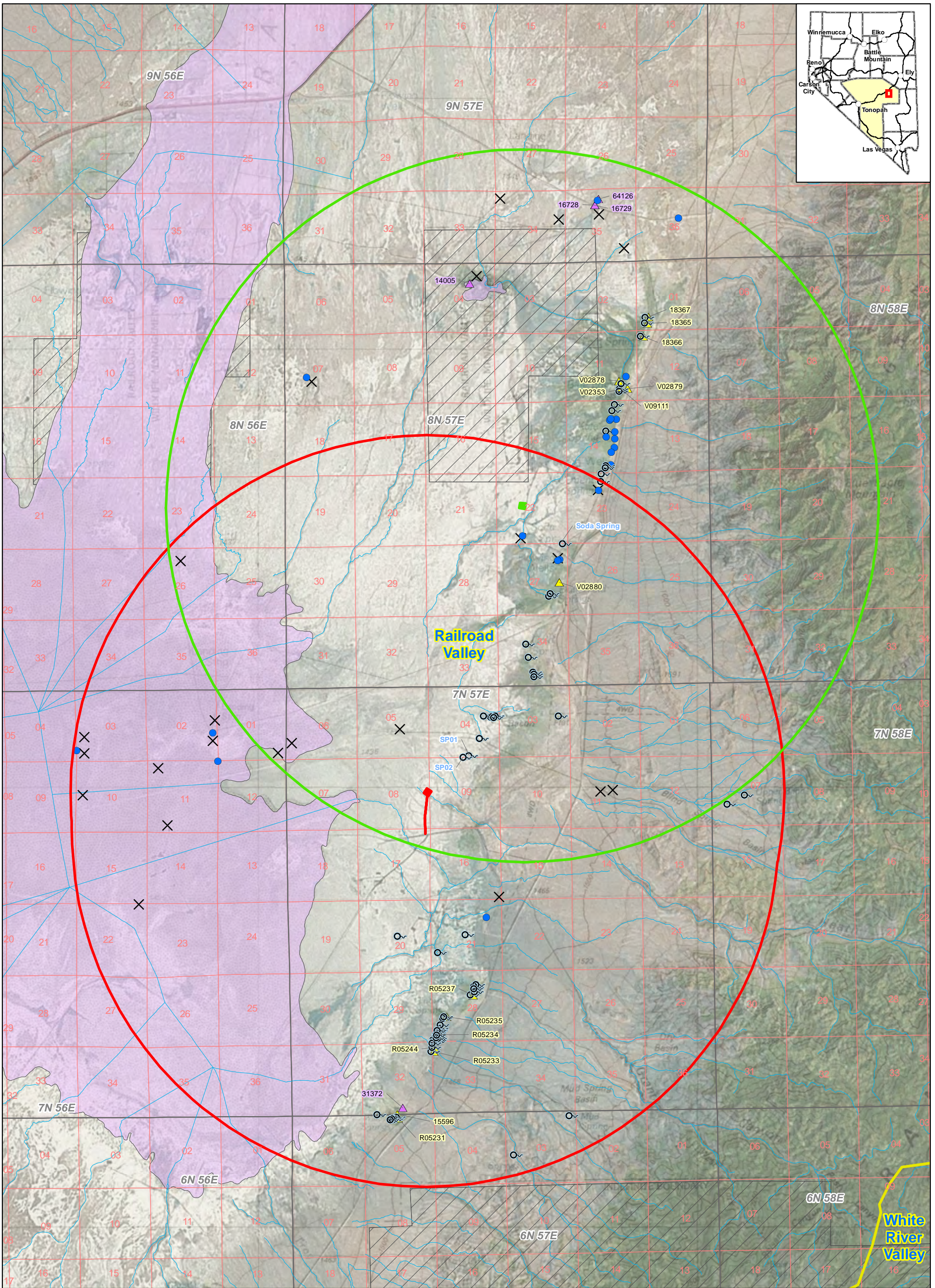
A total of five wells have been identified by the NDWR database within the Five-mile study areas (NDWR 2022a); four are within the Soda Spring Five-mile Study Area and one is within the NGC Five-Mile Study Area. The NDWR dataset includes wells constructed for recreation, industrial, irrigation, stock watering, and other purposes. The NDWR well locations are shown in Table 3.10-1 and on Figure 3.10.1 and are designated by the NDWR Application number.

No USGS or NDWR wells are located within either project area.

#### *Depth to Water from Previous Exploratory Drilling Activity*

Previous temporary wells drilled within the playa observed water between one and 50 feet below the playa surface.





- Explanation**
- ▭ Soda Spring 1-22 Project Area
  - ▭ North Grant Canyon Project Area
  - ▭ Soda Spring 1-22 Five-mile Study Area
  - ▭ North Grant Canyon Five-mile Study Area
  - ▭ Hydrographic Basin
  - NHD Features**
  - Spring/Seep (68)
  - Well (21)
  - NHD Stream/Path

- USGS Goundwater Wells**
- X Inactive (24)
- NDWR Water Rights**
- ▲ Spring (15)
- ▲ Well (5)
- FEMA Flood Hazard Areas**
- ▭ Zone A, 1% Annual Chance Flood Hazard, No Base Flood Elevations determined.
- ▭ Zone D, Areas in which flood hazards are undetermined, but possible.
- ▭ Zone X, Areas determined to be outside the 0.2% annual chance floodplain.

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0 1 2 Miles

**BUREAU OF LAND MANAGEMENT**

SODA SPRING 1-22 AND NORTH GRANT CANYON 1-8 OIL WELL PROJECTS

**Surface and Groundwater Features and FEMA Flood Hazard Areas**

Figure 3.10.1

09/29/2022



### 3.10.1.3 Water Rights

The NDWR database identifies 61 water rights combined in the Five-mile study areas. Table 3.10-1 and Figure 3.10.1 show the active water rights. The source, Point of Diversion, and duty balance are included in Table 3.10-1. There are no sources with water rights located within the project areas.

**Table 3.10-1: Water Rights within Five Miles of the Project Areas**

Application Number	Type	Source	Qtr-Qtr	Qtr	Sec	Twn	Rng	Duty Balance (afa)	Source Name or Type (when known)
<b>Soda Spring Five-mile Study Area</b>									
14005	REC	UG	SW	NE	04	08N	57E	256.283839	New Well #6
16728	IND	UG	NE	NW	35	09N	57E	4.7046237	Well #1
16729	IND	UG	NE	NW	35	09N	57E	18.8246326	Well #2
64126	STK	UG	NE	NW	35	09N	57E	4.489	Underground
18365	IRR	SPR	SW	SW	01	08N	57E	40	Little Blind Spring
18366	IRR	SPR	NW	NW	12	08N	57E	240	Tom Spring
18367	IRR	SPR	SW	SW	01	08N	57E	20	Duffield Spring
V02878	IRR	SPR	SE	SE	11	08N	57E	0	Blue Eagle Springs
V02879	IRR	SPR	SE	SE	11	08N	57E	0	Jack Spring
V02353	IRR	SPR	SE	SE	11	08N	57E	0	Blue Eagle, Jack, Stone House Springs
V09111	IRR	SPR	SE	SE	11	08N	57E	1,184	Blue Eagle, Jack, Tom Springs
V02880*	IRR	SPR	NE	SE	27	08N	57E	0	Butterfield Springs
<b>NGC Five-mile Study Area</b>									
31372	IRR	UG	SW	SE	32	07N	57E	57.91	Underground
R05237	OTH	SPR	SW	NW	28	07N	57E	0	Bullwhacker Spring
R05235	OTH	SPR	NW	SW	28	07N	57E	4.480594	Thorn Spring
R05234	OTH	SPR	SW	SW	28	07N	57E	4.480594	Unnamed Spring 1
R05233	OTH	SPR	NW	NW	33	07N	57E	4.480594	Unnamed Spr. 173B-3
R05244	OTH	SPR	NW	NW	33	07N	57E	0	Unnamed Spr. 173B-2
R05231	OTH	SPR	NE	NW	05	06N	57E	4.480594	Willow Spring
15596	IRR	SPR	SE	SW	32	07N	57E	177.2	Willow Springs
V02880*	IRR	SPR	NE	SE	27	08N	57E	0	Butterfield Springs

IND = industrial; IRR = irrigation; OTH = other; REC = recreation; STK = stock water; SPR = spring; UG = underground; Qtr = quarter; Sec = section; Twn = township; Rng = range; afa = acre-feet annually; NE = northeast; SE = southeast; NW = northwest; SW = southwest

Water consumption from homeowner domestic wells is not generally subject to a water right and is not included in this inventory.

### 3.10.1.4 Hydrographic Basin Summary

Both Five-mile study areas are within the Railroad Valley – Northern Part hydrographic basin (Basin No. 173B). The Railroad Valley – Northern Part hydrographic basin has a perennial yield of 75,000 acre-feet annually (afa). The Nevada State Engineers’ records show that the existing underground appropriations in this basin totals 31,692.02 afa. Approximately 90 percent is designated for irrigation purposes, while other appropriations are for commercial, industrial, mining, milling and dewatering, recreation, and stockwater.

### 3.10.1.5 Precipitation

Precipitation data are collected at the Timber Mtn Nevada station, located approximately eight miles southeast of the NGC Project Area, and the Currant Creek Nevada station, located approximately 17 miles

northeast of the Soda Spring Project Area (Western Regional Climate Center [WRCC] 2022a, 2022b), Remote Automatic Weather Stations administered by the WRCC and Desert Research Institute. Data are presented between 2012 and 2022, as the Timber Mtn Nevada station only had data available for that time frame. The monthly precipitation data are shown in Table 3.10-2.

**Table 3.10-2: Monthly Precipitation**

Station	Timber Mtn Nevada	Currant Creek Nevada
<b>Elevation (feet above mean sea level)</b>	9,000	5,580
<b>Distance to Closest Project (miles)</b>	8	17
<b>Month</b>	<b>Precipitation (inches)</b>	<b>Precipitation (inches)</b>
Jan	0.37	0.41
Feb	0.19	0.39
Mar	0.78	0.62
Apr	0.98	0.66
May	0.72	0.61
Jun	0.17	0.10
Jul	0.91	0.41
Aug	0.76	0.44
Sept	0.70	0.48
Oct	0.50	0.43
Nov	0.19	0.31
Dec	0.55	0.52
<b>TOTAL</b>	6.82	5.38

Source: WRCC 2022a, 2022b

### 3.10.1.6 Evapotranspiration

The NDWR has collected evapotranspiration (ET) rates for each hydrographic basin (NDWR 2022b). Table 3.10-3 shows the ET rates for Railroad Valley – Northern Part hydrographic basin (Basin No. 173B).

**Table 3.10-3: Evapotranspiration Rates in Feet in the Hydrographic Basin**

Basin	Alfalfa	Highly Managed Pasture Grass	Low Managed Pasture Grass	Grass Hay	Turf Grass	Shallow Open Water
	(feet/year)	(feet/year)	(feet/year)	(feet/year)	(feet/year)	(feet/year)
Railroad Valley – Northern Part	4.1	4.1	3.3	3.9	4	4.9

Source: NDWR 2022b

### 3.10.1.7 Geology and Hydrogeology

#### *Geologic Setting*

The geology of eastern Nevada is complex and has involved repeated episodes of sedimentation, folding, faulting, and volcanic activity. Consolidated rocks, ranging in age from Precambrian to late Tertiary, are exposed in the mountain ranges bounding the valleys. Unconsolidated deposits of Tertiary and Quaternary age underlie the valleys (Nichols 2000).

Railroad Valley is comprised of four major lithologic units: noncarbonate and carbonate rocks and older and younger alluvium. Precambrian to Quaternary-aged noncarbonate rocks are dominated by volcanic tuff, with smaller amounts of other volcanic rocks (rhyolitic to basaltic flows), as well as quartzite, shale, and granitic intrusives. The Cambrian to Permian-aged carbonate rocks are dominated by limestone. The Tertiary and Quaternary-aged older alluvium, the principal body of alluvium that underlies the valley floors and surrounding alluvial slopes, generally consists of semiconsolidated and unconsolidated lenses of gravel, sand, silt, and clay. The younger alluvium, which covers the older alluvium by as much as a few hundred feet, is of Quaternary age, and consists of lenses of gravel, sand, silt, and clay which are unconsolidated, and generally thinner than the lenses of the older alluvium (Van Denburgh and Rush 1974) (Figure 3.10.2).

The geologic structural history of the area consists of multiple tectonic compressional events that created numerous and diversified structural configurations, followed by an extension event that dissected and rearranged many of the previously formed structures. In addition, multiple deposition and differential erosion events resulted in a complex burial and thermal history for the area (Anna et al. 2007a). Several major tectonic events combined to produce the complex structural and stratigraphic patterns that characterize the geologic framework of Railroad Valley. These events include the Antler orogeny, the Sonoma orogeny, late Paleozoic and Mesozoic thrusting, the Sevier thrust system, and Neogene extension (or Basin and Range extension) (Anna et al. 2007b).

#### *Regional Hydrogeology*

The Railroad Valley – Northern Part (Basin No. 173B) hydrographic basin is located within the Basin and Range Province, which is characterized by parallel north and northeast trending mountain ranges separated by valleys.

The hydrogeologic units of the Great Basin carbonate and alluvial aquifer system (GBCAAS) commonly include large-magnitude strike-slip, offset thrusts, and normal faults, and locally affected by caldera formation. The most permeable aquifer materials within the GBCAAS include Cenozoic unconsolidated sediments and volcanic rocks, also including Mesozoic and Paleozoic carbonate rocks (Heilweil and Brooks 2011). At the regional scale, groundwater flow between hydrogeologic units may occur where 1) a hydraulic gradient exists, 2) the intervening mountains are comprised of rocks permeable enough to permit groundwater flow, and 3) substantial groundwater mounding from mountain-block recharge does not occur. The USGS has developed a potentiometric-surface map, which indicates general groundwater movement from mountainous areas to the Great Salt Lake Desert, Humboldt River, Colorado River, and Death Valley (Heilweil and Brooks 2011).

#### *Local Hydrogeology*

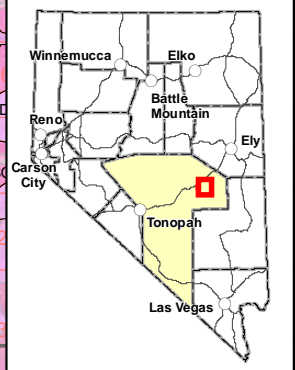
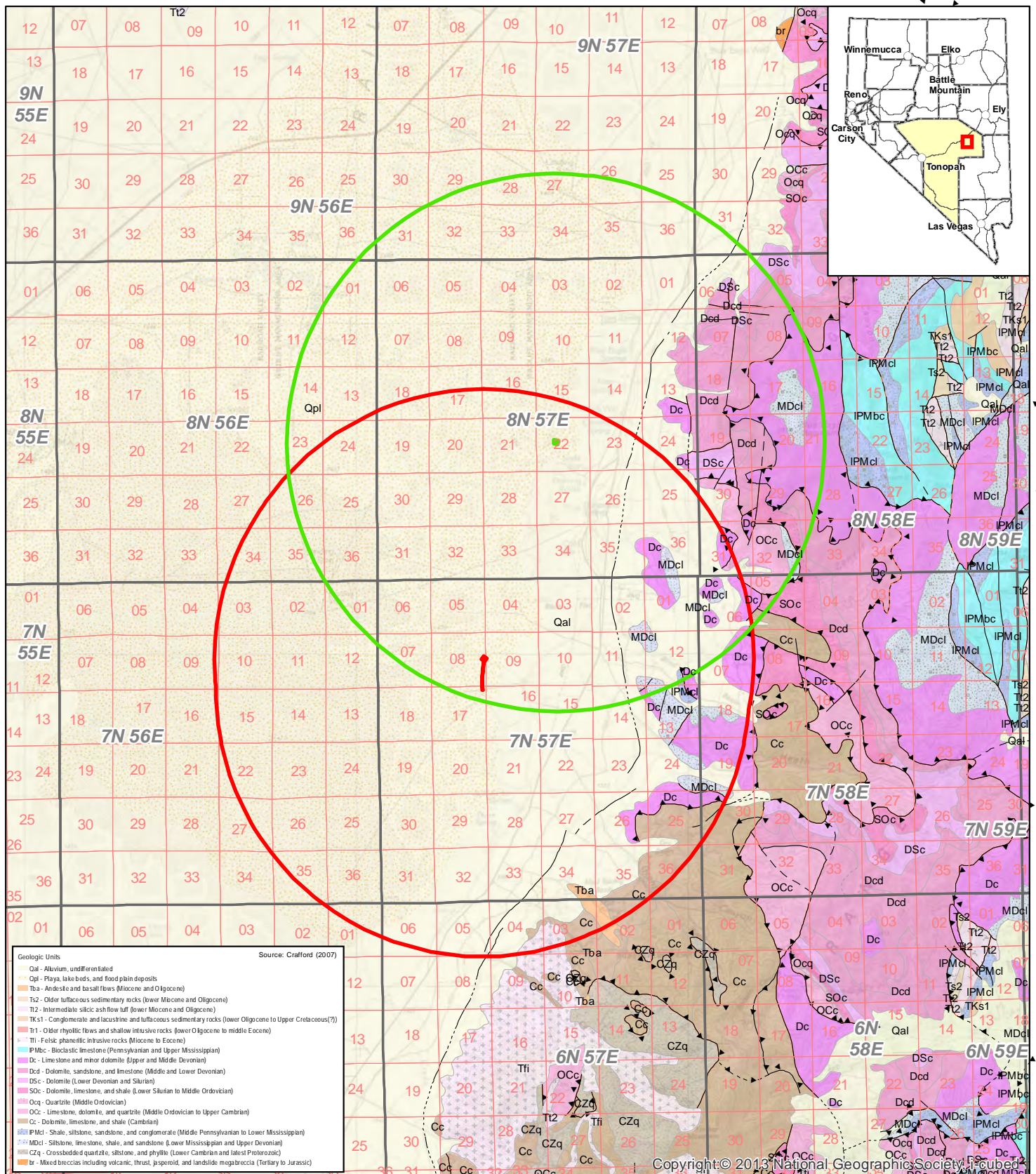
In the Railroad Valley – Northern Part hydrographic basin, large quantities of groundwater occur in both the valley fill and in the underlying consolidated rocks. In the central part of Railroad Valley, the reservoir is thick, as indicated by data from oil exploration wells. The consolidated rocks that underlie and surround Railroad Valley transmit water through fractures associated with faulting (Van Denburgh and Rush 1974).

