

Preliminary Environmental Assessment

DOI-BLM-NV-W030-2013-0003-EA

Hycroft Mine Facilities Expansion Project



July 2014

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**HYCROFT MINE - FACILITIES EXPANSION PROJECT
PRELIMINARY ENVIRONMENTAL ASSESSMENT**

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ABBREVIATIONS AND ACRONYMS

Reader Note: Refer to the list below for abbreviations or acronyms that may be used in this document.

$\mu\text{g}/\text{m}^3$	micrograms per cubic meters
AADT	annual average daily traffic
AAQS	Ambient Air Quality Standards
ACEC	Area of Critical Environmental Concern
ADT	average daily trips
AERMOD	American Meteorological Society/Environmental Protection Agency Regulatory Model for Air Quality
AF	acre-feet
afy	acre-feet per year
AHPA	Archaeological and Historic Preservation Act of 1974
AIRFA	American Indian Religious Freedom Act of 1978
amsl	above mean sea level
ANG	Allied Nevada Gold
AO	Authorized Officer
APE	Area of Potential Effect
APLIC	Avian Power Line Interaction Committee
AQIA	Air Quality Impact Analysis
AQOP	Air Quality Operating Permit
ARPA	Archaeological Resource Protection Act of 1979
AVR	acidification, volatilization, and recovery
BAPC	Bureau of Air Pollution Control
BEA	Bureau of Economic Analysis
BLM	Bureau of Land Management
BLM-BRFO	Bureau of Land Management – Black Rock Field Office
Blue Mountain EA	An environmental assessment of the Blue Mountain powerline by the BLM under an EA (NV-020-08-EA-01)
BMPs	Best Management Practices
BMRR	Bureau of Mining Regulation and Reclamation
BP-PRIME	Building Profile Input Program with Plume Rise Model Enhancement
CCD	counter-current decantation
CEQ	Council on Environmental Quality
CESA	Cumulative Effects Study Area
CFR	Code of Federal Regulations
CH ₄	methane
CNIDC	Central Nevada Interagency Dispatch Center
CO	carbon monoxide
CO ₂	carbon dioxide
CO ₂ e	carbon dioxide equivalent
DOI	Department of the Interior
DR	Decision Record
EA	Environmental Assessment
EIS	Environmental Impact Statement
EO	Executive Order

EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
F	Fahrenheit
Far Western	Far Western Anthropological Research Group
FCAA	Federal Clean Air Act
FLPMA	Federal Land Policy and Management Act
FMCSA	Federal Motor Carrier Safety Administration
FONSI	Finding of No Significant Impact
FR	Federal Register
ft ²	square feet
GBNP	Great Basin National Park
GESA	Golden Eagle Survey Area
GHG	greenhouse gas
GIS	Geographic Information Systems
gpm	gallons per minute
GPS	global positioning system
H ₂ S	hydrogen sulfide
HAP	hazardous air pollutants
HCN	hydrogen cyanide
HCSO	Humboldt County Sheriff's Office
HDPE	high density polyethylene
HE	habitat evaluation
HLF	heap leach facility
HMA	Herd Management Areas
HRDI	Hycroft Resources and Development, Inc.
HSLA	high strength low alloy
I-80	Interstate 80
ID	Interdisciplinary
JBR	JBR Environmental Consultants, Inc.
kV	kilovolt
lbs	pounds
LCRS	leak collection recovery system
LLDPE	linear low-density polyethylene
LR2000	Land and Mineral Legacy Rehost 2000 System
MBTA	Migratory Bird Treaty Act
MDB&M	Mount Diablo Base & Meridian
MFP	Management Framework Plan
mg/m ³	milligrams per cubic meter
MIBC	methyl isobutyl carbinol
MMt	million metric tons
MOA	Memorandum of Agreement
MOPC	Mercury Operating Permit To Construct
MOU	Memorandum of Understanding
mph	miles per hour
MSHA	Mine Safety and Health Administration
N ₂ O	nitrous oxide
N/A	Not Applicable
NAAQS	Nevada Ambient Air Quality Standards

NAC	Nevada Administrative Code
NaCN	sodium cyanide
NAD83	North American Datum 1983
NAGPRA	Native American Graves Protection and Repatriation Act of 1990
NaHS	sodium hydrosulfide
NCA	National Conservation Area
NCBCP	Nevada Comprehensive Bird Conservation Plan
NDEP	Nevada Division of Environmental Protection
NDOT	Nevada Department of Transportation
NDOW	Nevada Department of Wildlife
NDWR	Nevada Division of Water Resources
NEPA	National Environmental Policy Act
NESC	National Electrical Safety Code
NHPA	National Historic Preservation Act of 1966
NNHP	Nevada Natural Heritage Program
NO ₂	nitrogen dioxide
NO _x	nitrates of oxygen
NPA	National Programmatic Agreement
NPS	National Park Service
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
NRS	Nevada Revised Statutes
NSAAQS	Nevada State Ambient Air Quality Standards
NTSA	National Trails System Act of 1968
NV Energy	Sierra Pacific Power Company, now doing business as NV Energy
NWMCP	Noxious Weed Monitoring and Control Plan
NWS	National Weather Service
O ₃	ozone
OCTA	Oregon California Trails Association
OPTC	Operating Permit to Construct
PAX	potassium amyl xanthate
Pb	lead
PCPI	per capital personal income
PCRI	properties of cultural or religious importance
PEIS	Programmatic Environmental Impact Statement
Plan	Plan of Operations
Plan Modification	Plan of Operations Modification (NVN-064641)
PM ₁₀	particulate matter with aerodynamic diameter less than 10 microns
PM _{2.5}	particulate matter with aerodynamic diameter less than 2.5 microns
PMU	Population management unit
POD	Plan of Development
Powerline ROW	Right-of-way for the construction and operation of a 120 kV powerline to support the Hycroft Mine
Pb	Lead
ppb	parts per billion
ppm	parts per million
Project	Hycroft Expanded Facilities Project
RMP	Resource Management Plan

ROD	Record of Decision
ROW	right-of-way
RFFA	Reasonably Foreseeable Future Action
SAD	Surface Area Disturbance
SAG	semi-autogenous grinding
SHPO	State Historic Preservation Office
SLERA	Screening Level Ecological Risk Assessment
SO ₂	sulfur dioxide
SR	State Route
SWPPP	Storm Water Pollution Prevention Plan
TCPs	Traditional Cultural Properties
TECS	threatened, endangered, candidate, and sensitive
tpd	tons per day
tpy	tons per year
TSF	Tailings Storage Facility
U.S.	United States
U.S.C.	United States Code
USDC	United States Department of Commerce
UPRR	Union Pacific Railroad
USFWS	United States Fish and Wildlife Service
UTM	Universal Transverse Mercator
UV	ultra violet
VOCs	volatile organic compounds
WCRM	Western Cultural Resources Management, Inc.
Well Field ROW	Right-of-way for construction and operation of a production well field to support operations at the Hycroft Mine
WPRR	Western Pacific Railroad
WCRM	Western Cultural Resource Management
WRF	waste rock facility
WVEC	West Wide Energy Corridor
µg/m ³	micrograms per cubic meters

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1 INTRODUCTION

1.1 Identifying Information

Project Name, EA Number, and Type of Project

Project Name: Hycroft Mine - Facilities Expansion Project (Project)

Environmental Assessment #: DOI-BLM-NV-W030-2013-0003-EA

Type of Project: Mine facilities expansion, production water well field, 120 kilovolt (kV) powerline

Name and Location of Preparing Office

United States Department of the Interior, Bureau of Land Management, Winnemucca District, Black Rock Field Office (BLM)

Cooperating Agencies

Nevada Department of Wildlife

Humboldt County

Applicants' Names

Hycroft Resources and Development, Inc., a wholly owned subsidiary of Allied Nevada Gold Corp. (HRDI)

Sierra Pacific Power Company, now doing business as NV Energy (NV Energy)

BLM Case File Numbers

Plan of Operations Modification:	NVN-064641
Well Field Right-of-Way:	N-91617
New 120 kV Powerline Right-of-Way:	N-92182
Existing Powerline Right-of-Way:	N-001932
New Dun Glen Substation Right-of-Way:	N-92965
Existing Dun Glen Substation Right-of-Way:	N-83497

1.2 Project Location

The Project is comprised of three main components located within three interconnected project areas as described below.

Mine Project Area

The existing Hycroft Mine is located on public land administered by the BLM, and private land controlled by HRDI in Humboldt and Pershing Counties, Nevada. In 2012, the BLM prepared an Environmental Impact Statement (EIS) that analyzed the expansion of the mine boundary (BLM 2012a). All of the proposed new mine infrastructure and processing facilities are located within the authorized 14,753-acre mine boundary in Township 34 North, Range 29 East (T34N, R29E) in all or portions of sections 1-5, 9-12, and 14; T34N, R30E, in a portion of section 6, T35N, R29E, in all or portions of sections 12-14, 22-27, and 33-36; and T35N, R30E in all or portions of sections 7, 16-21, and 28-32, Mount Diablo Base & Meridian (MDB&M) (Figure 1).

Well Field Project Area

The proposed well field and ancillary facilities would be constructed within an area measuring approximately 3,900 acres and located entirely on BLM-administered public lands in T34N, R28E, in all or portions of sections 1-2 and 11-13, T34N, R29E, in all or portions of sections 5-7 and 18, T35N, R28E, in all or portions of sections 35-36, and T35N, R29E, in a portion of section 31, MDB&M (Figure 1).

Powerline Project Area

The alignment for the proposed 120 kV powerline component of the Project measures approximately 54 miles and extends from where the existing line crosses Interstate 80 near Mill City, Nevada to the Hycroft Mine. The line would run north for approximately 22 miles crossing Interstate 80 and the Humboldt River and then turn west at the intersection with Jungo Road and parallel Jungo Road for approximately 32 miles until termination on private land within the Mine Project Area. The powerline alignment transects all or portions of T35N, R29E through R35E; T34N, R35E; T33N, R35E; and T33N, R34E (Figure 1). The project area for this component is defined as a 300-foot corridor along the route which equates to approximately 1975 acres.

1.3 Background

The Project is a proposed mine facilities expansion that would include minor expansion of or modifications to existing or authorized mine facilities, the addition and operation of new mine facilities (rail spur, mill, and tailings storage facility), the construction of a well field to supply the mine with production water, and a 120 kV powerline upgrade to support mine operations.

HRDI submitted a Mine Plan of Operations Modification (Plan Modification) to the BLM prepared in accordance with the BLM surface management regulations (43 Code of Federal Regulations [CFR] 3809) and the Nevada regulations governing reclamation of mined lands (Nevada Administrative Code [NAC] 519A). Previously, the BLM authorized a mine plan of operations (Plan) in July 2012 for the expansion of mining activities. Subsequently in March 2013, the BLM authorized additional minor modifications to existing and authorized operations.

The previous authorizations account for a total of 5,982 acres of surface disturbance within the Mine Project Area and include open pit mining, waste rock facilities (WRFs), open pit backfill, heap leach facilities (HLFs), milling, roads, growth media stockpiles, substations and powerlines, storm water diversions, and mineral exploration activities. The mill facility, located on private land within the Mine Project Area, is currently under construction and has been permitted by the State of Nevada, but the operation of the mill is being analyzed in this Environmental Assessment (EA). Under the existing plan, mining operations would continue into 2025 when no additional ore could be placed on the HLFs.

In conjunction with the Plan Amendment, HRDI submitted a right-of-way (ROW) application and Plan of Development (POD) to the BLM for the construction and operation of a production well field to support operations at the Hycroft Mine (Well Field ROW). HRDI conducted an extensive water availability study and determined that the proposed well field area is the only location within reasonable proximity to the Hycroft Mine that has sufficient ground water resources to support the Project. HRDI is proposing to construct, operate, and maintain the Well Field ROW, which would include the construction and maintenance of production water wells, an overhead 29.4 kV powerline, buried pipeline, and access roads.

NV Energy submitted a ROW application and POD to the BLM for the construction and operation of a 120 kV powerline (120 kV Powerline ROW) to support the Hycroft Mine. The proposed powerline component of the Project would include the installation of approximately 54.3 miles of new 120 kV powerline, the removal of 3.47 miles of existing powerline, construction of a new substation, removal of an existing substation, and removal of a portion of the existing powerline being underbuilt onto the new line.

The Plan Modification, Well Field ROW, and Powerline ROW constitute the components of the Proposed Action analyzed in this EA. They are considered connected actions under the National Environmental Policy Act (NEPA).

Applicable NEPA Documents

The mining operations covered in the July 2012 Plan of Operations were analyzed in a series of EAs and most recently in an EIS (DOI-BLM-NV-W030-2011-0001-EIS) (BLM 2012a), which resulted in a Record of Decision (ROD) issued on August 14, 2012 (BLM 2012b). In addition, the environmental analysis for the minor changes to operations and facilities in the March 2013 Plan of Operations was determined to be covered by the 2012 EIS. The 2012 EIS is tiered to and referenced in this EA as applicable.

An existing powerline associated with the Blue Mountain Geothermal Development Project parallels the proposed new 120 kV line associated with the Project. The Blue Mountain powerline was analyzed by the BLM under an EA (NV-020-08-EA-01) (BLM 2007). This document is referenced in this EA as applicable.

In 2008, the West Wide Energy Corridor (WWEC) Final Programmatic EIS (WWEC PEIS) was issued (Department of Energy 2008). This document contains relevant information to the Project and is referenced in this EA as applicable.

1.4 Purpose and Need for Action

BLM's purpose for the federal action is to provide HRDI the opportunity to expand mining operations and associated infrastructure within reasonable proximity to their existing operations.

The need for the federal action is established by the BLM's responsibility under its 2008 Energy and Mineral Policy, the Federal Land Policy and Management Act (FLPMA), and BLM Surface Management Regulations at 43 CFR 3809, to respond to a plan of operations and to take any action necessary to prevent unnecessary or undue degradation of the lands. The need for the action is also established by the BLM's responsibility under Section 501 of the FLPMA and BLM regulations at 43 CFR 2800 to process ROW applications.

1.5 Scoping, Public Involvement, and Issues

The BLM initiated public scoping on December 18, 2012, with the release of a Dear Interested Party letter for the Plan Amendment and the well field ROW application. The BLM requested comments be submitted within 30 days of the letter notification (January 17, 2013). The BLM released an additional Dear Interested Party letter on April 12, 2013, which added a description of the proposed 120 kV powerline component of the Project. This letter extended the public scoping period to May 13, 2013. The BLM received three comment letters. One letter expressed support for the Project. Two letters were from members of the Oregon California Trail Association (OCTA) and Trails West. The comment letters expressed concern about visual impacts to and from the historic trails in the vicinity of the Project (Applegate and California Trails). In response, the BLM organized and attended a site visit with the members of the OCTA and Trails West on June 21, 2013. A representative from HRDI was also present at the site visit.

Letters describing the Plan Amendment and the well field were sent on December 27, 2012, to the Pyramid Lake Paiute Tribe, Summit Lake Paiute Tribe, and Fort McDermitt Paiute and Shoshone Tribe. Consultation for the 120 kV powerline component was previously conducted during the Blue Mountain EA and WWEC EIS NEPA processes, and based on that consultation; further consultation will be conducted as necessary and on a continual basis (See Section 6.1 Tribal Consultation).

On January 23, 2013, an interdisciplinary team (ID) meeting was held at the BLM office in Winnemucca for internal scoping.

Table 1.5-1 summarizes the issues of concern identified during internal and external scoping.

Table 1.5-1: Issues of Concern Identified During Project Scoping

Issues Common to Entire Proposed Action	Reference Section in EA
What are the effects to migratory bird habitat due to vegetation removal and construction and maintenance activities?	Sections 3.4 and 4.1.3
What are the effects to wildlife habitat due to the removal of vegetation?	Sections 3.13 and 4.1.12
What are the effects to wildlife due to noise associated with construction and maintenance activities, operation of equipment, and the increased presence of humans?	Sections 3.13 and 4.1.12
Issues Related to the Plan Modification	Reference
What are the expected point source and fugitive emissions including particulate matter with aerodynamic diameter less than ten microns (PM ₁₀) and 2.5 microns (PM _{2.5}), and greenhouse gases (GHG)?	Sections 3.2 and 4.1.1
What are the indirect effects to the Sulphur Townsite due to the modified heap leach and tailings facilities being located closer to Jungo Road?	Sections 3.3 and 4.1.2
What are the potential visual impacts to historic trails from above ground surface structures (buildings, tailings facilities, etc.)?	Sections 3.3 and 4.1.2
What effects are associated with Pulpit Rock?	Sections 3.3, 3.5, and 4.1.2
Would there be an increase in soil erosion and compaction?	Sections 3.8 and 4.1.7
What effect would the additional pumping of ground water have on ground water quantity?	Sections 3.12 and 4.1.11
What effect would increasing the work force have on Humboldt County's ability to provide public services?	Sections 3.7 and 4.1.6
What effect would there be on special status species?	Sections 3.9 and 4.1.8
How would increased traffic on Jungo Road and the operation of a rail spur affect public safety (i.e., collision with cows or reduced visibility from increased dust)?	Sections 3.10 and 4.1.9
Issues Related to the Well Field	Reference
What direct and indirect effects would there be on Jungo Road (eligible cultural site) from infrastructure improvements (utility lines, road crossings) and the Applegate Trail from above-ground structures?	Sections 3.3 and 4.1.2
What effect would additional pumping of ground water have on ground water quantity?	Sections 3.12 and 4.1.11
Would there be an increase in soil erosion and compaction?	Sections 3.8 and 4.1.7
What effect would there be on greater sage-grouse, dark kangaroo mouse, pale kangaroo mouse, sand cholla, and other special status species?	Sections 3.9 and 4.1.8
Issues Related to the 120 kV Powerline	Reference
What are the direct and indirect effects to the California Trail (eligible cultural site) and other cultural resources?	Sections 3.3 and 4.1.2
Would construction activities increase the spread of noxious weeds, invasive and nonnative species?	Sections 3.6 and 4.1.5
Would the granting of a ROW affect existing or future ROW holders?	Section 3.1
What effect would the construction activities have on greater sage-grouse, Preble's shrew, dark and pale kangaroo mouse, leopard frog, Tonopah milkvetch, sand cholla, and other special status species?	Sections 3.9 and 4.1.8

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2 PROPOSED ACTION AND ALTERNATIVES

This chapter presents the descriptions of the alternatives, including the Proposed Action and No Action Alternatives. In addition, multiple alternatives were considered during the project design phase and during the EA process that were not carried forward. Those alternatives not selected for further consideration are described with rationale as to why they were considered but eliminated from detailed analysis in this EA.

2.1 Proposed Action

The Proposed Action is described in detail in the following sections and consists of three main components, including the facilities and operations associated with the Plan Modification, Well Field ROW, and 120 kV Powerline ROW.

2.1.1 Plan Modification

The Plan Modification includes the continuation of existing mining and exploration operations, minor modifications to existing facilities and operations, and the addition of three substantial new mine facilities (rail spur, mill, and tailing storage facility) within the Mine Project Area. The Plan Modification would result in a total increase of surface disturbance of 73 acres, bringing the authorized disturbance to 6,055 acres within the Mine Project Area. Figure 2 shows the existing and authorized disturbance and facilities and Figure 3 shows the proposed new facilities and reconfiguration of some existing facilities.

Existing Operations Not Subject to Change

Under the Plan Modification, the following would not change from current authorizations:

- The mine boundary (Mine Project Area) would not change.
- Mining would be conducted up to 24 hours per day seven days per week.
- The mine life would not change under the Proposed Action and would continue through 2024.
- No change to the equipment fleet is anticipated for the activities covered in the Proposed Action.
- Based on extensive drilling and previous mining in the Mine Project Area, it is not expected that mining would intercept the regional ground water; therefore no dewatering activities would occur. The same water management techniques would be utilized for perched water encountered in the pits.
- The results of the updated waste rock characterization, included in Appendix B of the Plan Modification, show no substantial change from the types of waste rock that would be encountered. Therefore, although quantities of waste rock would increase under the Proposed Action, the management of waste rock and potential impacts would be consistent with the analysis contained in the 2012 EIS.
- The Crofoot, Brimstone, and North HLFs would continue to operate and be closed as authorized.

- Use of haul and access roads would continue in accordance with the approved July 2012 Plan and Mine Safety and Health Administration (MSHA) safety requirements.
- Personnel and some deliveries would continue to arrive via Jungo Road. HRDI would continue to maintain agreements with Humboldt and Pershing counties to provide maintenance on major access roads to the Hycroft Mine.
- Exploration activities would continue as authorized within the Mine Project Area.
- The Proposed Action would not change existing ROWs within the Mine Project Area.

Minor Plan Modifications

The Plan Modification includes some proposed activities and continued use of infrastructure that have been determined to not require detailed descriptions or analysis in this EA as these types of activities and associated impacts remain substantially similar to those analyzed in the 2012 EIS (BLM 2012a). Some of these activities include the reconfiguration of approved mine facilities, which would increase or decrease surface disturbance footprints within the existing Mine Project Area. The minor plan modifications include the following:

- Mining would continue beyond what is currently authorized in the Bay Area, Boneyard, Central, and Brimstone pits. Mining activities would increase the footprint of all pits.
- The highwall separating the existing Central and Brimstone pits and the East WRF would be mined out, effectively creating a single pit, which would be known as the Brimstone pit.
- Due to pit reconfiguration activities, up to 792 acres of open pits may not be backfilled or reclaimed at the end of the mine life.
- Operations in the pits would occur in “phases” or “push-backs,” which are safe and practical expansions of a pit that incorporate proper equipment operating room, working geometries, and access roads. Average pit benches would be 75 feet tall and 30 feet wide.
- Monitoring of pit wall stability would continue throughout the active life of each open pit. Monitoring would generally include periodic surveying of pit wall surfaces to identify movement or deflection relative to benchmarks set outside of the geotechnical influence of the pit.
- Changes to WRFs would consist solely of modifications to the authorized location of placement. As part of the Proposed Action, the size of the WRFs would decrease. Additional waste rock placement would be addressed through an increase in sequenced backfilling.
- The existing power distribution system throughout the Mine Project Area would be upgraded. Powerlines would be placed on existing and proposed disturbance areas to connect the existing substations with the new facilities. A new 69 kV powerline would be constructed from the existing line that parallels Jungo Road to the proposed rail spur area. The powerline would be located in a utilities corridor and measure approximately 3,500 linear feet.
- The upper freshwater pond would be relocated.
- Additional growth media stockpiles would be established.

New Mine Facilities

Under the Proposed Action, HRDI would construct a rail spur and associated storage, preparation, packaging and load-out facilities adjacent to the existing rail line; operate a mill on private land that is permitted for construction; and construct a lined Tailings Storage Facility (TSF) and associated ponds utilizing the authorized South HLF to accommodate tailings storage. These activities are described below in more detail.

Rail Spur

The rail spur would be located parallel to the existing Union Pacific Railroad (UPRR) railroad line (ROW CC07688) within the Mine Plan Area and was designed in conjunction with UPRR. The rail spur would be used for delivery of items that would be used in high volumes and for the shipment of concentrate from the milling process. The rail spur would substantially reduce product transportation along Jungo Road and would allow for the shipment of large volumes of metal-bearing concentrate without adding vehicle traffic to the area. However, until the rail spur is constructed, there would be a temporary increase in the number of truck deliveries associated with the increase in product shipments to support milling and processing.

The construction of the rail spur would involve approximately 75 acres of surface disturbance. Prior to construction of the rail spur and associated facilities, the area would be cleared and grubbed. Topsoil would be stored in growth media stockpiles on the eastern edge of the rail spur area. As shown in Figure 4, the proposed features of the rail spur facility consist of the following:

- Rail spur tracks;
- Reagent storage areas and infrastructure;
- Concentrate preparation and shipping facilities;
- Utilities corridor, with road connecting the spur to the milling facility;
- Administrative and maintenance buildings;
- Potable water storage;
- Powerlines; and
- Fencing (barbed wire and chain link).

The rail spur tracks would consist of one main track, approximately 10,000 linear feet long connected to the existing railway at the northern and southern extents of the spur and would provide access to an additional eight proposed parallel tracks and two loading and offloading stubs.

The layout of the facilities is approximate and may change slightly during final design, but all infrastructure at the proposed rail spur facility would be designed to meet applicable BLM visual criteria. The buildings and tanks would be painted with BLM-approved colors to decrease visual contrast with the surrounding area. The final lighting design in the rail spur area would conform to HRDI's authorized Lighting Management Plan document (Monrad 2013).

A utilities corridor would cross Jungo Road, which is a public access route. The corridor would include an access road, underground piping to convey water and materials received or for shipping, and an overhead 69 kV powerline connecting to the existing 69 kV powerline located along Jungo Road. HRDI would implement traffic control measures. Access road traffic would come to a complete stop prior to crossing Jungo Road and would maintain a 10 mile per hour speed limit within 500 feet of the crossing. In addition, warning signs and reduced speed limits would be posted on Jungo Road within 1,500 feet of the crossing. An engineered culvert designed in accordance with the Nevada Department of Transportation (NDOT) requirements would be constructed at the Jungo Road crossing to house all piping.

The majority of the items delivered via rail would be stored in the rail spur area. The stored materials would be transported to the mine from the rail spur via pipe or truck on an access road located in the proposed utility corridor. Table 2.1-1 includes the proposed materials storage capacities and delivery rates.

Table 2.1-1: Materials Storage Capacities and Delivery Rates in the Rail Spur Area

Item	Total Storage Capacity	Storage Type	Width/ Diameter (feet)	Length (feet)	Height (feet)	Anticipated Deliveries Per Year
Fuels and Liquid Reagents						
Diesel Fuel (two each)*	500,000 gal	Tank	25	N/A	25	25
Antifreeze	50,000 gal	Tank	10	N/A	22	25
Hydraulic Fluid	50,000 gal	Tank	10	N/A	22	25
Lube Oil (four each)	50,000 gal	Tank	10	N/A	22	25
Froth	13,000 gal	Tank	14	N/A	14	25
Dry Storage						
Lime	2,000 tons	Silo	45	N/A	140	30
Diatomaceous Earth	100 tons	50 lb. sacks	70	40	N/A	24
Flocculent	200 tons	1,000 lb. super sacks	60	60	N/A	12
Zinc	150 tons	1,000 lb. super sacks	20	60	N/A	12
Antiscalant	10 totes	350 gallon totes	12	60	N/A	4
Grinding Balls	600 tons	Concrete bunker	15	80	5	50
Potassium amyl xanthate (PAX)	100 tons	20 ton containers	20	20	N/A	70
Product						
Concentrate Thickening	75,000 gallons	Tank	40	N/A	8	N/A
Concentrate Filtration Building	N/A	Fabricated building	14	960	120	Confidential

Source: HRDI 2013a; Notes: lb = pounds; N/A = Not Applicable; *This value accounts for the maximum onsite storage, including 100-unit train bulk deliveries.

Mill

Construction has begun on an approximately 132,000-tons-per-day (tpd) gravity separation concentrate mill. The mill is located on approximately 19 acres of private land within the footprint of the existing Boneyard open pit and has been authorized by the Nevada Division of Environmental Protection (NDEP) Bureau of Mining Regulation and Reclamation (BMRR). The Merrill Crowe processing equipment and crusher analyzed and approved in the EIS (BLM 2012a) are currently in operation. As shown in Figure 5, the mill facility consists of the following:

- Crushing, stockpiling and reclamation;
- Grinding;
- Flotation;
- Cyanide leach and counter-current decantation (CCD) washing;
- Merrill-Crowe precipitation (for Low Grade, High Grade, North Leach, and South Leach pregnant leach solution); and
- Refineries and laboratories.

Ore would be hauled from the open pits and crushed in the existing tertiary crushing system that is currently used for heap leach ore. The ore would then be transferred by a stacking conveyor to the grinding circuit on which dust collector systems would be utilized. The grinding circuit would consist of semi-autogenous grinding (SAG) mills, ball mills, and an oversize pebble crusher. In the grinding circuit, crushed ore would be mixed with mill water (a combination of fresh water, reclaimed water from the milling circuit, and reclaimed water from the proposed TSF) and ground to form slurry. From the grinding circuit, the slurry would be transferred to a flotation circuit where it is separated into tails and concentrate. Tails would be pumped to tailings thickeners and then to the proposed TSF.

Concentrate from the cleaner scavenger flotation circuit would be pumped to the proposed concentrate filtration circuit located at the rail spur. Concentrate would be pumped to a leach circuit, used for gold recovery, and then pumped to the concentrate filtration circuit. In the leach circuit, the slurry would be mixed with sodium cyanide (NaCN) to leach gold atmospherically. Lime would be added to maintain a high pH. Leachate would be pumped to the North Merrill Crowe plant for recovery. Leach discharge would be pumped to the proposed concentrate filtration circuit. The leach circuit is located on private land near the mill flotation circuits.

Final concentrate would be pumped to the proposed rail spur area to a filter feed thickener or processed on site. Prior to being pumped to the proposed TSF, tails from the floatation circuit would be leached atmospherically in agitated tanks installed in series using NaCN at ambient temperature. Lime would be added to maintain a high pH. Leach discharge would be processed in a CCD circuit to separate the gold solution from the leach residue. In the CCD circuit, the leachate would be thickened and washed with barren solution from the Merrill-Crowe circuit at the North Merrill-Crowe Plant. Overflow from each CCD thickener would then be pumped to the low grade pregnant leach solution tank feeding the low grade North Merrill-Crowe circuit. Underflow from the last CCD would be combined with thickened rougher tails and pumped to the proposed tailings pond.

High grade and low grade pregnant leach solution from the milling circuit would be processed in the approved North Merrill Crowe facility in conjunction with pregnant leach solution from the authorized Brimstone, North, and South HLF operations.

Most of the barren solution from the Merrill Crowe process would be utilized in heap leach operations. A portion of the barren solution would be processed through an acidification, volatilization and recovery (AVR) system designed for removing and recovering residual cyanide. The washed barren solution (cyanide removed) would be utilized in the milling circuit during the CCD process described above. The recovered cyanide solution would be reused in the tails leaching process. Tailings from both the rougher concentrate and CCD would be pumped to the proposed TSF.