#### 3.10.1.8 Data Analysis

##### *Potentiometric Surface and Flow Direction*

The regional potentiometric surface (Brooks et al. 2014) is shown as contours in Figure 3.10.3, with the project areas shown in pink within the Five-mile Study Areas. The projects are both located below the 4,800-foot static water level elevation contour.





- Geologic Units Source: Crafford (2007)
- Qal - Alluvium, undifferentiated
  - Qpl - Playa, lake beds, and flood plain deposits
  - Tba - Andesite and basalt flows (Miocene and Oligocene)
  - T2 - Older tuffaceous sedimentary rocks (lower Miocene and Oligocene)
  - T2 - Intermediate silicic ash flow tuff (lower Miocene and Oligocene)
  - TKs1 - Conglomerate and lacustrine and tuffaceous sedimentary rocks (lower Oligocene to Upper Cretaceous?)
  - T1 - Older rhyolitic flows and shallow intrusive rocks (lower Oligocene to middle Eocene)
  - T1 - Older phanitic intrusive rocks (Miocene to Eocene)
  - IPMbc - Bioclastic limestone (Pennsylvanian and Upper Mississippian)
  - Dc - Limestone and minor dolomite (Upper and Middle Devonian)
  - Dcd - Dolomite, sandstone, and limestone (Middle and Lower Devonian)
  - DSc - Dolomite (Lower Devonian and Silurian)
  - SOc - Dolomite, limestone, and shale (Lower Silurian to Middle Ordovician)
  - OCq - Quartzite (Middle Ordovician)
  - OC - Limestone, dolomite, and quartzite (Middle Ordovician to Upper Cambrian)
  - Cc - Dolomite, limestone, and shale (Cambrian)
  - IPMcl - Shale, siltstone, sandstone, and conglomerate (Middle Pennsylvanian to Lower Mississippian)
  - MDcl - Siltstone, limestone, shale, and sandstone (Lower Mississippian and Upper Devonian)
  - CZq - Crossbedded quartzite, siltstone, and phyllite (Lower Cambrian and latest Proterozoic)
  - br - Mixed breccias including volcanic, thrust, jasperoid, and landslide megabreccia (Tertiary to Jurassic)

- Explanation
- Soda Spring 1-22 Project Area
  - North Grant Canyon Project Area
  - Soda Spring 1-22 Five-mile Study Area
  - North Grant Canyon Five-mile Study Area
  - Concealed contact
  - Known contact
  - Fault contact
  - Known fault
  - - - Inferred fault
  - Concealed fault
  - ▼ Known thrust fault
  - - - Concealed thrust fault

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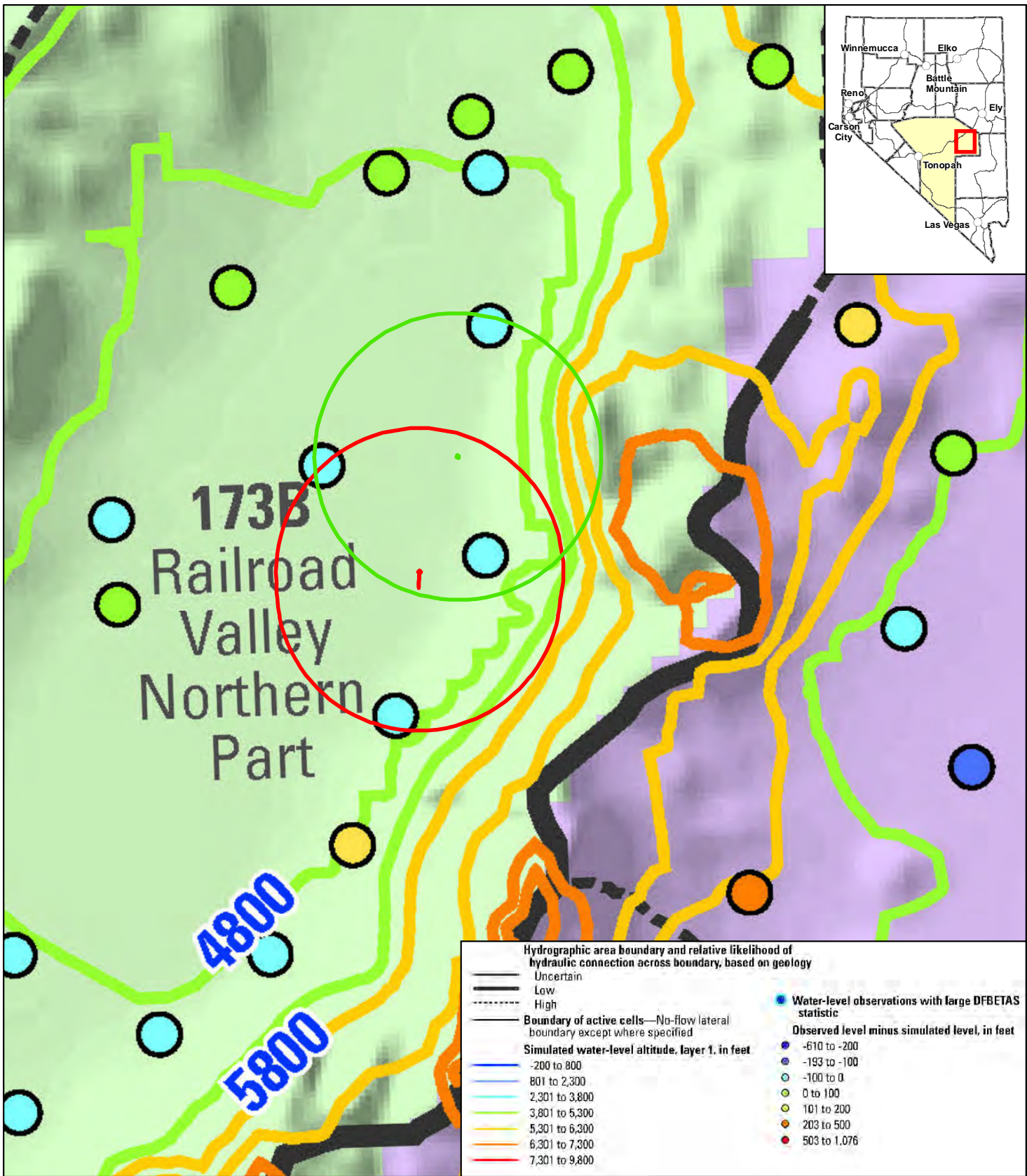
**SODA SPRING 1-22 AND NORTH GRANT CANYON 1-8 OIL WELL PROJECTS**

**Regional Surface Geology**

Figure 3.10.2

09/29/2022





**Explanation**

- Soda Spring 1-22 Project Area
- North Grant Canyon Project Area
- Soda Spring 1-22 Five-mile Study Area
- North Grant Canyon Five-mile Study Area

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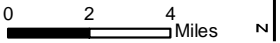
**SODA SPRING 1-22 AND NORTH GRANT CANYON 1-8 OIL WELL PROJECTS**

**Potentiometric Surface Map**

Figure 3.10.3

09/29/2022

Source: USGS (2014)



Groundwater within the region is generally considered to flow following topography from the mountain slopes to the basin-fill deposits, where the basin fill serves as the primary groundwater reservoir (Brooks et al. 2014; Buqo 2004). The groundwater flow within the Railroad Valley – North Part hydrographic basin is from the recharge areas in the mountains or on the adjacent alluvial slopes to the lowlands (Van Denburgh and Rush 1974). Figure 3.10.4 shows a conceptual hydrogeologic model for Nye County (Buqo 2004).

*Consumptive Use within Five Miles of the Project Areas*

The 2017 NDWR Statewide Groundwater Pumping Inventory (NDWR 2021) shows the following estimated groundwater pumping for the Railroad Valley – Northern Part (Basin No. 173B) hydrographic basin (Table 3.10-4). NDWR’s total committed underground rights for all sources from the Hydrographic Area Summary are also provided for comparison. Comparing total inventory values against total committed values shows that total usage is well below committed values.

**Table 3.10-4: Groundwater Pumping Inventory**

Basin	COM (afa)	DOM (afa)	IND (afa)	IRR (afa)	QM (afa)	REC (afa)	STK (afa)	Total (afa)	NDWR Committed (all uses) (afa)
Railroad Valley – Northern Part (173B)	1	32	72	13,365	12	1,994	22	15,486	31,692.02

COM = Commercial; DOM = Domestic; IND = Industrial; IRR = Irrigation; QM = Quasi-Municipal; REC = Recreation; STK = Stock

The Railroad Valley – Northern Part groundwater PODs within the Five-mile study areas are mostly from irrigation and recreation. No groundwater PODs are located within the project areas.

*Basin Recharge and Discharge*

Annual average recharge and discharge rates for the Railroad Valley – Northern Part Hydrographic Basin have been estimated by several studies. Early measurements employed Nevada water budget methods of the 1950s and 1970s (Maxey and Eakin 1950; Van Denburgh and Rush 1974), while later researchers used groundwater modeling results (Brooks et al. 2014; Masbruch 2011a, 2011b).

Maxey and Eakin (1950) estimated the average annual recharge for Railroad Valley was approximately 51,000 afa; 50,000 afa being from precipitation and 1,000 afa due to underflow from Hot Creek Valley. Van Denburgh and Rush (1974) estimated the average annual recharge to the Railroad Valley – Northern Part Hydrographic Basin as 46,000 afa from precipitation and 7,000 afa from subsurface inflow. Masbruch (2011a) used groundwater modeling to average an annual recharge rate of 57,000 afa, from in-place recharge, runoff, and mountain stream baseflow.

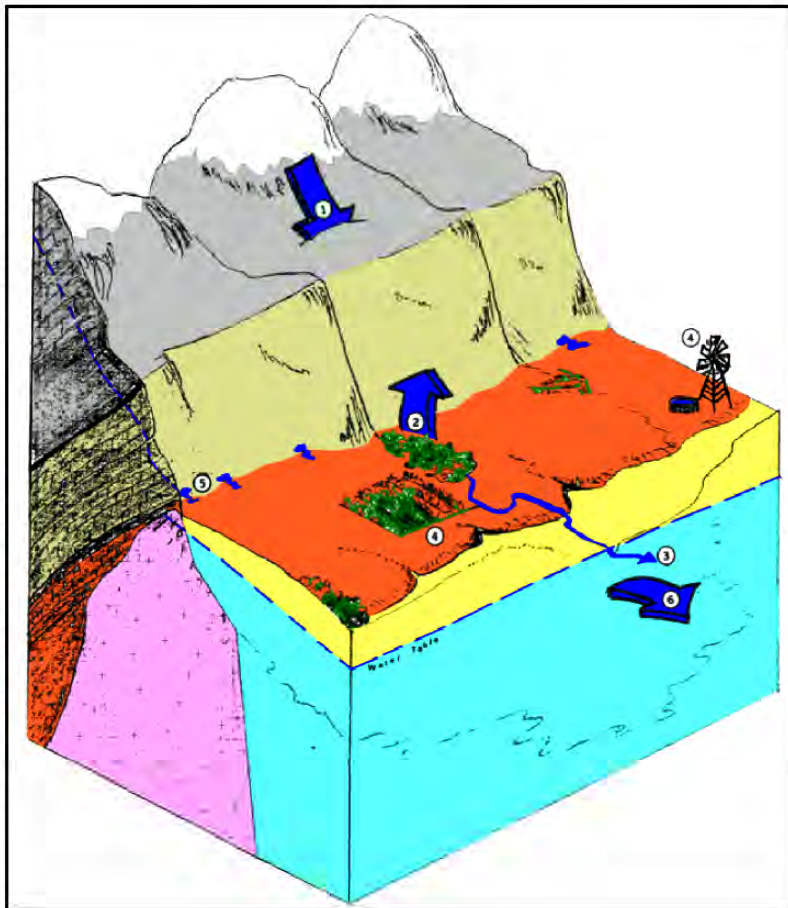
Maxey and Eakin (1950) estimated the average annual discharge rate at 50,000 afa mainly by ET methods; 24,000 afa discharged by saltgrass, 16,000 afa discharged by greasewood and rabbitbrush, and 10,000 afa discharged by meadow grasses and other irrigated crops. Van Denburgh and Rush (1974) estimated the average annual discharge rate of 80,000 afa from ET through the bare soils of the playa, greasewood, saltgrass, and meadowgrass, noting the difference from the 1950 estimates due to refined procedures for evaluating evapotranspiration, better maps, and more water level data. Masbruch (2011b) used groundwater modeling to estimate an average annual discharge rate of 81,000 afa due to springs, ET, and mountain streams.



**Figure 4. Conceptual Hydrogeologic Model for Nye County**

1. The water resources of Nye County originate as the rain and snow that falls over the upland areas of the County and adjacent areas. Rain and snowmelt run off into the channels and into the fractures in the rock. Some of this water is consumed by the plants and some infiltrates downward to the water table, a process known as *recharge*. Most of the recharge occurs at elevations above 6,000 feet.

2. The streams in Nye County are important water resources. The streams are fed by runoff from the mountains and by springs that discharge in the upland areas. The streams often support riparian areas and wildlife. Along the mountain front, additional recharge occurs through the channels that drain the upland areas. The vegetation that is supported by the streams and springs consume a considerable amount of water through *evapotranspiration*.



3. Surface water flows year round in some springs and streams, but the amount of flow is often quite variable. Following the snowmelt in the late spring, there is usually a surge of discharge in the streams and springs that drain the mountain areas. This surge of flow is also referred to as *rejected recharge* as it represents the excess water that the rocks are not able to intake. Streams that are fed by springs with seasonal flow may dry up completely in the dry months. Streams and springs that flow year round are called *perennial* and seasonal flows are referred to as *ephemeral*.

4. The water that is used by man for irrigation, stockwater, and quasi-municipal purposes is not completely consumed. Water stored in ponds and irrigation canals leaks back into the groundwater system. Some portion of the irrigation water (about 25 percent) infiltrates back into the ground. Even domestic septic systems may return a small quantity of water back into the ground. Collectively, the infiltration of water from these sources is called *secondary recharge*. Secondary recharge can be a large component of the water budget in basins where irrigation is widespread.

5. Spring lines often occur where geologic controls such as faults or contacts are present. These controls cause groundwater to rise to the surface and discharge. In some of the more water-rich basins of Nye County, there are spring lines that are tens-of-miles long.

6. In most basins, the water that recharges the aquifers ultimately flows from up-gradient basins to down-gradient basins. Basins that are hydraulically linked in this manner are referred to as *flow systems*.

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SODA SPRING 1-22 AND NORTH GRANT CANYON 1-8  
OIL WELL PROJECTS

**Hydrogeologic Model**

Figure 3.10.4

09/29/2022

### *Conceptual Groundwater Flow Model*

The USGS developed and published several three-dimensional (3D) transient groundwater flow models of the hydrogeological systems in the Basin and Range Province. The most recent publication is titled *Steady-State Numerical Groundwater Flow Model of the Great Basin Carbonate and Alluvial Aquifer System* (Brooks et al. 2014). This model and the previous reports included data from decades of study of various components of the groundwater system and incorporated previous groundwater flow models (Heilweil and Brooks 2011).

Groundwater flow was simulated using the USGS groundwater model code **MODFLOW-2005**. The model's finite-difference grid contains 509 rows and 389 columns, with eight layers and 1,587,008 uniform cells. A hydrogeologic framework model was developed from digital elevation models, geologic maps, drill hole information, geologic and hydrogeologic cross sections, and other 3D models. Hydrologic components of the groundwater flow model and head observation data were compiled from a series of investigations. Hydrologic components were re-evaluated in these studies, including natural groundwater discharge through ET and spring flow, historical groundwater pumping, groundwater recharge simulated as net infiltration, model boundary flows and outflows, hydraulic conductivity, and water levels under pre-pumping and pumping conditions. Hydrologic parameter values were estimated using a regression analysis and were within the range of expected values. Simulated groundwater hydraulic heads fit observed heads reasonably well with the absolute values of the difference between simulated and measured head values less than ten meters (Brooks et al. 2014).

Conditions prior to pre-pumping were used as initial conditions for the steady-state and transient calibration of the model. Recharge in the model occurs from infiltration of precipitation, irrigation, springs, and runoff. Discharge in the model occurs mainly through ET, springs, rivers, and lakes.

This model is based on topological subdivisions measuring one square mile, so the project areas are approximately equivalent to one cell in the model. The potentiometric surface developed from this recent model is shown on Figure 3.10.3.

## **3.10.2 Environmental Consequences**

### **3.10.2.1 Proposed Action**

Project activities may result in long- and short-term alterations to the hydrologic regime depending upon the location and intensity. The EPA (2016) identifies six activities that are most likely to cause potential impacts to waters in some circumstances from oil and gas production when adequate management controls are not adequate. These include: 1) water withdrawals impacting groundwater resources; 2) spills of fluids or chemicals or produced water with chemicals that reach groundwater resources; 3) wells lacking mechanical integrity allowing gases or liquids to migrate into groundwater; 4) injection of stimulation fluids into groundwater; 5) inadequately treated produced wastewater into surface water resources; and 6) infiltration of wastewater into groundwater from unlined pits.

### *Surface Water*

Clearing, grading, and soil stockpiling could alter short-term overland flow patterns. Building the access road at the NGC Project, and adding material to elevate the road and well pad at both projects, would potentially dam and impound floodwaters. In most cases, these potential impacts can be minimized by better location siting and engineering controls, such as the installation of culverts. The Project is not adjacent to springs, or seeps, perennial streams, or lakes; therefore, contamination into surface water is not likely. Flow in ephemeral drainages occurs in response to storm events; therefore, the only potential impacts to surface water quality would result from spills and sedimentation or erosion from surface disturbing activities.

Potential impacts to down-gradient surface water quality from spilled petroleum products would be minimized by the implementation of the Spill Contingency Plan included in Appendix D and applicant-committed EPMs outlined in Appendix A. The potential impacts to downgradient surface water quality from sedimentation would be minimized by the implementation of the BMPs outlined in the Gold Book (DOI and USDA 2007). Impacts to surface water resources would be considered negligible, long-term, and localized.

### *Groundwater*

The NDWR allocates and regulates groundwater. Groundwater requirements for drilling and construction activities associated with each project (maintaining and/or constructing an access road, constructing a drill pad, fugitive dust control and drilling operations) would consume up to approximately a total of 1.3 acre-feet (approximately 420,000 gallons) of water. The water would be supplied by a temporary water well proposed to be drilled at each well pad from the NDWR Railroad Valley – Northern Part hydrographic basin (Basin No. 173B). Groundwater appropriations for Basin No. 173B are only at approximately 42.3 percent of the basin's predicted perennial yield. The quantity of water needed for either project relative to the perennial yield is very small. The water table should recover quickly from the withdrawal. After this water allocation has been used, the wells are required to be permanently sealed and cannot be used for any future purpose.

Water for future production purposes require water rights that would need to be obtained from the State Engineer. Sole discretion to approve or deny these water rights claims lies with the State Engineer based on prior appropriations and the capacity of the valley aquifers to supply the requisite water supply volumes. The water supply well(s) would be drilled and plugged in accordance with Nevada Revised Statutes 534, NAC 534.360, and NAC 534.420. Impacts to groundwater resources would be considered minor, short-term, and localized.

Oil and gas wells are cased and cemented at a depth below all usable water zones; consequently, impacts to water quality at springs are not expected. Specific measures outlined in Appendices A and B would be utilized to reduce the risks to groundwater. In routine operations, without failed equipment or spills, there would be no impact to water quality. Impacts to groundwater resources could occur due to failure of well integrity, failed cement, surface spills, and/or the loss of drilling, completion, and petroleum products into groundwater. This would be minimized by following BLM Onshore Orders and 43 CFR 3100 regulations requiring protection of groundwater and other mineral resources. Types of chemical additives used in well drilling and enhancement activities may include acids, hydrocarbons, thickening agents, lubricants, and other additives that are operator and location specific. Concentrations of these additives also vary considerably and are not known prior to beginning drilling since different mixtures can be used for different formations in oil and gas exploration.

Known oil and gas production zones in Nevada are generally below 2,500 feet and do not contain freshwater. The proposed wells would be approximately 8,000 feet deep, and all shallow groundwater and usable drinking water (local aquifers are less than 1,000 feet deep) would be isolated by both steel casing and cement. Wells are drilled in stages, with multiple strings of casing and cement to isolate shallow formations from deeper. Loss of drilling fluids (non-toxic freshwater mud) may occur during the drilling process due to changes in porosity or other properties of the rock being drilled through. To prevent loss of circulation, additional non-toxic materials such as bentonite clay, cellulose, or straw may be added to the mud to increase viscosity. None of the produced water from either project is likely to be injected in wells for disposal since there are no injection wells at present. If the well is successful and a field is developed, produced water would be reinjected into the oil-bearing formation in order to maintain reservoir pressure. All injection wells would comply with Nevada Underground Injection Control program rules.

### 3.10.2.2 No Action Alternative

Under the No Action Alternative, the APDs submitted by HOGV for both projects would not be approved. There would be no surface disturbance or drilling activities occurring in either project area; therefore, no impacts to surface or groundwater resources would occur.

## 3.11 Vegetation

### 3.11.1 **Affected Environment**

#### 3.11.1.1 NGC Project

The USGS Southwest Regional Gap Analysis Project mapped two vegetation communities in the NGC Project Area. These vegetation communities were field-verified and re-mapped when adjustments were needed to match field conditions. One vegetation community was identified in the NGC Project Area during the May 2022 botanical field surveys: Inter-Mountain Basins Playa (EMS 2022a). Specific plants observed in the NGC Project Area include fourwing saltbush (*Atriplex canescens*), winterfat (*Krascheninnikovia lanata*), greasewood (*Sarcobatus vermiculatus*), saltlover (*Halogeton glomeratus*), sedge (*Carex* sp.), and saltgrass (*Distichlis spicata*).

### 3.11.2 **Environmental Consequences**

#### 3.11.2.1 Proposed Action

Approximately 5.2 acres of vegetation of the Inter-Mountain Basins Playa vegetation community would be removed associated with the NGC Project. Since the NGC Project is primarily located on a playa, the existing vegetation is sparse. The surface disturbance associated with Project activities within the NGC Project Area would be reclaimed and reseeded. Any surface disturbance related to the NGC Project would not result in the loss of any unique vegetation community but would still result in a temporary loss of vegetation. Revegetation associated with the NGC Project would begin upon completion of Project activities using a BLM-approved seed mixture and would follow the requirements in the Gold Book (DOI and USDA 2007). Impacts to vegetation as a result of surface disturbing activities associated with the NGC Project would be minor, long-term, and localized.

#### 3.11.2.2 No Action Alternative

Under the No Action Alternative, the APDs submitted by HOGV for both projects would not be approved. There would be no surface disturbance associated with the projects; therefore, there would be no impacts to vegetation in either project area.

## 3.12 Visual Resources

### 3.12.1 **Affected Environment**

Both projects are entirely located within Visual Resource Management (VRM) Class IV. The VRM Class IV objective is to provide for management activities, which require major modifications of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and should repeat the basic elements inherent in the characteristic landscape.

### **3.12.2 Environmental Consequences**

#### **3.12.2.1 Proposed Action**

The visual changes that would result from either the Soda Spring Project and/or the NGC Project are consistent with the objectives for VRM Class IV. There are several components of each project that would be visible and generate visual contrast: the constructed well pad; aboveground solids control tanks, trailers, equipment storage facilities; and the drill rig. The drill rig would be visible and the operation likely noticeable from observation points within approximately three to five miles in the foreground-middle ground zone during drilling operations. The drill rig may be discernible from US 6. The contrast created by adding the drill rig structure and other Project facilities would be high; they would attract attention and would be dominant features during the life of the Project, or for approximately 45 to 60 days. These effects may be temporary. If exploration is unsuccessful, the drill rig and other facilities and equipment would be removed, and the pad and/or access road would be recontoured and seeded. The contrast would initially be low and given enough time with successful revegetation be unnoticeable. Exploration drilling effects to visual resources are expected to be major, short-term, and localized.

If production is achieved, the drill rigs could be replaced by production and storage facilities within the project areas; 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 the BLM to blend with the surroundings. Lighting would follow measures to limit impacts on dark skies (Appendix A). If production is achieved, visual resource impacts are expected to be major, long-term, and regional, but consistent with VRM Class IV objectives.

#### **3.12.2.2 No Action Alternative**

Under the No Action Alternative, the APDs submitted by HOGV for both projects would not be approved. There would be no surface disturbance associated with the projects or facilities added to the project areas; therefore, there would be no impacts to visual resources in either project area.

### **3.13 Wildlife**

#### **3.13.1 Affected Environment**

##### **3.13.1.1 NGC Project**

The NDOW was contacted to request information regarding wildlife use in the area. In a response letter provided on May 31, 2022, for the proposed NGC Project, NDOW indicated the following general wildlife species have been observed in the vicinity of the NGC Project Area: Great Basin fence lizard (*Sceloporus occidentalis longipes*) and yellow-backed spiny lizard (*Sceloporus uniformis*). NDOW identified that occupied pronghorn antelope distribution exists throughout the entire NGC Project Area and portions of the four-mile buffer area. Occupied mule deer distributions exist outside of the NGC Project Area within portions of the four-mile buffer area. No known occupied elk (*Cervus canadensis*) distribution exists in the vicinity of the NGC Project Area.

General wildlife field surveys were conducted in the NGC Project Area on May 24, 2022 (EMS 2022a). A total of three mammal species were detected through direct observation or by sign (e.g., calls, tracks, scat, pellets, or other sign) in the Project Area. The mammals observed or detected by sign included coyote (*Canis latrans*) and pronghorn antelope. No wildlife species were directly observed during the May 2022 field surveys, but tracks of pronghorn antelope and coyote were observed in a small ephemeral drainage. Although these were the only species observed during the 2022 field surveys, potential habitat is present for other wildlife species as well.

### **3.13.2 Environmental Consequences**

#### **3.13.2.1 Proposed Action**

Direct impacts to wildlife species with suitable habitat in the Project Area would consist of disturbance from human activity and noise, and indirect impacts would consist of temporary habitat loss. Mortality to wildlife such as small mammals and reptiles may occur from surface disturbing activities. Larger mobile animals would most likely avoid the noise and other human disturbances and move away from the NGC Project Area. Collisions with wildlife would be minimized in the NGC Project Area by maintaining speed limits of 25 miles per hour or less during Project activities. The proposed well would include blow-out preventers that are designed to prevent the release of hydrocarbon-contaminated fluids to the environment, and all fluids would be directed to aboveground solids control tanks. Direct impacts to wildlife are expected to be negligible, long-term, and localized.

Up to 5.2 acres of wildlife habitat would be disturbed during the life of the NGC Project, which includes the off-lease access road, due to land clearing and other surface disturbing activities. If the exploration is not successful, the NGC Project Area would be reclaimed and revegetated, returning the 5.2 acres of lost habitat back to wildlife use. No noxious weed species were identified in the NGC Project Area; however, the following invasive and non-native plant species was observed: halogeton. This invasive, non-native species reduces the quality of habitat for wildlife species. NGC Project-related activities increase the potential for the spread of these species and additional noxious weed species, further reducing the quality of wildlife species habitat in the NGC Project Area. HOGV would implement EPMs for noxious weeds, outlined in Appendix A, which would minimize the impact of noxious weeds and invasive species to wildlife species habitat.

After Project activities have terminated, the NGC Project Area would be reclaimed according to the Gold Book (DOI and USDA 2007), and reseeded with a BLM-authorized weed free seed mix, which would minimize indirect impacts from the loss of habitat. Therefore, indirect impacts to wildlife are minor, long-term, and localized.

If the NGC Project goes into production, additional facilities would be needed such as pumping equipment, a separation system, pipelines (within the lease area), storage facilities, water treatment and injection facilities, and compressor stations. There would be continual vehicular traffic and noise because oil would need to be trucked off site. There could be an increase of vehicular mortality. Increased vehicular traffic from production would also increase movement and displacement of wildlife, resulting in avoidance of adjacent suitable habitat and an expenditure of energy potentially reducing reproduction and survivorship.

#### **3.13.2.2 No Action Alternative**

Under the No Action Alternative, the APDs submitted by HOGV for both projects would not be approved. There would be no surface disturbance associated with the projects; therefore, no effects to wildlife species or their habitat would occur.



## 4 CUMULATIVE IMPACT ANALYSIS

### 4.1 Introduction

For the purpose of this EA, the cumulative impacts are the sum of all past, present, and reasonably foreseeable future actions (RFFAs) resulting primarily from mineral exploration and public uses. The purpose of the cumulative analysis in the EA is to evaluate the Proposed Action's and No Action Alternative's incremental contributions to the cumulative environment within the Cumulative Effects Study Area (CESA) identified. A cumulative impact is defined as follows:

"...the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions" (BLM 2008a).

These cumulative impacts include both direct and indirect actions occurring as a result of Project activities and how they affect the resources of concern. The significance of impacts should be determined based on context (i.e., the setting of the Project) and intensity. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Intensity refers to the severity of the impact. Factors that may be used to define the intensity of effects include the magnitude (relative size or amount of an effect), geographic extent, duration, and frequency of the effects.

For the purposes of this analysis, 'impacts' and 'effects' are assumed to have the same meaning and are interchangeable. The cumulative impacts analysis was accomplished through the following three steps:

Step 1: Identify, describe, and map CESAs for each resource evaluated in this chapter.

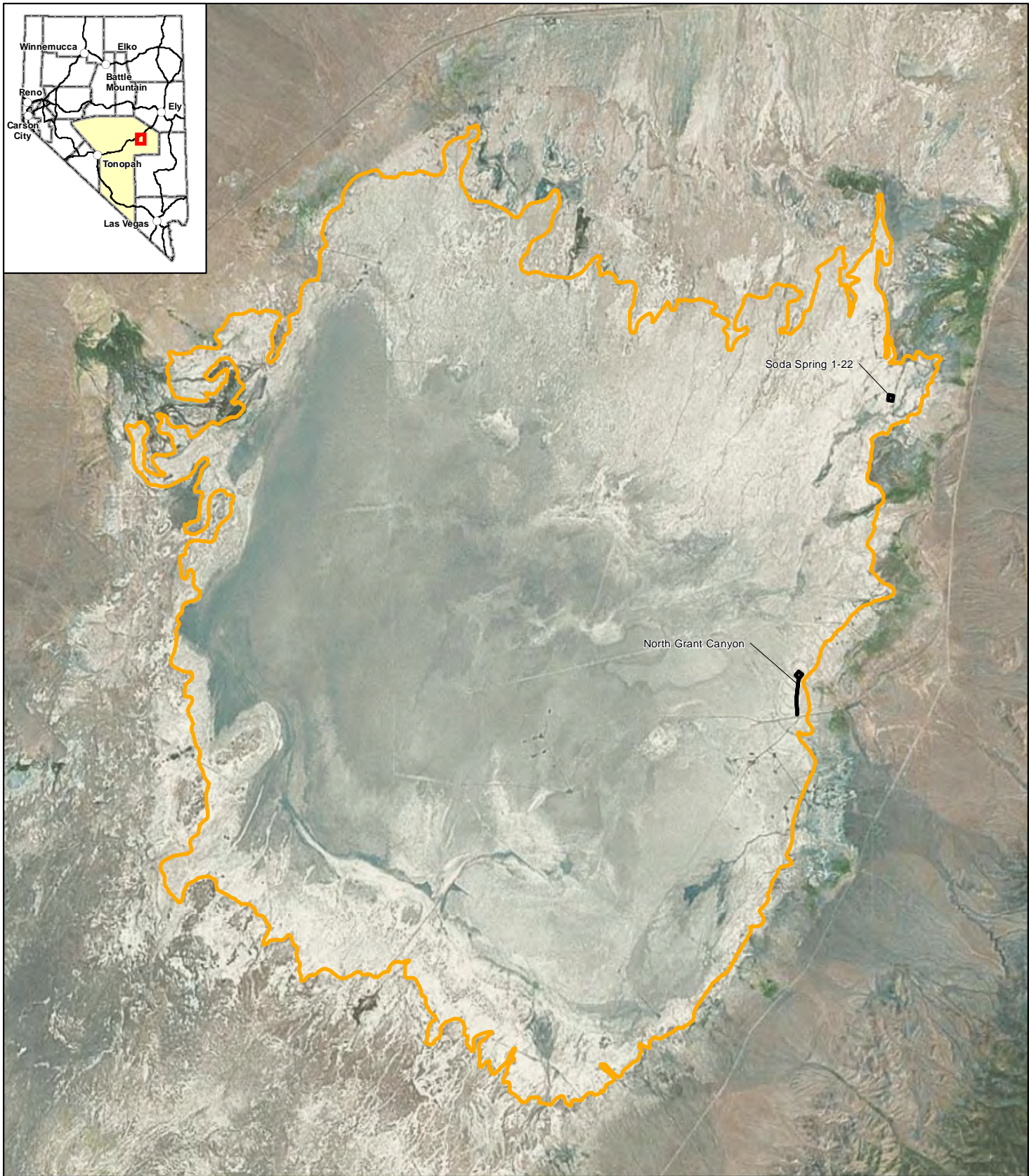
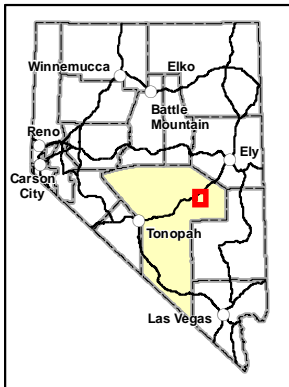
Step 2: Define timeframes, scenarios, and acreage estimates for cumulative impact analysis.