Primary fluid containment for all mill process components, including grinding, flotation, thickening and leach, would be provided by the designed tank, vessel or piping containing the solution or tailings. Each vessel or conveyance would be constructed of materials specifically designed for the specific contents and operating parameters (i.e., temperature). Construction materials would be based on industry practice. The secondary means of containment would generally consist of a concrete pad, sump and containment walls and for piping, lined channels or pipe-in-pipe systems.

Process area containments are designed to completely contain spillage. Each containment area has been designed to hold at least 110 percent of the largest tank volume in the area. The containment designs generally consist of a concrete pad, sump, and concrete walls. Concrete joints have been designed with the appropriate joint sealant for the material to be contained. Entrances to buildings are designed so that they are above the containment walls. Where vehicle access is required to the building, a ramp that slopes up to above the level of required containment has been designed. Buildings have also been designed with curbs that would isolate sub-areas within the buildings to minimize the spread of spillage. In addition to secondary containment on all process solution components, the mill pumping and piping systems have been designed to stop pumping in the event of a failure or leak.

Tailings Storage Facility

The currently authorized South HLF would be modified to accommodate a TSF. The proposed TSF would consist of associated solution ditches, pumping piping, conveyance infrastructure and a tailings underdrain pond. These features combined are referred to as the South Processing Complex, which would utilize a large portion of the authorized footprint for the South HLF as shown in Figures 2, 3, and 6.

The tailings facility would be constructed by lining the inside slope of the South HLF with an 80-mil linear low-density polyethylene (LLDPE) liner. The entire base of the complex, including the eastern slope, would be lined with a composite soil and geomembrane liner consisting of a minimum of 12 inches of low-permeability soil underlying an 80-mil LLDPE geomembrane. The geomembrane would be textured on the underside, to improve contact with the low-permeability soil to provide improved interface shear strength (KPC 2013). The area currently designated as miscellaneous disturbance to the east of the authorized South HLF would be converted into a basin for tailings deposition. The west side of the tails would be confined by the South HLF while the east side would be confined by natural sloping ground.

A free-draining layer would be constructed immediately above the liner to serve as a tailings underdrain and primary surface water decant. The drain would consist of clean gravel with a network of perforated pipes. The top of the tailings underdrain would be covered with one or more layers of filter fabric to prevent an influx of tailings, and this would be covered with an erosion and ultra violet (UV) protection gravel layer. The drain would discharge through a dedicated outlet pipe under the northwest corner of the facility into an approximately 54-million-gallon tailings underdrain pond located downstream of the South Processing Complex. Fluid from the tailings underdrain pond would feed a recycle circuit back to the mill via a 30-inch high-density polyethylene (HDPE) pipe. The pond would be double lined with a leak collection recovery system (LCRS) and constructed immediately above a 12-inch low-permeability soil layer. Short-term excess drainage from extreme events would be accommodated in the event pond.

Inside the TSF, an additional 60- to 80-mil LLDPE geomembrane would be installed on the interface between the heap leach ore and tailings, over the lower elevations of the facility. This is necessary for a start-up water pond that would be contained in the TSF with a geomembrane that would prevent water from freely decanting into the HLF. The ultimate height of this geomembrane would be established in the detailed design and would depend on whether or not there is a need for ongoing hydraulic or geochemical separation between the tailings and heap leach ore.

Tailings deposition would begin in 2015, once the South HLF has been constructed to a length and height suitable to safely contain tailings deposition. The TSF would be designed to hold approximately 193 million tons over the life of the facility. Tailings material would be delivered to the TSF at a pH of 5 or greater. In accordance with applicable regulations and current approvals, the complex would be constructed as a zero discharge facility. Tailings would be deposited by a rotational deposition system into the TSF from a distribution pipe installed just behind the inside crests of the heap leach ore embankments. Each cycle would result in the deposition of a fresh layer of tailings into the facility, and this rotational process would be continually repeated in order to develop a layered, drained, and consolidated tailings beach around the north, west and south sides of the TSF. Drop bar pipes would be used to convey the tailings down into the TSF in order to prevent erosion of the heap leach ore embankments.

Tailings would be delivered to the TSF via two 24-inch carbon steel pipelines. Pipes would be located in the authorized lined channel connecting the existing South HLF and North Merrill Crowe facility. The channel would be sized to contain 100 percent of solutions contained in the pipelines in the event of a failure event, as well as storm water from a 100-year, 24-hour precipitation event. Upgradient storm water from the east side of the South Processing Complex would be diverted by two constructed channels along the east side of the complex. The constructed channel would divert storm water to the south and north, then to the west where it would be discharged to the Black Rock Playa.

Pressure transmitters would be located along the pipeline every 5,000 linear feet to detect leaks. In addition, two flow meters would be installed, which can be used to determine flow differential at the beginning and end of the pipeline. The existing Crofoot Overflow Pond would be used to drain the tailings and reclaim water lines in the case of an event or for maintenance purposes. The pond is constructed with a single 80-mil HDPE overlaying a 12-inch low-permeability compacted soil base.

Geotechnical instrumentation, in the form of settlement and deformation monuments and vibrating wire piezometers, would be installed in the combined facility to monitor the structure throughout the life of the facility. Regular monitoring of the piezometers would be performed to establish and maintain a clear understanding of the embankment and underdrain systems' overall performance over the life of the facility.

Water Usage

It is estimated that the proposed activities would require an annual average of approximately 6,900 gallons per minute (gpm) of fresh water over the life of the Hycroft Mine, which is an increase of 400 gpm over the current annual average use of 6,500 gpm. The annual use would range from 5,370 gpm to 12,870 gpm. Process water would come from the well field as described in Section 2.1.2 of this EA. Average annual usage would be higher during the first five years of operation and would decrease during the life of the Hycroft Mine. Estimated annual average use is presented in Table 2.1-2. HRDI currently holds water rights for all proposed water usage.

Table 2.1-2: Proposed Annual Average Water Use

Year(s)	Currently Authorized Water Use (gpm)	Proposed Estimated Water Use (gpm)	Total Water Use (gpm)
2014	6,500	1,167	7,667
2015		6,370	12,870
2016		4,320	10,820
2017		4,320	10,820
2018		4,495	10,995
2019 – 2030		-1,130*	5,370
Average	6,500	400	6,900

Source: HRDI 2013a

* Negative value indicates this quantity is less than the currently authorized usage rate

Employment and Transportation

HRDI would add 269 employees under the Proposed Action of which 200 would be hired to support the expanded process operations and maintenance. General mine operations and maintenance would employ an additional 59 employees; another 10 employees would serve in administrative support roles. Mine employees would continue to primarily use the Winnemucca parking lot and company-provided transportation. Buses would continue to transport employees each shift. Two additional buses would be required for the expansion. Other light vehicles would continue to transport employees working different shifts.

Fuels and Reagents

Fuels and reagents currently used at the mine would continue to be used. New reagents would be required for the milling process. New chemicals associated with the rail spur, mill, and tailings facilities would include frother, potassium amyl xanthate (PAX), methyl isobutyl carbinol (MIBC), flocculent, sodium hydrosulfide (NaHS), sulfuric acid, copper sulfate, ammonium bisulfite, refinery fluxes, corrosion inhibitor, acid, and biocide. The process system for each reagent would follow best practices as identified by the United States (U.S.) Chemical Safety and

Hazard Investigation Board. A corrosion inhibitor, acid, and biocide would be used in the cooling tower system for avoiding equipment corrosion by oxidation and plant growth. Gasoline, propane, NaCN, and prill would continue to be delivered to the site via truck, generally from Jungo Road. No change to the storage and distribution of these materials is proposed. All remaining reagents would be delivered via rail and either pumped or trucked to the site for local use via the utilities corridor road. Emergency response procedures would remain the same as currently authorized. Table 2.1-3 is a summary of the authorized and total proposed fuels and reagents usage, including the location of storage for each material, and number of deliveries per year.

Table 2.1-3: Summary of Authorized and Total Proposed Fuels, Reagents, and Deliveries for the Hycroft Mine

Material	Authorized Usage Existing Operations ¹	Average Annual Usage Proposed Operations ²	Truck Deliveries per Month Prior to Rail Spur	Truck Deliveries per Month with Rail Spur	Proposed Storage Amount ²	Storage Method	Location of Material
Off-road Diesel Fuel	8,100,000 gallons	20,000,000 gallons	262	2 ⁴	1,160,000 gallons	Above-ground tanks	Maintenance Fuel Island; Ready Line; Rail Spur
Unleaded Gasoline	178,200 gallons	400,000 gallons	10	N/A	10,000 gallons	Above-ground tanks	Maintenance Fuel Island
Motor Oils	700,000 gallons	2,100,000 gallons	70	2 ⁴	105,000 gallons	Bulk Storage Tanks	Truck Shop; Rail Spur
Antifreeze	180,000 gallons	540,000 gallons	2	2 ⁴	55,000 gallons	Above-ground tanks	Truck Shop; Rail Spur
Propane	191,250 gallons	400,000 gallons	14	N/A	70,000 gallons	Above-ground tanks	Brimstone and North Merrill Crowe Plants
NaCN	5,475,000 gallons	8,000,000 gallons	212	N/A	100,000 gallons	Above-ground tanks	North, Brimstone, South Heaps, and Mill Facilities
Prill	7,000 tons	10,000 tons	66	N/A	160 tons	Silos	Explosives Yard
Flocculent	N/A	2,500 tons	N/A ³	1 ⁴	200 tons	Tanks	Mill; Rail Spur
Froth	N/A	2,750 tons	N/A ³	2 ⁴	13,000	Tanks	Mill; Rail Spur
PAX	N/A	12,250 tons	N/A ³	6 ⁴	100 tons	Tanks	Mill; Rail Spur
Lime	25,550 tons	190,000 Tons	566	3 ⁴	3,000 tons (11 silos)	Silos	North, Brimstone, South Heaps, and Mill Facilities; Rail Spur
Antiscalant	328,500 gallons	720,000 gallons	22	1 ⁴	40,000 gallons	Above-ground tanks; totes	North, Brimstone and South Heap; Rail Spur; Leach Facilities

Source: HRDI 2013a; ¹Authorized Usage Quantities from the Hycroft EIS Section 2.1.12.3 and Table 2.1-12; pages 2-26 through 2-27 (BLM 2012a). ²Includes authorized and proposed. ³Proposed Fuel and Reagent would only be delivered by rail spur. ⁴Product would be delivered to rail spur and trucked or piped to mine. Number denotes number of deliveries to the spur.

Surface Disturbance

A total of 5,982 acres of surface disturbance (4,214 acres on public land and 1,768 on private land) is authorized, as identified in the approved July 2012 and March 2013 Plans. Under the Proposed Action, some of the existing facilities would be reconfigured resulting in changes of the number of acres within each facility footprint. After reconfiguring the facilities, a total of 73 acres of new surface disturbance is proposed within the Mine Project Area. Table 2.1-4 includes the authorized and proposed acres of surface disturbance by facility type.

Table 2.1-4: Proposed/Modified and Authorized Surface Disturbance within the Mine Project Area

Facility	Authorized Disturbance Acreage			Proposed/Modified Disturbance Acreage ¹			Total Disturbance Acreage ¹ (Authorized & Proposed)		
	Public	Private	Total	Public	Private	Total	Public	Private	Total
Roads									
Exploration Drill Roads and Pads	83	15	98	-	-	-	83	15	98
Small Vehicle Mine Roads	26	15	41	-14	-15	-29	12	-	12
Haul Roads	44	14	58	-32	-3	-35	12	11	23
Total Road Acres	153	44	197	-46	-18	-64	107	26	133
Open Pits, Adits, Trenches									
Bay Area Open Pit	123	95	218	53	-25	28	176	70	246
Boneyard Open Pit	-	51	51	0	33	33	0	84	84
Brimstone Open Pit	50	391	441	500	783	1,283	550	1,174	1,724
Center Open Pit	182	370	552	-182	-370	-552	-	-	-
Total Open Pit, Adit, Trench Acres	355	907	1262	371	421	792	726	1328	2054
Process Ponds and Pond Areas									
Brimstone Ponds	-	13	13	-	-	-	-	13	13
Crofoot Ponds	13	-	13	-	-	-	13	-	13
Freshwater Ponds	3	2	5	-	-	-	3	2	5
North Ponds	8	-	8	-	-	-	8	-	8
South Ponds	17	-	17	-	-	-	17	-	17
Solution Conveyance Ditch	26	5	31	-	-	-	26	5	31
Tailings Reclaim Pond	-	-	-	14	-	14	14	-	14
Wash Bay Ponds	1	-	1	-	-	-	1	-	1
Total Pond Acres	68	20	88	14	-	14	82	20	102
Heap Leach Facilities									
Crofoot HLF	324	-	324	-24	-	-24	300	-	300
Brimstone HLF	97	190	287	-	-	-	97	190	287
North HLF	112	49	161	-	-	-	112	49	161
South HLF	505	-	505	-152	-	-152	353	-	353
Tailings Storage Facility	-	-	-	853	-	853	853	-	853
Total Heap Leach Facility Acres	1038	239	1277	677	-	677	1,715	239	1,954
Waste Rock Facilities									
East WRF	6	276	282	-6	-276	-282	-	-	-
North WRF	220	17	237	-62	-11	-73	158	6	164

Facility	Authorized Disturbance Acreage			Proposed/Modified Disturbance Acreage ¹			Total Disturbance Acreage ¹ (Authorized & Proposed)		
	Public	Private	Total	Public	Private	Total	Public	Private	Total
South WRF	455	113	568	-107	-113	-220	348	-	348
West WRF	359	13	372	-144	-13	-157	215	-	215
Total WRF Acres	1,040	419	1,459	-319	-413	-732	721	6	727
Ancillary									
Borrow Area	14	-	14	-	-	-	14	-	14
Growth Media Stockpile	155	5	160	-2	17	15	153	22	175
Miscellaneous (including rail spur area)	1,332	94	1,426	-658	-11	-669	674	83	757
Storm Water Diversion	44	12	56	-1	-2	-3	43	10	53
Foundations and Buildings	6	28	34	3	-	3	9	28	37
Exclusion Areas	-	-	-	43	6	49	43	6	49
Total Ancillary Acres	1,551	139	1,690	-615	10	-605	936	149	1,085
Lewis Camp Acreage²	9	-	9	-9	-	-9	-	-	-
Total Disturbance (acres)	4,214	1,768	5,982	73	-	73	4,287	1,768	6,055

Source: HRDI 2013a; Notes - ¹Negative number represents a reduction in previously authorized disturbed acreage;

² Lewis Camp authorized acreage has been removed due to an exclusion area established in this area.

Reclamation and Closure of the New Mine Facilities

Reclamation would be in conformance with the BLM and State of Nevada reclamation regulations. Where possible, growth media stockpiles would be located within yard areas or on the top of existing WRFs. The stockpiles would be sloped and seeded with a fast-growing mixture to stabilize the surface from wind and water erosion specified in the Plan Modification (HRDI 2013a). The stockpiles would be inspected periodically to ensure the signs and barriers are intact and the surfaces are stable. An additional growth media stockpile area would be located within the rail spur and corridor area. The total volume would be approximately 322,700 cubic yards.

The mill would be reclaimed in compliance with the requirements of 445B of the Nevada Administrative Code (NAC). Tanks, piping, and other equipment utilized in process circuits for the mill would be flushed with fresh water or rinsed to remove contaminants. Remaining sludge and sediment would be removed and disposed of on the nearest HLF or the TSF. The washed apparatus would then be removed for salvage or demolished and disposed of in compliance with local, state, and federal laws. The mill buildings would be disposed of as identified in Section 4.14 of Reclamation Plan (HRDI 2013a).

Reclamation and closure of the South Processing Complex would be consistent with the authorized HLFs and the current approved Plan as evaluated in the EIS Sections 2.1.15.11 – 2.1.27; pages 2-31 – 2-55. These sections are incorporated by reference (BLM 2012a). The surface of the TSF would be regraded to promote runoff of meteoric waters. If necessary at the time of closure, fill material would be placed on the surface of the TSF to create a 0.5 percent positive drainage path. Storm water would be routed off of the east side of the TSF into the

proposed storm water diversion ditch. Growth media would continue to be salvaged and stockpiled and used in reclamation activities as described in the EIS (BLM 2012a; Section 2.1.16). A growth media cover would be placed on the South Processing Complex to a depth of no less than 6 inches. Material would be hauled from growth media stockpiles located near the facilities at locations shown on Figure 3.

2.1.2 Well Field ROW

A production well field is proposed within the approximately 3,900-acre Well Field Project Area located southwest of the Mine Project Area to support the Hycroft Mine. As shown in Figure 7, the well field would consist of the following:

- Up to 11 production water wells
- Approximately 8.9 miles of buried pipeline
- Approximately 7 miles of 24.9 kV overhead powerline
- Access and maintenance roads
- Temporary construction laydown areas

The well field ROW would be limited to the actual areas needed for the wells, powerlines, buried pipeline, and access routes. The exact locations of the 11 wells are unknown at this time because drilling is ongoing, but would be identified when final design drawings are completed and drilling results are known. Based on the preliminary design, there would be approximately 78 acres of surface disturbance and 32.5 acres of temporary construction disturbance for a total of 110.5 acres of disturbance as summarized in Table 2.1-5.

Table 2.1-5: Well Field Right-of-Way Dimensions and Proposed Disturbance

Project Component	Quantity	Width (feet)	Length (feet)	Individual Disturbance	Total Disturbance (acres)
Disturbance Subject to Reclamation after Life of Project					
Wells	11	110	100	11,000 ft ²	2.8
Powerline (includes poles and overland routes), pipeline, and access routes	1	50	65,500*	N/A	75.2
Total ROW					78
Temporary Construction Disturbance					
Temporary Construction Area (along ROW area)	1	20	65,500*	N/A	30
Temporary Laydown Areas	10	100	110	11,000 ft ²	2.5
Total Temporary Disturbance					32.5
Approximate Total ROW and Disturbance Area (acres)					110.5

Notes: ft² = square feet; N/A = not applicable; *Based on preliminary design, may vary with final design.
Source: HRDI 2013b

Water Production Wells

Each production well would be constructed within a well pad area measuring approximately 110 feet by 100 feet. Wells sites would include a pump house within a fenced area. The fence would be approximately 8 feet high with access locked at all times, except during maintenance and monitoring work. No booster stations are anticipated in the preliminary design. Pump houses would be approximately 10 feet wide by 18 feet long and approximately 10 feet high. Pump houses would be painted with a BLM-approved color to minimize visual impacts. A small surge tank (four feet in diameter) may be utilized at some of the pump houses. Lighting at each pump house would be designed and installed in accordance with the approved Hycroft Mine Lighting Management Plan (Monrad 2013). Lights at each pump house would be controlled via a switch and only used when activity was occurring at the well site.

The wells would range between 20 to 24 inches in diameter and be drilled to an average depth of 600 feet. The casing would be High Strength Low Alloy (HSLA) steel. For wells that yield more than 1,500 gpm, the pump would likely be a line-shaft turbine configuration with above-ground electric motors bolted to the discharge head assembly. The pump column and intake would be set 10 to 20 feet above the well screen. For pumps that yield less than 1,500 gpm, the pump may either be a line-shaft turbine or a submersible pump with an electric motor and pump column assembly installed below the ground water table. The pump intake would generally be set 10 to 20 feet above the well screen. The final decision about pump configuration would be based on the pump yield and the required operational hydraulic head and pressure needed for the well field and conveyance system.

Pipelines

The buried pipeline would be installed alongside the existing Jungo Road. The final routes would be dictated by well locations; existing public access would not be hindered. The pipelines would be buried approximately 4 feet deep and range in size from 14 to 24 inches in diameter. The pipelines would be HDPE and designed to carry a flow ranging from approximately 2,500 gpm to 13,400 gpm. Total length of buried pipeline to be installed is estimated to be approximately 47,000 feet in the preliminary design and may vary after completion of the final design.

24.9 kV Powerline

The 24.9 kV, 60-foot-high overhead powerline would be approximately 7 miles (39,000 feet) in total length. The new powerline would connect to the existing powerline that supplies power to the existing production wells (PW-2 and PW-3) on the pole located near PW-2. The powerline would be constructed with approximately 24 single-pole wooden structures per mile equating to between 150 to 170 total poles. Final design would depend on the final well locations and design. This powerline would be owned and maintained by HRDI.

Access and Maintenance Roads

Access from the Hycroft Mine to the Well Field Project Area would be provided by two roads: 1) Jungo Road, an existing BLM 60-foot-wide ROW (NVN-053607) jointly maintained by Humboldt County, Pershing County, and HRDI; and 2) a new 15-foot-wide constructed access road located within the proposed 50-foot ROW. Maintenance routes would generally follow the

buried pipeline and overhead powerline alignments. These routes would either be bladed roads or two-track overland routes.

Temporary Construction Areas

An estimated ten temporary laydown areas would be placed within the Well Field Project Area along the proposed ROW each measuring approximately 100 feet wide by 110 feet long. These staging areas would serve as the reporting location for workers, parking space for vehicles, and storage space for equipment and materials. In addition to the laydown areas, a temporary construction area of 20 feet wide along the 50-foot ROW is also proposed. The temporary construction area would be solely for construction and be reclaimed once construction is completed. Final locations would be based on final construction design and topography of the site.

Construction Activities

Construction of the production wells, powerline, pipeline, and access and maintenance routes would occur simultaneously and would take approximately three to four months to complete. It is anticipated up to 20 equipment operators, drillers, and laborers would be on site during the construction of the well field. The wells would be drilled and the powerline installed by third-party contractors hired and monitored by HRDI. The typical equipment and vehicles needed for construction for the well field are listed in Table 2.1-6.

Table 2.1-6: Well Field Construction Equipment

Equipment	Quantity	Use
Drill rigs	2	Drilling production wells
Excavator	5	Digging trench for pipeline
Dozer	2	Grading for access roads, drill sites, reclamation
Grader	2	Road construction and pipeline installation
Water truck	1	Dust control
Pipe welding equipment vehicle	2	Pipeline installation
Crane	1	Setting wells
Boom truck	1	Constructing power poles
4 x 4 pickup truck	will vary	General use (transport workers, haul small equipment)

Source: HRDI 2013b

Excavators would be used to dig trenches to an average depth of four feet and a width of two feet. Growth media would be stockpiled along the edge of the trench. Vegetation removed during the excavation activities would be stockpiled with growth media. No structures would be removed as part of the operations. A small backhoe or dozer would be used to pull the pipe from the storage areas and stage the pipe along the length of the trench. Pipes would then be welded and placed in the trench with either an excavator or backhoe. Spoils would be pushed into the ditch with a dozer, and the area would be contoured to blend with the surrounding topography. No excavations would be left uncovered.

Standard refueling procedures would be implemented for heavy equipment left on the ROW such as dozers and excavators. This equipment would be refueled in place. No personal or light-duty

vehicles would be allowed to refuel on the ROW. Potential sources of pollutants from drilling rigs, service vehicles, and other equipment would include oil, fuel, and lubricating grease.

Reclamation

Procedures for reclamation and ROW maintenance for the well field would be coordinated with the BLM and would be implemented as standard construction and reclamation measures for the well field. The temporary disturbance areas would be recontoured to match the surrounding terrain. Revegetation of temporary disturbance associated with well field construction would be seeded. Seeding would be limited to areas where disturbance occurred and would be completed with a BLM-approved weed-free seed mix and application rate.

Seeding activities would be timed to take advantage of optimal climatic windows and would be coordinated with other reclamation activities. In general, earthwork and drainage control would be completed in the summer or early fall and seedbed preparation would be completed in the fall, either concurrently with or immediately prior to seeding. Seeding would be done in late fall to take advantage of winter and spring precipitation and optimum spring germination. Early spring seeding may be utilized for areas not seeded in the fall. Seeding would not be conducted when the ground is frozen or snow-covered. Seeding may be done by either hand or broadcast methods depending on conditions.

When the production well field is no longer needed, the powerline would be removed, and the pipeline would be capped and buried in place. The remaining holes from the powerline poles would be filled with soil gathered from the immediate vicinity. The areas where the poles were removed would be raked to match the surrounding topography. Bladed areas would be recontoured and seeded with the appropriate seed mix. The wells would be capped and abandoned in accordance with NAC 445A.

2.1.3 120 kV Powerline ROW

The 120 kV powerline would begin at Interstate 80 (I-80) near Mill City and terminate within the Mine Project Area as shown on Figure 8. The total length of the powerline would cover a distance of approximately 54.3 miles. The new powerline would head north for approximately 21.7 miles while crossing the Humboldt River, passing through the proposed new Dun Glen Substation and running along the eastern flank of the Eugene Mountains paralleling the existing Blue Mountain Transmission Line (80 feet to west). The 120 kV powerline would then turn west and run parallel to Jungo Road for approximately 32.6 miles to the connection with a new substation within the Mine Project Area.

The 120 kV Powerline project components would consist of the following:

- Construction of a 120 kV transmission line, including rebuild/removal of a portion of the existing powerline
- Construction of a new Dun Glen Substation and removal of the existing Dun Glen Substation
- Access roads
- Centerline Travel Route

Table 2.1-7 summarizes the 120 kV project specifications related to these components and which are described in more detail below.

Table 2.1-7: 120 kV Powerline Line Design Specifications

Design Feature	Total
Total length of powerline	54.3 miles
Total powerline corridor	1,975 acres
Total length of Centerline Travel Route (Public Land)	28.38 miles
Total length of Centerline Travel Route (Private Land)	18.26 miles
Total ROW Area (powerline including Centerline Travel Route) ¹	309.58 acres
Total portion on private land	49.82 acres
Total length of access roads requiring construction (public)	13.87 miles
Total pull sites	26
Total poles (H-Frame structures)	137
Total poles (three-pole structures)	12
Total poles (single-pole structures)	341

¹Total acreage includes the section of existing powerline and 90-foot-wide existing ROW.

120 kV Transmission Line

The 120 kV transmission line would include the placement of H-frame two-pole structures, three-pole structures, and single-pole structures (Table 2.1-7). The typical distance between structures would be approximately 800 to 1,000 feet for H-frame and three-pole structures and approximately 400 feet for single-pole structures. The structures would typically be 70 feet tall but heights may vary between 50 to 90 feet to account for variable terrain along the route. The minimum ground clearance would be approximately 22 feet. There are three distinct segments of the powerline with different means of construction.

Approximately 16-miles of the line starting within the Mine Project Area and running parallel along Jungo Road would be new construction with steel single-pole structures. Approximately 16.6-miles of the line along Jungo Road would be new steel single-pole structures with a 24.9 kV distribution line underbuild on the new 120 kV poles. Then the existing 24.9 kV powerline and poles would be removed. Approximately 21.7 miles of the line from Jungo Road down to I-80 would be new construction with steel H-frame and three-pole structures and would connect to an existing powerline.

An existing 120 kV powerline is present within the Powerline Project Area between I-80 and the Dun Glen Substation and is constructed with wooden H-frame structures. The existing powerline and access roads are located within a 75-foot wide ROW (N-001932) which would be increased to 90 feet wide under the Proposed Action. The existing line in this section would be replaced along an altered alignment crossing the Humboldt River. The segment that would be decommissioned is located in sections 13, 24, and 25, T33N, R34 1/2E. NV Energy altered the alignment of the proposed powerline to reduce the number of crossings of the Humboldt River. There would be one as opposed to five crossings of the river, which was the original proposal. By rerouting the new construction and not following the existing powerline, the power poles

would be located outside of wetlands and would avoid northern leopard frog (*Rana pipiens*) habitat. This would minimize the impacts to the wetlands and riparian resources and impacts to special status species. A rubber-tired bucket truck would be used to access the pole sites via the Center Line Travel Route. For poles not directly accessible by the Center Line Travel Route, NV Energy would use overland travel.

Dun Glen Substation

Construction of the new Dun Glen Substation would require an area measuring approximately 350 feet by 250 feet. Construction of the new substation would occur approximately 50 feet to the northwest of the existing substation. The existing station would remain in service until the new substation was constructed in order to provide uninterrupted service to the Blue Mountain Geothermal Power Plant. Once the new station is functioning, the old station would be dismantled and the area reclaimed. The new station would contain the following electrical equipment:

- Four 120 kV circuit breakers;
- Seven 120 kV switches;
- New control enclosure to accommodate new protection panels;
- New telecommunication infrastructure, for the sole purpose of NVE's internal communications, including fiber optic cable, to the Hycroft Mine and a new tower with microwave dish and waveguide, would replace the existing communication infrastructure; and
- Switches, service transformers, and associated bus work and hardware.

Access Roads

Access for the 120 kV powerline construction would be achieved primarily via existing roads. In some cases, existing improved and unimproved dirt roads would require widening or other improvements to accommodate construction equipment. Construction personnel would use these access roads to transport materials and equipment to and from the transmission line corridor, substations, and staging areas. NV Energy would use existing access roads to the maximum extent feasible. Some existing access roads would require widening up to a maximum of 25 feet. Intermittent blading with bulldozers, graders, or equivalent machinery would be used to improve existing dirt and gravel roads for use by off-road vehicles and construction machinery. A new access road would be constructed to the proposed Dun Glen Substation and would measure approximately 8,800 feet long and 40 feet wide. This road would be used to access the substation for operations and maintenance.

Centerline Travel Route

A ten-foot-wide Centerline Travel Route running approximately 28.38 miles would be used by equipment constructing the structure foundations, structures, and stringing. The route would follow the new 120 kV powerline and would be within the 90-foot ROW and accessed from existing roads or from adjacent structure sites in flat terrain and low vegetation. In the event the

Centerline Travel Route becomes impassible, it may be necessary to bring in fill or gravel from a BLM-approved source.

Proposed ROW Specifications

NV Energy would provide as-built drawings of the final alignment for the powerline and access roads, which would identify the final ROW location within the 120 kV powerline route. NV Energy anticipates the final permanent ROWs would total approximately 320 acres and include the powerline, Centerline Travel Route and the new Dun Glen Substation and access road. Table 2.1-8 includes the dimensions of the proposed ROWs.