Step 3: Identify and quantify the location of possible specific impacts from the Proposed Action and judge the significance of these contributions to the overall impacts.

### 4.2 Cumulative Effects Study Area

Environmental consequences of the Proposed Action and No Action Alternative were previously evaluated in Chapter 3 for the various environmental resources. Discussed in the following sections are the resources with the potential to be cumulatively impacted by the Proposed Action within the identified CESA. The discussions are based upon the previous analysis of each environmental resource. The following eleven elements or resources have been brought forward for cumulative impact analysis: Air Quality; Lands and Realty; Migratory Birds; Noxious Weeds, Invasive and Non-native Species; Recreation; Soils; Special Status Species; Surface and Groundwater Resources; Vegetation; Visual Resources; and Wildlife (General). Since there are no Project-specific impacts to these specific resources under the No Action Alternative, there would be cumulative impacts to those resources. Therefore, cumulative impacts under the No Action Alternative are not analyzed in this EA.

The geographic scope of a cumulative effect is defined in this EA within the CESA. A six-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. The CESA for analyzing cumulative impacts to all resources has been defined as the playa, which encompasses approximately 65,862 acres (Figure 4.2.1). The CESA represents the maximum spatial extent of effects that could overlap in space and time with those of the Proposed Action.



- Project
- CESA Boundary (65,862 acres)

BATTLE MOUNTAIN DISTRICT OFFICE  
 Tonopah Field Office  
 1553 South Main Street  
 Tonopah, NV 89049



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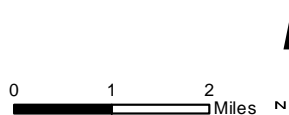
**BUREAU OF LAND MANAGEMENT**

SODA SPRING 1-22 AND NORTH GRANT CANYON 1-8  
 OIL WELL PROJECTS

**Cumulative Effects  
 Study Area**

Figure 4.2.1

09/27/2022



#### 4.2.1 Past, Present, and Reasonably Foreseeable Future Actions

##### 4.2.1.1 Past and Present Actions

Past and present actions in the CESA include the following: ROW construction and maintenance; mineral exploration and material disposal; livestock grazing; and dispersed recreation.

##### *Oil and Gas Exploration*

There are approximately 21 authorized oil and gas lease parcels that are fully within or partially within the CESA. Oil and gas leases are present on approximately 47 percent of BLM managed public land within the CESA.

##### *Mineral Exploration and Mining*

The BLM Legacy Rehost System (LR2000) database was queried by Section, Township, and Range to show the past and present mineral exploration or mining activities (i.e., authorized Notices and mineral material disposal sites) that have been issued within the CESA. Table 4.2-1 shows the results of the LR2000 query, in acres, of the exploration and mining activities within the CESA. The LR2000 database was queried on October 8, 2022. Any newly authorized Notices or plans of operation added to the LR2000 database after this date are not included in the analysis.

**Table 4.2-1: Past and Present Minerals Action Acreages in the CESA**

Authorization Status	Acres
Authorized Notices	3
Mineral Material Disposal Sites	20
<b>Total</b>	<b>23</b>

Source: BLM 2022b

##### *Rights-of-Way*

The LR2000 database was used to query the various types of ROWs that have been authorized or constructed within the CESA by Section, Township, and Range, and include the following: roads; power transmission facilities; communication sites; telecommunications; and water facilities. The exact acreage of surface disturbance associated with these ROWs cannot be quantified; however, it is assumed that these types of ROWs and the construction and maintenance associated with these facilities would create a level of surface disturbance that would contribute to cumulative impacts to various resources. The LR2000 database was queried on October 8, 2022. Any newly approved ROWs that have been added to the LR2000 database after this date are not included in the analysis. The approximate total acreages of existing and approved ROWs within the CESA are listed in Table 4.2-2.

**Table 4.2-2: Past and Present Rights-of-Way Action Acreages in the CESA**

ROW Type	Acres
Roads	43
Power Transmission	792
Communication Sites	1
Telecommunications	19

<b>ROW Type</b>	<b>Acres</b>
Water Facilities	13
<b>Total</b>	<b>868</b>

Source: BLM 2022b

### *Livestock Grazing*

Portions of the Nyala, Butterfield, and Sand Springs grazing allotments cross the CESA.

### *Dispersed Recreation*

Past and present recreational activities that have occurred and are occurring within the CESA include primarily dispersed recreation activities such as the following: OHV use; camping; hiking; biking; sightseeing; hunting; wildlife viewing; and wind sailing.

#### 4.2.1.2 Reasonably Foreseeable Future Actions

RFFAs in the CESA include livestock grazing, ROW construction and maintenance, mineral exploration, oil and gas exploration, and dispersed recreation.

### **4.3 Evaluation of Potential Cumulative Impacts**

#### **4.3.1 Air Quality**

*Past and Present Actions:* Impacts to air quality from past and present actions have resulted from particulate and combustion emissions from livestock, ROW construction and maintenance, public land management activities, and vehicle traffic on public roads. All activities in the CESA with more than five acres of surface disturbance would operate under an air quality permit from the NDEP BAPC.

*RFFAs:* Impacts to air quality from RFFAs could result from the generation of dust and combustion emissions from OHV use and recreational traffic on unpaved roads, livestock grazing, road construction and maintenance, vehicle traffic on public roads, public land management activities, oil exploration, and fugitive emissions from potential wildland fires. Dust from public traffic on unpaved roads would likely create a low impact to air quality. Impacts from exploration and reclamation would be regulated by the NDEP BAPC and impacts to air quality from RFFAs in the CESA would likely be minor.

##### 4.3.1.1 Proposed Action

The cumulative impact on air quality from the incremental impact of the Proposed Action when added to the past actions, present actions, and RFFAs would be from fugitive, point source, and mobile combustion emissions, which would remain minor. If economic quantities of petroleum were discovered during the exploration project, then the air quality impacts from fugitive dust and emissions related to either project would continue for the length of time the drilling phase continued. During production, pipelines leading to tanks outside of the area for loading oil trucks would nearly eliminate the air quality issues. This time period would be considerably longer than the exploration phase, in which the fugitive dusts and emissions generated would end after the six-week drilling period. The air quality regulations implemented by the NDEP BAPC and the BLM would help to maintain the minor condition.



### *Climate Change*

Direct and indirect impacts from both projects at the local and regional scale are described in Section 3.2 to the extent reasonably foreseeable. The CESA defined for purposes of climate change analysis in this EA is worldwide; global climate change is innately a cumulative issue as it occurs at the global scale. GHG emissions from highly localized activities such as both projects must be considered in combination with, and compared to, emissions occurring worldwide. Impacts that occur in the CESA are caused by all anthropogenic activities that result in combustion and release of GHGs, which for purposes of this EA are the past, present, and RFFAs. The primary sources of GHG emissions worldwide are agriculture, transportation, electricity generation, industry, and commercial and residential facilities.

In 2019, the total emissions of GHGs in the US were 6,572 MMT of CO<sub>2</sub> equivalent. Total CO<sub>2</sub> emissions from petroleum systems in 2019 in the US were 46.7 MMT CO<sub>2</sub>. The US reported GHG emissions from both petroleum and natural gas systems activities was 85.4 MMT CO<sub>2</sub>e (EPA 2022).

In comparison, Nevada total emissions from GHGs was 46.3 MMT of CO<sub>2</sub> equivalent in 2019. This represents approximately 0.7 percent of emissions nationwide. The projects would contribute negligible impacts in combination with the past, present, and reasonably foreseeable future actions at the global scale, and would result in negligible impacts as compared to the global accumulation of GHGs.

### *Noise*

Impacts to atmospheric values as it relates to ambient noise (in the CESA) from past and present actions occur due to human and wildlife presence, heavy vehicles and equipment, and weather conditions such as precipitation and wind. Impacts to atmospheric values via noise from RFFAs could result from OHV use and recreational traffic on unpaved roads, livestock grazing, road construction and maintenance, oil and gas and mineral exploration and production, public land management activities, and potential wildland fire. Cumulative impacts from both projects when added to past, present, and RFFAs would be moderate during events that cause cumulative spikes in noise levels above 85 dBA where hearing damage could occur with an eight-hour exposure, but minor to negligible below 85 dBA. For example, moderate impacts would occur during construction and development with the use of heavy machinery, and road maintenance, and isolated spikes in noise at approximately or nearing 120 dBA could occur with drill rig operation, firearm operation, OHV use, car horns, and shouted conversations. Construction and drill rig operations past the exploration phase to facilitate production would increase ambient noise levels in the short term.

#### **4.3.2 Lands and Realty**

*Past and Present Actions:* Past and present actions that could have impacted and may be currently impacting lands and realty include ROW construction and maintenance, mineral exploration, and mineral material disposal. These projects could have restricted access or changed land uses.

Authorized mineral exploration Notices, as well as mineral material disposal sites, total approximately 23 acres (approximately 0.04 percent of the CESA) of surface disturbance. Approximately 868 acres of ROWs were issued within the CESA. Approximately 31,245 acres of oil and gas leases are currently authorized in the CESA; however, most of these leases do not contain producing oil well projects and have not created any surface disturbance.

*RFFAs:* Potential impacts to lands and realty from ROW construction and maintenance and mineral exploration activities are expected to continue. There are no specific data to quantify impacts to lands and realty within the CESA from potential wildland fires. There are approximately 62 acres of a pending minerals project as reported in LR2000 in the CESA. There is approximately 0.1 acre of a pending ROW

project in the CESA, which is the portion of the proposed access road associated with the NGC Project. There are two oil well projects pending in the CESA, which are the two projects discussed in this EA.

#### 4.3.2.1 Proposed Action

Both projects combined (approximately 8.6 acres of surface disturbance) would impact approximately 0.01 percent of the CESA. Quantifiable past and present actions and RFFA disturbance in the CESA total approximately 953 acres, which results in an incremental impact from both projects of approximately 0.9 percent. Since there are limited quantifiable data for all activities within the CESA, this calculation is a conservative analysis of the potential incremental impact from both projects. Therefore, based on the above analysis and findings, incremental impacts to lands and realty from both projects, when combined with the impacts from the past and present actions and RFFAs, are expected to be minor.

### 4.3.3 **Migratory Birds**

*Past and Present Actions:* Past and present actions that could have impacted and may be currently impacting migratory birds and their habitat include livestock grazing, dispersed recreation, ROW construction and maintenance, mineral exploration, and mineral material disposal. Impacts to migratory birds and their habitat may have resulted from the following: 1) indirect impacts from the destruction of habitat associated with building roads and clearing vegetation; 2) indirect impacts from the disruption from human presence or noise from drill rigs, water trucks, and 4WD pickups; and 3) direct impacts or harm to migratory birds that result from the removal of trees and shrubs containing viable nests or ground nests destroyed by construction or ranching equipment. There are no specific data that quantify impacts to migratory birds and their habitat as a result of livestock grazing or dispersed recreation. Impacts to migratory birds from livestock grazing include trampling of vegetation or nesting areas near streams, springs, or riparian areas within the CESA. Impacts to migratory birds and their habitat from recreation activities include destruction of native vegetation or nesting areas from OHV that traveled off of established roadways.

Authorized mineral exploration Notices, as well as mineral material disposal sites, total approximately 23 acres (approximately 0.04 percent of the CESA) of surface disturbance. Approximately 868 acres of ROWs were issued within the CESA. Approximately 31,245 acres of oil and gas leases are currently authorized in the CESA; however, most of these leases do not contain producing oil well projects and have not created any surface disturbance. The CESA is also located in NDOW Hunt Unit 134, which had the potential to create noise and disturbance to migratory birds or remove or alter habitat.

The CESA encompasses portions of the Nyala, Butterfield, and Sand Springs grazing allotments. Livestock grazing and associated management could have contributed to the establishment and spread of noxious weeds, invasive and non-native species, which could have had an indirect effect on migratory birds and their habitat. However, disturbance to migratory birds from past and present actions would have been reduced through reclamation and seeding of disturbed areas and natural recolonization of native species. The past and present actions that are quantifiable have disturbed approximately 891 acres, or approximately 1.4 percent of the CESA. There are no data on the number of acres reclaimed. State and federal regulations require reclamation; therefore, it is reasonable to assume that some areas have been reclaimed, become naturally stabilized, or have naturally revegetated over time.

*RFFAs:* Potential impacts to migratory birds and their habitat from livestock grazing, ROW construction and maintenance, mineral exploration activities, oil exploratory activities, dispersed recreation, or loss of native vegetation associated with potential wildland fires could occur. There are no specific data to quantify impacts to migratory birds or their habitat within the CESA from dispersed recreation, livestock grazing, or potential wildland fires. There are approximately 62 acres of a pending minerals project as reported in LR2000 in the CESA. There is approximately 0.1 acre of a pending ROW project in the CESA, which is the portion of the proposed access road associated with the NGC Project. There are two oil well projects



pending in the CESA, which are the two projects discussed in this EA. All pending minerals projects are required to incorporate protection measures for migratory birds and therefore, are not expected to directly harm migratory birds, but may result in habitat removal or alteration.

#### 4.3.3.1 Proposed Action

Both projects combined (approximately 8.6 acres of surface disturbance) would impact approximately 0.01 percent of the CESA. Quantifiable past and present actions and RFFA disturbance in the CESA total approximately 953 acres, which results in an incremental impact from both projects of approximately 0.9 percent. Since there are limited quantifiable data for all activities within the CESA, this calculation is a conservative analysis of the potential incremental impact from both projects. Impacts from both projects would be minimized due to implementation of the EPM outlined in Appendix A and reclamation. Therefore, based on the above analysis and findings, incremental impacts to migratory birds and their habitat from both projects, when combined with the impacts from the past and present actions and RFFAs, are expected to be minor.

#### 4.3.4 **Noxious Weeds, Invasive and Non-native Species**

*Past and Present Actions:* Past and present actions with impacts created from noxious weeds, invasive and non-native species could have included and may currently include livestock grazing, ROW construction and maintenance, mineral exploration, mineral material disposal, and dispersed recreation. These actions could have disturbed vegetation and soils creating an opportunity for invasive plant colonization and the introduction of noxious weed, invasive or non-native species seeds. There are no specific data to quantify impacts from noxious weeds, invasive and non-native species that resulted from livestock grazing or dispersed recreation.

Authorized mineral exploration Notices, as well as mineral material disposal sites, total approximately 23 acres (approximately 0.04 percent of the CESA) of surface disturbance. Approximately 868 acres of ROWs were issued within the CESA. Approximately 31,245 acres of oil and gas leases are currently authorized in the CESA; however, most of these leases do not contain producing oil well projects and have not created any surface disturbance. The past and present actions that are quantifiable have disturbed approximately 891 acres, or approximately 1.4 percent of the CESA. There are no data on the number of acres reclaimed. State and federal regulations require reclamation; therefore, it is reasonable to assume that some areas have been reclaimed, become naturally stabilized, or have naturally revegetated over time.

*RFFAs:* Potential impacts from noxious weeds, invasive and non-native species as a result of livestock grazing, ROW construction and maintenance, mineral exploration activities, oil exploratory activities, and dispersed recreation, are expected to continue. There are no specific data to quantify impacts from livestock grazing, dispersed recreation, or potential wildland fires. There are approximately 62 acres of a pending minerals project as reported in LR2000 in the CESA. There is approximately 0.1 acre of a pending ROW project in the CESA, which is the portion of the proposed access road associated with the NGC Project. There are two oil well projects pending in the CESA, which are the two projects discussed in this EA.

#### 4.3.4.1 Proposed Action

Both projects combined (approximately 8.6 acres of surface disturbance) would impact approximately 0.01 percent of the CESA. Quantifiable past and present actions and RFFA disturbance in the CESA total approximately 953 acres, which results in an incremental impact from both projects of approximately 0.9 percent. Since there are limited quantifiable data for all activities within the CESA, this calculation is a conservative analysis of the potential incremental impact from both projects. Impacts from both projects would be minimized due to implementation of the EPM outlined in Appendix A and reclamation. Therefore, based on the above analysis and findings, incremental impacts from noxious weeds, invasive and non-native

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species from both projects, when combined with the impacts from the past and present actions and RFFAs, are expected to be minor.

#### **4.3.5 Recreation**

*Past and Present Actions:* Past and present actions that could have impacted and may be currently impacting recreation include ROW construction and maintenance, mineral exploration, and mineral material disposal. Impacts to recreation from these activities may have resulted from the following: 1) restrictions on access to recreational areas; 2) noise; 3) alterations to visual characteristics and impacts to night skies; and 4) loss or displacement of wildlife.

Authorized mineral exploration Notices, as well as mineral material disposal sites, total approximately 23 acres (approximately 0.04 percent of the CESA) of surface disturbance. Approximately 868 acres of ROWs were issued within the CESA. Approximately 31,245 acres of oil and gas leases are currently authorized in the CESA; however, most of these leases do not contain producing oil well projects and have not created any surface disturbance. The past and present actions that are quantifiable have disturbed approximately 891 acres, or approximately 1.4 percent of the CESA.