Table 2.1-8: 120 kV Powerline Right-of-Way Dimensions

Use	Width (feet)	Length (feet)	Area (acres)
Powerline (includes Center Line Travel Route)	90	149,846.4	309.58 ¹
Dun Glen Substation access road	40	8,800	8.1
Dun Glen Substation	350	250	2.0
Total ROW			319.68

Source: NV Energy 2013a

¹The total acreage includes the section of existing powerline and 75-foot existing ROW.

Surface Disturbance

The Powerline Project Area is defined as a 300-foot corridor along the 54.3 mile route, measuring a total of 1,975 acres, in which the proposed surface disturbance and construction activities would take place. Table 2.1-9 identifies the permanent and temporary disturbance associated with the 120 kV powerline component of the Proposed Action, which totals approximately 515 acres on both public and private land.

Table 2.1-9: Proposed Permanent and Temporary Disturbance - 120 kV Powerline

Feature	Area Required	Disturbance	
H-Frame structure	Number of poles x .0001 acre	.02	.01
Three-pole structure	Number of poles x .0001 acre	.002	.002
Single-Pole structure	Number of poles x .0001 acre	0.02	0.01
Centerline Travel Route	Linear feet x 10 feet in width	34.4	22.1
Access roads requiring construction	Linear feet x 25 feet in width	42.0	0
Dun Glen Substation	350 feet x 250 feet	2.0	0
Dun Glen Substation access road	8,800 feet x 40 feet	5.8	2.3
Total Permanent		84.2	24.4
H-Frame structure	Work areas x 150 feet x 150 feet	42.9	27.9

Feature	Area Required	Disturbance (acres)	
		Public	Private
Three-pole structure	Work areas x 200 feet x 200 feet	5.5	5.5
Single-Pole structure	Work areas x 75 feet x 50 feet	18.9	11.9
Pull sites	Number of pull sites x 300-foot radius	77.9	90.8
Staging area	1 x 450 feet x 450 feet	4.7	0
Centerline Travel Route	Number of linear feet public x 10 wide and number of linear feet private x 10 feet wide	34.4	22.1
Access roads requiring construction	110,560.69 linear feet public x 25 feet wide	63.5	0
Total Temporary		247.8	158.2
Total Acres		332	182.6

Construction Activities

All construction work would be conducted within a 300-foot temporary construction area (Powerline Project Area). Once the powerline area is staked, preconstruction plant and wildlife surveys would occur if required prior to beginning ground clearing. Additional staking may be required just prior to construction to refresh previously installed stakes and flagging and/or delineate any sensitive resource areas identified during the preconstruction field surveys.

In areas where vegetation removal is necessary, vegetation would be cleared, primarily by a mower or hydroaxe, leaving the root systems intact to allow for soil stabilization and possible regrowth. Intermittent blading of the ROW may be necessary to ensure that rubber-tired equipment can traverse the terrain.

It is anticipated that the 120 kV powerline would take approximately eight months to complete. A crew of 25 to 50 workers would be mobilized to the site approximately one week prior to the start of work. During this time, they would transport equipment and construction materials to designated construction staging areas. In order to stage construction equipment and materials, crews would use a staging area located at the Hycroft Mine. NV Energy anticipates having up to two additional staging areas on private land that has been previously disturbed and has not been reclaimed or had regrowth. Typical construction equipment and their uses for construction are shown in Table 2.1-10.

Table 2.1-10: 120 kV Powerline Construction Equipment

Equipment	Use
¾-ton and 1-ton pickup trucks	Transport construction personnel
2-ton flat bed trucks; flat bed boom truck	Haul and unload materials
Rigging truck	Haul tools and equipment
Mechanic truck	Service and repair equipment
Aerial bucket trucks	Access poles, string conductor, and other uses
Shop vans	Store tools
Bulldozer	Grade access roads and pole sites and reclamation

Equipment	Use
Road grader	Construct, maintain, and upgrade roads
Compactor	Construct access roads
Truck-mounted digger or backhoe	Excavate
Small mobile cranes (12 tons)	Load and unload materials
Large mobile cranes (75 tons)	Erect structures
Transport	Haul poles and equipment
Drill rig with augers	Excavate and install fences
Puller and tensioner	Pull conductor and wire
Cable reel trainers	Transport cable reels and feed cables into conduit
Semi tractor-trailers	Haul structures and equipment
Splice trailer	Store splicing supplies and air condition manholes
Take-up trailers	Install conductor
Air compressors	Operate air tools
Air tampers	Compact soil around structure foundations
Dump truck	Haul excavated materials and import backfill
Fuel and equipment fluid truck	Refuel and maintain vehicles
Water truck	Suppress dust and fire
Winch truck	Install and pull sock line and conductors into position
Helicopter	Place assembled transmission structures

Source: NV Energy 2013a

In order to accommodate construction equipment and activities, temporary work pads measuring 75 feet by 50 feet would be needed for single-pole-structure work areas; work pads measuring 150 feet by 150 feet would be needed for H-frame-structure work areas; and work pads measuring 200 feet by 200 feet would be needed for each three-pole structure. Each pull site would include a work area of approximately 300 feet in diameter and would be cleared of vegetation and graded (as necessary) for use.

Structure Installation

In order to install the new single-pole, two-pole H-frame structures, and three-pole angle structures, holes would be excavated for each structure using augers or other backhoe-type equipment. These holes would be approximately three feet in diameter and approximately ten feet deep. Additionally, holes for guy wire anchors, which are used to fasten a high-tensioned cable to the ground to give the transmission structure increased stability, would be excavated at single-pole angle structures and three-pole structures. These holes would be excavated to depths of approximately ten feet. Blasting may be required in rocky areas where normal excavation methods are unable to meet project excavation specifications. All of the poles would be electrically grounded through the use of copper ground rods buried in the pole excavation. The line would meet or exceed the requirements of the National Electrical Safety Code (NESC).

Materials, including structure materials, insulators, hardware, and guy wire anchors, would be delivered to the 120 kV powerline area via flatbed truck and would be assembled on site using a crane or other heavy construction equipment. Crews would attach insulators, travelers, and hardware to the cross arm to form a complete unit. After this step has been completed, the assembled transmission structures would be placed into the excavated holes using a large mobile crane or helicopter. The structure pole bases would be buried in the ground, and native soil would be used to fill the holes (imported soil would be used if native material is unsuitable for

compaction). At single-pole angle structures and three-pole structures, guy wires to support the structures would be used to plumb the structures.

Conductor Installation

Approximately 26 pull sites would accommodate conductor installation. The conductor would be installed onto new transmission structures by a sock line (a small cable used to pull conductor) attached to the other end of the new conductor and pulled into the travelers using the pulling equipment staged at the pulling sites or by helicopters. Once the conductor is pulled into place, sags between the structures would be adjusted to a pre-calculated level. The line would be installed with a minimum ground clearance of 22 feet. The new conductor would then be clipped into the end of each insulator on each structure, the travelers would be removed, and vibration dampers and other hardware would be installed. Shield wire installation would be accomplished in a similar manner.

Substation Construction

Work at the Dun Glen Substation site would begin by clearing existing vegetation and grading level pads for installation of the station. Once the pads are prepared, the site would be secured with chain-link fencing. The fence would be approximately 8.5 feet in height. Holes for the structure footings and underground utilities would then be excavated; the footings and underground utilities would be installed, including electrical conduits and additions to the ground grid; and the excavations would be backfilled. Above-ground structures and equipment would then be installed. Once the equipment is installed, medium gray gravel, two inches wide or less, would be spread over the sites to a depth of approximately four inches.

Removal of Existing Line

A lineman, in a bucket, would remove the conductors from the clamps and install travelers. The conductor would be pulled out with a wire-pulling trailer set up at a pull site. The old wire would be placed on wooden reels and removed from the 120 kV site via truck for recycling. A lineman would remove the insulators, crossarms, and cross-braces from each pole. Each component would be hooked to a boom line. The boom truck would lower each piece to the ground. A boom line would be attached to the top of the pole. The pole would then be cut off at ground level and lowered via the boom truck. The poles, crossarms, and braces would be cut into sections, as needed, for removal by vehicle (material trailer). The structures would be disposed of off site. NV Energy anticipates one round trip each for the boom truck, the rubber-tired bucket truck, and the material trailer would be needed for each pole.

Site Cleanup and Demobilization

Surplus materials, equipment, and construction debris would be removed at the completion of construction activities. All man-made construction debris would be removed and disposed of as appropriate at permitted landfill sites. Cleared vegetation would either be shredded and spread over the ROW as mulch and erosion control or disposed of off site, depending on agency agreements. Rocks removed during access road grading and foundation excavation would be redistributed over the ROW to mimic adjacent site conditions.

Hazardous Materials

NV Energy would use the types of fuels and materials identified in Table 2.1-11 for the construction and maintenance of the powerline.

Table 2.1-11: Types of Fuels and Hazardous Materials for Construction and Maintenance of the 120 kV Powerline

Proposed Fuels and Hazardous Materials	
2-Cycle Oil	Lubricating Grease
ABC Fire Extinguisher	Mastic Coating
Acetylene Gas	Methyl Alcohol
Air Tool Oil	North Wasp and Hornet Spray (1,1,1-Trichloro-ethane)
Antifreeze	Oxygen
Automatic Transmission Fluid	Paint
Battery Acid	Paint Thinner
Bee Bop Insect Killer	Petroleum Products
Canned Spray Paint	Prestone II Antifreeze
Chain Lubricant (Methylene Chloride)	Puncture Seal Tire Inflator
Connector Grease	Safety Fuses
Contact Cleaner 2000	Safety Solvent
Eye Glass Cleaner (Isopropyl Alcohol)	Starter Fluid
Gas Treatment	Wagner Brake Fluid
Gasoline	WD-40
Insulating Oil	Diesel Fuel

Source: NV Energy 2013a

Reclamation

Once construction has been completed for the 120 kV powerline, existing access roads would remain improved. If required by the BLM, the Centerline Travel Route created by the 120 kV powerline may be reclaimed to preconstruction conditions. Areas within the ROW disturbed by construction activities would be recontoured, decompacted, and seeded. BLM-approved seed mixes would be applied to these disturbed areas. NV Energy would attempt to close or restrict vehicle access to areas that have been seeded until the reclamation success criteria have been satisfied.

NV Energy would continue to operate and maintain the powerline and the Dun Glen Substation after the Hycroft Mine ceases to operate and would not decommission the powerline or the Dun Glen Substation. NV Energy anticipates having other users for the powerline.

2.1.4 Applicant-Committed Environmental Protection Measures

HRDI and NV Energy have incorporated environmental protection measures into their proposed activities as follows.

Plan Modification

HRDI would continue to implement the environmental protection measures included in the ROD and Plan of Operations approval for the EIS (BLM 2012b). These measures include both applicant-committed measures and additional mitigation measures and stipulations identified during the EIS process to reduce impacts. The ROD has been included for reference in Appendix A of this EA.

Well Field ROW

Environmental protection measures were included in the Well Field POD that HRDI submitted to the BLM and have been included for reference in Appendix B of this EA.

Powerline ROW

Environmental protection measures were included in the 120 kV Powerline POD that NV Energy submitted to the BLM and have been included for reference in Appendix B of this EA.

2.1.5 Summary of the Proposed Action

Within a total Project Area measuring 20,628 acres, the Proposed Action would result in a total of approximately 698 acres of surface disturbance, of which 438.5 acres are related to temporary construction activities. The Project disturbance related to the construction of facilities would be reclaimed following the closure of the Hycroft Mine, with the exception of the powerline which would be kept in use to supply power to other future users totaling 108.6 acres. In addition, the reconfiguration of the open pits within existing disturbed areas, although not equating to new surface disturbance, may create an additional 792 acres that would not be backfilled or reclaimed at the end of the mine life. The temporary construction disturbance would be reclaimed immediately following the completion of Project construction. Table 2.1-12 summarized the proposed disturbance for the three components of the Proposed Action.

Table 2.1-12: Summary of Proposed Action Surface Disturbance

Project Component	Surface Disturbance (acres)		
	Public	Private	Total
Project Disturbance			
Plan Modification	73	0	73
Well Field ROW	78	0	78
120 kV Powerline ROW*	84.2	24.4	108.6
Total Project Disturbance	235.2	24.4	259.6
Temporary Construction Disturbance			
Plan Modification	0	0	0
Well Field ROW	32.5	0	32.5
120 kV Powerline ROW	247.8	158.2	406
Total Temporary Construction Disturbance	280.3	158.2	438.5
Total Acres	515.5	182.6	698.1

*the 120 kV powerline would not be reclaimed following the closure of the mine and would serve other users

2.2 No Action Alternative

The No Action alternative as it relates to the three Project components is described below.

Plan Modification

Under the No Action Alternative, HRDI would continue mining activities as outlined in the approved July 2012 Plan and reclamation and closure plans. As outlined in Table 2.1-4, there are approximately 5,982 acres of authorized disturbance (1,768 acres on private land and 4,214 acres on BLM-administered public land) within the Mine Project Area. The following activities would continue under the No Action Alternative:

- Mining the Bay Area, Boneyard, Central, and Brimstone pits. The acreage of the WRFs would be 1,459 acres, and the authorized amount of waste rock would be approximately 208 million tons in the North, South, and West WRFs and approximately 224,000 tons of waste rock in the Central and Bay open pits. Additionally, the elevations of the existing WRFs would range from 4,500 to 5,125 feet above mean sea level (amsl).
- Approximately 441 acres of the Brimstone open pit may not be backfilled or reclaimed at the end of the mine life.
- There would be 390 truck trips per month delivering fuels and reagents. Total employment would be 537 employees. The previously approved growth media stockpiles would continue to be used and/or developed for a total of 14,187,355 cubic yards.
- The mine operations and reclamation of these facilities would continue as described in the existing Plan and in the EIS. Further mineral development on private land could occur even if the BLM selected the No Action Alternative.
- Continued use of the existing potable water well, two production wells, two freshwater storage ponds, and distribution system. HRDI is authorized to drill a third production well. The existing authorized water distribution system would be sufficient to allow continuation of the existing mining operations.
- Construction has commenced on the mill and associated facilities on private land within the Mine Project Area. Unless a private land alternative was developed to authorize mill operations, the mill would be dismantled. It is located within an open pit area that is subject to reclamation under existing authorizations.

Well Field ROW

Within the Well Field Project Area, HRDI would continue Notice-level exploration and water investigation activities totaling up to five acres of surface disturbance. The two existing production wells PW-2 and PW-3 are located outside of the Well Project Area, but pumping these wells would continue to support mine operations.

120 kV Powerline ROW

NV Energy would continue to operate and maintain the existing Dun Glen Substation and 120 kV powerline. Additionally, NV Energy would continue to maintain and operate the 25 kV single-pole construction powerline that parallels Jungo Road. This powerline, Rose Creek 201, would continue to serve an irrigation customer, the UPRR, and several communication facilities.

No Action Alternative Summary

Further mineral development, well development, and powerline development could occur on private land even if the BLM selected the No Action Alternative. The No Action alternative includes a total of 5,987 acres of authorized disturbance from the existing Hycroft Mine operations and well field activities. The public land would remain available for future mineral development or for other purposes as authorized by the BLM. Any additional activities proposed on public land within the Project Area would be evaluated under NEPA at the time they are proposed.

2.3 Alternatives Considered but Eliminated from Detailed Analysis

The following is a discussion of the alternatives identified through the scoping process, including alternatives identified by the public that have been eliminated from detailed consideration in this EA. The alternatives were considered relative to the criteria in Section 2.2, and BLM Handbook H-1790-1.

120 kV Powerline Humboldt River Crossing Alternative

This alternative was evaluated and was brought forward for preliminary analysis in the early stages of the preparation of this EA. This alternative was for the proposed 120 kV powerline to follow the existing 120 kV powerline route to cross the Humboldt River. This alternative would have required crossing the river at five different locations and the installation of new poles within sensitive wetland habitat. Baseline biological and cultural resource surveys were conducted for this alternative and it was determined that rerouting the river crossing would add additional poles and length to the line, but would only require one river crossing and no new poles in the sensitive areas. NV Energy elected to modify their proposal to the Proposed Action for this EA that would re-route the line around the sensitive areas. Therefore, the alternative to follow the existing 120 kV route across the river was eliminated from further analysis in this EA.

120 kV Powerline Alternate Alignments

In addition to the Humboldt River crossing alternative, NV Energy explored three other alternate alignments. In determining the proposed alignment, NV Energy considered the anticipated impacts to resources. NV Energy specifically evaluated, in consultation with the BLM, potential impacts to the Applegate and California Trails. In order to minimize impacts to all resources, NV Energy considered alignments in relation to the existing Blue Mountain Energy corridor and the WWEC. These three alternatives were eliminated as each alternate alignment would have resulted in some or all of the following:

- A longer powerline resulting in:
 - Additional disturbance;
 - Additional power poles;
 - Additional new ROWs; and
 - Additional impacts to biology, soils, special status species, realty, rangeland, cultural resources, and noxious weeds, invasive and nonnative species;
- Greater impacts to historic trails due to additional and/or new crossings of the Applegate and California Trails.

Burying the Well Field Overhead Powerline Alternative

Under this alternative, the well field overhead powerline would be buried. This alternative was considered to potentially eliminate visual impacts from the overhead powerline from the Applegate and Nobles Trails. Based on photosimulations performed as part of this EA analysis, the visual impacts from the overhead powerline are minimal when viewed from the Applegate and Nobles Trails. Burying the powerline would provide minimal, if any, improvements to these visual resources; therefore, this alternative would decrease but not substantially reduce impacts to the visual resources in comparison to the Proposed Action. Additionally, HRDI would cause substantially more land disturbance, which would cause a greater impact to the following resources: vegetation, soils, wildlife, and migratory birds. For these reasons, this alternate was eliminated from consideration.

Alternative Well Field Locations and Fewer Wells Alternative

HRDI performed extensive research, testing, and study of potential well field sites. In addition to the physical location identified in the well field section of the Proposed Action, HRDI considered other locations for the well field. These locations were eliminated from further consideration based on: 1) distance to the Hycroft Mine; and/or 2) insufficient available ground water. Based on the studies conducted and the characteristics of the ground water basis, HRDI would require the flexibility to install up to 11 wells as necessary to extract the quantity of water needed to support mining operations. There is a potential that HRDI would not need all 11 wells, but the alternative of installing fewer wells as a part of the Proposed Action is not viable at this time. Therefore, the well field location and specifications described in the Proposed Action meets the purpose and need for the Project and this alternative was eliminated from consideration.

Use of the West Wide Energy Corridor

NV Energy considered using the proposed utility corridor identified in the WWEC PEIS (DOE 2008), which identified preferred location(s) for electricity transmission and distribution facilities pursuant to the Energy Policy Act of 2005 within 11 western states. This alternative was eliminated from further consideration because the energy corridor identified in the WWEC PEIS was designed for higher voltage/larger transmission lines. NV Energy's proposed powerline size would not be compatible with the intent of the WWEC PEIS goals and objectives.

2.4 Land Use Plan Conformance

2.4.1 Sonoma-Gerlach Management Framework Plan

The Proposed Action conforms to the BLM's Sonoma Gerlach Management Framework Plan (MFP) dated July 1982 (BLM 1982a). Specifically, in Section .42 Minerals, Objective M-1 states "Make all public lands and other federally owned minerals available for the exploration and development of mineral and mineral commodities." In addition, the well field and 120 kV powerline conform to Section .41 Land, where Objective L-4 states: "To provide lands for rights-of-way across public land."

2.4.2 Paradise-Denio Management Framework Plan

The Well Field ROW and 120 kV Powerline ROW components of the Proposed Action conform to the BLM's Paradise-Denio MFP dated July 1982 (BLM 1982b). Specifically, in Section .41 Land, Objective L 5.0 states: "To allocate public land for utility corridor purposes."

2.5 BLM and Non-BLM Policies, Plans, and Programs

The following policies, plans, and programs are relevant to the Proposed Action:

- Federal Land Policy and Management Act, the Mining and Mineral Policy Act of 1970, and BLM Mineral Policy;
- National Environmental Policy Act;
- Locatable Minerals Surface Management Regulations (43 CFR 3809)
- Humboldt County Regional Master Plan;
- Pershing County Regional Master Plan; and
- Rights-of-Way under the Federal Land Policy and Management Act (43 CFR 2800).

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3 **AFFECTED ENVIRONMENT**

3.1 **Introduction**

Chapter 3 contains a discussion of the existing condition of the resources and land uses that have a potential to be affected by the Proposed Action or alternatives. This EA focuses on activities and associated impacts that are new and different from those analyzed in the 2012 EIS and the Affected Environment discussion is tiered to the EIS and referenced as appropriate.

General Setting

The Mine Project Area and Well Field Project Area lie within the Black Rock Desert Air Basin. The climate of the region is arid, with precipitation averaging 7.6 inches per year. The majority of the precipitation occurs in the winter and spring months and again in October. Temperatures during the summer are generally 50° Fahrenheit (F) at night and near 90°F and above during the days. Winter temperatures are usually 20°F at night and 40°F during the day. There is strong surface heating during the day and rapid night-time cooling due to the dry air, resulting in wide daily ranges in temperature. The average range between the highest and lowest daily temperatures is approximately 30 to 35°F. Winds are generally light. Dust or sand storms occur occasionally, particularly during the spring.

The entire Project Area is located in the Basin and Range province of Nevada, a highly faulted, tectonically active extensional geologic province. The basin and range extensional tectonics has produced a series of north-northeast parallel mountain ranges and basins bounded by normal faults with displacement in the west-northwest-east-southeast direction.

Vegetation communities in the vicinity of the entire Project Area are indicative of a desert environment, such as Bailey's Greasewood, Bailey's Greasewood Desert Scrub, Shadscale Saltbrush, Black Greasewood, and Wyoming Sagebrush. Wildlife species in the area are those found in the Great Basin and adapted to arid environments. Dispersed recreation activities occur within the vicinity of the Project Area dominated primarily by primitive camping, hunting, and hiking. The Project Area lies within the vicinity of the Black Rock Desert-High Rock Canyon Emigrant Trails National Conservation Area (NCA) and the Black Rock Desert Wilderness.

Supplemental Authorities and Additional Affected Resources

Supplemental Authorities are statutes or executive orders (EOs) that require specific elements be considered in the BLM NEPA analysis process. Table 3.1-1 lists the elements and their status as well as the rationale to determine whether an element present would be affected by the components of the Proposed Action. Supplemental authorities that may be affected by the Proposed Action are discussed in this chapter and potential impacts to these elements are analyzed in Chapter 4. Those elements listed under the Supplemental Authorities that do not occur in the Project Area and would not be affected by the Proposed Action are not discussed or analyzed further in this EA. The elimination of nonrelevant issues follows the Council on Environmental Quality (CEQ) regulations as stated in 40 CFR 1500.4.

Table 3.1-1: Supplemental Authorities

Supplemental Authority Element	Not Present	Present/ Not Affected	Present/ May Be Affected	Analysis Rationale and Referenced Sections
Air Quality			X	<p><i>Plan Modification.</i> Analysis of this resource for this component is tiered to Section 3.2 and 4.5.1 in the EIS, pp. 3-6, 4-36 (BLM 2012a). Refer to Sections 3.2 and 4.1.1 of this EA.</p> <p><i>Well Field ROW.</i> Impacts to air quality would be limited to fugitive dust, which would be controlled by the Environmental Protection Measures listed in Appendix B. Therefore, impacts to air quality are not an issue with regard to this component.</p> <p><i>120 kV Powerline ROW.</i> Impacts to air quality would be limited to fugitive dust, which would be controlled by the Environmental Protection Measures listed in Appendix B. Therefore, impacts to air quality are not an issue with regard to this component.</p>
Areas of Critical Environmental Concern	X			No Areas of Critical Environmental Concern (ACECs) are present and this element is not analyzed in this EA. ACECs are nominated during the resource management planning process per 43 CFR 1610.7-2.
Cultural Resources (Including National Historic Trails)			X	All components of the Proposed Action have the potential to affect cultural resources and National Historic Trails. Analysis for this resource related to mine facilities is tiered to Section 3.3 and 4.5.2 in the EIS; pp. 3-27, 4-36 (BLM 2012a). Refer to Sections 3.3 and 4.1.2 of this EA.
Environmental Justice	X			The Proposed Action is consistent with the rationale related to Environmental Justice issues described in Section 3.1.2.1; p. 3-3, of the EIS (BLM 2012a). This element is not analyzed in this EA.
Farmlands (Prime or Unique)	X			This resource is not present and is not analyzed in this EA.
Floodplains		X		<p><i>Plan Modification.</i> This component is not located within designated floodplains. Therefore, impacts to floodplains are not an issue with regard to this component and are not analyzed in this EA.</p> <p><i>Well Field ROW.</i> This component is not located within designated floodplains. Therefore, impacts to floodplains are not an issue with regard to this component and are not analyzed in this EA.</p> <p><i>120 kV Powerline ROW.</i> This component of the Proposed Action is located within a Federal Emergency Management Agency designated Zone A floodplain. However, the amount of disturbance under the Proposed Action would be minimal and no powerline facilities would be placed within the active flood zone (defined as within the Ordinary High Water Mark). Therefore, impacts to floodplains are not an issue with regard to this component and are not analyzed in this EA.</p>
Migratory Birds			X	All components of the Proposed Action have the potential to affect migratory birds. Analysis for this resource related to mine facilities is tiered to Section 3.4 and 4.5.4 in the EIS; pp. 3-27, 4-36 (BLM 2012a). Refer to Sections 3.4 and 4.1.3 of this EA.

Supplemental Authority Element	Not Present	Present/ Not Affected	Present/ May Be Affected	Analysis Rationale and Referenced Sections
Native American Religious Concerns			X	<p><i>Plan Modification.</i> Analysis for this element for this component is tiered to Section 3.5 in the EIS, pp. 3-46 (BLM 2012a). Refer to Sections 3.5 and 4.1.4 of this EA.</p> <p><i>Well Field ROW.</i> At the time of the publication of this EA no issues have been brought forward related to this component of the Project; however, consultation is ongoing.</p> <p><i>120 kV Powerline ROW.</i> At the time of the publication of this EA no issues have been brought forward related to this component of the Project; however, consultation is ongoing.</p>
Noxious Weeds, Invasive and Nonnative Species			X	<p><i>Plan Modification.</i> This component would be covered under the existing Noxious Weed Monitoring and Control Plan (HRDI 2011). The prevention and control measures included in this plan would continue to be implemented. Therefore, impacts related to this element are not an issue with regard to this component and are not analyzed in this EA.</p> <p><i>Well Field ROW.</i> Surveys were completed for the well field area and the two invasive, nonnative species were observed were cheatgrass (<i>Bromus tectorum</i>) and halogeton (<i>Halogeton glomeratus</i>). This component would be covered under the existing Noxious Weed Monitoring and Control Plan (HRDI 2011). The prevention and control measures included in this plan would continue to be implemented. Therefore, impacts related to this element are not an issue with regard to this component and are not analyzed in this EA.</p> <p><i>120 kV Powerline ROW:</i> Refer to Sections 3.6 and 4.1.5 of this EA.</p>
Threatened or Endangered Species	X			<p>Coordination was conducted with the United States Fish and Wildlife Service (USFWS) and no threatened or endangered species listed under the Endangered Species Act (ESA) were identified within the Project Area or vicinity. Candidate species for listing under the ESA are discussed within the Special Status Species section. Therefore, this resource is not analyzed in this EA.</p>
Wastes, Hazardous or Solid		X		<p><i>Plan Modification.</i> Additional types and quantities of chemicals and compounds, beyond those addressed in the EIS, would be used in association with the proposed facilities (Refer to Tables 2.1-1 and 2.1-3 in this EA). These constituents would be managed as described in the Solid and Hazardous Waste Management Plan (HRDI 2012a). Additional stipulations regarding materials and waste management are included in the ROD (Appendix A of this EA) and are incorporated into the Proposed Action. Therefore, the analysis for this element in Section 3.6 of the EIS; pp. 3-49 through 3-54 (BLM 2012a) is sufficient and this element is not further analyzed in this EA.</p> <p><i>Well Field ROW.</i> The Environmental Protection Measures described in Appendix B would be implemented. Therefore, impacts related to this element are not an issue with regard to this component and are not analyzed in this EA.</p>

Supplemental Authority Element	Not Present	Present/ Not Affected	Present/ May Be Affected	Analysis Rationale and Referenced Sections
Wastes, Hazardous or Solid (cont.)				<i>120 kV Powerline ROW:</i> Wastes (hazardous and solid) would be limited to the constituents listed in Table 2.1-11 of this EA. The Environmental Protection Measures described in Appendix B would be implemented. Therefore, impacts related to this element are not an issue with regard to this component and are not analyzed in this EA.
Water Quality - Surface and Ground		X		<p><i>Plan Modification.</i> Based on the results of the additional studies performed for the Proposed Action, it was determined that the analysis for water quality in Section 3.7 of the EIS, pp. 3-54 - 3-76 (BLM 2012a), is sufficient and this element is not further analyzed in this EA. Specifically as described in Section 2.1.1 of this EA, the waste rock types that would be generated under the Proposed Action are the same analyzed in the EIS and the management of these materials would remain the same. In addition, potential impacts to surface water quality would continue to be managed by Best Management Practices described in the Mine’s Storm Water Pollution Prevention Plan (SWPPP). A Screening Level Ecological Risk Assessment (SLERA) was performed for the proposed tailings storage facility, which is included in Appendix B of the Plan Modification (HRDI 2013a). The water quality issues related to potential affects to wildlife resources are discussed in Sections 3.13 and 4.1.12 of this EA. Refer to Table 3.1-2 for Water Quantity related to this component.</p> <p><i>Well Field ROW.</i> The Hycroft Mine SWPPP would be implemented for the Well Field ROW to minimize impacts to surface water quality. All wells would be drilled and abandoned in accordance with State regulations and would not impact ground water quality. Therefore, impacts related to this resource are not an issue with regard to this component and are not analyzed in this EA. Refer to Table 3.1-2 for Water Quantity related to this component.</p> <p><i>120 kV Powerline ROW.</i> A SWPPP would be developed for this component related to surface water quality. Therefore, impacts related to this resource are not an issue with regard to this component and are not analyzed in this EA.</p>
Wetlands and Riparian Zones		X		<p><i>Plan Modification.</i> This resource is not present and is not analyzed in this EA.</p> <p><i>Well Field ROW.</i> This resource is not present and is not analyzed in this EA.</p> <p><i>120 kV Powerline ROW:</i> This resource is present within the vicinity of the powerline but the 120 kV Powerline alignment was rerouted for the Humboldt River crossing to avoid wetlands. There are no impacts to the wetlands, and this resource is not further analyzed.</p>
Wild and Scenic Rivers	X			This resource is not present and is not analyzed in this EA.
Wilderness	X			This resource is not present and is not analyzed in this EA.