*RFFAs:* Potential impacts to recreation from ROW construction and maintenance and mineral exploration activities are expected to continue. There are no specific data to quantify impacts to recreation within the CESA from potential wildland fires. There are approximately 62 acres of a pending minerals project as reported in LR2000 in the CESA. There is approximately 0.1 acre of a pending ROW project in the CESA, which is the portion of the proposed access road associated with the NGC Project. There are two oil well projects pending in the CESA, which are the two projects discussed in this EA. These projects would create surface disturbance and potentially cause access, noise, and visual impacts to recreation.

##### **4.3.5.1 Proposed Action**

Both projects combined (approximately 8.6 acres of surface disturbance) would impact approximately 0.01 percent of the CESA. Quantifiable past and present actions and RFFA disturbance in the CESA total approximately 953 acres, which results in an incremental impact from both projects of approximately 0.9 percent. Since there are limited quantifiable data for all activities within the CESA, this calculation is a conservative analysis of the potential incremental impact from both projects. Therefore, based on the above analysis and findings, incremental impacts to recreation from both projects, when combined with the impacts from the past and present actions and RFFAs, are expected to be minor.

#### **4.3.6 Soils**

*Past and Present Actions:* Past and present actions that could have impacted and may be currently impacting soils include livestock grazing, ROW construction and maintenance, mineral exploration, mineral material disposal, soil compaction due to travel by heavy equipment on unpaved roads, and dispersed recreation. These actions may have directly disturbed or impacted soils, or increased erosion or sedimentation potential. Impacts from these activities include loss of soils productivity due to changes in soil physical properties, soil fertility, soil movement in response to water and wind erosion, and loss of soil structure due to compaction. There are no specific data to quantify impacts to soils from livestock grazing or dispersed recreation.

Authorized mineral exploration Notices, as well as mineral material disposal sites, total approximately 23 acres (approximately 0.04 percent of the CESA) of surface disturbance. Approximately 868 acres of ROWs were issued within the CESA. Approximately 31,245 acres of oil and gas leases are currently authorized in the CESA; however, most of these leases do not contain producing oil well projects and have

not created any surface disturbance. The past and present actions that are quantifiable have disturbed approximately 891 acres, or approximately 1.4 percent of the CESA.

*RFFAs:* Potential impacts to soils from livestock grazing, ROW construction and maintenance, mineral exploration activities, dispersed recreation, and soil compaction due to travel by heavy equipment on unpaved roads, are expected to continue. There are no specific data to quantify impacts to soils within the CESA from livestock grazing, dispersed recreation, potential wildland fires, or the level of potential soil compaction. There are approximately 62 acres of a pending minerals project as reported in LR2000 in the CESA. There is approximately 0.1 acre of a pending ROW project in the CESA, which is the portion of the proposed access road associated with the NGC Project. There are two oil well projects pending in the CESA, which are the two projects discussed in this EA.

#### 4.3.6.1 Proposed Action

Both projects combined (approximately 8.6 acres of surface disturbance) would impact approximately 0.01 percent of the CESA. Quantifiable past and present actions and RFFA disturbance in the CESA total approximately 953 acres, which results in an incremental impact from both projects of approximately 0.9 percent. Since there are limited quantifiable data for all activities within the CESA, this calculation is a conservative analysis of the potential incremental impact from both projects. Impacts from both projects would be localized and minimized due to implementation of the EPMs outlined in Appendix A and reclamation. Therefore, based on the above analysis and findings, incremental impacts to soils from both projects, when combined with the impacts from the past and present actions and RFFAs and with the implementation of the BMPs and EPMs, are expected to be minor.

#### 4.3.7 **Special Status Species**

*Past and Present Actions:* Past and present actions that could have impacted and may be currently impacting special status wildlife species and their habitat include livestock grazing, dispersed recreation, ROW construction and maintenance, mineral exploration, and mineral material disposal. These activities have the potential to impact water resources and special status wildlife species habitat or result in direct impacts to individuals in travel routes, or loss of forage, cover, and habitat, as well as disturbance of mating and brood rearing practices.

Authorized mineral exploration Notices, as well as mineral material disposal sites, total approximately 23 acres (approximately 0.04 percent of the CESA) of surface disturbance. Approximately 868 acres of ROWs were issued within the CESA that had the potential to create surface disturbance and disturb special status wildlife species and their habitat and vegetation. As the CESA is located in NDOW Hunt Unit 134, hunting activities have the potential to create noise and disturbance to special status wildlife species or remove or alter habitat. The CESA encompasses portions of the Nyala, Butterfield, and Sand Springs grazing allotments. Livestock grazing and associated management could have contributed to the establishment and spread of noxious weeds, invasive and non-native species, which could have had an indirect effect on special status wildlife species. However, disturbance to special status wildlife species and their habitat from past and present actions would have been reduced through reclamation and reseeding of disturbed areas and natural recolonization of native species. The past and present actions that are quantifiable have disturbed approximately 891 acres, or approximately 1.4 percent of the CESA. There are no data on the number of acres reclaimed. State and federal regulations require reclamation; therefore, it is reasonable to assume that some areas have been reclaimed, become naturally stabilized, or have naturally revegetated over time.

*RFFAs:* Potential impacts to special status wildlife species and their habitat from livestock grazing, ROW construction and maintenance, mineral exploration activities, oil exploratory activities, dispersed recreation, or loss of native vegetation associated with potential wildland fires could continue. There are no

specific data to quantify impacts to special status wildlife species or their habitat within the CESA from dispersed recreation, livestock grazing, or potential wildland fires. There are approximately 62 acres of a pending minerals project as reported in LR2000 in the CESA. There is approximately 0.1 acre of a pending ROW project in the CESA, which is the portion of the proposed access road associated with the NGC Project. There are two oil well projects pending in the CESA, which are the two projects discussed in this EA.

#### 4.3.7.1 Proposed Action

Both projects combined (approximately 8.6 acres of temporary breeding and/or foraging habitat removal) would impact approximately 0.01 percent of the CESA. Quantifiable past and present actions and RFFA disturbance in the CESA total approximately 953 acres, which results in an incremental impact from both projects of approximately 0.9 percent. Since there are limited quantifiable data for all activities within the CESA, this calculation is a conservative analysis of the potential incremental impact from both projects. Impacts from both projects would be localized and minimized due to implementation of the EPMs outlined in Appendix A and reclamation. Therefore, based on the above analysis and findings, incremental impacts to special status wildlife species and their habitat from both projects, when combined with the impacts from the past and present actions and RFFAs, are expected to be minor.

### 4.3.8 **Surface and Groundwater Resources**

*Past and Present Actions:* Past and present actions that could have impacted and may be currently impacting water resources include livestock grazing, ROW construction and maintenance, mineral exploration, mineral material disposal, and dispersed recreation. There are no specific data to quantify impacts to water resources from livestock grazing and dispersed recreation.

Authorized mineral exploration Notices, and mineral material disposal sites, total approximately 23 acres (approximately 0.04 percent of the CESA) of surface disturbance. Approximately 868 acres of ROWs were issued within the CESA that had the potential to create surface disturbance. The CESA is located in NDOW Hunt Unit 134 and portions of the CESA are in the Nyala, Butterfield, and Sand Springs grazing allotments. Impacts caused by hunting activities and associated OHV travel have the potential to create soil erosion and sedimentation of surface water features. The past and present actions that are quantifiable have disturbed approximately 891 acres, or approximately 1.4 percent of the CESA.

*RFFAs:* Potential impacts to surface water resources from livestock grazing, ROW construction and maintenance, mineral exploration activities, oil exploratory activities, and dispersed recreation could occur. There are no specific data to quantify impacts to surface water resources within the CESA from livestock grazing, dispersed recreation, or potential wildland fires. There are approximately 62 acres of a pending minerals project as reported in LR2000 in the CESA. There is approximately 0.1 acre of a pending ROW project in the CESA, which is the portion of the proposed access road associated with the NGC Project. There are two oil well projects pending in the CESA, which are the two projects discussed in this EA. There are no specific data on the amount of sedimentation that could result from these activities or the impacts to surface water resources. However, fluid minerals exploration projects would be required to have spill prevention plans, handle hazardous substances in accordance with the Nevada Department of Transportation and Occupational Safety and Health Administration, adhere to NAC 534.4369 and 534.4371 for drill hole and water well plugging procedures, and utilize BMPs, thus minimizing impacts to surface water resources.

#### 4.3.8.1 Proposed Action

Both projects combined (approximately 8.6 acres of surface disturbance) would impact approximately 0.01 percent of the CESA. Quantifiable past and present actions and RFFA disturbance in the CESA total

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approximately 953 acres, which results in an incremental impact from both projects of approximately 0.9 percent. Since there are limited quantifiable data for all activities within the CESA, this calculation is a conservative analysis of the potential incremental impact from both projects. Impacts to surface water resources would be localized and minimized due to implementation of the EPMs outlined in Appendix A, BMPs, and reclamation. Therefore, based on the above analysis and findings, incremental impacts to surface water resources from both projects, when combined with the impacts from the past and present actions and RFFAs, are expected to be minor.

#### **4.3.9 Vegetation**

*Past and Present Actions:* Past and present actions that could have impacted and may be currently impacting vegetation include livestock grazing, ROW construction and maintenance, mineral exploration, mineral material disposal, and dispersed recreation. These actions may have altered the structure, composition, and ecology of plant communities. There are no specific data that quantify impacts to vegetation from livestock grazing or dispersed recreation.

Authorized mineral exploration Notices, as well as mineral material disposal sites, total approximately 23 acres (approximately 0.04 percent of the CESA) of surface disturbance. Approximately 868 acres of ROWs were issued within the CESA that had the potential to create surface disturbance. The past and present actions that are quantifiable have disturbed approximately 891 acres, or 1.4 percent of the CESA. There are no data on the number of acres reclaimed. State and federal regulations require reclamation; therefore, it is reasonable to assume that some areas have been reclaimed, become naturally stabilized, or have naturally revegetated over time.

*RFFAs:* Potential impacts to vegetation from livestock grazing, ROW construction and maintenance, mineral exploration activities, oil exploratory activities, and dispersed recreation, are expected to continue. There are no specific data to quantify impacts to vegetation within the CESA from livestock grazing, dispersed recreation, or potential wildland fires. There are approximately 62 acres of a pending minerals project as reported in LR2000 in the CESA. There is approximately 0.1 acre of a pending ROW project in the CESA, which is the portion of the proposed access road associated with the NGC Project. There are two oil well projects pending in the CESA, which are the two projects discussed in this EA.

##### **4.3.9.1 Proposed Action**

Both projects combined (approximately 8.6 acres of temporary vegetation removal) would impact approximately 0.01 percent of the CESA. Quantifiable past and present actions and RFFA disturbance in the CESA total approximately 953 acres, which results in an incremental impact from both projects of approximately 0.9 percent. Since there are limited quantifiable data for all activities within the CESA, this calculation is a conservative analysis of the potential incremental impact of both projects. Impacts from both projects would be localized and minimized due to implementation of the EPMs outlined in Appendix A and reclamation. Therefore, based on the above analysis and findings, incremental impacts to vegetation from both projects, when combined with the impacts from the past and present actions and RFFAs, are expected to be minor.

#### **4.3.10 Visual Resources**

*Past and Present Actions:* Past and present actions that could have impacted and may be currently impacting visual resources primarily include ROW construction and maintenance and mineral exploration. Fluid minerals exploration cause short-term impacts to visual resources from drill rigs, construction equipment and facilities, while transmission lines and communication sites tend to cause more permanent impacts to visual resources.

*RFFAs:* RFFAs in the CESA include ROW construction and maintenance and fluid mineral exploration. Continued short-term impacts to visual resources from drill rigs, construction equipment and facilities could occur.

#### 4.3.10.1 Proposed Action

Both proposed projects are within a VRM Class IV area and the proposed drilling would still meet the objectives of this class. By building exploration or production well drill pads as small as practicable, the impacts to local visual resources would be reduced. If the wells are not producers, six-foot-high dry hole markers would be located on the wellheads that could be visible up to 1,000 feet away. These impacts would be temporary.

If the projects result in production, more permanent oil wells, tanks, pipelines, and transmission lines are required to be painted to match the visual background. These impacts would be consistent with the VRM Class IV designation throughout the CESA. Impacts to visual resources from both projects would be minor.

#### 4.3.11 **Wildlife**

*Past and Present Actions:* Past and present actions that could have impacted and may be currently impacting wildlife species and their habitat include livestock grazing, dispersed recreation, ROW construction and maintenance, mineral exploration, and mineral material disposal. These activities have the potential to impact water resources and wildlife species habitat or result in direct impacts to individuals in travel routes, or loss of forage, cover, and habitat, as well as disturbance of mating and brood rearing practices.

Authorized mineral exploration Notices, as well as mineral material disposal sites, total approximately 23 acres (approximately 0.04 percent of the CESA) of surface disturbance. Approximately 868 acres of ROWs were issued within the CESA that had the potential to create surface disturbance and disturb wildlife species and their habitat and vegetation. As the CESA is located in NDOW Hunt Unit 134, hunting activities have the potential to create noise and disturbance to wildlife species or remove or alter habitat. The CESA encompasses portions of the Nyala, Butterfield, and Sand Springs grazing allotments. Livestock grazing and associated management could have contributed to the establishment and spread of noxious weeds, invasive and non-native species, which could have had an indirect effect on wildlife species. However, disturbance to wildlife species and their habitat from past and present actions would have been reduced through reclamation and reseeding of disturbed areas and natural recolonization of native species. The past and present actions that are quantifiable have disturbed approximately 891 acres, or approximately 1.4 percent of the CESA. There are no data on the number of acres reclaimed. State and federal regulations require reclamation; therefore, it is reasonable to assume that some areas have been reclaimed, become naturally stabilized, or have naturally revegetated over time.

*RFFAs:* Potential impacts to wildlife species and their habitat from livestock grazing, ROW construction and maintenance, mineral exploration activities, oil exploratory activities, dispersed recreation, or loss of native vegetation associated with potential wildland fires could continue. There are no specific data to quantify impacts to wildlife species or their habitat within the CESA from dispersed recreation, livestock grazing, or potential wildland fires. There are approximately 62 acres of a pending minerals project as reported in LR2000 in the CESA. There is approximately 0.1 acre of a pending ROW project in the CESA, which is the portion of the proposed access road associated with the NGC Project. There are two oil well projects pending in the CESA, which are the two projects discussed in this EA.

#### 4.3.11.1 Proposed Action

Both projects combined (approximately 8.6 acres of temporary breeding and/or foraging habitat removal) would impact approximately 0.01 percent of the CESA. Quantifiable past and present actions and RFFA

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disturbance in the CESA total approximately 953 acres, which results in an incremental impact from both projects of approximately 0.9 percent. Since there are limited quantifiable data for all activities within the CESA, this calculation is a conservative analysis of the potential incremental impact from both projects. Impacts from both projects would be localized and minimized due to implementation of the EPMS outlined in Appendix A and reclamation. Therefore, based on the above analysis and findings, incremental impacts to wildlife species and their habitat from both projects, when combined with the impacts from the past and present actions and RFFAs, are expected to be minor.

## 5 CONSULTATION AND COORDINATION

This EA was prepared at the direction of the BLM TFO, Battle Mountain District, Nevada, by EMS, under a contract with HOGV. The following is a list of persons, groups, and agencies consulted, as well as a list of individuals responsible for the preparation of this EA.

### 5.1 Native American Consultation

The BLM TFO initiated government-to-government consultation with the Timbisha Shoshone Tribe, the Yomba Shoshone Tribe, the Duckwater Shoshone Tribe, and the Ely Shoshone Tribe, for both projects on September 30, 2022, and would continue throughout the life of the Project. See Section 3.5.

### 5.2 Persons, Groups, and Agencies Consulted

#### Federal Agencies

USFWS

#### State Agencies

NDNH  
NDOW

### 5.3 List of Preparers and Reviewers

#### BLM

Jeff Kirkwood	Planning and Environmental Coordinator; Project Manager
Wilfred Nabahe	Native American Coordinator
Brandon Crosby	Migratory Birds; Special Status Species; General Wildlife
Erin Gillett	Cultural Resources; Paleontological Resources
Matthew Fockler	Environmental Justice; Socioeconomics
Ashley King	Recreation; Visual Resources; Wilderness; Lands with Wilderness Characteristics
Thomas Mendoza	Rangeland Management; Vegetation; Soils; Noxious Weeds, Invasive and Non-native Species
Timothy Lindsay	Lands and Realty
Tom Gibbons	Surface and Groundwater Resources; Floodplains; Wetland and Riparian Zones
Frank Giles	Air Quality; Climate Change
Brianna Brodowski	Wild Horses and Burros
Melissa Jennings	Geology and Mineral Resources
Delmetria Taylor	Wastes, Hazardous and Solid

#### EM Strategies, a WestLand Resources, Inc. Company

Catherine Lee	EA Manager, Document Preparation
Traavis Field	GIS Data Management and Figure Production
Kris Kuyper	Biological Resources
Ellen Farley	Editorial Review

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**APPENDIX A**

**APPLICANT-COMMITTED ENVIRONMENTAL PROTECTION MEASURES**

**APPENDIX A**

**APPLICANT-COMMITTED  
ENVIRONMENTAL PROTECTION MEASURES**

Soda Spring 1-22 Oil Well Project and North Grant Canyon 1-8 Oil Well Project

*Air Quality*

- Emissions of fugitive dust from disturbed surfaces would be minimized by using appropriate control measures. Surface application of water from a water truck and reduced speed limits on dirt access roads are the current methods of dust control.