Additional Affected Resources

In addition to the elements listed under Supplemental Authorities, the BLM considers other important resources and uses in which impacts may occur from implementation of the Proposed Action. Other resources or uses of the human environment that have been considered for this EA are listed in Table 3.1-2. The existing conditions of the resources that may be affected by the Proposed Action are discussed in this chapter and potential impacts are analyzed in Chapter 4.

Table 3.1-2: Additional Affected Resources

Additional Affected Resources	Not Present	Present/ Not Affected	Present/ May Be Affected	Analysis Rationale and Referenced Sections
Lands with Wilderness Characteristics	X			Based on an inventory performed by the BLM, it was determined that no Lands with Wilderness Characteristics are present within the Project Area. Roads, powerlines, and other developments are present throughout the Mine Project Area, Well Field Project Area and Powerline Project Area, which eliminates the Project Area from meeting wilderness characteristics criteria. Therefore, this resource is not analyzed in this EA.
Noise		X		<p><i>Plan Modification.</i> Enviroscientists, Inc. prepared a supplemental noise evaluation memorandum dated January 31, 2014 pertaining to the Proposed Action (Enviroscientists 2014). It was concluded that there would be minimal, if any, additional noise impacts from the operation of the rail spur. The use of the rail spur would result in a reduction of truck traffic, which would offset the noise impacts from the trains. This study and analysis in the EIS in Section 3.9 of the EIS; pp. 3-88 (BLM 2012a) is sufficient and this resource is not analyzed in this EA.</p> <p><i>Well Field ROW:</i> Impacts related to noise are not an issue with regard to this component and are not analyzed in this EA.</p> <p><i>120 kV Powerline ROW:</i> Impacts related to noise are not an issue with regard to this component and are not analyzed in this EA.</p>

Additional Affected Resources	Not Present	Present/ Not Affected	Present/ May Be Affected	Analysis Rationale and Referenced Sections
Paleontology	X			<p><i>Plan Modification.</i> Based on a detailed study of the paleontological resource potential to support the EIS, no fossil locations or potential have been identified within the geologic units (Enviroscientists 2011) within the Mine Project Area. Therefore, impacts related to this resource are not an issue with regard to this component and are not analyzed in this EA.</p> <p><i>Well Field ROW.</i> Based on a detailed study of the paleontological resource potential, no fossil locations or potential have been identified within the geologic units in the Well Field Project Area (Enviroscientists 2013). Therefore, impacts related to this resource are not an issue with regard to this component and are not analyzed in this EA.</p> <p><i>120 kV Powerline ROW.</i> Based on a detailed study of the paleontological resource potential, no fossil locations or potential have been identified within the geologic units in the Powerline Project Area (Enviroscientists 2013). Therefore, impacts related to this resource are not an issue with regard to this component and are not analyzed in this EA.</p>
Realty		X		<p><i>Plan Modification.</i> Existing ROWs are present within mine plan boundary as described in Section 3.10 of the EIS. At this time no conflicts have been identified. Per the CFR 2800 regulations, the ROW holders would be contacted prior to construction. Therefore, impacts related to realty are not an issue with regard to this component and are not analyzed in this EA.</p> <p><i>Well Field ROW.</i> Existing ROWs are present within the well field area as listed in Appendix C. At this time no conflicts have been identified. Per the CFR 2800 regulations, the ROW holders would be contacted prior to construction. Therefore, impacts related to realty are not an issue with regard to this component and are not analyzed in this EA.</p> <p><i>120 kV Powerline ROW.</i> Existing ROWs are present in the powerline corridor as listed in Appendix C. At this time no conflicts have been identified. Per the CFR 2800 regulations, the ROW holders would be contacted prior to construction. Therefore, impacts related to realty are not an issue with regard to this component and are not analyzed in this EA.</p>

Additional Affected Resources	Not Present	Present/ Not Affected	Present/ May Be Affected	Analysis Rationale and Referenced Sections
Recreation		X		<p><i>Plan Modification:</i> Analysis for this resource is described in Section 3.11 in the EIS; pp. 3-110 - 3-116 (BLM 2012a). The potential impacts from this component of the Proposed Action on recreation are the same and would not contribute further to the impacts described in the EIS and are not analyzed in this EA.</p> <p><i>Well Field ROW:</i> There would be minimal impacts to dispersed recreational activities in the well field area. The pump houses would be the only fenced area of the well field area. The water line would be underground and the powerline would be overhead, thus allowing individuals engaged in dispersed recreational activities to cross the well field boundary. Therefore, impacts related to recreation are not an issue with regard to this component and are not analyzed in this EA.</p> <p><i>120 kV Powerline ROW:</i> Recreation is present, mostly in the form of dispersed recreation. Impacts to recreational activities would be minimal as the majority of the Powerline Project Area already has powerline features. Therefore, impacts related to recreation are not an issue with regard to this component and are not analyzed in this EA.</p>
Social Values and Economics			X	<p><i>Plan Modification:</i> Refer to Sections 3.7 and 4.1.6 of this EA. Analysis for this resource is tiered to Section 3.12 of the EIS; pp. 3-116 (BLM 2012a).</p> <p><i>Well Field ROW:</i> HRDI would contract up to 20 construction workers. HRDI anticipates using existing employees or workers from the surrounding areas (Winnemucca, Battle Mountain, and Lovelock) for construction work. After well field construction is completed, operations and maintenance activities would be performed by HRDI employees. Therefore, impacts related to social values and economics are not an issue with regard to this component and are not analyzed in this EA.</p> <p><i>120 kV Powerline ROW:</i> There would be a temporary increase in construction workers, but NV Energy would primarily use their existing employees during construction. Therefore, impacts related to social values and economics are not an issue with regard to this component and are not analyzed in this EA.</p>
Soils			X	<p><i>Plan Modification:</i> Refer to Sections 3.8 and 4.1.7 of this EA. Analysis for this resource is tiered to Section 3.13 of the EIS; pp. 3-145 (BLM 2012a).</p> <p><i>Well Field ROW:</i> Refer to Sections 3.8 and 4.1.7 of this EA.</p> <p><i>120 kV Powerline ROW:</i> This resource is present but the Environmental Protection Measures identified in Appendix B of the EA would minimize any impacts from the 120 kV powerline component. Therefore, impacts related to soils are not an issue with regard to this component and are not analyzed in this EA.</p>
Special Status Species (Plants and Wildlife)			X	<p>All components of the Proposed Action have the potential to affect special status species. Refer to Sections 3.9 and 4.1.8 of this EA.</p>

Additional Affected Resources	Not Present	Present/ Not Affected	Present/ May Be Affected	Analysis Rationale and Referenced Sections
Transportation, Access, and Public Safety			X	<p><i>Plan Modification:</i> Refer to Sections 3.10 and 4.1.9 of this EA. Analysis for this resource is tiered to Section 3.15 of the EIS; pp. 3-178 (BLM 2012a).</p> <p><i>Well Field ROW:</i> The EIS analysis in Section 3.15 is sufficient to cover the Well Field ROW component. Public access would be maintained through the well field area. Therefore, impacts related to transportation, access and public safety are not an issue with regard to this component and are not analyzed in this EA.</p> <p><i>120 kV Powerline ROW:</i> Environmental Protection Measures included in Appendix B, although not directly related to Transportation, Access, and Public Safety would minimize any impacts associated with this resource. Therefore, impacts related to transportation, access and public safety are not an issue with regard to this component and are not analyzed in this EA.</p>
Vegetation			X	<p>All components of the Proposed Action have the potential to affect vegetation. Refer to Sections 3.11 and 4.1.10 of this EA.</p>
Visual Resources		X		<p><i>Plan Modification:</i> Analysis for this resource is described in Section 3.17 of the EIS; pp. 3-198 - 3-220 (BLM 2012a). The proposed tailing storage facility would not be visible as it would be located behind the approved South HLF. Lighting for the rail spur and buildings would comply with the Hycroft Mine Lighting Management Plan (Monrad 2013) as outlined in Section 2.1.1. Therefore, impacts related to visual resources are not an issue with regard to this component and are not analyzed in this EA.</p> <p><i>Well Field ROW:</i> The EIS analysis is sufficient to cover the Well Field ROW component. Lighting at each pump house would be designed and installed in accordance with the approved Hycroft Mine Lighting Management Plan (Monrad 2013). Lights at each pump house would be controlled via a switch and only used when activity was occurring at the well site. Therefore, impacts related to visual resources are not an issue with regard to this component and are not analyzed in this EA.</p> <p><i>120 kV Powerline ROW:</i> Visual impacts from the powerline would be minimal as existing powerlines and disturbance are present within the Powerline Project Area. Therefore, impacts related to visual resources are not an issue with regard to this component and are not analyzed in this EA.</p> <p>Note: Potential visual impacts related to cultural or historic properties, including trails, is addressed in Section 3.3 of this EA.</p>

Additional Affected Resources	Not Present	Present/ Not Affected	Present/ May Be Affected	Analysis Rationale and Referenced Sections
Water Quantity - Surface and Ground			X	<p><i>Plan Modification:</i> Analysis for this resource is described in Section 3.7 of the EIS; pp. 3-54 - 3-76 (BLM 2012a). See Sections 3.13 and 4.1.12 of the EA for additional analysis.</p> <p><i>Well Field ROW:</i> Analysis for this resource is described in Section 3.7 in the EIS; pp. 3-54 - 3-76. See Sections 3.13 and 4.1.12 of the EA for additional analysis.</p> <p><i>120 kV Powerline ROW:</i> No impacts to water quantity would result from the powerline component and it is not analyzed in this EA.</p>
Wildlife			X	All components of the Proposed Action have the potential to affect wildlife. Refer to Sections 3.13 and 4.1.12 of this EA.

SUPPLEMENTAL AUTHORITIES

3.2 Air Quality

3.2.1 Regulatory Framework

The Federal Clean Air Act (FCAA) is the primary controlling legislation over air quality. Ambient air quality and the emission of air pollutants are regulated under both federal and state laws and regulations. The federal and state Ambient Air Quality Standards are the minimum standards of quality for ambient air. Regulations applicable to the Project and alternatives include the following: National Ambient Air Quality Standards (NAAQS); Nevada State Ambient Air Quality Standards (NSAAQS); Attainment and Nonattainment Areas; Prevention of Significant Deterioration; New Source Performance Standards; National Emission Standard for Hazardous Air Pollutants; Federal Operating Permit Program; and State of Nevada air quality regulations and standards for permits to operate under NAC 445B.

National Ambient Air Quality Standards

The most recent revisions of the NAAQS include amendments to standards for the following pollutants (dates represent publication in the Federal Register [FR]): ozone (O₃) (EPA 2008a), lead (Pb) (EPA 2008b), nitrogen dioxide (NO₂) (EPA 2010a), sulfur dioxide (SO₂) (EPA 2010b), carbon monoxide (CO) (EPA 2011b), PM₁₀ and PM_{2.5} (EPA 2013a). All updated standards are effective in all states on the “effective” dates noted in the FR. Table 3.2-1 summarizes the NAAQS standards.

Table 3.2-1: National Ambient Air Quality Standards for Criteria Pollutants as of January 2013

Pollutant (final rule cite)	Standards (Primary/Secondary)	Averaging Time	Level	
CO [76 FR 54294, Aug 31, 2011]	Primary	8-hour	9 ppm (10 mg/m ³)	
		1-hour	35 ppm (40 mg/m ³)	
Pb [73 FR 66964, Nov 12, 2008]	Primary and secondary	Rolling 3 month average	0.15 µg/m ³ ⁽¹⁾	
NO ₂ [75 FR 6474, Feb 9, 2010]	Primary	1-hour	100 ppb (188 µg/m ³)	
	Primary and secondary	Annual	53 ppb (100 µg/m ³) ⁽²⁾	
O ₃ [73 FR 16436, Mar 27, 2008]	Primary and secondary	8-hour	0.075 ppm (150 µg/m ³) ⁽³⁾	
Particulate Matter [78 FR 3086, Jan 15, 2013]	PM _{2.5}	Primary	12 µg/m ³	
		Secondary	15 µg/m ³	
	PM ₁₀	Primary and secondary	24-hour	35 µg/m ³
		Primary and secondary	24-hour	150 µg/m ³
SO ₂ [75 FR 35520, Jun 22, 2010]	Primary	1-hour	75 ppb (196 µg/m ³) ⁽⁴⁾	
	Secondary	3-hour	0.5 ppm (1,300 µg/m ³)	

Notes: milligrams per cubic meter (mg/m³); micrograms per cubic meter (µg/m³); parts per billion (ppb); parts per million (ppm)

⁽¹⁾ Final rule signed October 15, 2008. The 1978 lead standard of 1.5 µg/m³ as a quarterly average remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

⁽²⁾ The official level of the annual NO₂ standard is 0.053 ppm, equal to 53 ppb, which is shown here for the purpose of clearer comparison to the 1-hour standard.

⁽³⁾ Final rule signed March 12, 2008. The 1997 ozone standard (0.08 ppm, annual fourth-highest daily maximum 8-hour concentration, averaged over three years) and related implementation rules remain in place. In 1997, EPA revoked the 1-hour ozone standard (0.12 ppm, not to be exceeded more than once per year) in all areas, although some areas have continued obligations under that standard (“anti-backsliding”). The 1-hour ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is less than or equal to one.

⁽⁴⁾ Final rule signed June 2, 2010. The 1971 annual and 24-hour SO₂ standards were revoked in that same rulemaking. These standards, however, remain in effect until one year after an area is designated for the 2010 standard, except in areas designated nonattainment for the 1971 standards, where the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standard are approved.

Nevada State Ambient Air Quality Standards

NAC 445B.22097 sets the AAQS for the State of Nevada (NvAAQS), which are outlined in Table 3.2-2. These standards of quality for ambient air are minimum goals, and are intended to protect the existing quality of the Nevada’s air to the extent that is economically and technically feasible.

Table 3.2-2: Nevada State Ambient Air Quality Standards

Pollutant		Averaging Time	Level
CO	Less than 5,000 feet amsl	8-hour	9 ppm (10,500 $\mu\text{g}/\text{m}^3$)
	At or greater than 5,000 feet amsl	8-hour	6 ppm (7,000 $\mu\text{g}/\text{m}^3$)
	At any elevation	1-hour	35 ppm (40,500 $\mu\text{g}/\text{m}^3$)
Pb		Quarterly arithmetic means	0.15 $\mu\text{g}/\text{m}^3$
NO ₂		Annual arithmetic means	0.053 ppm (100 $\mu\text{g}/\text{m}^3$)
O ₃		1-hour	0.12 ppm (235 $\mu\text{g}/\text{m}^3$)
Particulate Matter as PM ₁₀		Annual arithmetic means	50 $\mu\text{g}/\text{m}^3$
		24-hour	150 $\mu\text{g}/\text{m}^3$
SO ₂		Annual arithmetic means	0.030 ppm (80 $\mu\text{g}/\text{m}^3$)
		24-hour	0.14 ppm (365 $\mu\text{g}/\text{m}^3$)
		3-hour	0.5 ppm (1,300 $\mu\text{g}/\text{m}^3$)
Hydrogen Sulfide (H ₂ S)		1-hour	0.08 ppm (112 $\mu\text{g}/\text{m}^3$)

3.2.2 Assessment Area and Study Methods

Assessment Area

As discussed in Table 3.1-1, air quality is analyzed only for the Plan Modification component of the Proposed Action. The assessment area is an area within approximately 50 kilometers (31 miles) of the Mine Project Area, which represents the recommended distance for the U.S. Environmental Protection Agency (EPA)-approved air dispersion model used for the impact analysis.

Study Methods

An Air Quality Impact Analysis (AQIA) was completed to evaluate the impacts of air emissions associated with the Plan Modification (Allied Nevada Gold [ANG] and JBR 2013). The AQIA includes near-field dispersion modeling as an accepted method to determine the impacts from the proposed operations comparative to the NAAQS. The modeling evaluates applicable ambient air quality impacts at points accessible to the public. The AQIA methodology and modeling techniques utilized to estimate the worst-case impacts to ambient air quality as a result of the Proposed Action.

The AQIA considered the impacts from the regular mining operation of stationary, mobile equipment and fugitive emission source categories as follows:

- Ancillary sources: lime silos, storage tanks, lighting plants, etc.;
- Fugitive emission sources: blasting, material handling, wind erosion, etc.;
- Process emission sources: material handling, crushing, conveying, refining, etc.; and
- Mine related bus traffic to the mine along the Jungo Road access.

The AQIA included development of an emission inventory based upon maximum design hourly process rates of the mine operations and emission sources described in the Plan Modification. Maximum production was evaluated with the gyratory crusher feeding the Mill, Brimstone and center Pits conjoined, and South Heap two-thirds completed receiving tailings in 2018. Percent

utilization factors were taken into consideration when computing emissions. The emission inventories were prepared for modeling appropriate hourly averaging periods of the pollutant and in cases where sources operated intermittently over a time period, the pollutant emissions were scaled. The emissions inventory was used to support the air dispersion modeling.

The EPA-approved air dispersion model, BREEZE AERMOD-ISC 7 (version 7.7.1) (AERMOD) using the 12345 AERMOD executable, was utilized for the AQIA. Receptors were created in AERMOD and processed through the AERMAP version 11103 terrain processor program. The spatial attributes of the receptors were set up to capture air pollutant dispersion impacts from the proposed project area and areas accessible by the public. Facility boundary receptors were spaced at 25-meters coinciding with the fence line, berms, and terrain barriers.

Meteorological data utilized for the modeling analysis was recommended and provided by NDEP Bureau of Air Pollution Control (BAPC) staff from the Lovelock, Nevada monitoring station. The meteorological inputs of hourly data are required in AERMOD to estimate pollution concentrations. The most recent meteorological data covers the timeframe from 2006 through 2010. Meteorological files were provided in model-ready form, processed through AERMET and quality verified by BAPC staff.

The AQIA utilized background concentrations to assess the impact of the Plan Modification on the ambient air quality. The BAPC recommended background values of 10.2 $\mu\text{g}/\text{m}^3$ and 9.0 $\mu\text{g}/\text{m}^3$ for the PM_{10} 24-hour and annual averaging periods respectively were used. However, the background concentrations for NO_2 and SO_2 for 1-hour were different than the EIS. The background concentrations for the 1-hour NO_2 and SO_2 averaging period were assumed to be zero per the BAPC recommendations for rural and remote sites like the Project. The AQIA explains that the rural representative sites used in the EIS for NO_2 and SO_2 are all locations in California that would be considered conservatively high compared to the Project location. The background concentrations used in the AQIA are shown in Table 4.1-2 (ANG and JBR 2013).

Table 3.2-3: Background Values for Criteria Pollutants Used in Air Quality Modeling

Pollutant	Averaging Period	Monitoring Location	Data Capture Year/s	Background Concentration ($\mu\text{g}/\text{m}^3$)	NAAQS ($\mu\text{g}/\text{m}^3$)
PM_{10}	24-hour	GBNP	--	10.2	150
	Annual	GBNP	--	9.0	50
$\text{PM}_{2.5}$	24-hour	GBNP	2005-2007	7.0	35
	Annual	Trona, CA	2005-2008	2.38	15
NO_2	1-hour	None	--	0	188
	Annual	Trona, CA	2002-2005	9.43	100
SO_2	1-hour	None	--	0	196
	3-hour	Trona, CA	2002-2005	28.6	1,300
	24-hour	Trona, CA	2002-2005	18.3	365
	Annual	Trona, CA	2002-2005	5.3	80
CO	1-hour	Barstow, CA	2002-2005	3,771	40,000
	8-hour	Barstow, CA	2002-2005	1,666	10,000

Source: ANG and JBR 2013

3.2.3 Existing Conditions

Mine Project Area

Air quality in the Mine Project Area is governed by both factors of pollutant emissions and meteorological conditions. The Hycroft Mine is located within in Air Quality Hydrographic Basin 28, the Black Rock Desert that is currently unclassified for PM₁₀, CO, SO₂, and oxides of nitrogen (NO_x).

The Hycroft Mine operates under an existing Class II Air Quality Operating Permit (AQOP) (AP1041-0334.03), and HRDI has submitted a Class I AQOP application to the BAPC to comply with the applicable 40 CFR Part 63 Subpart EEEEEEE (EPA 2011a). This permit application is under review, and if/when it is approved, the Class I would replace the Class II permit. HRDI has also obtained a Class I Operating Permit to Construct (OPTC) (AP1041-2974) for the addition of a new crushing circuit and has received a new Class I OPTC (AP1041-3269) for the mill. The mercury thermal units at the existing mining operation are permitted under the Mercury Operating Permit to Construct (MOPC) (AP1041-2255), which includes the de minimis units that emit less than five pounds per year of mercury without controls.

3.3 Cultural Resources (Including Historic Trails)

3.3.1 Regulatory Framework

Section 106 of the National Historic Preservation Act of 1966, as amended (16 United States Code [U.S.C.] 470 *et seq.*) (NHPA), and its implementing regulations under 36 CFR 800 require all federal agencies to consider effects of federal actions on cultural resources eligible for or listed in the National Register of Historic Places (NRHP) within the Area of Potential Effect (APE).

The BLM is responsible for completing the Section 106 process whenever there is an undertaking with potential for effects on historic properties (i.e., those eligible for inclusion in the NRHP) and public lands or public funding are involved. The purpose of land inventory and site evaluation is to allow the BLM to make informed decisions on multiple-use lands and take into account effects of undertakings to significant cultural resources. As appropriate, these decisions are made in consultation with the State Historic Preservation Office (SHPO), the Advisory Council on Historic Preservation, Indian Tribes, and local and state governments, among others.

Potential historic properties may include districts, sites, structures, and objects that possess historical integrity and are greater than 50 years old. Cultural resource types associated with the Proposed Action include prehistoric and historic archaeological sites. Examples of prehistoric sites include camps, lithic scatters, and quarries, among others. Examples of historic sites include roads, trails, railroads, mining sites, prospecting sites, trash scatters, buildings, structures, and features.

BLM has developed a nationwide Programmatic Agreement (NPA) governing how the BLM shall meet its responsibilities under the NHPA. *The State Protocol Agreement between the Bureau of Land Management, Nevada and the Nevada State Historic Preservation Office* signed

in 2012 prescribes the manner in which the BLM and the Nevada SHPO shall cooperatively implement the NPA in Nevada. *The Guidelines and Standards for Archaeological Inventory BLM Nevada* dated 2011 describe procedures for inventory, recording, evaluation, and reporting of archaeological resources located on lands managed by BLM Nevada.

A portion of the Project Area is adjacent to the Black Rock Desert-High Rock Canyon Emigrant Trails NCA. In 2000, the U.S. Congress passed the Black Rock Desert-High Rock Canyon Emigrant Trails National Conservation Area Act. The NCA Act directed the BLM to manage 815,000 acres of public land in northwestern Nevada as a National Conservation Area. The BLM prepared a Resource Management Plan (RMP) and an EIS for the NCA which were published in 2004. These documents established the program of long-term protections for these nationally significant lands.

The NCA Act, among other provisions, protects the physical remains and viewsheds of many miles of National Historic Trails. Pursuant to BLM Manual 6280, *Management of National Scenic and Historic Trails and Trails Under Study or Recommended as Suitable for Congressional Designation*, “the Secretary (Interior), through the BLM, may ‘grant easements and rights-of-way upon, over, under, across, or along any component of the national trails system in accordance with the laws applicable to ...[the BLM public land] ..[p]rovided, [t]hat any conditions in such easement and rights-of-way shall be related to the policy and purposes of’ the NTSA (National Trails System Act of 1968).” The BLM is further tasked to “Manage the nationally significant scenic, historic, cultural, recreation, natural, and other landscape values (resources, qualities, values, and associated settings) and the primary use or uses for which the National Trails were designated (BLM 2012b). The BLM, therefore, is required to consider potential impacts to the National Trails when reviewing an application for ROW and analyze, as needed, in the supporting NEPA document.

3.3.2 Assessment Areas and Study Methods

Assessment Areas

The APE or assessment area for historic properties is defined in 36 CFR 800.9(a) as “the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any exist. The assessment area is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking.”

An effect or impact occurs when a proposed project would directly or indirectly alter any of the qualities of that property that qualified the property for inclusion in the NRHP in a manner that would diminish the integrity of the property’s location, design, setting materials, workmanship, feeling, or association. Specific types of impacts anticipated from the Proposed Action are:

- Physical destruction or damage to all or part of the NRHP eligible resource (direct impact);
- Change in the character of the property’s use or physical features within the property’s setting that contributes to its historic significance (direct or indirect impact);
- Removal of the property from its physical location; and

- Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features (36 CFR 800.5(a) (1) and 800.5(a)(2)).

The APE in which direct impacts have the potential to occur for the Plan Amendment, Well Field ROW, and 120 kV Powerline ROW are the respective Project Areas. The indirect APE takes into consideration the viewshed of the Project components as assessed from cultural or historic sites, including National Historic Trails. The indirect APE for the Well Field ROW is shown on Figure 9. The indirect APE for the 120 kV Powerline ROW is the same as the Cumulative Effects Study Area shown on Figure 12.

Study Methods

Archival Research

Archival research pertaining to the Plan Modification was conducted in 2010 and 2011 (Harmon et al. 2011; Guy et al. 2011) in association with the EIS (BLM 2012a). Records for a one-mile buffer around the Mine Project Area were examined in addition to the Project APE. Research was also conducted at several libraries and records repositories, including several at the University of Nevada at Reno, the Nevada Historical Society and the Nevada Census Records.

Archival file research for the Well Field ROW was conducted at the BLM Winnemucca District Office in April and October 2012. The Nevada Cultural Resource Information System was also examined for previously recorded sites in the well field area. Records at the Nevada Bureau of Mines and Geology, online maps at the Mary B. Ansari Map Library, and historic newspaper files were also examined. Records covering a one-mile buffer around the Well Field Project Area were examined in addition to those covering the Project APE.

Archival research for the 120 kV Powerline ROW was conducted in 2013 at the BLM Winnemucca District Office. The Nevada Cultural Resource Information System was examined for previously recorded sites in the Powerline Project Area. Records encompassing a one-mile buffer around existing powerline facilities in the vicinity of the Powerline Project Area were examined for the presence of previously recorded sites. Historic maps and other records were reviewed including those from the Nevada Department of Transportation and NV Energy.

Pedestrian Survey

No new pedestrian surveys were completed for the Mine Project Area because that area had been inventoried in 2010 and 2011 in association with the EIS (BLM 2012a). The APE, including access roads was surveyed to a Class III level (Harmon et al. 2011; Guy Hays and Mehls 2011) following the provisions of the Nevada BLM/SHPO Protocol and Nevada BLM Guidelines and Standards for Archaeological Inventory (2011). Effects to sites affected by the previous mine expansion project were mitigated according to the provisions of a Treatment Plan (WCRM 2012). No new areas would be directly affected by this component of the Proposed Action.

The Well Field Project Area, measuring approximately 3,900 acres, was inventoried for the presence of cultural resources, which the well field, powerline corridors and a water pipeline corridor. The APE was surveyed to a Class III level (Cannon et al. 2013) following the

provisions of the Nevada BLM/SHPO Protocol (2012) and Nevada BLM Guidelines and Standards for Archaeological Inventory (2011).

The Powerline Project Area (a 300-foot wide corridor along the centerline of the proposed alignment), a 25-foot corridor along access roads, staging areas, and line stringing areas were examined for the presence of cultural resources. The APE was surveyed to a Class III level (Young et al. 2014) following the provisions of the Nevada BLM/SHPO Protocol (2012) and Nevada BLM Guidelines and Standards for Archaeological Inventory (2011).

Visual Impact Evaluation

When sites are eligible for the NRHP (primarily for their setting, feeling, or association) and characteristics may be altered by construction of a proposed project, visual impacts to sites both inside the APE and within view of a project also must be evaluated. These are considered indirect effects. The potential indirect effects to historic properties that are eligible for the NRHP primarily for characteristics related to their setting for the three components of the Proposed Action were analyzed. A viewshed analysis was performed and considered the resulting change to the viewshed of the relevant sites in the direction of the proposed Project. These potential effects were evaluated using visual impact analysis techniques and in some cases computer simulations of the projected appearance of facilities. Factors such as distance, the amount of existing disturbance, and contrast were considered in evaluating visual impacts. An example of the recording form used to assess visual impacts is presented in Appendix D. The example shows photos taken from the Applegate Trail toward the location of the proposed Well Field ROW. Similar visual analyses were completed for the 120 kV Powerline ROW to analyze their impacts to the California Trail.

The visual impacts for the Plan Modification were assessed from the Sulphur townsite. The visual impacts for the Well Field ROW component were assessed from the Sulphur townsite and the Applegate Trail. The visual impacts from the 120 kV Powerline ROW were assessed from various routes of the California Trail within both the direct and indirect APEs.

3.3.3 Existing Conditions

Cultural History Overview

Prehistory

There is only limited evidence of substantial prehistoric activity in the Project (Mine, Well Field, and Powerline Project Areas) vicinity before 7,000 years ago. Recent research suggests that the greatest intensity of prehistoric occupation was likely in the period between 3,000 and 700 years ago, which coincides with the period with most favorable climatic conditions, i.e., somewhat cooler and more moist than today. Around this time, the inhabitants of the area appear to have transitioned from being residentially mobile dispersed foragers, ranging at least seasonally over a wide area, to living in the first semi-sedentary settlements. There is some evidence of population expansion at this time, social interaction appears to have increased, and a more elaborate material culture developed. Later, during the early contact period between Euro-Americans and Native Americans, native settlements may have become smaller and more dispersed, perhaps in response to climatic stress.

Historic Period

Historic activity in the Mine Project Area and vicinity centered around the mining of sulphur, gold, silver, and alunite. The first known discoveries date to the 1870s. The area became a major sulphur producer rivaling Italy as the world's foremost sulphur supplier, but during the nineteenth century difficulties in transport and limited water supplies inhibited profitability.

A mining camp supporting the sulphur operations moved to the valley bottom when the Western Pacific Railroad opened a station near the mine in 1911. The presence of the railroad made shipping sulphur more profitable and sulphur mining continued until the mid-twentieth century. The town that developed around the station became known as "Sulphur" and its occupation persisted into the 1970s although sulphur mining tapered off in the late 1960s. Mining of gold, silver, and other minerals was on a small scale throughout the historic period. The modern gold mining of the area using advanced leaching technology began in the 1980s and gold mining continues there today.

The earliest recorded historic activity in the Well Field Project Area dates to 1843-44 and is related to John C. Frémont's exploration of the Black Rock Desert. Fremont's Expedition was the first to determine that the Great Basin was an interior drainage basin and had no outlet to the Pacific Ocean. Subsequent American migration to Oregon and California along the Applegate Trail brought the first substantial Euro-American visitation to the area in the mid-nineteenth century; in a single year in 1849 thousands of travelers passed within a mile of the well field area. More recent local history is dominated by precious metal and base mineral mining activity concentrated near Sulphur to the northeast of the project area. In the well field area itself, although there has been a great deal of mineral prospecting, no mines were developed, but transportation facilities related to the nearby historic mining activity are still present near the project area (roads, railroad, airstrip).

The earliest historic activity in the Powerline Project Area and vicinity is related to fur trapping which started as early as 1828 along the Humboldt River, first known as "the Unknown River," Mary's River, and Ogden's River. The proposed powerline alignment crosses the Humboldt River near its southern end and parallels it for about one third of its length. The river also served as a travel corridor for emigrants on the way to California starting in 1841 and after gold was discovered in California it became the main route for emigrants and gold seekers along the "California Trail." Somewhat later, mineral discoveries in central Nevada led to the development of small mining camps in the mountains bordering the Humboldt River Valley. The more productive strikes led to the founding of small towns that provided services to support the mines and mining camps as different areas were prospected. A series of booms and busts characterized the economy of the area through the second half of the nineteenth century and into the twentieth century. The Central Pacific Railroad was constructed along the Humboldt River Corridor in 1868, opening the area to contact with more populated areas and improving the movement of goods and information. In 1907 Western Pacific Railroad was opened to the north; the east/west portion of the proposed powerline route closely parallels the railroad for approximately 20 miles. Ranching, mining, and transportation remain the major economic activities along the Powerline Project Area.

Historic Trails

Two historic emigrant trails, the Nobles and Applegate Trails, pass south and west of, but near the Mine Project Area and Well Field Project Area. Two other routes along the Humboldt River, the Lassen Trail and the California Trail, connect with the Nobles and Applegate Trails (both considered part of the California Trail). The Powerline Project Area crosses one of these routes. A detailed description of these trails is included in Section 3.3.2.3 of the EIS (BLM 2012a).

Cultural Resources Investigation Results

Cultural resource investigations of the Mine Project Area resulted in the documentation of 248 sites. Of the 248 sites documented within the Project APE, 49 sites were determined eligible or unevaluated and 199 have been determined not eligible. Eligible or unevaluated sites include 24 prehistoric, 12 historic, and 13 multi-component sites. Table 3.3-1 provides a summary of the sites by eligibility type for the Mine Project Area and Section 3.3.2.3 in the EIS provides additional details regarding these cultural sites (BLM 2012a). A treatment plan, primarily using data recovery methods, to mitigate the sites subject to authorized disturbance within the Mine Project Area was implemented as a result of the EIS analysis. As discussed in Section 4.1.2 of this EA, no eligible or untreated sites are subject to disturbance under the Plan Modification.

Table 3.3-1: Cultural Resource Sites Eligibility by Type - Mine Direct APE

NRHP Recommendation	Prehistoric Sites	Historic Sites	Multi-component Sites	Total
Determined Eligible	23	12	12	47
Determined Unevaluated	1	0	1	2
Determined Not Eligible	24	166	9	199
Total Sites	48	178	22	248

Source: BLM 2012a

Cultural resource investigations of the Well Field Project Area resulted in the documentation of 22 sites. Twenty of the sites were previously unrecorded archaeological sites, and the remaining two were updates to previously recorded sites (Cannon et al., 2013). The BLM determined that five sites were eligible, four remain unevaluated, and 13 were determined not eligible. Site eligibility by type for the Well Field is listed in Table 3.3-2.

Table 3.3-2: Cultural Resource Sites Eligibility by Type - Well Field Direct APE

NRHP Recommendation	Prehistoric Sites	Historic Sites	Multi-component Sites	Total
Determined Eligible	3	2	0	5
Determined Unevaluated	4	0	0	4
Determined Not Eligible	1	12	0	13
Total Sites	8	14	0	22

The cultural resource investigation of the 120 kV Powerline APE resulted in the documentation of 83 archaeological sites (Young et al. 2014). Twenty-one of the sites have been determined eligible by the BLM. There were six segments of eligible linear sites (historic trails, roads, utility lines, railroads, ditches) that were determined to be non-contributing portions of those eligible sites because they lacked characteristics or criteria that resulted in the listing of the larger resource. The remaining 56 sites were not eligible. The BLM submitted the Class III Inventory for the 120 kV Powerline component of the Project providing supporting background data and

NRHP determinations of eligibility for the 21 sites to the SHPO for concurrence with the eligibility determinations. Site eligibility by type is listed in Table 3.3-3 for the 120 kV powerline component of the Project.

Table 3.3-3: Cultural Resource Sites Eligibility by Type-120 kV Powerline Direct APE

NRHP Recommendation	Prehistoric Sites	Historic Sites	Multi-component Sites	Total
Determined Eligible	5	10	5	21
Determined Unevaluated	0	0	0	0
Determined Not Eligible	8	48	6	62
Total Sites	13	58	11	83

3.4 Migratory Birds

3.4.1 Regulatory Framework

“Migratory bird” means any bird listed in 50 CFR 10.13. All native birds commonly found in the U.S., with the exception of native resident game birds, are protected under the Migratory Bird Treaty Act (MBTA). The MBTA prohibits the taking of migratory birds, their parts, nests, eggs, and nestlings without a permit. EO 13186, signed January 10, 2001, directs federal agencies to protect migratory birds by integrating bird conservation principles, measures, and practices.

Additional direction comes from the Memorandum of Understanding (MOU) between the BLM and the United States 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 the 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.

3.4.2 Assessment Areas and Study Methods

Assessment Area

The assessment area includes the Mine Project Area, Well Field Project Area, and Powerline Project Area. In addition, raptor nest surveys were conducted within a four- to ten-mile radius of the all of the Project areas and these data are also considered.

Study Methods

For all of the biological studies associated with the Proposed Action, the Nevada Department of Wildlife (NDOW), the Nevada Natural Heritage Program (NNHP), and USFWS were contacted to receive information on raptor and wildlife use within the Project Areas and vicinity.

Biological Surveys

The Mine Project Area was surveyed by JBR Environmental Consultants, Inc. (JBR) in May and June 2010. In April and May 2011, JBR conducted nesting raptor surveys within a four-mile

radius of the Mine Project Area. In June 2011, the NDOW performed an aerial raptor nest survey and habitat assessment within six to ten miles around the Mine Project Area (BLM 2012a).

Baseline surveys for migratory birds and raptors for the Well Field Project Area were conducted by JBR in May and September 2012 (JBR 2013a).

Migratory bird field surveys were not performed for the Powerline Project Area. JBR performed a Habitat Evaluation (HE) to determine the potential for migratory birds to occur or have habitat within the Powerline Project Area. In response to JBR's data request, the NDOW identified a variety of migratory bird species as having potential to occur within the Powerline Project Area (NDOW 2013). JBR used this information in preparing the HE. The results of the HE are included in Appendix A of the 2013 Baseline Biological Survey Report – Revision 1 – Oreana to Hycroft Project, North Project Area (JBR 2013b).

Screening Level Ecological Risk Assessment

Geomega, Inc. (Geomega) conducted a Screening Level Ecological Risk Assessment (SLERA) to evaluate the potential risks to ecological receptors, including migratory birds that may become exposed to the ponds that would be created under the Proposed Action (Geomega 2012). The SLERA evaluated operating and post-closure conditions.

The SLERA follows the approaches defined in the following Nevada Bureau of Land Management and EPA guidance documents:

- *Ecological Risk Assessment Guidelines for Open Pit Mine Lakes in Nevada* (BLM 2004);
- *Risk Management Criteria for Metals at BLM Mining Sites* (Ford 2004);
- *Framework for Ecological Risk Assessment* (EPA 1992);
- *Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments* (EPA 1997);
- *Final Guidelines for Ecological Risk Assessment* (EPA 1998); and
- *The Role of Screening-Level Risk Assessments and Refining Contaminants of Concern in Baseline Ecological Risk Assessments* (EPA 2001).

Site-specific geochemical data was used to estimate the potential conditions. COPCs for evaluation in the SLERA were selected by comparing the solute concentrations for each pond to Nevada Beneficial Use Criteria (NBUC) for livestock watering (NAC 445A.144 *et seq.*), and surface water screening values for the wildlife receptors from Sample et al (1996) and SRK (2006). The wildlife receptors evaluated in this SLERA and the livestock receptors considered in the NBUC are assumed to use the Rail Spur expansion ponds as a source of drinking water for a prolonged period of time, which while unrealistic is consistent with the Precautionary Principal and SLERA guidelines. For example, no livestock grazing would occur on the site during operating conditions and wildlife are likely to be less attracted to the mine ponds than to other, less disturbed and more vegetated areas.

3.4.3 Existing Conditions

Mine Project Area

The EIS provides a complete description of the migratory bird habitat and the presence or potential for migratory bird species to occur within the Mine Project Area. The EIS Sections 3.4.1 through 3.4.2; pages 3-41 through 3-44, are incorporated herein by reference (BLM 2012a).

Well Field Project Area

The NDOW identified the following migratory birds and raptors as being known to reside within the vicinity (four-mile radius) of the Well Field Project Area: American kestrel (*Falco sparverius*); barn owl (*Tyto alba*); burrowing owl (*Athene cunicularia*); Cooper's hawk (*Accipiter cooperii*); 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*); prairie falcon (*Falco mexicanus*); red-tailed hawk (*Buteo jamaicensis*); rough-legged hawk (*Buteo lagopus*); sharp-shinned hawk (*Accipiter striatus*); short-eared owl (*Asio flammeus*); Swainson's hawk (*Buteo swainsoni*); turkey vulture (*Cathartes aura*); and western screech owl (*Megascops kennicottii*) (NDOW 2012a). The NDOW identified four golden eagle nest sites and one falcon nest site within four miles of the Well Field Project Area. Additionally, the NDOW reported that nine additional golden eagle nests were known to exist within ten miles of the well field area (JBR 2013a).

The detailed results of the migratory bird surveys are contained in the Well Field Biological Survey Report (JBR 2013a). Four migratory bird species were observed within the Well Field Project Area during May and September 2012 surveys: horned lark (*Eremophila alpestris*); western meadowlark (*Sturnella neglecta*); common raven (*Corvus corax*); osprey (*Pandion haliaetus*) and sage sparrow (*Amphispiza belli*) (JBR 2013a).

In addition to the species observed during field surveys, potential foraging habitat is available throughout the Well Field Project Area for the following migratory birds and raptors: American kestrel; barn owl; Cooper's hawk; ferruginous hawk (*Buteo regalis*); golden eagle; great horned owl; loggerhead shrike (*Lanius ludovicianus*); long-eared owl; merlin; northern goshawk; northern harrier; northern saw-whet owl; peregrine falcon; prairie falcon; red-tailed hawk; rough-legged hawk; sage thrasher (*Oreoscoptes montanus*); sharp-shinned hawk; short-eared owl; Swainson's hawk; turkey vulture; western burrowing owl; and western screech owl (JBR 2013a). This list is a representative, but not an all-inclusive list of migratory birds that may utilize the Well Field Project Area.

Special status migratory bird species that have the potential to occur in the Well Field Project Area and have additional protection or management attention are discussed in detail in Section 3.9 of this EA. These species include the following: golden eagle; Brewer's sparrow (); ferruginous hawk; northern goshawk; peregrine falcon; sage thrasher; Swainson's hawk; western burrowing owl; and loggerhead shrike.

Powerline Project Area

The migratory birds identified in the HE as having potential habitat within the Powerline Project Area, are assumed present.

The following migratory birds, identified as sensitive under the Nevada Comprehensive Bird Conservation Plan (NCBCP), are assumed present within the 120 kV Powerline Project Area: snowy egret (*Egretta thula*); white-faced Ibis (*Plegadis chihi*); prairie falcon; sandhill crane (*Grus canadensis*); black-necked stilt (*Himantopus mexicanus*); American avocet (*Recurvirostra americana*); western sandpiper (*Calidris mauri*); least sandpiper (*Calidris minutilla*); long-billed dowitcher (*Limnodromus scolopaceus*); Wilson's phalarope (*Phalaropus tricolor*); red-necked phalarope (*Phalaropus lobatus*); common poorwill (*Phalaenoptilus nuttallii*); white-throated swift (*Aeronautes saxatalis*); rufous hummingbird (*Selasphorus rufus*); gray flycatcher (*Empidonax wrightii*); and sage sparrow (JBR 2013b).

Additionally, the following common migratory birds are assumed present within the Powerline Project Area: American kestrel; American robin (*Turdus migratorius*); American goldfinch (*Spinus tristis*); ash-throated flycatcher (*Myiarchus cinerascens*); bank swallow (*Riparia riparia*); black-throated sparrow (*Amphispiza bilineata*); blue grosbeak (*Passerina caerulea*); Brewer's blackbird (*Euphagus cyanocephalus*); Bullock's oriole (*Icterus bullockii*); cliff swallow (*Petrochelidon pyrrhonota*); common nighthawk (*Chordeiles minor*); great-horned owl; green-tailed towhee (*Pipilo chlorurus*); horned lark; house finch (*Carpodacus mexicanus*); killdeer (*Charadrius vociferous*); lark sparrow (*Chondestes grammacus*); marsh wren (*Cistothorus palustris*); northern flicker (*Colaptes auratus*); northern harrier; northern mockingbird (*Mimus polyglottos*); short-eared owl; turkey vulture; vesper sparrow (*Pooecetes gramineus*); violet-green swallow (*Tachycineta thalassina*); western kingbird (*Tyrannus verticalis*); western meadowlark (*Sturnella neglecta*); western scrub-jay (*Aphelocoma californica*); yellow-breasted chat (*Icteria virens*); and yellow warbler (*Dendronica petchia*) (JBR 2013b).

Migratory bird species that have the potential to occur within the Powerline Project Area and have additional protection or management attention are discussed in detail in Section 3.10 of this EA. These species include the following: bald eagle (*Haliaeetus leucocephalus*); northern goshawk; Swainson's hawk; ferruginous hawk; golden eagle; snowy plover (*Charadrius alexandrinus nivosus*); yellow-billed cuckoo (); burrowing owl; willow flycatcher (); loggerhead shrike; pinyon jay (*Gymnorhinus cyanocephalus*); sage thrasher; and Brewer's sparrow (JBR 2013b).

3.5 Native American Religious Concerns

3.5.1 Regulatory Framework

In accordance with the NHPA (P.L. 89-665), the NEPA (P.L. 91-190), the FLPMA (P.L. 94-579), the AIRFA (P.L. 95-341), the NAGPRA (P.L. 101-601), the ARPA (P.L. 96-95), EO 13007 (Indian Sacred Sites, 1996), and EO 13175 (Consultation and Coordination with Indian Tribal Governments 2000), the BLM must provide affected Tribes, organizations, and/or individuals an opportunity to participate in, comment, and consult on proposed actions that might impact resources, sites, or activities of concern. Through consultation initiation with area Tribes,

the BLM must attempt to identify specific traditional/cultural/spiritual sites, activities, and resources and limit, reduce, or possibly eliminate any negative impacts.

The BLM also utilizes H-8120-1 General Procedural Guidance for Native American Consultation and National Register Bulletin 38, Guidelines for Evaluating and Documenting Traditional Cultural Properties (TCPs). A property of religious or cultural importance, or TCP, may or may not be eligible for the NRHP. To be eligible, such places have to meet one or more of the NRHP eligibility criteria. If a TCP is determined not to be eligible for the NRHP, it does not need to be considered further during Section 106 compliance but still must be addressed through the NEPA analysis including cultural landscape assessments, and government-to-government consultation.

3.5.2 Assessment Area and Study Methods

Assessment Area

The assessment area for Native American Religious Concerns is the three Project Areas for the three components of the Proposed Action, as those areas represent where Project activities would occur and formed the basis for the information used in consultation. At the time of this EA no concerns have been brought forward related to the Plan Amendment, Well Field ROW or the 120 kV Powerline ROW; however, consultation is ongoing for the treatment plans as discussed later in Section 4.1.2 of this EA as required under ARPA.

Study Methods

Information presented in this EA is based on the results of the ongoing consultation process with participating Tribes, organizations, and individuals for the Project. BLM coordination and communication to date have included postal, phone, fax, and electronic correspondence, meetings, and various site visits. The information presented is also based on previous consultation performed during the preparation of the EIS. Section 3.5.2.2.1; page 3-46 is incorporated by reference. This section identified the consultation between the BLM and the Fort McDermitt Paiute and Shoshone Tribe, the Lovelock Paiute Colony, the Pyramid Lake Paiute Tribe, the Shoshone-Paiute Tribes of the Duck Valley, the Summit Lake Paiute Tribe, and the Winnemucca Indian Colony (BLM 2012a).

Consultation occurred during the Blue Mountain EA and WWEC PEIS process. Consultation during the preparation of these documents included government-to-government meetings, public meetings, email correspondence, postal correspondence, and site visits.

3.5.3 Existing Conditions

Chapter 6 of this EA includes the letters and consultations that were conducted. No new concerns were identified during ongoing consultation in relationship to the Plan Modification. Therefore, the existing conditions are tiered to the EIS and Sections 3.5.2.2 and 3.5.3.3; pages 3-46 through 3-48, of the EIS are incorporated by reference. In these sections, Pulpit Rock is identified as a spiritual site along a trail that ran from Rosebud Canyon to Pulpit Rock and then to Black Rock Point. The trail was used by Northern Paiute men as part of a naming ceremony. The Fort

McDermitt Paiute and Shoshone Tribe identified the area around Pulpit Rock, including the cliff face to the east and northeast, as a sacred site (BLM 2012a).

3.6 Noxious Weeds and Invasive Species

3.6.1 Regulatory Framework

The BLM defines “noxious weed” as “any plant growing where it is not wanted. Legally, a noxious weed is any plant designated by a federal, state or county government as injurious to public health, agriculture, recreation, wildlife or property.” A noxious weed is also commonly defined as a plant that grows out of place and is “competitive, persistent, and pernicious.” 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.” Noxious weed control would be based on a program of “...prevention, early detection, and rapid response” (BLM 2013).

Animal and plant species designated as pests are generally species that are injurious to agricultural and nursery insects or are vectors of diseases, which may be transmissible and injurious to humans.

An “invasive species” is defined as a species that is nonnative 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). Invasive, nonnative species are species that are highly competitive, highly aggressive, and spread easily. They include plants designated as noxious and animals designated as pests by federal or state law.

The Nevada Department of Agriculture maintains a Nevada Noxious Weed List which identifies types of noxious weeds in Nevada. Noxious weed species in the state of Nevada considered detrimental to the environment have been placed on a special list in the NAC and have been divided into three categories (A, B, or C) dependent on their ability to spread.

3.6.2 Assessment Area and Study Methods

Assessment Area

As discussed in Table 3.1-1, based on the implementation of the Noxious Weed Management Plan for the Hycroft Mine for both the Plan Modification and the Well Field ROW components, only the 120 kV Powerline ROW component was brought forward for analysis related to Noxious Weeds and Invasive Species. The Powerline Project Area is the assessment area for noxious weeds and invasive species.

Study Methods

In May and June 2013, JBR conducted field surveys for the 120 kV Powerline ROW for noxious weeds and invasive species in conjunction with vegetation community mapping and floristic inventories (JBR 2013b). Noxious weeds, invasive, nonnative species that were observed during the survey were recorded with global positioning system (GPS) units. The survey area included a 300-foot wide corridor (150 feet on each side of the centerline) for the portion of the powerline on public land, 50-foot wide corridor (25 feet on each side of the centerline) for the portion of the powerline on private land, and access roads.

3.6.3 Existing Conditions

Powerline Project Area

Four state-listed noxious weed species including hardhead (*Acroptilon repens*), whitetop (*Cardaria draba*), broadleaved pepperweed (*Lepidium latifolium*), and five-stamen tamarisk (*Tamarix chinensis*) were found during the field surveys.

Hardheads are classified by the State of Nevada as a Category B noxious weed or weeds that have established themselves in scattered populations and are subject to both active exclusion where possible and active eradication from the premises of a dealer of nursery stock. Whitetop, broadleaved pepperweed, and five-stamen tamarisk are considered State of Nevada Category C noxious weeds or weeds that are generally established and generally widespread in many counties of the State. Such weeds are subject to active eradication from the premises of a dealer of nursery stock (Creech et al. 2010).

Stands of hardheads were prevalent throughout the understory of five-stamen tamarisk and also within the saltgrass (*Distichlis spicata*) dominated meadows of the Humboldt River floodplain. Broadleaved pepperweed was also found adjacent to this habitat both as scattered plants and in stands. Five-stamen tamarisk also occurred as isolated individuals (JBR 2013b).

Nonnative, invasive species were also observed. These included cheatgrass, bur buttercup (*Ranunculus testiculatus*), red brome (*Bromus rubens*), and saltlover (*Halogeton glomeratus*) on disturbed soils within transmission routes, road shoulders, microdrainages, and burned areas. Past and present disturbances in the Powerline Project Area, such as historic and current mining, grazing, road building, and energy transmission facilities have likely led to the introduction, spread, and establishment of both noxious and invasive, nonnative weed species (JBR 2013b).

ADDITIONAL AFFECTED RESOURCES

3.7 Social Values and Economics

3.7.1 Regulatory Framework

Appendix D of the BLM Land Use Planning Handbook H-1601-1 provides guidance on integrating social science information into the planning process. According to regulations in the FLPMA and the NEPA guidelines, the BLM must incorporate social and economic information into the planning and decision-making process.

The Proposed Action also complies with the guiding principles of the Humboldt County Regional Master Plan and Pershing County Master Plan, as discussed in Sections 3.12.1.2 and 3.12.1.3 of the EIS (pages 3-116 and 3 117) (BLM 2012a).

3.7.2 Assessment Area and Study Methods

Assessment Area

As discussed in Table 3.1-1, social and economic values are analyzed only for the Plan Modification component of the Proposed Action. The assessment area is Humboldt County, Nevada as the Plan Modification is anticipated to primarily impact Humboldt County, Nevada. Therefore, the information contained in this section serves to update the population, demographics, and housing data only in Humboldt County from the data analyzed in the EIS.

Study Methods

The Social and Economic Values Section is tiered to the EIS. Sections 3.12.1 – 3.12.2, pages 3-116 through 3-140, of the EIS are incorporated by reference (BLM 2012a). These sections include economic data, as well as descriptions of the public utilities and services, and school district enrollment for Humboldt, Pershing, and Washoe counties. The same sources used in the EIS were used for this EA. Updated information was collected related to the applicable components of the analysis.

3.7.3 Existing Conditions

Based on the current mining activities and authorizations, it is projected that the Hycroft Mine would employ up to 537 employees at the peak of production in 2019 (BLM 2012a). The employees serve in mine operations, mine maintenance, process operations and administrative roles. Approximately 80 percent of the current employees reside in Winnemucca, Nevada (Humboldt County) and five percent reside in Lovelock (Pershing County). The remaining 15 percent live in the outlying areas such as Imlay, Fallon, Battle Mountain, Elko, Reno, Carson City, or out of the State of Nevada. Employees who commute long distances tend to live in Winnemucca or Lovelock during their scheduled work shift.

Humboldt County Population and Demography

Since 2011, the population of Humboldt County has increased by five percent. Table 3.7-1 identifies the changes in population and the projected population in 2032.

Table 3.7-1: Population Data and Projected Populations for Humboldt County

Location	Population		Percent Change	Population Projection	Percent Change
	2010 ¹	2013 ²	2010-2013	2032 ²	2013-2032
Humboldt County	16,528	17,642	1.07	16,775	-5.0

Source: ¹U.S. Census Bureau 2010; ²NSDO 2013a

For 2012, the Nevada State Demographer estimated the number of school age children (ages 5-19) residing in Humboldt County was 3,880 or 22 percent of the total population. For the 20-64 years of age group, the Nevada State Demographer estimated there were 10,071 (57.1 percent) people in this age group residing in Humboldt County (NSDO 2013b).

The Humboldt County racial composition estimate for 2013 was: 71.9 percent white; 0.9 percent black; 4.7 percent Native American, Eskimo, or Aleutian; 1.2 percent Asian or Pacific Islander; and 21.3 percent Hispanic (NSDO 2013b).

According to the U.S. Department of Commerce (USDC), Bureau of Economic Analysis (BEA) Regional Facts, known as BEARFACTS, Nevada had a per capita personal income (PCPI) of \$38,221 in 2012 (USDC-BEA 2013a). This was a 1.5 percent increase from 2009, which was the reference year used in the EIS (BLM 2012a). For Humboldt County, the PCPI was \$45,690 in 2012 (the most current year BEARFACTS had for county-level PCPI) (USDC-BEA 2013b). This was a 37.9 percent increase from 2009, which was the reference year used in the EIS (BLM 2012a).

The employment data for Humboldt County changed between 2009, the base year in the EIS, and 2011, the most current year with available data. The data show the mining, administration, and construction industries had the largest gains in employment, while the wholesale trade, finance, and real estate industries had the greatest declines in employment. The labor force in Humboldt County increased to 9,923 in 2013, which represented a 15.8 percent increase from 2011; the latest available statistical year identified in the EIS. The annual unemployment rate for Humboldt County in 2013 was 5.7 percent, which represented a decrease of 31.3 percent from 2011 (BLM 2012a; DETR 2014). Table 3.7-2 provides a comparison of the employment industry data between 2009 and 2011.

Table 3.7-2: Comparison of 2009 and 2011 Employment Industry Data for Humboldt County

Industry	Humboldt County 2009 ¹	Humboldt County 2011 ²	Percent Increase/Decrease
	Quantity/Percent Total		
Farm Employment	465/4.7	444/4.3	-4.5
Forestry, Fishing, and Related Activities	D ³	D	-
Mining	1,688/17.1	2,001/19.2	18.5
Utilities	D	141/1.4	-
Construction	542/5.5	781/7.5	44
Manufacturing	296/3.0	279/2.7	-5.7
Wholesale Trade	176/1.8	157/1.5	-10.8
Retail Trade	1,227/12.9	1,209/11.6	-1.5
Transportation and Warehousing	D	295/2.8	-
Information	88/0.9	99/1.0	12.5
Finance and Insurance	181/1.8	154/1.5	-14.9
Real estate and Rental and Leasing	259/2.6	235/2.2	-9.3
Professional, Scientific, and Technical Services	D	D	-
Management of Companies and Enterprises	D	D	-
Administrative and Waste Services	405/4.1	525/5.0	29.6
Educational Services	39/0.4	D	-
Health Care and Social Assistance	50/4.6	D	-

Industry	Humboldt County 2009 ¹	Humboldt County 2011 ²	Percent Increase/Decrease
Arts, Entertainment, and Recreation	186/1.9	169/1.6	-9.1
Accommodation and Food Services	1,104/11.2	1,079/10.3	-2.3
Other Services (Except Public Administration)	468/4.7	463/4.4	-1.1
Government and government enterprises (Including Public Administration)	1,481/15.0	1,478/14.2	-0.2
Total	9,873	10,427	5.33

Source: ¹Hycroft EIS Table 3.12.-5 (BLM 2012a); ²BEA 2013b ³D = Not shown by the BEA to avoid disclosure of confidential information, but the estimates for this item are included in the table.

Housing

New housing and short-term accommodations are being developed in Winnemucca beyond the resources described in the EIS (BLM 2012a). The New Frontier subdivision (private developer) in Winnemucca is under construction, and HRDI purchased a few townhomes and single-family homes for employees. At completion, the New Frontier subdivision will have a mixture of 247 single family and townhomes. A Candlewood Suites hotel with 83 rooms was recently opened in Winnemucca.

Tax Revenue from Mining

For fiscal years 2010-2011 and 2011-2012, the actual net proceeds of minerals assessed valuations increased to \$312,887,705 and \$498,889,143 respectively (NV DOT 2013). This represents a 25 percent and 99 percent increase respectively from the 2009-2010 net proceeds, which was the last year identified in the EIS (BLM 2012a). The percentage of mining-related real and personal property valuation as a percentage of total property in Humboldt County decreased from 18 percent in fiscal year 2010-2011 to 13 percent in fiscal year 2011-2012 (NV DOT 2013; BLM 2012a).

3.8 Soils

3.8.1 Regulatory Framework

The laws, regulations, guidelines, and procedures that apply to management of soil resources potentially affected by the Proposed Action include the following: Nevada BMPs; 43 CFR Part 3800; and Nevada Revised Statute (NRS) Chapter 519A.

3.8.2 Assessment Areas and Study Methods

Assessment Area

As discussed in Table 3.1-1, both the Plan Modification and the Well Field ROW components were brought forward for analysis related to soil resources. The assessment areas are the Mine Project Area and the Well Field Project Area.

Study Methods

The Natural Resource Conservation Service (NRCS) web soil survey was reviewed for the soil associations and complexes within Mine Project Area and Well Field Project Area. Soils in Humboldt County have been mapped by the NRCS and are described in the Soil Survey of Humboldt County, Nevada, West Part (NRCS 2003). Soils in Pershing County have been mapped by the NRCS and are described in the Soil Survey of Pershing County, Nevada, West Part (NRCS 1998). The soil surveys include a description of physical soil characteristics, soil formation descriptions, and qualitative ratings for various soil use and management properties. In addition, the

The BLM database on biological soil crusts was queried to determine the potential for BSCs to occur within the Well Field and Mine Project Areas (BLM-BRFO 2014). BSCs are a layer of photosynthetic life that forms on the top layer of soils. BSCs are because they stabilize the soil, make the soil more fertile, and reduce the presence of invasive plants.