*Cultural Resources*

- Pursuant to 43 Code of Federal Regulations (CFR) 10.4(g), HOGV would notify the BLM authorized officer (AO) immediately by telephone and in writing within 72 hours upon the discovery of human remains, funerary objects, sacred objects, or objects of cultural patrimony (as defined in 43 CFR 10.2). Further pursuant to 43 CFR 10.4 (c) and (d), the operator would immediately stop all activities within 100 meters of the discovery and not commence again until a notice to proceed is issued by the BLM AO.
- Any cultural resources discovered by HOGV, or any person working on their behalf, during the course of activities on federal land would be immediately reported to the BLM AO by telephone and in writing within 72 hours. The permit holder would suspend all operations within 100 meters of such discovery and protect it until an evaluation of the discovery can be made by the BLM AO. This evaluation would determine the significance of the discovery and what mitigation measures are necessary to allow activities to proceed. HOGV would be responsible for the cost of evaluation and mitigation. Operations would resume only upon written authorization to proceed from the BLM AO.

*Erosion and Sediment Control*

- Stormwater best management practices would be used at construction sites to minimize stormwater erosion.

*Fire Management*

- All applicable state and federal fire laws and regulations would be complied with and all reasonable measures would be taken to prevent and suppress fires in the Project Area.
- If the Project starts a fire, HOGV would be responsible for all the costs associated with the suppression. The following precautionary measures would be taken to prevent and report wildland fires:
  - All vehicles would carry fire extinguishers and a minimum of five gallons of water;
  - Adequate fire-fighting equipment (i.e., shovel, Pulaski, extinguishers), and an ample water supply would be kept at the well pad;
  - Vehicle catalytic converters would be inspected often and cleaned of brush and grass debris;

- Welding operations would be conducted in an area free from or mostly free from vegetation. A minimum of ten gallons of water and a shovel would be on hand to extinguish any fires created from the sparks. Extra personnel would be at the welding site to watch for fires created by welding sparks. Welding aprons would be used when conditions warrant (i.e., during red flag warnings);
- Wildland fires would immediately be reported to the BLM Central Nevada Interagency Dispatch Center at (775) 623-3444. Information reported would include the location (latitude and longitude if possible), fuels involved, time started, who or what is near the fire, and the direction of fire spread; and
- When conducting operations during the months of May through September, the BLM Battle Mountain District Office, Division of Fire and Aviation would be contacted at (775) 635-4000 to determine if any fire restrictions are in place for the Project and to provide approximate beginning and ending dates for Project activities.

#### *Hazardous or Solid Wastes*

- Pursuant to 43 CFR 8365.1-1(b)(3), no sewage, petroleum products, or refuse would be dumped from any trailer or vehicle.
- All regulated wastes, including hazardous and miscellaneous solid wastes, would be removed from the Project Area and disposed of in a state, federal, or local designated area on a daily basis, or as appropriate.
- Please see the Spill Contingency Plan (Appendix D). All spills, regardless of quantity, would be addressed and the material would be removed for proper disposal.
- If a spill of a petroleum constituent is considered to meet the reportable quantity per the Nevada Division of Environmental Protection' (NDEP's) guidelines (releases to the soil or other surfaces of land in a quantity greater than 25 gallons or 200 pounds; releases discovered in at least three cubic yards of soil during any subsurface excavation; releases discovered in or on groundwater; or a confirmed release from an underground storage tank), or a reportable quantity for hazardous waste is released based on the US Environmental Protection Agency guidelines established under 40 CFR Part 302, the NDEP would be notified within 24 hours, and the appropriate remedial actions and confirmation sampling would be conducted under direction of the NDEP.

#### *Migratory Birds*

- To avoid potential impacts to breeding migratory birds, a nest survey would be conducted by a qualified biologist prior to any surface disturbance associated with exploration activities during the avian breeding season (March 1 through July 31) for raptors and other migratory birds. Pre-disturbance surveys for migratory birds are only valid for 14 days. If the disturbance for the specific location does not occur within 14 days of the survey, another survey would be needed. If nests are located, or if other evidence of nesting (i.e., mated pairs, territorial defense, carrying nest material, transporting food) is observed, a protective buffer (the size depending on the habitat requirements of the species) would be delineated after consultation with the BLM resource specialist.

#### *Night Skies*

- To minimize effects from lighting, HOGV would utilize lighting measures consistent with "Dark Sky" lighting practices. Effective lighting should be hooded or screened, and directed onto the pertinent site only and away from adjacent areas not in use.

### *Noxious Weeds*

- To minimize the introduction of noxious weeds into the Project Area, HOGV would be responsible for the following: 1) ensuring that all equipment is weed free before traveling to and from the Project Area; 2) identifying noxious weeds in the Project Area and providing the findings to the BLM with a map and UTM coordinates of the observed weed locations; and 3) treating weeds before they have an opportunity to spread throughout the Project Area. HOGV would obtain approval from the BLM AO prior to any herbicide application if chemical treatment was the most effective treatment for the species present.

### *Paleontological Resources*

- HOGV would not knowingly disturb, alter, injure, or destroy any scientifically important paleontological deposits. If previously undiscovered paleontological resources are discovered by BNI in the performance of any surface disturbing activities, the item(s) or condition(s) would be left intact and immediately brought to the attention of the BLM AO. If significant paleontological resources are found, avoidance, recordation, and/or data recovery would be required as determined by the BLM, and at the expense of HOGV.

### *Public Safety*

- Public safety would be maintained throughout the life of the Project. All equipment and other facilities would be maintained in a safe and orderly manner.
- If any existing roads are degraded because of HOGV activities, HOGV would return them to as close as possible to their original condition.

### *Survey Monuments*

- Any survey monuments, witness corners, or reference monuments would be protected to the extent economically and technically feasible.

### *Vegetation*

- Reseeding would be consistent with BLM recommendations for seed mix species, application rates, and seeding methods.

### *Visual Resources*

- To minimize 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, or other BLM-approved color, if the well produces oil (additional environmental analysis would be required if production and/or storage facilities are necessary and exceed the 400 feet x 400 feet well pad disturbance boundary, plus 100 feet buffer).

### *Water Quality*

- Upon Project completion, the water well would be abandoned pursuant to Nevada Administrative Code 534.420.

### *Wildlife*

- Vehicle speeds would not exceed 25 miles per hour in the Project Area and unposted access roads.



## North Grant Canyon Access Road Project

### *Air Quality*

- During Project construction, the disturbed soil would be wetted, chemically treated, or treated by other means satisfactory to the Authorized Officer, sufficiently in order to effectively reduce airborne dust and reduce soil erosion. Additionally, prudent vehicle speeds would be maintained to minimize fugitive dust created by travel;
- Construction and maintenance activities would be conducted to minimize disturbance to vegetation;
- All disturbed areas not required for maintenance would be permanently reclaimed using methods approved by the BLM; and
- All construction vehicle movement outside the ROW would be restricted to the extent practicable.

### *Cultural and Paleontological Resources*

- Pursuant to 43 Code of Federal Regulations (CFR) 10.4(g), HOGV would notify the BLM-authorized officer, by telephone, and with written confirmation, immediately upon the discovery of human remains, funerary objects, sacred objects, or objects of cultural patrimony (as defined in 43 CFR 10.2). Further pursuant to 43 CFR 10.4, HOGV would immediately stop all activities in the vicinity of the discovery and not commence again until a notice to proceed is issued by the BLM-authorized officer;
- Prior to construction, HOGV would inform all field personnel of the Archaeological Resource Protection Act of 1979 and the Native American Graves Protection and Repatriation Act of 1990 (Public Law 101-601) responsibilities and their associated penalties;
- Any cultural resource discovery by HOGV, or any person working on their behalf, during the course of activities on federal land would be immediately reported to the authorized officer by telephone, and with written confirmation. The permit holder would suspend all operations in the immediate area of the discovery and protect it until an evaluation of the discovery can be made by the authorized officer. This evaluation would determine the significance of the discovery and what mitigation measures are necessary to allow activities to proceed. HOGV would be responsible for the cost of evaluation and mitigation. Operations would resume only upon written authorization to proceed from the authorized officer; and
- HOGV would not knowingly disturb, alter, injure, or destroy any scientifically important paleontological deposits. In the event that previously undiscovered paleontological resources are discovered by HOGV in the performance of any surface disturbing activities, the item(s) or condition(s) would be left intact and immediately brought to the attention of the BLM-authorized officer. If significant paleontological resources are found, avoidance, recordation, and/or data recovery would be required, and at the expense of HOGV.

### *Fire Protection*

- All federal, state, and county laws, ordinances, rules, and regulations, which pertain to prevention, pre-suppression, and suppression of fires, would be strictly adhered to. All personnel would be advised of their responsibilities under the applicable fire laws and regulations. It would be the responsibility of HOGV to notify the Central Nevada Interagency Dispatch Center at (775) 623-3444, if a Project-related fire occurs within or adjacent to the construction area;
- Fire extinguishers would be available in the construction area. Water from a water truck that may be used for construction and dust control would be available for firefighting; and

- HOGV would take aggressive action to prevent and suppress fires on and adjacent to the construction area, and would utilize its workers and equipment on the Project for fighting fires within the construction area.

#### *Noxious Weeds, Invasive and Non-native Species*

- If noxious weeds are encountered within the construction area, mitigation measures would be instituted in consultation with the BLM weed specialist. ROW monitoring and weed abatement following construction would be conducted as required by the BLM. To avoid the spread of noxious weeds, all vehicles brought in from out of the area would go through high pressure washing of the undercarriages at a commercial carwash prior to arriving on site and before being used on the Project.

#### *Soils*

- To minimize erosion from storm water runoff, construction areas would be maintained consistent with the best management practices.

#### *Wastes, Hazardous or Solid*

- All construction vehicles would be maintained in accordance with the manufacturers' recommendations. All vehicles would be inspected for leaks prior to entering the jobsite. All discovered leaks would be contained with a bucket of absorbent materials until repairs can be made;
- Pursuant to 43 CFR 8365.1-1(b)(3), no sewage, petroleum products, or refuse would be dumped from any trailer or vehicle;
- Hazardous material storage and equipment repair would be conducted at least 100 feet away from ephemeral drainages;
- Spilled materials of any type would be cleaned up immediately. A shovel and spill kit would be maintained on site at all times to respond to spills;
- All sanitary wastes would be collected in portable, self-contained toilets in the temporary use area and managed in accordance with local requirements; and
- All solid wastes would be disposed of in a state, federal, or local designated site.

#### *Wildlife*

- Following Project construction, areas of disturbed land no longer required for operations would be reclaimed as required by the BLM to promote the reestablishment of native plant and wildlife habitat.

**APPENDIX B**

**GENERAL REQUIREMENTS FOR CONSTRUCTION, SURFACE USE, AND OPERATIONS**

**APPENDIX B**  
**GENERAL REQUIREMENTS FOR CONSTRUCTION, SURFACE USE,**  
**AND OPERATIONS**

**Drilling Operations**

1. The anticipated spud date would be reported orally to the BLM Petroleum Engineer and Petroleum Engineering Technician 24 HOURS PRIOR TO SPUDDING, followed up by submitting Form 3160-5 with actual spud date and time to the BLM.
2. Daily drilling and completion progress reports shall be submitted to the BLM Agency Contacts on a daily basis and continuing until the well is completed, 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. The reports shall be emailed (refer to Agency Contacts).
3. A Tonopah Field Office Authorized Officer (AO) 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 Application for Permit to Drill (APD). Air and/or mist drilling requires BLM Petroleum Engineer notification and approval. If the AO is not available, please contact the Petroleum Engineer or Petroleum Engineering Technician in the prescribed order.
4. Flexible choke lines shall meet or exceed the API SPEC 16C requirements. Flexible choke lines shall have flanged connections and configured to the manufacturer's specifications. The flexible choke lines shall be anchored in a safe and workmanlike manner. At minimum, all connections shall be effectively anchored in place for safety of the personnel on location. Manufacturer specifications shall be kept with the drilling rig at all times and immediately supplied to the AO or inspector upon request. Specifications at a minimum shall include acceptable bend radius, heat range, anchoring, and the working pressure. All flexible choke lines shall be free of gouges, deformations, and as straight/short as possible.
5. A Hydrogen Sulfide (H<sub>2</sub>S) Contingency Plan as outlined in Onshore Order No. 6 would be submitted when required by this office. However, minimum safety precautions must always be taken. Personal safety equipment, including a portable hydrogen sulfide detector situated in a position to detect gas from the well, and two or more OSHA-approved protective breathing apparatus must be on location. If company policy requires more than this, please supply this office with a copy of the company plan or requirement, if not already submitted.
6. If included in the drilling program and/or required by AO, the gas buster shall be functional and all flare lines effectively anchored in place, prior to drilling out the surface casing shoe. The discharge of the flare lines shall be a minimum of 100 feet from the wellhead and targeted at bends. The panic line shall be a separate line (not open inside the buffer tank) and effectively anchored. All lines shall be downwind of the prevailing wind direction and directed into a flare pit, which cannot be the reserve pit. The flare system shall use an automatic ignition. Where noncombustible gas is likely or expected to be vented, the system shall be provided supplemental fuel for ignition and maintain a continuous flare.
7. Nevada State Office personnel shall be contacted for approval prior to running non-API (American Petroleum Institute) Standard casing downhole.
8. Prior to running used or reconditioned API-grade casing downhole, a petroleum engineer in the Nevada State Office shall be contacted to obtain approval as per Onshore Order No.1.

9. 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.
10. Gamma Ray Log shall be run from total depth to surface.
11. Notice: if no logs are run (mud or electric), all open sections of hole would be filled with cement in a manner which precludes interzonal migration of fluids.
12. Directional surveys (inclination and azimuth) shall be run on the well wherever the inclination exceeds 10 degrees, or the projected bottom hole location is within 200 feet of the spacing unit or lease or unit boundary.
13. If a well control issue or failed test (e.g., kick, blowout, water flow, casing failure, or a bradenhead pressure increase) arises during drilling or completions operations, the Petroleum Engineer shall be notified within 24 hours from the time of the event. IADC/Driller's Logs and Pason Logs (mud logs) shall be forwarded to Agency Contacts.
14. The State of Nevada (NAC 522A.215) requires that samples of cuttings shall be collected at a minimum of 30-foot intervals from surface to the surface casing point, and on 10-foot intervals from surface casing shoe to total depth. A minimum of two 15-milliliter sets of cuttings per sampling interval must be cleaned, dried, and placed in 3" x 5" sample envelopes, properly identified and sent prepaid to the Nevada Bureau of Mines and Geology (NBMG) University of Nevada, Reno, Mail Stop 178, Reno, Nevada 89557- 0088.

Note: the cuttings are not to be sent to the Nevada Division of Minerals (NDOM). The cuttings are due within 15 days of completion of the well. The operator would be responsible for the cost of any further handling of the samples by the NBMG required to meet standards set out in this permit condition.

### **Pressure Control and Testing**

15. The BOPE shall be installed, tested, and operated in conformance with Onshore Order #2.
16. The BOPE would be tested according to specified procedures in the Approved Application to Permit Drilling and Drilling Program.
17. All tests are required to be recorded on a calibrated test chart/graph and in the IADC/Driller's log.
18. All BOPE tests of 5000 psi or greater shall be conducted by an independent contractor.
19. The results of the BOPE test shall be reported to the Bureau of Land Management. Please submit the test chart to the regulatory agencies (refer to Agency Contacts).