3.8.3 Existing Conditions

Mine Project Area

The Soils section is tiered to the EIS. Sections 3.13.1 and 3.13.2; pages 3-145 through 3-150, are incorporated by reference (BLM 2012a). There were 14 soil types identified within the Mine Project Area and included the following: Bluewing gravelly sandy loam, two to eight percent slopes; Grumbler-Pickup association; Jerval-Dorper association; Sonda-Isolde association; Mazuma association; Mazuma very fine sandy loam, two to eight percent slopes; Mazuma-Toulon-Isolde association; Mazuma-Mazuma, Strongly Saline-Sodic association; Pickup-Grumbler-Rock outcrop association; Wholan silt loam, zero to two percent slopes; Rednik-Jungo-Aboten association; Singaste-Rock Outcrop Complex; Wesfil-Sojur association; and Jerval-Aboten-Dorper association. Soil unit composition and physical characteristics are detailed in Table 3.13-1 of the EIS (page 3-149) (BLM 2012a).

The potential for BSCs to occur within the Mine Project Area, specifically where the rail spur facilities would be constructed is low (BLM-BRFO 2014).

Well Field Project Area

One soil map unit, Mazuma association, occurs within the Humboldt County portion of the Well Field Project Area. Three soil map units, Mazuma-Mazuma Strongly Saline-Sodic association, Mazuma-Trocken association, and the Labkey, gravelly sandy loam, two to eight percent slopes, occur within the Pershing County portion of the Well Field Project Area. These soils along with their characteristics are included in Table 3.8-1 and described below.

Table 3.8-1: Soil Units - Well Field Project Area

NRCS Soil Unit Number	Mapping Unit	Soil Series	Acreage	Soil Depth in Inches (Restrictive Feature)	Hydrological Characteristics	Soil Erosion Hazard	
						By Water	By Wind
650	Labkey Gravelly Sandy Loam, 2 to 8 percent slopes	Labkey (90%)	79	80+ (unknown)	Somewhat excessively drained; high permeability	Moderate	Moderate
575	Mazuma association	Mazuma (85%) Minor (5%)	268	80+ (unknown)	Well drained; rapid permeability	Moderate	Severe
700	Mazuma-Trocken Association	Mazuma (50%) Trocken (35%)	266	80+ (unknown)	Well drained; high permeability	Severe	Moderate
705	Mazuma-Mazuma, Strongly Saline-Sodic Association	Mazuma (50%) Mazuma (35%) Minor (5%)	3,210	80+ (unknown)	Well drained; Moderate to Moderately rapid permeability	Moderate	Moderate

The Mazuma series consists of very deep, well drained soils that formed in alluvium and lacustrine materials from mixed rock sources. Mazuma soils are found on basin-floor remnants, lagoons, alluvial flats, and fan skirts. Slopes are from zero to eight percent.

The Trocken series consists of very deep, well drained soils that formed in mixed alluvium. Trocken soils are on barrier bars and fan skirts. Slopes are two to eight percent.

The Labkey series consists of very deep, somewhat excessively drained soils that formed in alluvium derived from granitic rocks. Labkey soils are on stream terraces, fan skirts, inset fans, and barrier bars. Slopes are zero to 15 percent.

The potential for BSCs within the Well Field Project Area range from low to high. The majority of the project area is ranked with a low potential, but the southeast corner of the area has a high potential (BLM-BRFO 2014).

3.9 Special Status Species

3.9.1 Regulatory Framework

BLM policy for management of special status species is in the BLM Manual Section 6840. 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 listing;
- 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 2008); and
- State of Nevada Listed Species: State-protected animals that have been determined to meet BLM's Manual 6840 policy definition.

3.9.2 Assessment Area and Study Methods

Assessment Area

The assessment area includes the Mine Project Area, Well Field Project Area, and Powerline Project Area. In addition, raptor nest surveys were conducted within a four- to ten-mile radius of the all of the Project areas and these data are also considered.

Study Methods

Prior to conducting biological surveys in each of the component Project areas, the NDOW, NNHP, and USFWS were contacted for information regarding threatened, endangered, candidate, and sensitive plant and wildlife species.

The study methods utilized for the Mine Project Area are included in the EIS (BLM 2012a) in Section 3.14.2.1; pages 3-159 through 3-161. The survey methods included conducting an existing data search with state and federal agencies and performing biological baseline surveys in May and June 2010, for special status wildlife and plant species. In addition, raptor nest surveys were conducted within ten-mile radius of the Mine Project Areas and these data are also considered. A SLERA was performed to evaluate the risk to ecological receptors for the ponds that would be constructed as a result of the Plan Modification as described in Section 3.4.2 of this EA.

A HE was utilized to determine the potential for special status species to occur or have habitat within the Well Field Project Area. The results of the HE are contained in Appendix A of the biological survey report for the well field component of the Project (JBR 2013a). Baseline field surveys for wildlife and vegetation in the Well Field Project Area were conducted in May and September 2012 and included special status plant and wildlife species determined to have habitat based on the HE (JBR 2013a). Surveys recorded all species and species sign observed and noted whether potential habitat was available for special status species. Focused protocol-level surveys were performed for greater sage-grouse (*Centrocercus urophasianus*), golden eagle, northern

goshawk, peregrine falcon, and Swainson's hawk within a four-mile buffer around the Well Field Project Area. In addition, a protocol-level survey for western burrowing owl was conducted within the Well Field Project Area (JBR 2013a). Sand cholla (*Grusonia pulchella*) was not surveyed for during the initial baseline surveys for the well field and therefore a focused survey was conducted in May 2013 to supplement the original surveys (JBR 2013c).

A HE was utilized to determine the potential for special status species to occur or have habitat within the Powerline Project Area. The results of the HE are contained in Appendix A of the biological survey report for the powerline component of the Project (JBR 2013b). Based on the findings contained in the HE, JBR performed field surveys for the plant and wildlife species determined to have habitat (JBR 2013b). In addition, golden eagles and raptors were studied utilizing aerial surveys within a four-mile radius of the Powerline Project Area. The complete results and methodology for the golden eagle survey are contained in the 2013 Golden Eagle Nesting Survey Report, Oreana to Hycroft Project, which is included in Appendix B of survey report (JBR 2013b). Bat surveys were performed using Anabat detectors to investigate the use of potential foraging habitat occurring within the Powerline Project Area and to identify which species of bats may utilize the area. The complete survey results are contained in the biological survey report for the powerline component (JBR 2013b).

3.9.3 Existing Conditions

A HE and general biological surveys were performed for the Mine Project Area, Well Field Project Area, and Powerline Project Area to determine whether potential habitat for BLM Sensitive Species was present within these areas. Based on the results of the general surveys and HE, focused surveys were conducted for the species with potential habitat. If a survey for a particular species was not conducted and potential habitat was present, the species was assumed present. Table 3.9-1 summarizes the BLM sensitive species that have potential habitat and were determined to be present or assumed present within any of the project areas. This information is used to support the analysis in Chapter 4.

The following species were originally determined to have habitat within the Project Areas, but were later determined to not have the potential to occur in the three Project Areas and are not analyzed in this EA:

- Pygmy rabbit (*Brachylagus idahoensis*)
- Northern leopard frog (*Rana pipiens*)
- Fringed myotis (*Myotis thysanodes*)
- Bighorn sheep (*Ovis canadensis*)
- Brazilian free-tailed bat (*Tadarida brasiliensis*)
- Black rosy finch (*Leucosticte atrata*)

As discussed in Table 3.1-1, no federally-listed Threatened or Endangered species were identified by the NDOW, NNHP, and USFWS to have the potential to occur in the Project areas or vicinity. In addition, no listed threatened or endangered species were observed during the field surveys. Greater sage-grouse, a Candidate species for listing under the ESA, is also a BLM Sensitive Species and is included in this analysis.

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Table 3.9-1: BLM Sensitive Species with the Potential to Occur

Special Status Species Name	Presence or Absence of Species			Habitat
	Mine Project Area	Well Field Project Area	Powerline Project Area	
Birds				
<i>Accipiter gentilis</i> (Northern goshawk)	Assumed Present	Assumed Present	Assumed Present	Commonly nests in mature aspen stands in Nevada and has been reported in piñon-juniper woodlands. Forage over montane shrublands and undisturbed coniferous forests (GBBO 2010). Potential foraging habitat was observed in the Well Field Project Area during the 2012 survey (JBR 2013a) and therefore foraging habitat is assumed present in the Mine Project Area. Suitable nesting habitat does not occur within the Powerline Project Area; potential foraging habitat may exist, but while it is very unlikely (JBR 2013b).
<i>Aquila chrysaetos</i> (Golden eagle)	Present	Present	Present	Five nests were observed within or immediately adjacent to Mine Project Area and Well Field Project Area during the 2012 survey, and four occupied nesting territories and 13 possibly occupied nests within five miles of the well field area (JBR 2013c). Seventeen golden eagle nests were identified in the vicinity of the Powerline Project Area of which four were occupied and 13 were unoccupied (JBR 2013b).
<i>Athene cucularia hypugaea</i> (Western burrowing owl)	Assumed Present	Present	Assumed Present	Western burrowing owl breeding sites are strongly dependent on the presence of burrows constructed by prairie dogs, ground squirrels, or badgers but also may create their own burrows. Prime burrowing owl habitat must be open, have short vegetation, and contain an abundance of burrows (BLM 2012a). Potential habitat was identified in the southwestern portion of the Mine Project Area but no burrowing owls or sign were detected during the 2012 surveys. One unoccupied burrow was observed within the Well Field Project Area (JBR 2013a). The entire Powerline Project Area represents potentially suitable habitat for western burrowing owl.

Special Status Species Name	Presence or Absence of Species			Habitat
	Mine Project Area	Well Field Project Area	Powerline Project Area	
<i>Buteo regalis</i> (Ferruginous hawk)	Present	Assumed Present	Present	<p>Uses sagebrush, piñon-juniper woodlands, and salt desert scrub habitats year round in northern Nevada. In Nevada, prefers landscapes where human presence is minimal (GBBO 2010).</p> <p>No nests were found during the surveys in Mine Project Area. No ferruginous hawks were observed in the Well Field Project Area during the 2012 surveys but potential foraging habitat is present. There are potential nesting and foraging habitat in the Powerline Project Area. Three ferruginous hawks were observed foraging during the aerial raptor surveys, though no nests were observed within the Powerline Project Areas (JBR 2013b).</p>
<i>Buteo swainsoni</i> (Swainson's hawk)	Absent	Assumed Present	Present	<p>Associated with Great Basin and Mojave lowland riparian, agriculture, and sagebrush, and wet meadow habitats. Ideal habitat features include large riparian nesting trees, agricultural fields, and open shrublands within relatively close proximity. Nesting habitat often consists of platforms in old large trees, cliff ledges, juniper, and old raptor or heron nests (GBBO 2010).</p> <p>No Swainson's hawks were observed during in the Well Field Project Area during the 2012 survey, but there is potential foraging habitat throughout the area (JBR 2013a).</p> <p>There is potential foraging and nesting habitat within the Powerline Project Area (JBR 2013b).</p>

Special Status Species Name	Presence or Absence of Species			Habitat
	Mine Project Area	Well Field Project Area	Powerline Project Area	
<i>Centrocercus urophasianus</i> (Greater sage-grouse)	Potentially Present	Absent	Absent	<p>An upland game bird that is largely dependent on sagebrush for nesting and brood rearing and feed almost exclusively on sagebrush leaves during the winter. Known to occur in foothills, plains, and mountain slopes where sagebrush meadows and aspen are in close proximity. Dense sagebrush overstory and an herbaceous understory of grasses are important to provide shade and security, and both new herbaceous growth and residual cover are important in the understory (Schroeder et al. 1999).</p> <p>According to the NDOW, there is winter and summer habitat within the Mine Project Area. While greater sage-grouse have historically not been common in the area, isolated sightings in and around the Mine Project Area have occurred (BLM 2012a).</p> <p>The USFWS (2012a) indicated that greater sage-grouse may occur in the Well Field Project Area (USFWS 2012a); however, the NDOW stated that there is no known greater sage-grouse habitat in the vicinity of the Well Field Project Area (NDOW 2012a). JBR determined during the field surveys that no greater sage-grouse habitat was present within the Well Field Project Area and no sign was observed (JBR 2013a).</p> <p>The NDOW data indicated that approximately 0.1 percent of the Powerline Project Area has been evaluated for habitat, but the remaining 99.9 percent has not been evaluated (NDOW 2013). The NDOW identified two known leks within the vicinity of the Powerline Project Area (NDOW 2013; JBR 2013b). As result, a lek survey was performed and no greater sage-grouse was observed present. During the presence/absence surveys along the corridor, there was no sign of greater sage-grouse nor did the survey identify the presence of this species (JBR 2013b).</p>
<i>Charadrius nivosus nivosus</i> (Western snowy plover)	Absent	Absent	Assumed Present	<p>Habitat includes beaches, playas, playa margins, with brine flies, or other suitable forage. Known to occur in the Lahontan Valley and Humboldt Sink, in Nevada and Honey, Mono, and Owens Lakes in California (Floyd et al. 2007; GBBO 2010).</p> <p>Western snowy plover habitat is assumed to be present in the Powerline Project Area.</p>

Special Status Species Name	Presence or Absence of Species			Habitat
	Mine Project Area	Well Field Project Area	Powerline Project Area	
<i>Falcon peregrine</i> (Peregrine falcon)	Assumed Present	Assumed Present	Assumed Present	<p>Typically concentrated around Lake Mead, but historical breeding range occurred throughout a greater portion of Nevada. May use marshes and nearby uplands throughout Nevada for foraging in Nevada. Typically nests in cliffs usually 40 to 640 feet in height (GBBO 2010).</p> <p>No peregrine falcons were observed during the survey of the Well Field Project Area, but there is a potential for foraging habitat throughout the Well Field Project Area and the adjacent Mine Project Area (JBR 2013a). No peregrine falcons or nests were observed during the raptor aerial surveys performed in 2013. Suitable nesting habitat was not present within the 120 kV Powerline Project Area; however, there is potential foraging habitat (JBR 2013b).</p>
<i>Gymnorhinus cyanocephalus</i> (Pinyon jay)	Absent	Absent	Assumed Present	<p>Inhabits higher elevations of the Great Basin, commonly within piñon-juniper woodlands with diverse age class distribution (Balda 2002; Floyd 2007).</p> <p>The pinyon jay is assumed to be present within the Powerline Project Area.</p>
<i>Haliaeetus leucocephalus</i> (Bald eagle)	Absent	Absent	Assumed Present	<p>Inhabits areas near water and feeds on fish and waterfowl, but also inhabits areas where other food is available, such as rabbits and road kill (NatureServe 2012). Nests are most commonly built in trees. During winter months, bald eagle may roost in trees at ranches or on sagebrush in valley bottoms in eastern Nevada (GBBO 2010).</p> <p>There is potential habitat within or in the vicinity of the Powerline Project Area (JBR 2013b).</p>
<i>Lanius ludovicianus</i> (Loggerhead shrike)	Potentially Present	Assumed Present	Assumed Present	<p>Typically associated with greasewood and sagebrush communities and also frequents open country in valleys and foothills, juniper, or piñon-juniper woodlands. Dense stands of trees and shrubs are used for nesting and roosting sites, as well as for hunting perches (JBR 2013a).</p> <p>There is potential nesting and foraging habitat within all three Project areas .</p>

Special Status Species Name	Presence or Absence of Species			Habitat
	Mine Project Area	Well Field Project Area	Powerline Project Area	
<i>Oreoscoptes montanus</i> (Sage thrasher)	Absent	Assumed Present	Assumed Present	Associated with sagebrush, montane shrubland, and salt desert scrub habitats. Species abundance can be associated with higher shrub densities and a lack of trees. Nest habitat often consists of low branches in dense shrubs (GBBO 2010). There is potential nesting and foraging habitat within the Well Field Project Area and Powerline Project Area.
<i>Spizella breweri</i> (Brewer's sparrow)	Absent	Absent	Assumed Present	Found throughout Nevada in sagebrush and mixed shrub communities. Nests in brush communities with low shrubs and grasses (JBR 2013b). It is assumed that the Brewer's sparrow is present within the Powerline Project Area.
Mammals				
<i>Antrozous pallidus</i> (Pallid bat)	Present	Absent	Absent	Inhabits low desert shrublands, juniper woodlands, and grasslands. Most commonly occur in low, dry regions with rock outcrops, usually near water, and roost in rock crevices, buildings, rock piles, tree cavities, shallow caves, and abandoned mines (NatureServe 2012; Bradley et al. 2006). Pallid bats have been recorded as occurring or having the potential to occur within the Mine Project Area. Pallid bat calls were recorded within Mine Project Area during the 2010 surveys. Pallid bat was not detected during bat radar surveys in the Powerline Project Areas (JBR 2013b).

Special Status Species Name	Presence or Absence of Species			Habitat
	Mine Project Area	Well Field Project Area	Powerline Project Area	
<i>Corynorhinus townsendii</i> (Townsend's big-eared bat)	Present	Absent	Present	<p>A permanent resident of North America. Maternity and hibernation colonies generally occur in caves and abandoned mine workings. May roost in buildings and has often been found utilizing mine shafts and adits as maternity roosts and hibernacula. Habitats within the vicinity of roosts include pine forests, piñon-juniper woodlands, and cottonwood bottomlands (BCI 2013; Bradley et al. 2006).</p> <p>Townsend’s big-eared bat calls were recorded within the Mine Project Area during the 2010 surveys (BLM 2012a), but not during the Well Field Project Area surveys.</p> <p>Townsend’s big-eared bat was detected during bat radar surveys in the Powerline Project Area (JBR 2013b).</p>
<i>Eptesicus fuscus</i> (Big brown bat)	Absent	Absent	Present	<p>Roosts in buildings, bridges, mines, caves, rock crevices, and giant saguaro cacti (<i>Carnegiea gigantea</i>) (BCI 2013). Usually forages within a few miles of their roosts (Bradley et al. 2006).</p> <p>Big brown bat was detected during bat radar surveys in the Powerline Project Area (JBR 2013b).</p>
<i>Lasionycteris noctivagans</i> (Silver-haired bat)	Absent	Absent	Present	<p>A forest associated species often found at higher elevations in piñon-juniper, subalpine fir, aspen and willow habitats. Roosts almost exclusively in trees in the summer. Frequently alternates roost sites. Maternity roost sites are usually in woodpecker holes (Bradley et al. 2006).</p> <p>Silver-haired bat was detected during bat radar surveys in the Powerline Project Area (JBR 2013b).</p>
<i>Lasiurus cinereus</i> (Hoary bat)	Absent	Absent	Present	<p>Commonly roosts in caves and coniferous and deciduous trees (BCI 2013; Bradley et al. 2006).</p> <p>Hoary bat was detected during bat radar surveys in the Powerline Project Area (JBR 2013b).</p>

Special Status Species Name	Presence or Absence of Species			Habitat
	Mine Project Area	Well Field Project Area	Powerline Project Area	
<i>Microdipodops megacephalus</i> (Dark kangaroo mouse)	Absent	Assumed Present	Assumed Present	<p>Inhabits stabilized sand dunes and other sandy soils in valley bottoms and alluvial fans dominated by big sagebrush (<i>Artemisia tridentata</i>), rabbitbrush (<i>Chrysothamnus</i> spp.), and horsebrush (<i>Tetradymia</i> spp.) (NDOW 2006). Occurs on fine gravelly soils (O'Farrell and Blaustein 1974) or sandy soils with varying amounts of gravel (Hall 1995; NDOW 2006).</p> <p>Based on this rationale for determining potential habitat (presence of specific soils and vegetation), the entire Well Field Project Area represents potential dark kangaroo mouse habitat and approximately 1,295 acres within the Powerline Project Area represents potential habitat (BLM-BRFO 2013a).</p>
<i>Microdipodops pallidus</i> (Pale kangaroo mouse)	Absent	Assumed Present	Assumed Present	<p>Inhabits stabilized sand dunes and other sandy soils in valley bottoms and alluvial fans dominated by big sagebrush (<i>Artemisia tridentata</i>), rabbitbrush (<i>Chrysothamnus</i> spp.), and horsebrush (<i>Tetradymia</i> spp.) (NDOW 2006). The species also occurs on fine gravelly soils (O'Farrell and Blaustein 1974) or sandy soils with varying amounts of gravel (Hall 1995; NDOW 2006).</p> <p>Based on this rationale for determining potential habitat (presence of specific soils and vegetation), the entire Well Field Project Area represents potential pale kangaroo mouse habitat and approximately 1,295 acres within the Powerline Project Area represents potential habitat (BLM-BRFO 2013a).</p>
<i>Myotis californicus</i> (California myotis)	Present	Absent	Absent	<p>Inhabits riparian woodlands, canyons, grasslands, and desert habitats. Utilizes rock crevices, caves, buildings, and abandoned mine workings for roosting, maternity, and hibernation (NatureServe 2012; Bradley et al. 2006).</p> <p>California myotis has been detected within the old mine working located with the Mine Project Area (BLM 2012a).</p> <p>California myotis was not detected during bat radar surveys in the Powerline Project Area (JBR 2013b).</p>

Special Status Species Name	Presence or Absence of Species			Habitat
	Mine Project Area	Well Field Project Area	Powerline Project Area	
<p><i>Myotis ciliolabrum</i> (Western small-footed myotis)</p> <p>Now known as:</p> <p><i>Myotis melanorhinus</i> (Small-footed dark-nosed myotis)</p>	Present	Absent	Present	<p>Occurs west of the Rockies in varied habitats but is most commonly found in the piñon-juniper communities (Bogen et al. 1998a).</p> <p>Western small-footed myotis has been detected within the old mine working located with the Mine Project Area (BLM 2012a).</p> <p>Western small footed myotis was detected during bat radar surveys in the Powerline Project Area (JBR 2013b).</p>
<p><i>Myotis evotis</i> (Long-eared myotis)</p>	Absent	Absent	Present	<p>Primarily occurs in forests where older trees provide roosting sites beneath bark or within cavities and occasionally uses crevices in cliffs and buildings (BCI 2013; Bradley et al. 2006).</p> <p>Long-eared myotis was detected during bat radar surveys in the Powerline Project Area (JBR 2013b).</p>
<p><i>Myotis lucifugus</i> (Little brown myotis)</p>	Present	Absent	Present	<p>Typically found in mesic or forested habitats (Rainey 1998; Bradley et al. 2006). Uses a wide range of habitats and often uses human-made structures for nesting and maternity sites. Also uses caves and hollow trees. Foraging usually occurs in woodlands near water (NatureServe 2012).</p> <p>Little brown myotis has been detected within the old mine working located with the Mine Project Area (BLM 2012a).</p> <p>Little brown myotis was detected during bat radar surveys in the Powerline Project Area (JBR 2013b).</p>
<p><i>Myotis volans</i> (Long-legged myotis)</p>	Absent	Absent	Present	<p>Commonly found in forested habitats, but also occurs in more arid habitats (Bradley et al. 2006; Bogen et al. 1998b).</p> <p>Long-legged myotis was detected during bat radar surveys in the Powerline Project Area (JBR 2013b).</p>

Special Status Species Name	Presence or Absence of Species			Habitat
	Mine Project Area	Well Field Project Area	Powerline Project Area	
<i>Myotis yumanensis</i> (Yuma myotis)	Absent	Absent	Present	Inhabits riparian areas, scrublands, deserts, and forests and is commonly found roosting in bridges, buildings, cliff crevices, caves, mines, and trees (Bradley et al. 2006). Yuma myotis was detected during bat radar surveys in the Powerline Project Area (JBR 2013b).
<i>Pipistrellus hesperus</i> (Western pipistrelle)	Assumed Present	Assumed Present	Present	Usually associated with rocky canyons and outcrops where they are known to roost in small crevices. Also known to occupy mines and caves (BCI 2013; Bradley et al. 2006). Western pipistrelle is assumed present based on habitat within the Mine Project Area and Well Field Project Area and was detected during bat radar surveys in the Powerline Project Area (JBR 2013b).
<i>Sorex preblei</i> (Preble's shrew)	Absent	Absent	Assumed Present	In Nevada, occupies beaches along perennial and ephemeral streams dominated by shrubs (commonly sagebrush) openings in forested habitats, marshes, and aspens stands (Ports and George 1990; Zevloff 1988). Found primarily in the very northern portion of Nevada (JBR 2013b). Approximately 491 acres of potential habitat are present within the 120 kV Powerline Project Area. Of the 491 acres, approximately 15 acres have high potential, 143 acres have moderate potential, and 333 acres are low potential habitat to support the species (BLM-BRFO 2013b).
Insects				
<i>Euphilotes pallescens ricei</i> (Rice's blue butterfly)	Absent	Absent	Assumed Present	Money buckwheat (<i>Eriogonum nummularae</i>) is the most common host plant (BMNA 2013). Known to occur in an area dominated by sand dunes near Sand Pass in Humboldt County, Nevada (Vol. 72 Federal Register No. 84; Warren et al. 2012). Approximately 449 acres (231 acres of private land and 218 acres of public land) of the Powerline Project Area has potentially suitable habitat (JBR 2013b).

Special Status Species Name	Presence or Absence of Species			Habitat
	Mine Project Area	Well Field Project Area	Powerline Project Area	
Plants				
<i>Astragalus pseudodanthus</i> (Tonopah milkvetch)	Absent	Absent	Present	Occurs in deep, loose sandy soils of stabilized and active dune margins, old beaches, valley floors, or drainages, with greasewood and other salt desert shrub taxa. Dependent on sand dunes or deep sand in Nevada at elevations between 4,320 to 5,920 feet in elevation (NNHP 2001; Barneby et al. 1989). Tonopah milkvetch, a perennial species, was observed (61 individuals) during the special status species within the Powerline Project Area (JBR 2013b).
<i>Eriogonum crosbyae</i> (Crosby’s buckwheat)	Present	Absent	Assumed Present	Occurs on rhyolite and white fluvio-lacustrine volcanic ash deposits and derived shallow sandy to clay soils, which are soils associated with "badlands" (remnant fan piedmonts), from 4,600 to 7,000 feet in elevation (Holmgren et al. 2012; Reveal 2005). This species has been documented within the Mine Project Area and was analyzed in the EIS (BLM 2012a). This species was not observed in the Well Field Project Areas during focused surveys (JBR 2013a). While this plant was not observed during the 2012 surveys of the Powerline Project Area, documented occurrences for this species are within the elevation range of the alignment and potential habitat is present (JBR 2013b).
<i>Grusonia pulchella</i> (Sand cholla)	Assumed Present	Present	Assumed Present	Found in sandy to rocky flats, often in sandy areas from 3,800 to 5,000 feet in elevation. The sand cholla is found throughout Nevada, as far north as southern Humboldt County (JBR 2013c). Suitable habitat for this perennial species was observed during the sand cholla survey in the Well Field Project Area and four individuals were recorded in the southern area of the northern section Well Field Project Area (JBR 2013c). Surveys were not conducted in the Mine Project Area, but based on having some areas with similar habitat to the well field, it is assumed present. While this plant was not observed during the 2012 surveys of the Powerline Project Area, documented occurrences for this species are within the elevation range of the alignment and potential habitat is present (JBR 2013b).

Special Status Species Name	Presence or Absence of Species			Habitat
	Mine Project Area	Well Field Project Area	Powerline Project Area	
<i>Oryctes nevadensis</i> (Nevada oryctes)	Absent	Absent	Present	Occupies deep, sandy substrates of dunes, washes, and valley flats in elevations ranging from 3,900 to 5,960 feet. Widespread in western Nevada (NNHP 2001; Cronquist et al. 1984). Nevada oryctes, an annual species, was recorded within the Powerline Project Area (24 individuals) during surveys (JBR 2013b).
<i>Penstemon palmeri</i> var. <i>macranthus</i> (Lahontan beardtongue)	Absent	Absent	Assumed Present	Occurs on dry, open, mostly dark-colored volcanic talus, very rocky slopes or alluvium derived from these sources. Habitats include washes, roadsides, and canyon floors with year-round available subsurface moisture (NNHP 2001; Cronquist et al. 1984). While this plant was not observed during the 2012 surveys of the Powerline Project Area, documented occurrences for this species are within the elevation range of the alignment and potential habitat is present (JBR 2013b).

3.10 Transportation, Access, and Public Safety

3.10.1 Regulatory Framework

The regulatory framework is tiered to the EIS Section 3.15.1.1; page 3-178 (BLM 2012a). This section discusses Title 49 CFR, which provides requirements for the transportation of hazardous substances.

3.10.2 Assessment Area and Study Methods

As discussed in Table 3.1-1, only the Plan Modification component was brought forward for analysis related to Transportation, Access, and Public Safety. The assessment area for Transportation, Access, and Public Safety is the Mine Project and Jungo Road to Winnemucca.

The study methods included a review of the baseline transportation data from the NDOT and included in HRDI's Plan Modification.

3.10.3 Existing Conditions

The existing conditions for Transportation, Access, and Public Safety Section is tiered to the EIS and Sections 3.15.1 – 3.15.2, pages 3-178 through 3-183, of the EIS are incorporated by reference (BLM 2012a). These sections include information about existing traffic volumes on county roads, major access routes to and from the Hycroft Mine, existing commercial and industrial developments within the assessment area, and the types of hazardous materials potentially transported from these developments. Applicable updates to the existing conditions for Transportation, Access, and Public Safety since the EIS was published are included below.

Transportation

For activities associated with the Plan Modification, the same roads identified in the EIS would be used for access and operations at the Hycroft Mine. Table 3.10-1 identifies the most current annual average daily traffic (AADT) from the NDOT for the State-identified road segments in the vicinity of the Mine Project Area and access roads.