### **Well Testing, Completion and Subsequent Well Operations**

20. Pursuant to 43 CFR 3162.7-1(b), production testing would be permitted into test tanks only. No oil would be permitted into the reserve pit except in emergency situations.
21. If after drilling of the well is completed hydraulic fracturing is proposed, prior approval and further NEPA analysis would be needed.
22. Whether the well is completed as a dry hole or as a producer, a Standard Form 3160-4, Well Completion or Recompletion Report and Log shall be submitted no later than 30 days after completion of the well or after completion operations being performed. In accordance with 43 CFR subpart 3160.0-9 and 3162.4-1(b), the report shall include:



- a. The spud date, casing information such as size, grade, weight, hole size, and setting depth, amount and type of cement used, top of cement, depth of cementing tools, casing test method, intervals tested, perforated, acidized, fractured and results obtained and the dates all work done.
  - b. Copies of the mud/drilling log, driller's event log/operations summary report, production test volumes, directional survey, and Formation Integrity Test (FIT) results.
  - c. Two complete copies of electrical/mechanical logs in LAS format or hard copies. Please contact BLM Petroleum Engineer if there are any questions.
23. Two copies of all logs run on the well and where possible, one copy of the computed logs in electronic format such as LAS or PDF are to be submitted to the NDOM within 30 days of the date of being run.
24. If the well is productive and it is determined that the reservoir extends beyond the lease boundary a Communitization Agreement may be set up.
25. No later than the fifth business day after any well begins production on which royalty is due anywhere on a lease site or allocated to a lease site, the operator must notify the BLM by letter or sundry notice of the date on which such production commenced. The date is defined as follows: the date on which liquid hydrocarbons are first sold or shipped from a temporary storage facility, such as a test tank, and for which a run ticket is required to be generated, or the date on which liquid hydrocarbons are first produced into a permanent storage facility, whichever occurs first. If you intend to sell from a test tank, it must be calibrated as specified 43 CFR subpart 3174 and sealed in accordance with 43 CFR subpart 3173. You can initially notify orally, but you must follow-up with a letter or sundry notice. Reference is made to 43 CFR 3162.4-1(c). As a minimum, such notice must provide the following information:
- a. Operator's name, address, and telephone number.
  - b. Well name and number.
  - c. Well location (¼ ¼ Section, Township, Range, MDB&M).
  - d. Date well placed in a producing status.
  - e. The nature of the well's production, i.e., crude oil, natural gas.
  - f. The lease communitization, or unit number applicable.
58. Standard Form 3160-5, Sundry Notice and Report on Wells shall be filed electronically for approval for all changes of plans and other operations in accordance with 43 CFR subpart 3173.10. For more information regarding access to AFMSS and Well Information Systems, please contact the AO.
59. In accordance with 43 CFR subpart 3173.11, a site facility diagram shall be submitted electronically via standard Form 3160-5 within thirty (30) days after the facility becomes operational.
60. All oil, other hydrocarbons, and gas produced, stored, removed, or sold from a lease, communitized area, or unit participating area must be handled in accordance with the requirements of 43 CFR subparts 3160, 3170, 3173, 3174, 3175, 3178, and 3179. All measurement must be on the lease, communitized area, or unit from which the oil originated and must not be commingled with oil originating from other sources, unless approved by the AO under the provisions of 43 CFR subpart 3173.

61. Unless prohibited by the AO, produced water from newly completed wells may be temporarily disposed of into pits for a period of up to 90 days, if the use of the pit was approved as a part of an APD. Any extension of time beyond this period requires documented approval by the AO.

### **Abandonment**

62. Abandonment program approval must be obtained prior to plugging the well. Following an oral approval, a sundry notice titled "Notice of Intent to Abandon" would be submitted within five business days. Failure to obtain approval prior to commencement of abandonment operations shall result in immediate assessment under 43 CFR 3163.1(b) (3).
63. Upon abandonment, the operator shall:
  - a. Remove all trash and debris from the site and dispose of it properly.
  - b. Re-contour the mud pit to as near original grade as possible and spread stockpiled topsoil over the covered pit.
  - c. Remove any culverts installed.
  - d. Rehabilitate the drill pad by stripping as much gravel as possible from the pad and re-contouring. 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 would be scarified and re-seeded with the BLM recommended seed mix.
  - e. Reclaim existing roads that are improved to their original condition by removing turnout improvements. Imported gravel at the turnouts would be removed to restore the original surface.

**APPENDIX C**  
**NOXIOUS WEEDS**

## Appendix C Noxious Weeds

The State of Nevada and the Battle Mountain District Office both recognize two categories of weeds as noxious and invasive. Noxious weeds are defined as plants designated by federal or state laws as generally possessing one of more of the following characteristics: aggressive and difficult to manage; parasitic; a carrier or host of serious insect or disease; or nonnative, new or not common to the US. An invasive species is defined as a species that is non-native to the ecosystem under consideration and whose introduction causes or is likely to cause economic or environmental harm to human health.

Perennial noxious weeds (Perennial pepperweed [*Lepidium latifolium*], salt cedar [*Tamarix* spp.], hoary cress [*Cardaria draba*] and Russian knapweed [*Acroptilon repens*]) and invasive species (cheatgrass [*Bromus tectorum*], tumble mustard [*Sisymbrium altissimum*], Russian thistle [*Salsola tragus*], and Halogeton [*Halogeton glomeratus*]) were previously inventoried in Railroad Valley. Vegetation growth and invasive species would be monitored on a regular basis and managed as directed by the BLM. Invasive and/or noxious weeds would be controlled using techniques approved by the BLM and as included in Appendix A of this EA.

### **Category A Weeds:**

*Category A noxious weeds are weeds that are generally not found or that are limited in distribution throughout the State.*

African rue	<i>Peganum harmala</i>
Austrian fieldcress	<i>Rorippa austriaca</i>
Austrian peaweed	<i>Sphaerophysa salsula</i>
Barbed goatgrass	<i>Aegilops triuncialis</i>
Bufflegrass	<i>Pennisetum ciliare</i>
Camelthorn	<i>Alhagi pseudalhagi</i>
Common crupina	<i>Crupina vulgaris</i>
Curly-leaf pondweed	<i>Potamogeton crispus</i>
Desert knapweed	<i>Volutaria tubuliflora</i>
Dyer's woad	<i>Isatis tinctoria</i>
Eurasian water-milfoil	<i>Myriophyllum spicatum</i>
Flowering rush	<i>Butomus umbellatus</i>
Giant salvinia	<i>Salvinia molesta</i>
Goats rue	<i>Galega officinalis</i>
Green fountain grass	<i>Pennisetum setaceum</i>
Houndstongue	<i>Cynoglossum officinale</i>
Hydrilla	<i>Hydrilla verticillata</i>
Iberian starthistle	<i>Centaurea iberica</i>
Jointed goatgrass	<i>Aegilops cylindrical</i>
Klamath weed	<i>Hypericum perforatum</i>
Malta starthistle	<i>Centaurea melitensis</i>
Mediterranean sage	<i>Salvia aethiopis</i>
Purple loosestrife	<i>Lythrum salicaria</i>
Purple starthistle	<i>Centaurea calcitrapa</i>
Rush skeletonweed	<i>Chondrilla juncea</i>
Squarrose knapweed	<i>Centaurea virgata</i>
Sulfur cinquefoil	<i>Potentilla recta</i>

Syrian bean caper	<i>Zygophyllum fabago</i>
Ventenata	<i>Ventenata dubia</i>
Yellow starthistle	<i>Centaurea solstitialis</i>
Yellow toadflax	<i>Linaria vulgaris</i>

**Category B Weeds:**

*Category B listed noxious weeds are weeds that are generally established in scattered populations in some counties of the State.*

Black henbane	<i>Hysocyamus niger</i>
Carolina horse nettle	<i>Solanum carolinense</i>
Dalmation toadflax	<i>Linaria dalmatica</i>
Diffuse knapweed	<i>Centaurea diffusa</i>
Giant reed	<i>Arundo donax</i>
Leafy spurge	<i>Euphorbia esula</i>
Medusahead	<i>Taeniatherum caput-medusae</i>
Mayweed chamomile	<i>Anthemis cotula</i>
Perennial sowthistle	<i>Sonchus arvensis</i>
Sahara mustard	<i>Brassica tournefortii</i>
Silverleaf nightshade	<i>Solanum elaeagnifolium</i>
Spotted knapweed	<i>Centaurea maculosa</i>

**Category C Weeds:**

*Category C listed noxious weeds are weeds that are generally established and generally widespread in many counties of the State.*

Canada thistle	<i>Cirsium arvense</i>
Hoary cress	<i>Cardaria draba</i>
Johnson grass	<i>Sorghum halepense</i>
Musk thistle	<i>Caduus nutans</i>
Perennial pepperweed	<i>Lepidium latifolium</i>
Poison hemlock	<i>Conium maculatum</i>
Puncture vine	<i>Tribulus terrestris</i>
Russian knapweed	<i>Acroptilon repens</i>
Salt cedar	<i>Tamarix spp.</i>
Scotch thistle	<i>Onopordum acanthium</i>
Water hemlock	<i>Cicuta maculata</i>



**APPENDIX D**  
**SPILL CONTINGENCY PLAN**

**HUSSEY OIL & GAS VENTURES, LLC  
SODA SPRING 1-22 OIL WELL PROJECT  
AND  
NORTH GRANT CANYON 1-8 OIL WELL PROJECT  
NYE COUNTY, NEVADA  
  
SPILL CONTINGENCY PLAN**

**October 2022  
Revised November 2022**

*Prepared for*

Hussey Oil & Gas Ventures, LLC  
2612 Sara Way  
Bakersfield, California 89049

*Submitted to*

Bureau of Land Management  
Battle Mountain District  
Tonopah Field Office  
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**HUSSEY OIL & GAS VENTURES, LLC  
SODA SPRING 1-22 OIL WELL PROJECT  
AND  
NORTH GRANT CANYON 1-8 OIL WELL PROJECT  
NYE COUNTY, NEVADA  
SPILL CONTINGENCY PLAN**

**TABLE OF CONTENTS**

	<b>Page</b>
<b>1 INTRODUCTION.....</b>	<b>1</b>
<b>1.1 Plan Availability.....</b>	<b>1</b>
<b>2 OPERATOR INFORMATION.....</b>	<b>1</b>
<b>2.1 Operator Information .....</b>	<b>1</b>
<b>2.2 Designated Facility Representative or Operations Manager .....</b>	<b>1</b>
<b>3 PROJECT LOCATION AND DESCRIPTION.....</b>	<b>2</b>
<b>3.1.1 Project Areas Drainage .....</b>	<b>2</b>
<b>3.1.2 Tank Locations.....</b>	<b>2</b>
<b>4 SPILL RESPONSE .....</b>	<b>3</b>
<b>4.1 Release Prevention.....</b>	<b>3</b>
<b>4.1.1 Best Management Practices.....</b>	<b>3</b>
<b>4.2 Source Identification .....</b>	<b>4</b>
<b>4.2.1 Pollutants .....</b>	<b>4</b>
<b>4.2.2 Construction Debris .....</b>	<b>4</b>
<b>4.3 Material Storage and Cleanup .....</b>	<b>4</b>
<b>4.3.1 Release Response, Handling, and Clean-up.....</b>	<b>4</b>
<b>4.3.2 Emergency Equipment.....</b>	<b>4</b>
<b>4.4 Reporting and Notification Procedures.....</b>	<b>5</b>
<b>4.4.1 Authority and Responsibility.....</b>	<b>5</b>
<b>4.4.2 Notification Requirements for Spills .....</b>	<b>6</b>
<b>4.4.3 Notification Requirements for Reportable Quantities of Hazardous Substances. 7</b>	<b>7</b>

**LIST OF TABLES**

<b>Table 1: Emergency Notifications and Duties .....</b>	<b>5</b>
<b>Table 2: Responsible Personnel .....</b>	<b>6</b>
<b>Table 3: Spill Notification Contacts and Emergency Response Agencies.....</b>	<b>6</b>

**HUSSEY OIL & GAS VENTURES, LLC  
SODA SPRING 1-22 OIL WELL PROJECT  
AND  
NORTH GRANT CANYON 1-8 OIL WELL PROJECT  
SPILL CONTINGENCY PLAN**

## **1 INTRODUCTION**

Hussey Oil & Gas Ventures, LLC (HOGV) submits this Spill Contingency Plan (Plan) for the Soda Spring 1-22 Oil Well Project (Soda Spring Project) and the North Grant Canyon 1-8 Oil Well Project (NGC Project). The purpose of the Plan is as follows:

- Identify all pollutant sources that may exist within the Project Areas.
- Identify Best Management Practices (BMPs) to prevent or reduce the quantity of potential pollutants discharged to the ground or surface water in order to minimize environmental impacts during and after the exploratory activities.
- Establish methods for preventing and responding to environmental releases and outline responsibilities for notification of various state and federal agencies in the event of a release.

### **1.1 Plan Availability**

A copy of this Plan is attached to the Project’s Environmental Assessment as Appendix D, along with example BMPs (Attachment 1). Responsible personnel will provide any different or additional SDS for materials brought to the site. All contractors are responsible for familiarizing their personnel with the information pertaining to BMPs and spill prevention.

## **2 OPERATOR INFORMATION**

### **2.1 Operator Information**

Name of Operator: Hussey Oil & Gas Ventures, LLC

Name of Corporate Contact: Jim Hussey, President

Mailing Address: 2612 Sara Way  
Bakersfield, California 93304

### **2.2 Designated Facility Representative or Operations Manager**

Name of Project Manager: Virgil Welch

Phone Number: (775) 217-1426

### **3 PROJECT LOCATION AND DESCRIPTION**

The Soda Spring and NGC Project Areas are located approximately 22 and 26 miles southwest of Carrant, Nevada, respectively. The Soda Spring Project is located in Section 22, Township 8 North (T8N), Range 57 East (R57E), Mount Diablo Base and Meridian (MDB&M) in Nye County, Nevada (Soda Spring Project Area), and the NGC Project is located in Sections 8, 9, and 17, T7N, R57E, MDB&M in Nye County, Nevada (NGC Project Area).

The project areas can be accessed from Carrant, Nevada, by traveling approximately 11 miles southwest on United States (US) Highway 6, then turning southeast on Railroad Valley Road; travel approximately 11 miles to the turn off for the Soda Spring Project, then an additional five miles to the turn off for the NGC Project.

HOGV plans to conduct exploratory oil well drilling activities, using one oil well at each project site. Each well pad will include a water well, tanks, pumps, a generator, a stockpile of topsoil for reclamation, and associated support facilities. The Soda Spring Project includes utilization and maintenance of an existing access road, and the NGC Project includes the construction and utilization of an access road. HOGV proposes to create approximately 3.8 acres of surface disturbance at the Soda Spring Project and approximately 4.8 acres at the NGC Project.

#### **3.1.1 Project Areas Drainage**

The projects are located in Railroad Valley between the Grant Range to the east, and the Pancake Range to the west, and both occur at approximately 4,730 feet above mean sea level. Surface waters in the vicinity of the project areas are ephemeral where the local topographic relief creates a network of drainages that primarily flow east to west towards the playa. There are no seeps or springs in either project area.

#### **3.1.2 Tank Locations**

HOGV will utilize drill pad areas of approximately 160,000 square feet within each project area to stage a minimum of 5,000 gallons of water and 5,000 pounds of inert, non-toxic, non-hazardous drilling mud additives including bentonite, Loss Circulation Material, barite (barium sulfate) for use in preventing uncontrolled well-flow (killing the well), and other additives commonly used for oil well drilling. Water will be stored in water tanks up to ten feet tall and the well would be drilled with a closed mud system. All drilling mud would be maintained in aboveground solids control tanks that are up to ten feet tall. Cuttings would be dried on location and disposed of according to federal, state, and local regulations.

## **4 SPILL RESPONSE**

### **4.1 Release Prevention**

Good housekeeping practices will be followed onsite during the exploration project:

- An effort will be made to store only enough product required to do the job.
- All materials stored on site will be stored in a neat, orderly manner in their appropriate containers and, if possible, in an enclosure.
- Products will be kept in their original containers with the original manufacturer's label.
- Manufacturers' recommendations for proper use and disposal will be followed.
- The Project Manager or designee will inspect daily to ensure proper use and disposal of materials.

The contractor shall have a vehicle preventive maintenance program to ensure that all vehicles are operating under optimum conditions and all hoses and fittings are in good condition and leak free. It is the responsibility of the operator, mechanic, tool pusher or other designee to execute the repairs or preventive maintenance and report any leaks to the appropriate agencies. Assignment for repair when equipment is in a remote location may be issued verbally by field superintendent or project manager.

#### **4.1.1 Best Management Practices**

Dust from traffic of drill crews and water hauls will be mitigated by water sprays to discourage dust dispersion. Containers containing 100 barrels or more of petroleum-based products such as diesel, gasoline, grease and hydraulic fluid, will be stored within containment dikes capable of containing any leaks of the containers which are placed within them.

The Project Manager shall, at all times, properly operate and maintain any facilities and systems of treatment and control (and related appurtenances).

The following BMPs are provided as examples which could be utilized at the projects. Copies of each BMP are included in Attachment 1:

- Spill Prevention and Control
- Vehicle and Equipment Maintenance and Fueling
- Material Delivery, Handling, Storage and Use
- Liquid Waste Management
- Hazardous Waste Management



## **4.2 Source Identification**

### **4.2.1 Pollutants**

Potential sources of pollutants from drill rigs, service vehicles, and other equipment includes crude oil, diesel fuel, oil, gasoline, lubricating grease, and other vehicular fluid. Additional sources of pollutants may include borehole plugging materials, solvents, trash and other debris. These pollutants are not expected to come into contact with on-site soils or surface waters; however, BMPs shall be employed to prevent potential release of contaminants.

### **4.2.2 Construction Debris**

To minimize impacts during precipitation events, trash bins should be closed, if possible, and regularly inspected for leaks.

## **4.3 Material Storage and Cleanup**

Materials and equipment necessary for spill cleanup will be kept in the laydown areas. Equipment and materials will include but not be limited to brooms, dust pans, mops, rags, gloves, goggles, sorbent materials, sand, sawdust, and watertight drums or bins specifically for this purpose.

In the event of oil, fuel, and lubricating grease leaks, cleanup will be conducted as soon as possible. If the leak is on pavement or a compacted surface, an oil absorbing product such as Absorb<sup>®</sup> will be applied. Once the cleanup product has absorbed the leak, it will be swept up into watertight drums or bins, and disposed of according to federal, state, or local regulations. If the leak occurs on soil, the contaminated soil will be removed and disposed of according to federal, state, or local regulations. In the event of a major spill the following actions should be taken, in addition to any federal, state, and local health and safety regulations.