Table 3.10-1: Nevada Department of Transportation Average Annual Daily Traffic Volumes

County	Station Number	Station Location Description	AADT
Humboldt	0130105	Jungo Road, one mile west of US-95 (Melarkey Street)	1,400
Pershing	0270108	SR 399, Pitt Road, 0.3 mile west of SR 854 (Lone Mountain Road)	250
Washoe	0310426	SR 447, Gerlach Road, 150 feet south of the railroad crossing east of Gerlach	400*

Source: NDOT 2013

Notes: SR = State Route; *Data adjusted or estimated

3.11 Vegetation

3.11.1 Regulatory Framework

The FLPMA, the Public Rangelands Improvement Act of 1978, 43 CFR 4180, and the NDEP BMRR provide the direction, goals, and objectives for vegetation management for the Project.

3.11.2 Assessment Areas and Study Methods

The assessment area for vegetation is the Mine Project Area, Well Field Project Area, and the Powerline Project Area.

JBR conducted vegetation baseline studies between May 17 and 21, 2010 for the Mine Project Area (JBR 2010).

JBR conducted baseline biology surveys, including vegetation mapping and classification, for the Well Field Project Area in May and September 2012 and for the Powerline project Area in May and June 2013. The complete results are included in the biological survey report for the well field (JBR 2013a) and biological survey report for the powerline (JBR 2013b). Vegetation cover within the survey area was separated into communities sharing common characteristics such as species composition and distribution amongst dominant and co-dominant species.

3.11.3 Existing Conditions

Mine Project Area

The Vegetation section for the Plan Modification is tiered to the EIS and Sections 3.16.1 – 3.16.2, pages 3-189 through 3-193, of the EIS are incorporated by reference (BLM 2012a). Table 3.11-1 from the EIS is included below for reference.

Table 3.11-1: Vegetation Communities - Mine Project Area

Vegetation Community, Association, or Coverage Classification	Acres within the Mine Project Area	Percent within the Mine Project Area
Bailey's Greasewood	1,278	8.6
Bailey's Greasewood-Desert Scrub	1,644	11.2
Shadscale Saltbrush	Less than 1	Less than 1
Black Greasewood	945	6.4
Wyoming Sagebrush	2,427	16.5
Bailey's Greasewood-Wyoming Sagebrush	491	3.3
Black Greasewood-Bailey's Greasewood	626	4.2
Shadscale-Bailey's Greasewood	2,453	16.6
Shadscale-Wyoming Sagebrush	1,199	8.1
Badlands	123	0.8
Rock outcrop	29	0.2
Mostly Bare	194	1.3
Disturbed	112	0.8
Devoid of Vegetation	3,231	22

Source: BLM 2012a

Well Field Project Area

Based on the field surveys conducted, there are four primary vegetation communities within the Well Field Project Area, including Annual Grassland, Bailey's Greasewood, Black Greasewood, and Desert Scrub (JBR 2013a). There are areas where many of these communities form mixed associations. Table 3.11-2 summarizes the vegetation communities and associations mapped in the Well Field Project Area. A detailed description of each community is included in the biological survey report (JBR 2013a).

Table 3.11-2: Vegetation Communities - Well Field Project Area

Vegetation Community, Association, or Coverage Classification	Acres within the Well Field Project Area	Percent within the Well Field Project Area
Annual Grassland	1,588	41
Bailey's Greasewood	6.2	Less than 1
Bailey's Greasewood-Annual Grassland	26.8	Less than 1
Black Greasewood	59	1.5
Desert Scrub	102	2.7
Playa	2.8	Less than 1
Shadscale-Bailey's Greasewood-Annual Grassland	1,954	51
Shadscale-Black Greasewood-Annual Grassland	88	2.3

Powerline Project Area

Based on the field surveys conducted, there are ten primary vegetation communities within the Powerline Project Area and there are areas where many of these communities for mixed associations. Table 3.11-3 summarizes the vegetation communities and associations mapped in the Powerline Project Area. A detailed description of each community is included in the biological survey report (JBR 2013b).

Table 3.11-3: Vegetation Communities - Powerline Project Area

Vegetation Community, Association, or Coverage Classification	Acres within the Powerline Project Area*	Percent within the Powerline Project Area
Annual Grassland	250	14
Bailey's Greasewood	270	16
Big Greasewood	254	15
Big Greasewood – Annual Grassland	38	2
Desert Scrub	73	4
Indian Ricegrass-Russian thistle	115	7
Saltgrass-Riparian	47	3
Shadscale Saltbrush	273	16
Shadscale Saltbrush-Annual Grassland	130	7
Torrey's Saltbush	4	<1
Winterfat	5	<1
Wyoming Big Sagebrush	25	1
Wyoming Sagebrush, Sandy	238	14
Disturbed	14	1

Note: * Total acres is less than the Powerline Project Area as not all of the vegetation communities were mapped on private land within the corridor.

3.12 Water Quantity

3.12.1 Regulatory Framework

Water quantity in Nevada is subject to the provisions of the Nevada Water Law, which is based on two basic principles of prior appropriate and beneficial use. In addition, Public Water Reserves No. 107 reserves water rights for lands administered by the federal government.

3.12.2 Assessment Area and Study Methods

As discussed in Table 3.1-1, the Plan Modification and Well Field ROW components were brought forward for analysis related to Water Quantity. These two components are interrelated as the well field would be the source of the water used at the Hycroft Mine for operations and processing.

Assessment Area

The assessment area for water quantity for the Proposed Action is the Lower Quinn Hydrographic Basin.

Study Methods

Baseline Spring Inventory

An initial baseline spring inventory was conducted within a ten-mile radius surrounding the Mine Project Area. The survey area was determined using preliminary ground water modeling of anticipated pumping rates for the Proposed Action. The survey protocols and methodology included identifying spring sites and documenting baseline conditions of the springs. JBR conducted a more expansive spring survey in a 562-square mile in the Black Rock Desert, west and north of the original ten-mile radius study area (ANG and JBR 2014).

Hydrogeological Field Investigation

HDR Engineering, Inc. (HDR) conducted a hydrogeological study and water supply investigation related to the development of the well field and proposed water usage at the Hycroft Mine (HDR 2013a). Detailed methods are described in reports and work plans by SRK (July 2010) and HDR (May 2012, August 2012). The investigation and study included field studies and ground water modeling to evaluate the proposed well field operations on the regional ground water levels and basin water budget.

The hydrogeologic investigation began in 2010 in an area within several miles from the Mine Project Area. Monitoring wells were drilled and installed at depths from 150 feet to over 600 feet. Several of the boreholes extended much deeper (up to 1,600 feet) to identify the deep lithology. The information collected indicated that high-permeable sand and gravel deposits needed for a large water-supply well field were not present within several miles of the mine. The hydrogeologic investigation moved to the southwest in the area of two existing production wells currently used for water supply and pump tests were performed on the existing wells. A geophysical survey was completed using Controlled Source Audio-Frequency Magnetotelluric

(CSMT) electrical resistivity methods. The purpose of the geophysical survey was to identify the extent and thickness of the water bearing aquifers near the existing production wells. Based on the results of the geophysical survey, four exploratory boreholes were drilled and four monitoring wells were completed during 2012. The well depths ranged from about 160 feet to about 650 feet. The wells were drilled with a mud-rotary drilling rig. Down-hole geophysical surveys (resistivity, SP, temperature and gamma) were completed to identify the most permeable zone. Soil samples and grain-size distribution analysis were completed at up to 20 samples per well. The top of casing elevation and locations of the monitoring wells were surveyed for vertical and horizontal control. Ground water levels were measured at the twelve basin monitoring wells during 2011 and 2012. Pressure transducers were installed in eight of the wells to measure the ground water levels and to evaluate the aquifer response to pumping at the existing production wells.

Ground Water Modeling

The data collected in the field was used to develop and support a conceptual ground water model. A conceptual model is a simplified representation of the hydrogeological features that govern saturated flow in the model project area. These features include the hydrostratigraphy, hydraulic properties, boundaries, hydraulic barriers, recharge, pumping, surface water-ground water interaction, springflow, and evapotranspiration. The selected ground water model was MODFLOW, which was originally developed by the USGS. MODFLOW is an appropriate numerical modeling tool for this application, because it is flexible, extensively documented, updated and has been field proven in a wide range of hydrogeologic settings. Ground water Vistas was used for processing model simulations (HDR 2013a).

3.12.3 Existing Conditions

The Mine Project Area and Well Field Project Area are located within the southeast portion of the Lower Quinn Hydrographic Basin, which is a part of the Black Rock Desert Region, a flat and arid high-desert plain edged by mountains that drain centrally into a playa. The basin is characterized by traditional basin and range tectonics, which control hydrology.

The basin itself is composed of two deep, buried bedrock valleys trending north-south, filled with alluvial and lacustrine sediments. The valleys are bisected in the north by the Black Rock Mountains and bounded at their western- and eastern-most edges by additional ranges. Elevations range from 8,923 feet amsl at King Lear Peak in the Jackson Mountains to approximately 3,900 feet amsl near Gerlach at the south end of the Black Rock Desert.

Surface Water

Surface Water Hydrology

Precipitation and snow melt generate surface water within the Mine Project Area and Well Field Project Area. Such surface water is seasonal and found only in isolated springs, wetlands, and ephemeral drainages.

Climate

The climate in the Black Rock Desert is similar to that throughout northern Nevada and is characterized by low precipitation and low humidity. Most precipitation in the area falls during the spring and winter (December through May). Annual precipitation is estimated to be 7-8 inches in the area of the Hycroft Mine (HDR 2013a).

Surface Water Drainages and Springs

Surface water flow is seasonal with most occurring between December and May. Flow originates from springs, ground water seeps, or from sustained periods of heavy precipitation and spring seasonal runoff. Regionally, runoff collects and flows downward in channels off the mountain ranges. Due to the high degree of evaporation and transpiration relative to precipitation in the region, only very small quantities of water enter the basin in the form of surface water. As a result, there are no perennial drainages and few perennial water sources in the form of springs.

The major drainages in the region are the Quinn River, Leonard Creek, and Mud Meadow Creek. The Quinn River drains the Desert Valley and Pine Creek basins in the northeast region of the playa, typically for only one period lasting a few days during the year. Leonard Creek is a tributary of the Quinn River and flows perennially in most years, although during dry periods, the flow goes underground and the channel may dry up completely. Mud Meadow Creek drains the Calico Range in the northwestern region of the basin.

Based on the results of the spring surveys, a total of 31 springs were identified within the study area. Of the 31 sites it was determined that eight were natural springs, nine were natural seasonal wetted areas, and 14 were man-made springs. Of the springs investigated, roughly 90 percent occur in the western valley of the Black Rock Desert. Five sites located adjacent to the Mine Project Area and Well Field Project Area were added to a monitoring. Each of these sites are man-made dredged out (clay borrow or trenches) exposing low quality shallow ground water at the surface (ANG and JBR 2014).

Ground Water

Geomorphology

The proposed well field is situated on a large alluvial fan near the base of the Kamma Mountains where it meets the basin valley floor. The fan emanates from the Granite Springs Wash and Rabbithole Creek drainages, and encompasses an area roughly 15 miles north-south and ten miles east-west.

Ground Water Aquifers and Confining Units

Alluvial fan geomorphology has been well-characterized in the literature. Quaternary alluvial fans form in areas where steep, typically mountainous terrain encounters a flat environment. Surface water drainages originating in the mountains meet this relatively low-energy environment and deposit sediments in a characteristic fan shape. A wide range of depositional processes build the fan radially outward, resulting in a heterogeneous distribution of grain sizes and sorting, based on the mechanism of deposition and source material, respectively. Typically,

however, a general pattern of grain size sorting occurs from the apex of the fan down-gradient, from coarse- to fine-grained and poorly- to well-sorted, as the energy in the system decreases.

The proposed well field is situated in Quaternary alluvial sediments to the west of the Rangefront Fault. The Rangefront Fault forms the boundary between a perched ground water zone on the west side and a deeper, structurally-controlled ground water zone in the east. On its western side, limited perched ground water can be found within alluvial sands and gravels located atop a clay layer, which in turn overlies a deeper alluvial aquifer. These quaternary alluvial units were more precisely characterized by HDR in their water supply investigation (HDR 2013a).

The area of the proposed well field is chiefly comprised of four hydrostratigraphic units:

- A shallow, unconfined aquifer exists south and west of the town of Sulphur. The aquifer is regionally extensive and was observed in holes drilled to the west and south of the existing Hycroft Mine property, although not at the existing production wells.
- An upper confining layer comprised of high proportions of clay mixed with other sediments was encountered beneath the unconfined aquifer. This layer pinches out in the southern portion of the proposed well field.
- A lower confined aquifer exists over much of the extent of the proposed well field. This aquifer is comprised in the upper portion of coarser sand and sand and gravel, and transitions at depth to finer, less permeable materials. This upper portion of this unit has proved suitable for a ground water supply of up to several thousand gpm based on pump test results at new and existing wells.
- At depth, there is a dense, fine-grained confining unit that bounds the confined aquifer.

Potentiometric Ground Water Surface and Flow Direction

Regionally, ground water flows from areas of high relief to the areas of lowest relief at the playa. The basin is a closed system with ground water loss through evaporation, transpiration, and pumping. There is a north to south flow gradient in the western and eastern arms of the basin, and a downward flow gradient along the valley margins. In the northeast part of the basin, ground water flows from 4,030 feet to the lower reach of Quinn River at playa elevations of 3,900 feet.

The ground water surface elevation in the playa is 3,900 to 3,910 feet. Ground water levels in the playa indicate artesian conditions and locally may be above the ground surface, indicating artesian conditions. Ground water levels in alluvial fans surrounding the playa valley can locally be as deep as 300 feet below surface.

The ground water flow direction is from east to west (topographic high to low) in both the upper unconfined aquifer and lower confined aquifer. The flow gradient is steeper in the eastern portion of the site, nearer to the Mine Project Area, and flattens to the west. The ground water potentiometric surface in the confined aquifer decreases 90 feet over three miles, with nearly all of the decline in ground water level occurring to the east of the proposed well field. This

indicates that the confined aquifer is much more permeable in the area of the proposed well field, relative to the area closer to the Mine Project Area.

Ground Water Recharge

The Maxey and Eakin (1949) method was used to estimate the recharge for the basin in the ground water model and the results were compared to previous recharge estimates for the basin. A recharge of 31,700 acre-feet per year (afy) was established, which compares favorably with previous estimates by Sinclair (1963; 28,000 afy) and the Nevada Division of Water Resources (NDWR) (2013; 30,000 afy) (HDR 2013b).

3.13 Wildlife

3.13.1 Regulatory Framework

Section 102.8 of the FLPMA states that the policy of the United States is to manage public land in a manner that would protect the quality of multiple resources and provide food and habitat for fish, wildlife, and domestic animals. The PRIA directs the BLM to improve rangeland conditions with due consideration given the needs of wildlife and their habitats.

The character of vegetation, including arrangements, densities, and age classes, greatly influences fish and wildlife habitat quality and productivity. Since vegetation character can vary in response to federal land use authorizations, the BLM considers the consequences to the health of fish and wildlife habitat of various land uses such as grazing and mining, and treatments such as burning and seeding.

The BLM's role in the management of fish and other aquatic resources is to provide the habitat that supports these resources. Aquatic habitat values are products of the attributes and processes of properly functioning riparian and aquatic systems at a desired ecological status. Wildlife must have a reasonable amount of protection from adverse impacts associated with human disturbances and most human activities. This is especially true during breeding seasons and when wildlife use winter ranges.

Wildlife and fish resources and their habitat on public lands are managed cooperatively by the BLM and NDOW under a Memorandum of Understanding (MOU) as established in 1971. The MOU describes the BLM's commitment to manage wildlife and fisheries resource habitat, and NDOW's role in managing populations. The ecological definition of population is a group of organisms of one species that interbreed and live in the same place at the same time. The BLM meets its obligations by managing public lands to protect and enhance food, shelter, and breeding areas for wild animals. The NDOW assures healthy wildlife numbers through a variety of management tools including wildlife and fisheries stocking programs, hunting and fishing regulations, land purchases for wildlife management, cooperative enhancement projects, and other activities.

The NDOW is the state agency responsible for the restoration and management of fish and wildlife resources within the state. The NDOW administers state wildlife management and protection programs as set forth in NRS Chapter 501, Wildlife Administration and Enforcement, and NAC Chapter 503, Hunting, Fishing and Trapping; Miscellaneous Protective Measures. NRS

501.110 defines the various categories of wildlife in Nevada, including protected categories. NAC 503.010503.080, 503.110, and 503.140 list the wildlife species currently placed in the state's various legal categories, including protected species, game species, and pest species.

3.13.2 Assessment Areas and Study Methods

Assessment Area

The assessment area for wildlife is the Mine Project Area, Well Field Project Area, and the Powerline Project Area.

Study Methods

Prior to conducting the field surveys for all three Project Areas, the NDOW, NNHP, and the USFWS were contacted to request information regarding wildlife use in the area.

Baseline surveys for general wildlife species were conducted by JBR in May and June 2010 for Mine Project Area and surrounding area (JBR 2010a). A SLERA was performed to evaluate the risk to ecological receptors for the ponds that would be constructed as a result of the Plan Modification as described in Section 3.4.2 of this EA.

JBR conducted baseline surveys for wildlife in the Well Field Project Area in May and September 2012 and for the Powerline Project Area in June 2013. The results are reported in the biological survey report for the well field (JBR 2013a) and powerline (JBR 2013b).

3.13.3 Existing Conditions

Mine Project Area

The Wildlife section is tiered to the EIS and Sections 3.18.1 – 3.18.2, pages 3-220 through 3-223, of the EIS are incorporated by reference (BLM 2012a). This section identifies the wildlife (mammals, upland game birds, reptiles, and amphibians) that have potential habitat or may occur in the Mine Project Area.

Well Field Project Area

The NDOW indicated that the following species have been observed within a four-mile buffer of the Well Project Area: desert horned lizard (*Phrynosoma platyrhinos*); gopher snake (*Pituophis catenifer*); greater short-horned lizard (*Phrynosoma hernandesi*); gyro (unknown species of moth); northern desert horned lizard (*Phrynosoma platyrhinos platyrhinos*); and physa (unknown species of snail) (NDOW 2012a). Occupied mule deer (*Odocoileus hemionus*) and pronghorn antelope (*Antilocapra americana*) distribution exist within the four-mile buffer area (JBR 2013a).

The following wildlife species were observed during the field surveys: black-tailed jackrabbit (*Lepus californicus*); mountain cottontail (*Sylvilagus nuttalli*); antelope ground squirrel (*Ammospermophilus leucurus*); and western fence lizard (*Sceloporus occidentalis*) (JBR 2013a).

Powerline Project Area

The NDOW indicated that the following species have been observed within the vicinity of the Powerline Project Area: American Beaver, American dipper, bluegill, bobcat, chisel-toothed kangaroo rat, chukar, common carp, common raven, coyote, crappie (unknown), desert horned lizard, desert kangaroo rat, flycatcher (unknown), gophersnake, Great Basin (Mojave black) collared lizard, Great Basin fence lizard, Great Basin rattlesnake, Great Basin whiptail, great blue heron, hummingbird (unknown), kit fox, Lahontan reddie, long-nosed leopard lizard, mountain lion, myotis (unknown), North American river otter, northern desert horned lizard, northern flicker, Ord's kangaroo rat, pallid bat, rock wren, Sacramento blackfish, Sacramento perch, Surprise Valley pyrg, Townsend's big-eared bat, vesper sparrow, walleye, western small-footed myotis (NDOW 2013).

The following species were observed in the 120 kV powerline Survey Area: pronghorn antelope; coyote (*Canis latrans*); antelope ground squirrel, desert kangaroo rat (*Dipodomys deserti*) burrows, black-tailed jack rabbit, and mountain cottontail. Reptiles observed during field surveys included long-nosed leopard lizard (*Gambelia wislizenii*) and western whiptail (*Cnemidophorus tigris*). No amphibians were observed during field surveys. No mule deer or mule deer sign were observed (JBR 2013b).

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4 ENVIRONMENTAL CONSEQUENCES

4.1 Direct and Indirect Effects

4.1.1 Air Quality

Proposed Action

Plan Modification

The activities proposed in the Plan Modification, primarily the rail spur, mill, tailings facilities and pit configuration, consist of numerous activities and actions, each of which may have the potential to emit air pollutants. These activities would occur during the construction phase, as well as during the operational phase of the Project. The potential impacts associated with the construction phase of the facilities would principally consist of fugitive dust and combustion emissions from surface disturbing activities associated with the construction of the facilities. These emissions from the construction activities would be very similar to the emissions associated with the actual mining activity but would be less due to the smaller equipment and limited footprint of the surface disturbance and limited aerial extent of the activities. In addition, the construction activities would not all occur at one time. Therefore, the AQIA analyzed the impacts of air emissions associated with the operational phase of the activities proposed in the Plan Modification and is sufficiently conservative to incorporate the construction impacts in any given year.

Summary of Air Dispersion Modeling Results

The emissions for the regulated pollutants were modeled and background pollutant concentrations added for comparison to the NAAQS for compliance demonstration. The AQIA utilized a dispersion modeling technique to estimate impacts to ambient air quality and the pollutants modeled were CO, NO₂, PM₁₀, PM_{2.5}, and SO₂.

The results of the dispersion modeling for the facilities expansion activities within the Mine Project Area are presented in Table 4.1-1. This table shows the highest modeled results expressed in µg/m³ with the addition of the background concentrations at any point of public access for all pollutant-averaging time combinations, the location in Universal Transverse Mercator (UTM) North American Datum 1983 (NAD83) coordinates, of the highest modeled public access receptor, and the lowest applicable standard (NAAQS) for each of the pollutant-averaging time combinations.

Table 4.1-1: Highest Modeled Air Pollutant Concentrations from the Proposed Action at Receptor Points Accessible to the Public

Pollutant	Averaging Time	Highest Modeled Receptor Point			Lowest Applicable Ambient Standard ($\mu\text{g}/\text{m}^3$)	In Compliance
		Receptor Location ¹		Dispersion Modeling Results ($\mu\text{g}/\text{m}^3$) ²		
		UTM Easting (m)	UTM Northing (m)			
PM ₁₀	24-hour	354187.6	4522382.0	139.86	150	Yes
	Annual	355661.5	4523191.0	49.99	50	Yes
PM _{2.5}	24-hour	355822.8	4523393.0	23.02	35	Yes
	Annual	355882.8	4523393.0	9.71	15	Yes
SO ₂	1-hour	357458.6	4527913.0	4.51	196	Yes
	3-hour	356783.0	4527403.0	30.69	1,300	Yes
	24-hour	356749.8	4527367.0	18.80	365	Yes
	Annual	355882.8	4523393.0	5.35	80	Yes
CO	1-hour	356087.6	4523457.0	4,680.64	40,000	Yes
	8-hour	356249.8	4523317.0	1,984.85	10,000	Yes
NO ₂	1-hour	356232.6	4523308.0	4,866.28	188	No
	Annual	355882.8	4523393.0	62.91	100	Yes

Source: ANG and JBR 2013

Notes: ¹ All coordinates in UTM projection, NAD83; ² Background values included.

To evaluate the impacts due to specific source categories that were part of the proposed facilities expansion, the air quality model was set up so that impact contributions from various categories could be separated from overall impacts due to all emission sources. Source categories were created for the following:

- Rail Spur area;
- Gyratory crusher feed to Mill;
- Mill labs;
- Mill Refinery;
- Emergency generators; and
- Reconfigured pits and areas including Brimstone Pit, South Heap, West and North
- Brimstone Backfill areas, and South and West WRFs.

Table 4.1-2 summarizes the percentage that these sources from the proposed new or expanded facilities contributed to the overall modeled emissions. This table does not take into consideration the existing authorized sources such as the Brimstone refinery. Therefore, the percentages are to demonstrate the overall contribution of the Proposed Action, but do not total 100 percent as this table does not include the percent contributions from existing sources.

Table 4.1-2: Percent Contribution of Source Categories to Highest Modeled Air Pollutant

Pollutant	Averaging Time	Total Modeled Maximum Concentration	Percent Contribution from Source Category					
			Rail Spur	Gyro feed to the Mill	Mill Labs	Mill Refinery	Emergency Generators	Reconfigured Areas
PM ₁₀	24-hour	139.86	0.01%	2.92%	0.29%	0.00%	0.33%	11.59%
	Annual	49.99	0.15%	1.38%	0.12%	0.00%	0.12%	12.20%
PM _{2.5}	24-Hour	23.02	0.01%	1.98%	0.20%	0.00%	0.59%	21.05%
	Annual	9.71	0.00%	0.84%	0.05%	0.00%	0.06%	13.53%
SO ₂	1-Hour	4.51	4.09%	0.00%	0.00%	0.00%	93.64%	22.19%
	3-Hour	11.52	2.06%	0.00%	0.00%	0.00%	94.70%	7.98%
	24-Hour	0.50	2.86%	0.00%	0.00%	0.00%	89.29%	9.44%
	Annual	28.65	0.00%	0.00%	0.00%	0.00%	0.09%	17.29%
CO	1-Hour	927.94	0.03%	0.00%	0.00%	0.00%	2.92%	48.16%
	8-Hour	324.25	0.01%	0.00%	0.00%	0.00%	1.83%	57.21%
NO ₂	1-Hour	4,866.28	0.05%	0.00%	0.00%	0.00%	6.94%	21.58%
	Annual	1,719.48	0.00%	0.00%	0.00%	0.00%	0.02%	11.65%

Source: ANG and JBR 2013

PM₁₀ and PM_{2.5} Emissions and Modeled Concentrations

PM₁₀ and PM_{2.5} emissions are generated by almost all sources. The major sources of PM₁₀ and PM_{2.5} emissions from the Plan Modification component of the Proposed Action would include resuspension of unpaved road dust from haul trucks and emissions from the rail spur, as well as processing material using crushers, screens, and conveyors, and emissions from blasting operations. Emission controls, such as water sprays, would help minimize emissions from the material process equipment (e.g., crushers, screens, conveyors, etc.).

One of the direct impacts to air quality would be the maximum modeled ambient PM₁₀ concentrations, which is presented in the modeling analysis, including background concentrations at any point of public access as 139.86 µg/m³ for a 24-hour time period and 49.99 µg/m³ for the annual period. Another direct impact to air quality would be the maximum modeled ambient PM_{2.5} concentrations, which is presented in the modeling analysis, including background concentrations at any point of public access as 23.02 µg/m³ for a 24-hour time period and 9.71 µg/m³ for the annual period.

Under the Proposed Action, six buses total are proposed to travel the distance of 125.6 miles roundtrip for a maximum of 4,380 round trips per year. The PM₁₀ and PM_{2.5} emissions from the bus transportation of the employees on public roads to and from the Plan Modification would total 1.01 tpy and 0.11 tpy, respectively (ANG and JBR 2013). These emissions would be from engine exhaust, tire and brake wear, and fugitive dust generated from bus travel on paved and unpaved roads. These emissions would have an incidental impact on the air quality in the vicinity of the transportation route.

Indirect impacts primarily consist of the deposition of fugitive dust on vegetation, which would have the potential to lower the productivity of that vegetation.

Combustion Emissions and Modeled Concentrations

Combustion of diesel in the haul trucks and mobile equipment, (e.g., loaders, dozers, etc.), the combustion of propane in processing units such as the furnaces, and the combustion of fuel oil or diesel in units such as the generators can produce elevated ambient levels of CO, NO₂, SO₂, PM₁₀, and PM_{2.5}. In most cases, combustion emissions are generally uncontrolled for the emissions units.

The direct impact to air quality from the fuel combustion is be represented by the maximum modeled CO and SO₂ concentrations from the modeling analysis, which show levels to be well below the NAAQS and the NSAAQS. In addition, the NO₂ modeled concentration is below the NAAQS (except the 1-hour standard) and the NSAAQS. The NO₂ modeled 1-hour concentration was above the NAAQS. The main cause of the exceedance on the NO₂ short term standards can be contributed to modeling under an assumption at a maximum of everything operating at once. NO₂ exceedance was analyzed in the EIS for the existing operations (BLM 2012a). Fugitive and combustion emissions are significant in that aspect (ANG and JBR 2013).

The CO, NO₂, SO₂, and VOC emissions from the bus transportation of the employees on public roads, to and from the Project site, would total 0.17, 0.62, 0.006, and 0.03 tpy, respectively (ANG and JBR 2013). These emissions would be from engine exhaust.

There are no identified indirect impacts to air quality from the fuel combustion.

Hazardous Air Pollutants Emissions

HAPs emissions from the facilities expansion activities would result from the handling of earthen materials; the combustion of the hydrocarbon fuels; the emission of mercury from thermal sources covered by the facilities' mercury operating permit; and the handling and use of various chemicals. A summary of the total HAPs emissions that would be emitted from the proposed new and reconfigured facilities is presented in Table 4.1-3.

Table 4.1-3: Hazardous Air Pollutants Emissions from the Proposed Action

HAPs	Facility Total (tpy)
Formaldehyde	3.45E-02
Benzene	1.80E-02
Acetaldehyde	1.44E-02
Naphthalene	3.40E-03
Xylenes	9.67E-03
1,3-Butadiene	2.81E-03
Acrolein	1.73E-03
Toluene	8.75E-03
Ethylbenzene	2.80E-03
Propionaldehyde	2.21E-02
2,2,4- Trimethylpentane	9.24E-04
Methyl tert-butyl ether	0.00E+00
Antimony	0.00E+00
Arsenic	4.50E-02
Beryllium	0.00E+00

HAPs	Facility Total (tpy)
Cadmium	2.52E-03
Chromium	8.41E-03
Cobalt	2.41E-03
Lead	6.15E-03
Manganese	1.14E-01
Mercury	4.74E-03
Nickel	4.67E-03
Selenium	5.41E-03
Styrene	2.94E-03
HCN	1.39E+00
Total HAPs	1.70

Source: ANG and JBR 2013

There are no ambient air quality standards for HAPs. The combined total mercury emissions from combustion, fugitive, mining and milling process sources were estimated to be 0.0047 tpy. This value is less than the total emissions identified in the EIS mainly due to the 2012 stack testing that showed substantially less mercury emissions from one of the retorts (ANG and JBR 2013).

In sum, the estimated HAPs emissions from the Plan Modification would total 1.70 tpy, including 0.0047 tpy of mercury emissions. For reference, the total combined HAPs are 17.04% of the EPA threshold. Therefore, these emissions would have a minimal impact on the air quality in the vicinity of the Mine Project Area.