### **4.3.1 Release Response, Handling, and Clean-up**

In the event of any release, the Project Manager or designee will be responsible for initiating measures to abate the release. As soon as possible following characterization and containment of the release, appropriate cleanup efforts will be initiated. Any absorbents utilized during cleanup efforts will be collected for proper disposal. It may be necessary to sample the absorbents to determine the proper method of disposal. Containers of cleanup material will be clearly labeled and stored until disposal occurs. Outside cleanup contractor(s) may be utilized to assist in spill response, cleanup, and disposal efforts.

### **4.3.2 Emergency Equipment**

The following emergency equipment and supplies will be available for response to environmental emergencies:

1. Earthmoving equipment;
2. First-aid and medical treatment supplies;
3. Fire extinguisher;
4. Brooms and shovels;
5. Absorbent materials;
6. Personal protective equipment including gloves, boots, goggles, self-contained breathing apparatus, respirators with appropriate cartridges and hydrogen sulfide detectors; and
7. Portable pumps and generators.

Emergency equipment is inspected and maintained on a regular basis. Safety Data Sheets for all the chemicals used at the site are available from the Contractor, Project Manager or designee.

#### 4.4 Reporting and Notification Procedures

##### 4.4.1 Authority and Responsibility

Table 1 summarizes the chain of responsibilities for spill containment and material handling at the Project. The Project Manager has the primary responsibility and authority to deal with spills and releases of pollutants. The Project Manager or designee is responsible for ensuring the following activities are conducted in a timely manner in the event of a discharge:

1. The Project Manager is immediately notified;
2. Measures are initiated to abate the release and to contain it to a small area;
3. Source and cause of the release are determined; and
4. Appropriate cleanup measures are initiated, and the release is mitigated in a safe manner minimizing environmental impacts.

The Project Manager or designate is responsible for the following activities in the event of a discharge:

1. Assist with release response and cleanup, as necessary.
2. Determine the type and quantity of potentially hazardous material(s) present in the release.
3. Within 24 hours of an identified spill, the Project Manager or a designated representative will notify appropriate local, state, and federal agencies.
4. All necessary follow-up reports are prepared and submitted to the appropriate regulatory agencies within required time periods.

**Table 1: Emergency Notifications and Duties**

Personnel	Duties
Spill Observer	<ul style="list-style-type: none"> <li>• Initiate measures to abate and contain the release.</li> <li>• Immediately contact supervisor or the responsible persons below to report details of the release.</li> </ul>

Personnel	Duties
<u>Primary Contact:</u> Project Manager <u>Secondary Contact:</u> Project Manager	<ul style="list-style-type: none"> <li>Assess the release, assemble a response team and equipment, and clean-up the release.</li> <li>Determine if emergency services are needed.</li> <li>Ensure necessary and appropriate personal protective equipment are used.</li> </ul>
Spill Response Team: Project Manager or Designee	<ul style="list-style-type: none"> <li>Provide equipment and manpower necessary and appropriate to mitigate the release.</li> </ul>
Regulatory Notification: Project Manager or Designee	<ul style="list-style-type: none"> <li>Make necessary notifications to appropriate regulatory agencies.</li> </ul>

**Table 2: Responsible Personnel**

Position	Name	Contact Number
Project Manager	Virgil Welch	(775) 217-1426

It is the responsibility of the Project Manager to see that all management personnel who may supervise the operation of any portion of the Project site, or who may supervise handling of pollutants, equipment maintenance and repair of vehicles, and general exploration operations, are familiar with emergency notification and response procedures.

#### 4.4.2 Notification Requirements for Spills

Depending on the type and quantity of material spilled, notification of one or more of the following will be required:

1. Nevada Division of Environmental Protection (NDEP), Bureau of Corrective Actions;
2. National Response Center; and
3. State Emergency Response Commission (SERC) and Local Emergency Planning Committee (LEPC).

Once the size and source of the release and the types and quantities of potentially hazardous constituents in the release have been identified, it will be the responsibility of the Project Manager or designee to make appropriate notifications. Specific notification requirements and procedures are described below. Spill notification contacts and emergency response agencies are included in Table 3.

**Table 3: Spill Notification Contacts and Emergency Response Agencies**

Agency	Telephone Number
<i>Required Spill Notification Contacts</i>	
National Response Center	800-424-8802
NDEP, Bureau of Corrective Actions – Emergency Response Hotline	888-331-6337
Nevada State Emergency Response Commission	775-684-7511
Nye County Local Emergency Planning Committee	775-751-4279
<i>Emergency Response Agencies</i>	
Currant/Duckwater Fire Services	911/ 775-863-0444

Agency	Telephone Number
Nye County Fire Department	775-751-4278
Nye County Sheriff's Office	775-751-7000
Nevada Highway Patrol (Ely substation)	775-289-1600

#### 4.4.3 Notification Requirements for Reportable Quantities of Hazardous Substances

It will be the responsibility of the Project Manager or designee to determine if a reportable quantity of a hazardous substance has been released. If it has, the following notification procedure will be followed:

1. National Response Center will be contacted immediately; and
2. NDEP will be contacted immediately or the next working day if the release occurs after 5:00 P.M.; and
3. The SERC and LEPC will be contacted immediately.

For each of the above contacts the following information will be provided:

1. Name, address, and telephone number of the owner or operator of the facility;
2. Name, address, and telephone number of the facility;
3. Location, quantity, and type of release;
4. Response action(s) taken;
5. Nature and extent of any damage or injuries; and
6. Name and telephone number of any other agencies contacted.

It will be the responsibility of the Project Manager to prepare any written follow-up reports requested by the above agencies.

##### 4.4.3.1 Nevada Division of Environmental Protection, Bureau of Corrective Actions

Any release of pollutants, hazardous waste, or contaminants into surface or groundwater that threatens a vulnerable source (i.e., any building used to house or provide services to children, elderly persons or sick persons, an area within 150 feet of a public water system wellhead, or a storm drain), or is a quantity equal to or greater than that which is required to be reported to the National Response Center, requires verbal notification as soon as practicable to the NDEP, Bureau of Corrective Actions.

##### *Petroleum Products*

The Project consists of mineral exploration activities, and therefore, petroleum products will be the primary contaminant present on site. The following spills must be reported within one working day to the NDEP, Bureau of Corrective Actions: releases to the soil or other surfaces of land in a quantity greater than 25 gallons or 200 pounds; releases discovered in at least three cubic yards of soil during any subsurface excavation; releases discovered in or on groundwater;

or a confirmed release from an underground storage tank. Smaller releases must be reported quarterly on NDEP Form 0490 or equivalent.

Notifications to NDEP of releases described above must be submitted through the NDEP online Spill Report Form or made verbally no later than the first working day after the release was discovered. NDEP notification will include the following information:

1. Name and telephone number of person calling;
2. Name, address, and telephone number of owner or operator;
3. Name, address, and telephone number of facility;
4. Date, time, and type of incident, condition, or circumstance;
5. Type and quantity of material(s) involved;
6. Extent of human or animal mortalities or injuries;
7. Assessment of actual or potential hazards to public health and the environment beyond the facility boundary; and
8. Estimated quantity and disposition of recovered material from the clean-up.

A written summary will be provided to NDEP within ten days following oral notification of the release. The written summary will include the following information:

1. Description of the release and its cause;
2. Date, time, and duration of the release;
3. Whether the condition that caused the release has been remedied, and, if not, the anticipated time that the release may be expected to continue; and
4. Steps taken or planned to reduce, eliminate, and prevent recurrence of the event.

#### 4.4.3.2 National Response Center

Pursuant to regulations promulgated under Section 102 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986, release of a reportable quantity of hazardous substance to the environment in a 24-hour period requires immediate reporting to the National Response Center (40 CFR Part 302).

#### 4.4.3.3 State Emergency Response Commission and Local Emergency Planning Committee

Pursuant to the regulations promulgated in the Community Right to Know Act of 1986 (40 CFR Part 355), releases of reportable quantities of hazardous substances, beyond the facility boundary, that may potentially result in exposure to individuals outside of the facility boundary must be reported to the SERC and LEPC.

It is the responsibility of the Project Manager or designate to determine if there has been a release of a reportable quantity of hazardous material beyond the facility boundary and to make the required notifications. Notification to the State should include the following information:

1. Name, address, and telephone number of the owner or operator of the facility;
2. Name, address, and telephone number of the facility;
3. Chemical name and chemical abstract service registry number, if known, of substances released;
4. Hazardous properties and health effects associated with the substances released;
5. Estimate of the quantity released;
6. Time and duration of the release;
7. Media into which the release occurred;
8. Measures undertaken to mitigate the release;
9. Potential impacts to public health and the environment posed by the release;
10. Name and phone number of person to be contacted for further information regarding the release;
11. Nature and extent of any damage or injuries; and
12. Name and telephone number of any other agencies contacted.

A written follow-up notice will be submitted as soon as possible to update the information provided in the oral notice, to detail actions taken to contain the release and to set forth any known or anticipated acute or chronic health risks and the medical attention or actions to be taken.

**ATTACHMENT 1**

**CONSTRUCTION SITE  
BEST MANAGEMENT PRACTICES**





## SPILL PREVENTION AND CONTROL

- Keep waste storage areas clean, well organized, and well equipped.
- Information on proper storage, clean up and spill reports should be posted at a visible and accessible location at all times.
- Educate employees and subcontractors about what a “significant” and “insignificant” spill is for each chemical used on site and train in spill prevention and cleanup.
- Hold regular meetings to discuss and reinforce disposal procedures (incorporate into regular safety meetings).
- Locate chemical storage and handling areas away from storm drains, waterways, or reservoirs.
- Do not store chemicals in areas where they may be susceptible to rain.
- Provide a secondary containment structure in case of leaks or spills.
- Always use a secondary containment, such as a drain pan or drop cloth, to catch spills or leaks when removing or changing fluids.
- Place drip pans or absorbent material under paving equipment when not in use.
- Promptly transfer used fluids to the proper waste or recycling drums. Do not leave full drip pans or other open containers lying around.
- Oil filters disposed of in trashcans or dumpsters can leak oil and pollute stormwater. Place the oil filter in a funnel over a waste oil-recycling drum to drain excess oil before disposal.
- Store cracked batteries in a non-leaking secondary container.
- If vehicles will be fueled on site:
  - Discourage “topping off”.
  - Use designated areas located away from waterways and drainages.
  - Use a secondary containment to catch drips or spills.
- Place a stockpile of spill cleanup materials where it will be readily accessible.
- Clean up spills immediately and dispose of contaminated soils and cleanup materials properly.
  - Sweep up dry spills. Do not wash or hose down the area.
  - Wet spills on impermeable surfaces should be absorbed.
  - Wet spills on soils require digging up and disposing of the contaminated soil.
- A secondary containment with enough capacity to contain a spill is required for fueling areas.
- Report significant spills to local and state agencies, such as the Fire Department or Department of Environmental Protection, who may assist in the cleanup.

## **SPILL PREVENTION AND CONTROL**

- Federal regulations require that any significant oil spill into a water body or onto an adjoining shoreline be reported to the National Response Center (NRC) at 800-424-8802 (24 hours).
- Only a reputable, licensed company should be used to clean up large spills and dispose of contaminated materials.

### **Inspection and Maintenance:**

- On a weekly basis, ensure that an adequate supply of spill control cleanup materials are located close to storage, fueling, and unloading areas.
- Inspect containment structures in fueling and storage areas.
- Spill prevention plans should be updated when the types of chemicals stored on site changes.
- Regularly inspect on-site vehicles and equipment for leaks, and repair them immediately.

## **VEHICLE AND EQUIPMENT MAINTENANCE AND FUELING**

- When a vehicle is located over a water body (dock, barge) and is planned to be idle for more than one hour, a drip pan or sheet should be placed under the vehicle.
- Fueling areas should be:
  - Located at least 100 feet from waterways, channels and storm drains.
  - Protected from run-on or runoff.
  - Located on a level-graded area.
  - Attended at all times during fueling.
- Fueling equipment should be equipped with an automatic shut-off nozzle to contain drips.
- Fuel tanks should not be “topped-off”.
- Avoid mobile fueling.
- Observe federal, state, and local requirements relating to any stationary aboveground storage tanks.
- Do not dump fuels and lubricants on the ground.
- Do not bury used tires.
- Do not dispose of oil in a dumpster or pour it down the storm drain.
- Properly dispose of used batteries.
- Conduct washing, fueling, and major maintenance offsite whenever possible.
- Inspect vehicles for leaky hoses, gaskets, or other problems.
- Locate vehicle services areas away from waterways, storm drains, gutters, and curbs.
- Use berms, sandbags, or other barriers to contain areas.
- Do not use detergents, solvents, degreasers, or other chemical products to do on-site cleaning.
- Use a drip pan or drip cloth if fluids will be drained and replaced on site.
- Collect all used fluids, store in separate labeled containers, and either recycle or dispose of properly.

### **Inspection and Maintenance:**

- Inspect on all containment structures.
- Maintain waste fluid containers in a leak proof condition.
- Service sumps associated with wash areas regularly.
- Inspect daily for leaks on vehicles and equipment.

## **VEHICLE AND EQUIPMENT MAINTENANCE AND FUELING**

- Keep an ample supply of spill cleanup materials available on site.
- Clean up spills immediately and dispose of waste properly.
- Prevent boil-overs by regularly cleaning equipment radiators.

# **MATERIAL DELIVERY, HANDLING, STORAGE AND USE**

## **Standards and Specifications:**

- Designate a storage area that is not near a storm drain or watercourse.
- All contractors and subcontractors must train employees in proper materials handling, storage, application and delivery procedures.
- Follow manufacturers' instructions on application, storage and disposal of materials.
- Store on site only the amount of material necessary for the job.
- Use non-hazardous and environmentally friendly products.
- Provide indoor storage or cover stockpiled materials and wastes with a tarp.
- Provide covered storage for secondary containment of hazardous materials.
- Use secondary storage to prevent soil contamination.
- Monitor employees and subcontractors to ensure that proper practices are being implemented.
- Keep all material in original containers.
- Label all stored materials according to state, local and federal regulations.
- Do not store incompatible materials together.
- Keep adequate supply of cleanup materials on site at all times.
- Report all spills.
- Do not apply hazardous chemicals during wet or windy conditions.

## **Inspection and Maintenance:**

- Inspect storage areas weekly to ensure neatness.
- Post proper storage instructions and Safety Data Sheets (SDS) for all currently stored materials.
- Repair and replace damaged secondary containment facilities.
- Remove all empty containers and packaging from site.
- Store materials with adequate clearances for access and emergency response.

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# **LIQUID WASTE MANAGEMENT**

## **Standards and Specifications:**

- Protect drainage ways with earth dikes, filter fabric, sand bags etc. to divert or capture run off from operations. Gather and dispose of trapped material properly.
- Educate workers on how to identify a non-hazardous from a hazardous liquid waste.
- Educate workers that it is unacceptable to have any liquid waste enter storm drains, gutters or watercourses and drainage channels.
- Incorporate in safety meetings.
- Store and contain wastes in pits or portable tanks that are large enough to completely contain wastes. Locate where accidental discharge will not follow to storm drains, gutters, watercourses and drainage channels.
- If necessary, treat wastes by filtrations, sedimentation or chemical neutralization before disposal.

## **Inspection and Maintenance:**

- Monitor employees and subcontractors to ensure that proper practices are being implemented.
- Remove deposited solids from containment areas and capturing devices. Dispose of offsite according to all local, state and federal regulations.
- Inspect containment areas and capturing devices for damages and leaks. Repair or replace as needed.

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## **HAZARDOUS WASTE MANAGEMENT**

- Contractor is required to follow all federal, state and local laws regarding handling, storing, and transporting waste materials.

### **Standards and Specifications:**

- Contact Washoe County Environmental Health (775) 328-2436 regarding local hazardous waste management policies and procedures.
- Waste containers shall be constructed of a suitable material and properly labeled according to regulations. Labels must include type of material, time of collection and site location.
- Temporary containment for stored materials should be sized at 1.5 times the volume of the stored material. Materials must be stored in sealed drums.
- Temporary containment areas shall be free of accumulated stormwater and spills.
- Temporary containment areas shall have room between containers for emergency response and cleanup.
- Incompatible materials shall be stored separately.
- Do not store different materials in the same container.
- Do not locate temporary containment areas near storm drains, gutters, watercourses or drainage channels.
- Provide adequate access to temporary containment areas.
- Store containers on pallets under a covered, protected area unless containers are water tight.
- Do not dispose of liquid waste in dumpsters or other solid waste containers.
- Collect water from decontamination procedures, treat it and dispose of it at an appropriate disposal site.
- Educate employees and subcontractors in waste storage and disposal.
- Ensure that proper procedures are followed.
- Train employees in newest procedures for handling materials. Update when new information is available.
- Immediately repair all dikes and liners used for storage or containment.
- Recycle materials if appropriate.

### **Inspection and Maintenance:**

- Ensure that all wastes are properly labeled and stored.
- Verify that all hazardous wastes are disposed of properly.
- Hazardous wastes must be collected, labeled and disposed of at authorized disposal sites.

## **HAZARDOUS WASTE MANAGEMENT**

- Keep supplies on site for cleanup of spills.
- Post SDS sheets for all materials stored on site.
- Immediately repair all dikes and liners used for storage or containment.