Climate Change Effects

GHG emissions associated with the Proposed Action primarily would be associated with the consumption of energy for mining and ore processing during the life of the Hycroft Mine related to the expanded and new facilities. The estimate of the GHG emissions for the Proposed Action is 142,428 tpy as summarized in Table 4.1-4.

Table 4.1-4: GHG Emissions from the Proposed Action

GHG	Emissions (tpy)	CO ₂ e (metric tons)
CO ₂	157,000	142,428
CH ₄	0.0000046	0.000087
N ₂ O	0.000021	0.0059
Total CO₂e		142,428

Source: ANG and JBR 2013

Notes: CO₂e = carbon dioxide equivalent; CO₂ = carbon dioxide; CH₄ = methane; N₂O = nitrous oxide

The national annual emissions of GHG are approximately 6,700 million metric tons (MMt) (EPA 2013b). In comparison to the currently estimated state, national, and global GHG emissions, the GHG emissions from the Proposed Action are less than one percent and considered minimal. Existing climate prediction models for the prediction of climate change are global in nature; therefore, they are not at the appropriate scale to estimate potential impacts of climate change from the Proposed Action on the associated environment.

Residual Impacts

No residual effects would be expected to occur as a direct result of the Proposed Action to Air Quality because all of the emissions would cease once the Proposed Action activities ceased.

No Action Alternative

As result of the No Action Alternative, HRDI would continue to operate the Hycroft Mine under current operational conditions as those outlined in the Class II AQOP AP1041-0334.03 and as approved by NDEP-BAPC under the Class I AQOP application. HRDI would operate its crushing circuit as identified in the Class I OPTC AP1041-2974. Lastly, HRDI would continue to emit mercury at less than five pounds per year per its MOPC AP1041-2255.

PM₁₀ and PM_{2.5} Emissions and Modeled Concentrations

The maximum modeled ambient PM₁₀ and PM_{2.5} concentrations, including background concentrations at any point of public access under the No Action Alternative are identified in the Existing Condition Section 3.2. These concentrations would be lower than the PM₁₀ and PM_{2.5} concentrations under the Proposed Action. The direct impacts from the No Action Alternative, therefore, would be similar but less than the direct impacts from the Plan Modification component of the Proposed Action.

Combustion Emissions and Modeled Concentrations

The maximum modeled CO concentrations under the No Action Alternative would not exceed NAAQS or the NSAAQS. NO₂ and SO₂ concentrations under the No Action Alternative would exceed the NAAQS 1-hour standards for the same reasons as the Proposed Action. NO₂, except for the 1-hour standard, and SO₂ concentrations would be below NAAQS and NSAAQS. The impacts for the No Action Alternative, therefore, would be similar to the impacts for the Proposed Action.

The CO, NO₂, SO₂, and VOC emissions under the No Action Alternative would be similar but less than the emissions from the Proposed Action.

Hazardous Air Pollutants Emissions

HAPs would continue to be emitted under the No Action Alternative. Under the No Action Alternative styrene and HCN would not be emitted. The HAPs emissions for the No Action Alternative would be 6.05 tpy, including 0.0254 of mercury emissions. The impacts under the No Action Alternative would be similar but less than the impacts under the Proposed Action.

Climate Change Effects

The No Action Alternative would produce less the CO_{2e} emissions (128,030 tpy) than the Proposed Action. In accordance with Nevada law, a portion of the electrical power consumed by the Hycroft Mine would continue to come from renewable energy sources.

Residual Impacts

No residual impacts would be expected to occur as a direct result of the No Action Alternative to Air Quality because all of the emissions would cease once the No Action Alternative activities cease.

4.1.2 Cultural Resources (including Historic Trails)

Proposed Action

Plan Modification

The Environmental Consequences Section for the Plan Modification is tiered to the EIS and Sections 3.3.3.1 and 3.3.3.2, pages 3-34 through 3-35, of the EIS are incorporated by reference (BLM 2012a). These sections identify the indicators of impacts and assessment methodology for analyzing impacts to cultural resources.

Direct impacts to sites within the Mine Project Area were mitigated under the terms of a Treatment Plan and MOA as described in Stoner et al. (2012) related to the EIS (BLM 2012a). There are no additional direct impacts to cultural resources eligible for the NRHP under the Plan Modification component of the Proposed Action.

Potential indirect impacts to cultural resources as a result of construction of the proposed facilities (rail spur, mill and tailings storage facility) would be visual impacts to the Sulphur Townsite and the Applegate Trail. Based on the results of a visual impact analysis (Appendix D), the proposed tailings facility would be shielded from view from the Sulphur townsite by the heap leach facility configuration that was approved in 2013. There would be no appreciable difference to the viewshed and no additional visual impact. The townsite is approximately five miles from the proposed rail spur and associated facilities. Although one of the proposed structures at the rail spur is 140 feet high, that distance is too great to distinguish the change in the skyline and none of the elements can be seen clearly. The proposed mill facility is completely out of view from the townsite. Therefore, there would be no additional visual impacts to the Sulphur townsite as a result of this component of the Proposed Action.

Visual impacts to the Applegate Trail as a result of the original mine expansion and a later modification to the design of the heap leach facility were analyzed in the EIS and evaluated in a later DNA, respectively. Due to the presence of the existing mine and approved South HLF configuration, the addition of the new facilities was determined to have only a minimal additional impact. To analyze the impacts from the proposed mine facilities, a photosimulation of the viewshed from the closest spot on the trail towards the proposed structures in the rail spur area (Photo 1). This simulation shows that the tallest structure, the proposed lime silo at a height of 140 feet, is barely visible. As is the case for the Sulphur townsite, the tailings facility and the mill would not be visible from the Applegate Trail.

Additionally, HRDI would incorporate existing facilities and native topography in design features that would reduce the visual effects of reclaimed mine facilities. Design features would include irregular facility shapes that blend the new and existing facilities with natural

topography, rounded bench crests, and facility abutments against undisturbed lands, concurrent reclamation of the HLFs, and varying slope angles on side slopes.

Residual Impacts

Residual impacts to the Sulphur townsite would include no additional visual impacts from the tailings facility and the mill and very minimal impacts, not noticeable to the casual observer, from the rail spur component. Visual impacts would continue during the mine life, approximately 17 years. Visual impacts would be reduced once reclamation is completed.

There would also be continued residual visual impacts to the Applegate Trail during daylight hours, as the Hycroft Mine is visible along several miles of the Applegate Trail. The existing mine facility impacts to the Applegate Trail were analyzed in the EIS, Section 3.3.3.3.1 (BLM 2012a), and the analysis concluded the indirect visual impacts would be minimal. The visual impacts would continue to be minimal because of the distance from south heap leach facility to the Applegate Trail but would be reduced after completion of reclamation.

Well Field ROW

With one exception, no historic or archaeological sites would be directly affected by the Well Field ROW component of the Project. As part of the Proposed Action, the preliminary planned locations of the dispersed facilities that comprise this component were adjusted to avoid sites eligible for the NRHP. During final design, these sites would be avoided.

Jungo Road (26Hu5590/CrNV-02-9894) is the only eligible or unevaluated site that would be directly affected by the construction of the well field. Jungo Road is considered to be an eligible site because of its relationship to the history and development of mining at and the associated townsite. Jungo Road would be impacted directly and/or indirectly by the overhead powerline construction across the road, access routes running along the south side of and crossing the road, and construction of the temporary lay down area adjacent to the road.

The results of the field investigations determined that impacts to Jungo Road could not be avoided. Therefore, a treatment plan to address the effects of impacts to Jungo Road is being prepared as part of the Proposed Action and would be implemented prior to construction.

Potential indirect impacts to cultural resources as a result of construction of the well field and its associated facilities would be visual impacts to the Sulphur Townsite and the Applegate Trail.

A visual effects analysis was conducted to assess the level of impact on the Sulphur townsite. An example of the analysis form used to assess visual impacts to the California Trail is included in Appendix D of this EA. A photo of the view from a point within the townsite was included to assist in evaluating the visual impact of the project. As seen in Photo 2, well field facilities can be seen but are quite distant and are barely visible.

The Applegate Trail (CrNV-02-822), which is part of the California National Historic Trail System, passes to the west of the well field area boundary and would be indirectly affected by construction of the well field component of the Proposed Action. At its closest point, the Trail passes within approximately one-half mile of one of the proposed well locations. In addition,

some of the other wells and their associated 60 foot-high powerlines would be visible from portions of the Trail. In Photo 3, powerline poles and pump buildings are barely visible in a simulated view of the well field at full buildout. The photo for this view was taken at the intersection of Jungo Road and the Applegate Trail, approximately one mile from the edge of the proposed well field area. In the photo, arrows point to the various features of the well field facility which are difficult to distinguish on the simulated photo.

The integrity of the setting of this segment of the Applegate Trail has been impacted in the past by existing roads, the Hycroft Mine, and the Western Pacific Railroad (WPRR). Although the proposed well field facilities are all visible to the northeast from the Applegate Trail, they vary in distance from the Trail. The pump houses and powerline may be seen from the Applegate Trail; however, visual simulations prepared for the viewshed show that the power poles are nearly invisible and the large Hycroft Mine heap leach is a backdrop to the view in the direction of the well field. The viewshed to the northwest where the Trail crosses through the Black Rock Desert is not affected by the Proposed Action. After discussions with members of two public interest groups, Trails West and the Oregon and California Trails Association, additional design measures including using a paint color that would blend with the existing landscape on the well houses and surrounding fences to reduce the visual impact were included in the Proposed Action. In addition, night lighting would be limited by the presence of switches at well houses for use only when needed.

Through the practice of avoidance and treatment of eligible or unevaluated sites, there would be minimal indirect impact to the Applegate Trail and the Sulphur townsite from construction and operation of the well field and its associated facilities.

- **Recommended Mitigation Measure:** The treatment plan should address mitigation of direct and indirect impacts to historic Jungo Road and the Memorandum of Agreement, implementing the treatment plan, should be signed by BLM, Nevada SHPO, and HRDI prior to any Finding of No Significant Impact (FONSI) and subsequent Decision Record (DR) being issued by the BLM-BRFO.

Residual Impacts

Residual impacts could include the continued effects of increased transportation along Jungo Road from service and maintenance vehicles, and the visual impacts from the presence of overhead. At the end of the well field life, approximately 17 years, the overhead powerline and wellheads would be removed, and service and maintenance vehicles would cease coming to the site.

Visual impacts to the Applegate Trail described above would also continue and are considered to be residual as well. These residual impacts are considered relatively minor. The residual impacts would be temporary as the well field improvements would be removed and the area reclaimed when the operation of the well field ceases, which would occur when the Hycroft Mine ended operations in approximately 17 years.

120 kV Powerline ROW*Cultural Resources*

Construction of the proposed powerline component of the project would directly impact eleven eligible archaeological sites with pole installation and removal, improvement and use of access routes, and construction and/or use of the Center Line Travel Route. In addition, there are eight eligible sites that would be spanned or otherwise avoided during construction. Table 4.1-5 identifies the eleven eligible sites that would be directly impacted by the 120 kV powerline and the type of impacts that would be produced. Six of the sites are prehistoric, there are also five segments of the California Trail which cross the centerline of the project, as well as the Jungo historic townsite and a site consisting of associated refuse deposits, a short segment of Jungo Road, and the Venado siding of the then Western Pacific Railroad.

Table 4.1-5: Potential Impacts to Eligible Sites-120 kV Powerline ROW

Cultural Site/Agency Number	Types of construction and maintenance activities with potential to affect eligible sites
CrNV-22-2356 (Prehistoric)	Construction and maintenance access; new H-frame replacement installation, pole removal access
CrNV-22-2359 (Prehistoric)	Pole removal access
CrNV-22-2371 (Prehistoric)	Construction and maintenance access, substation access improvements
CrNV-22-3305 (California Trail (Segments 1-5))	Construction and maintenance access (Segments 1 and 2); new H-frame (corner) parallel installation near Segment 3; use of access roads (Segments 4 and 5)
CrNV-22-2374 (Prehistoric)	Construction and maintenance access; pole removal access; substation access improvements
CrNV-21-4590 (Prehistoric)	Construction and maintenance access; new single-pole under-build construction, distribution removal
CrNV-21-6808 (Historic)	Construction and maintenance access; new single-pole under-build construction, distribution removal
CrNV-02-8400 (Historic)	Construction and maintenance access; new single-pole parallel installation
CrNV-02-12346 (Prehistoric)	Construction and maintenance access; new H-frame parallel installation
CrNV-02-12353 (Historic)	Construction and maintenance access; new single-pole under-build construction, distribution removal
CrNV-02-9894 (Historic Jungo Road, Segment 5)	Construction and maintenance access

The results of the field investigations determined that impacts to the cultural resources listed in Table 4.1-5 could not be avoided. Therefore, a treatment plan to address the effects of impacts to these sites is being prepared as part of the Proposed Action and would be implemented prior to construction.

Historic Trails

Five segments of the California Trail would be directly impacted by this component of the project in some way. Traffic from heavy vehicles and other construction activities could damage fragile remnants of historic trail traces. Segments 1, 2, and 3 are higher quality segments while Segments 4 and 5 are approximate locations of branches of the trail that have been disturbed by

later development. To avoid direct impact to Segments 1, 2 and 3, centerline travel would be avoided during construction and later maintenance of the new line. Alternative access routes would be utilized and traffic would be restricted from travel on those segments. During construction, signs and barriers would be placed to identify those segments to be avoided and monitors would ensure that avoidance is enforced.

NV Energy would mitigate the direct and indirect impacts by preparing and implementing a treatment plan and having archaeological monitors on site during construction. Data Recovery in the form of archaeological excavation is planned to mitigate the direct effects to the prehistoric sites and the historic sites other than the trail and road segments. Mitigation for the segment of historic Jungo Road would be detailed photography of the existing road and its viewshed.

The construction of transmission facilities may also result in indirect effects to eligible archaeological sites by altering the visual setting of the local landscape. The visual setting is considered an essential component of the National Register listing criteria of the California Trail (CrNV-22-3305) and contributes to the eligibility under Criterion A of the WPRR (CrNV-22-6736), the telegraph line (CrNV-22-7745) along the WPRR, the Idaho Stage Road (CrNV-21-6269), and Jungo Road (CrNV-02-9894).

Although aspects of the visual setting of these sites have been compromised to varying degrees by continuing improvements to the Southern Pacific and Western Pacific Railroads, existing transmission lines, the construction of Interstate 80, major improvements and realignment of Jungo Road, construction of above-and below-ground utilities in the railroad ROW, and various other developments, they all still retain some integrity of setting to varying degrees.

Along the southern viewshed of the railway corridor, where the Jungo townsite, the original alignment of the WPRR, and the transcontinental telegraph run parallel to each other, the proposed powerline would be constructed within a narrow north-side corridor between the railroad and the modern alignment of Jungo Road. The proposed alignment would use the existing transmission line alignment (Rose Creek line). The replacement poles would be slightly taller structures and single-pole structures with an under-build feature would be constructed. The Rose Creek line would be abandoned and removed. The southern viewshed from the train and telegraph line would, therefore, remain intact.

Since the Idaho Stage Road parallels the Dry Cut-off (Segment 3) of the California Trail, the visual setting and indirect effects to the stage road and the California Trail are identical. At the intersection with the Idaho Stage Road, the proposed powerline would parallel the existing Blue Mountain transmission line. This area is already compromised by existing water facilities. The proposed powerline, therefore, would only minimally alter the local setting of the Idaho Stage Road.

Visual impact analyses of the effects of the construction of the powerline were performed and the results are included in Appendix C of the 120 kV NV Energy Cultural Report (Young et al. 2014). An example of a visual impact analysis form used to assess impacts to the California Trail for this component of this project is included in Appendix D of this EA. There would be both direct and indirect impacts to the California Trail as a result of construction of the Proposed Action. The proposed access road from I-80 would directly impact the California Trail (Segments 1 and 2) by constructing improvements, i.e., a crossing, across the California Trail.

The California Trail (Segment 3) would be indirectly impacted (visually) by a power pole and the overhead powerlines located in close proximity to the California Trail.

The visual setting of Segments 1 and 2 of the California Trail (Humboldt Route) has been compromised to a significant degree by existing developments. Near the proposed rebuild corridor, the trail parallels the UPPR and I-80 for almost two miles, and also present in the area are the modern buildings and businesses of Mill City and Imlay. Additionally, an existing two-pole transmission line crosses the Dry Cutoff (Segment 3) before hugging the lower slopes of the Eugene Mountains. The proposed 120 kV powerline route parallels this existing line and is offset approximately 80 feet, the minimum required distance for safety and engineering. By constructing the proposed 120 kV powerline parallel and close to the existing corridor, adverse visual effects to the setting of the California Trail would be minimized. NV Energy's proposed alignment would maintain the current condition of a single corridor crossing the trail area south of the Dun Glen Substation. By using a parallel corridor north of the Dun Glen Substation, the distant vistas from along the river would be relatively unchanged. The view to the east would change incrementally by the addition of a powerline parallel to the existing line where the existing line is already an element in the viewshed.

To counteract the indirect impacts to several historic sites where setting is integral to their eligibility that is, the California Trail (and the associated Idaho Stage Road) and the area where the Jungo historic townsite, the WPRR, and a telegraph line related to the railroad are located near each other, two interpretive panels would be erected to explain the history of the sites to the public. The preparation and location of these panels would be detailed in the treatment plan for the project. The impact to a small segment of Jungo Road would be mitigated by detailed photographic recording.

Through the practice of avoidance and treatment of eligible sites, there would be only minimal visual impacts to cultural resources would result from the 120 kV Powerline ROW.

- **Recommended Mitigation Measure:** The treatment plan should address mitigation of direct and indirect impacts to the 11 eligible sites and the associated Memorandum of Agreement, implementing the treatment plan, should be signed by BLM, Nevada SHPO, and HRDI prior to any FONSI and subsequent DR being issued by the BLM-BRFO.
- **Recommended Mitigation Measure:** The field aspects of the treatment plan should be completed before construction is allowed to proceed within 100 meters of any of the eleven sites identified as requiring data recovery or additional recording. A report describing the results of the treatment plan implementation should be submitted to the BLM within approximately one year of completion of all aspects of the fieldwork. A bond should be posted to ensure that funding is provided to complete the report and other products described in the treatment plan.
- **Recommended Mitigation Measure:** If the implementation of the treatment plan would require disturbance outside the Powerline Project Area, NV Energy should conduct a sensitive plant survey prior to disturbance activities. If a sensitive plant is identified during the survey, NV Energy should consult the BLM before conducting disturbance activities.

- **Recommended Mitigation Measure:** To avoid direct impacts to the California Trail (Segments 1 and 2) NV Energy should utilize Tungsten Road and the Railroad Access Road during construction and maintenance activities.

Residual Impacts

Residual impacts to eligible cultural resources would include continued visual impacts from overhead powerlines and the permanent placement of poles and access roads within eligible cultural sites. These impacts would be mitigated through the implementation of the treatment plan.

Residual impacts to the California Trail would include visual impacts from the placement of a pole near Segment 3 and through long-term use of the proposed access across Segments 1 and 2. These impacts would be mitigated through the implementation of the treatment plan and recommended mitigation measures.

Proposed Action Summary

The three components of the Proposed Action have potential to directly impact 12 eligible cultural resources (11 within the Powerline Project Area and one within the Well Field Project Area). Two of the sites are segments of the same historic road (Jungo Road). A treatment plan for these sites would be implemented to offset the impacts.

Indirect impacts on historic properties related to all three elements would be minimal. The Treatment Plan contains a provision involving installation of interpretive signs as mitigation for the minimal indirect visual impacts to the California Trail from the 120 kV Powerline.

No Action Alternative

Under the No Action Alternative HRDI would continue mining and ore processing activities under the existing Plan (approximately 5,982 acres of authorized disturbance). These activities include open pit mining, ore processing using heap leach technologies and ore refining using mercury retorts and other technologies. There would be continued indirect impacts to the Sulphur townsite from the approved heap leach pad, which is approximately 130 feet higher than the proposed modified heap leach and tailings facility (400 feet versus 270 feet). Indirect impacts, therefore, would be similar under the No Action Alternative. There would be continued indirect visual impacts to the historic Applegate Trail from the Hycroft Mine.

The existing impacts to cultural sites CrNV-22-3305, CrNV-22-2371, CrNV-22-2359, and CrNV-02-12353 would continue. The existing impacts to the California Trail would remain, but there would be no additional impacts (direct and indirect) from road crossings or new facilities (poles and overhead lines). The impacts under the No Action Alternative would be similar but less than impacts under the Proposed Action.

4.1.3 Migratory Birds

Proposed Action

Environmental protection measures for migratory birds have been incorporated into the Proposed Action. The migratory bird protection measures outlined in Sections 2.1.15.6, page 2-30 and 5.1.2, page 5-4, of the EIS would continue to be implemented, which would prevent disturbance to nesting migratory birds because pre-disturbance clearance surveys would be required (BLM 2012a). These measures were included in the ROD, which is included in Appendix A of this EA. The dates for the migratory bird breeding season have been updated since the issuance of the ROD and is now March 1 - August 31 (rather than April 15 - July 15 as it is written in the EIS ROD). HRDI would use these updated avian breeding season dates.

In addition, the Well Field ROW POD and 120 kV Powerline ROW POD include pre-construction nesting bird surveys. Further, the powerline would be constructed to the Avian Power Line Interaction Committee (APLIC) standards to reduce electrocution hazards to migratory birds as incorporated into the Proposed Action (Appendix B).

Plan Modification

Potential impacts to breeding migratory birds from the Plan Modification would include possible direct loss of nests (e.g. crushing) or indirect effects (e.g. abandonment) from increased noise and human presence within close proximity to an active nest site and loss of habitat. Potential disturbance to nesting birds would be addressed by the environmental protection measures identified in Sections 2.1.15.6, page 2-30, and 5.1.1, page 5-4 of the EIS (BLM 2012a) and included in Appendix A of this EA. HRDI would continue to implement these measures.

Under the Plan Modification, 73 acres of disturbance (all on public land) would occur resulting in migratory bird and raptor potential nesting and foraging habitat being removed during the 17-year mine life. Vegetation removal would result in a reduction of breeding habitat for migratory birds within the Mine Project Area. The facility expansion activities would result in a net loss of potential habitat but is not anticipated to contribute to a loss of viability for any migratory bird species. However, most proposed activities would be concentrated near areas already disturbed, and extensive similar habitat is available within and adjacent to the Mine Project Area.

Residual Impacts

The Plan Modification would result in the unavoidable loss of up to 792 acres of migratory bird habitat resulting from surface disturbance in the open pits that may not be backfilled or reclaimed. This may result in an increase in cliff nesting habitat for raptors. Approximately 73 acres of migratory bird habitat would be removed and then reclaimed as a result of the Plan Modification. The reclaimed land would have more grass and forb forage and less mature shrub forage in the short term, which may result in a shift of avian species use within these areas. As the plant communities within the Mine Project Area mature, larger shrubs may provide additional cover and nesting opportunities.

Well Field ROW

Under the Well Field ROW component, approximately 78 acres (all on public land) of migratory bird nesting and foraging habitat would be removed during the 17-year life of the well field (the life of the Hycroft Mine). An additional 32.5 acres (all on public land) of migratory bird nesting and foraging habitat would be temporarily disturbed during construction activities, but the habitat would be immediately reclaimed. Vegetation removal would total up to 110.5 acres and potentially result in a reduction of breeding habitat for migratory birds within the Well Field Project Area. The well field would result in a net loss of potential habitat but is not anticipated to contribute to a loss of viability for any migratory bird species because extensive similar habitat is available adjacent to the well field.

Residual Impacts

Approximately 78 acres of migratory bird foraging and nesting habitat would be removed in and then reclaimed as a result of the abandonment, closure, and reclamation of the well field. Approximately 32.5 acres would be temporarily disturbed during construction and would be reclaimed immediately. Therefore, a total of up to 110.5 acres within the approximate 3,900-acre Well Field Project Area would be disturbed. The reclaimed land would have more grass and forb forage and less mature shrub forage in the short term, which may result in a shift of avian species use within these areas. As the plant communities within the Well Field Project Area mature over time, it is anticipated that larger shrubs would provide additional cover and nesting opportunities.

120 kV Powerline ROW

Under the 120 kV Powerline ROW component, approximately 108.6 acres (84.2 acres of public land and 24.4 acres of private land) of migratory bird nesting and foraging habitat would be disturbed. An additional 406 acres (247.8 acres on public land and 158.2 acres on private land) of migratory bird foraging and nesting habitat would be temporarily disturbed from construction activities. Therefore, a total of up to approximately 514.6 acres within the 1,975-acre Powerline Project Area would be disturbed.

Residual Impacts

Residual impacts would result from the removal of a total of 108.6 acres (84.2 acres on public land and 24.4 acres on private land) of migratory bird habitat (foraging and nesting). These areas would have permanent facilities (power poles, centerline travel routes, and roads) that NV Energy would maintain for other users after the Hycroft Mine ceased operating.

Proposed Action Summary

Under the Proposed Action, the Project design features and environmental protection measures would minimize direct impacts to migratory birds. Indirect impacts to migratory birds would result from habitat loss or disturbance. A total of approximately 698.1 acres of potential migratory bird nesting and foraging habitat would be disturbed. Approximately 438.5 acres of the total 698.1 acres would be temporary disturbance from construction activities and would be reclaimed after construction.

No Action Alternative

Under the No Action Alternative, the total amount of authorized disturbance would remain at 5,982 acres. The total amount of migratory bird habitat removed would, therefore, be 5,982 acres. Vegetation removal, however, would not occur all at one time due to incidental mining and exploration and interim reclamation. The No Action Alternative would result in a net loss of potential migratory bird habitat. It is not anticipated that the habitat loss would contribute to a loss of viability for any migratory bird species because most mining activity would be concentrated near areas already disturbed and extensive similar habitat is available adjacent to the Mine Project Area. It is unlikely the No Action Alternative would result in a decline in local or regional migratory bird populations. Impacts would be similar to but less than the impacts under the Proposed Action.

Disturbance within the Well Field Project Area would be limited to disturbance associated with the Notice-level water exploration activities (less than five acres), and these areas would be reclaimed. Migratory bird habitat would temporarily be affected up to five acres, but would be reclaimed.

NV Energy would maintain the existing Dun Glen Substation, the powerline and poles (from I-80 to Dun Glen Substation and section along Jungo Road) and access roads, which may result in temporary disturbance to migratory birds during maintenance activities.

Residual Impacts

The No Action Alternative would result in the unavoidable loss of up to 441 acres of migratory bird habitat within the Mine Project Area resulting from surface disturbance in the Brimstone open pit area that would not be backfilled or reclaimed. This may result in an increase in cliff nesting habitat for raptors. Approximately 5,541 acres of migratory bird habitat would be removed in during the life of the mine and then reclaimed. The reclaimed land would have more grass and forb forage and less mature shrub forage in the short term, which may result in a shift of avian species use within these areas. As the plant communities within the Mine Project Area mature larger shrubs may provide additional cover and nesting opportunities, similar to existing conditions.

4.1.4 Native American Religious Concerns

Proposed Action

Plan Modification

Infrastructure improvements included in the Plan Modification would indirectly impact (visually) Pulpit Rock. The ball storage, lime silo, and concentrate storage buildings would be visible from Pulpit Rock (Photo 4). Based on the photosimulation of the viewshed, the proposed rail spur facilities would not distract from the overall landscape as viewed from Pulpit Rock. Further, the use of BLM-approved colors for the buildings would decrease the contrast of the buildings with the surrounding environment. The integrity of the site has previously been impacted by the existing UPRR railroad line and construction and operation of Jungo Road.

Residual Impacts

The residual impacts would include the continued visual impacts from the ball storage, lime silo, and concentrate storage buildings in the rail spur area. These buildings would be removed at the end of the mine life in approximately 17 years and no residual impacts would remain.

No Action Alternative

Under the No Action Alternative, the Hycroft Mine would continue to operate and the impacts to the isolated stone features would continue. These impacts would be mitigated by the continued implementation of the MOA and Hycroft Treatment Plan. There would be no impacts to Pulpit Rock under the No Action Alternative.

4.1.5 Noxious Weeds and Invasive Species**Proposed Action****120 kV Powerline ROW**

To avoid or minimize the risk of noxious weed introduction or the spread of noxious weeds, environmental protection measures would be followed as outlined in Appendix B of this EA. Monitoring for infestations would occur annually for three years to identify and treat new infestations of noxious weeds within the NV Energy ROW, minimizing any impacts from noxious weeds. New surface disturbance from the 120 kV powerline would increase the potential for promoting the spread and establishment of noxious weeds and invasive and nonnative species. Direct impacts include increased vehicular traffic and increased soil disturbance, which could introduce or spread existing infestations. Indirect impacts may include an increased disturbance exposure to wind-born seed resulting in the spread of noxious weeds.

Residual Impacts

Residual impacts would be limited as the reclamation of disturbance would reduce the potential for future infestations and the monitoring and control of weed infestations during the post-reclamation process would target and control threats.

No Action Alternative

NV Energy would continue to operate and maintain the existing powerlines and Dun Glen Substation. These activities have the potential to introduce or spread noxious or invasive species.

4.1.6 Social Values and Economics

Proposed Action

Plan Modification

The Plan Modification would result in increased staffing levels related to the additional processing and mining operations that would result from the Proposed Action. The anticipated employee levels are shown in Table 4.1-6.

Table 4.1-6: Projected Mine Employment

Department	Number
Mine Maintenance	9
Mine Operations	50
Process Operations and Maintenance	200
Administrative Support ¹	10
Total	269

Source: HRDI 2013a; ¹Includes management, accounting, purchasing, warehouse, human resources, safety, environmental, information technology, and utility maintenance personnel

The direct impact of the Plan Modification would be the addition of approximately 269 employees to the HRDI workforce within a year of approval. Since a majority of HRDI's employees reside in Winnemucca, it is assumed a majority of the new employees would reside in Winnemucca, as well. In 2013, 17,642 people lived in Humboldt County (NSDO 2013a). Of this total population, 7,396 resided in Winnemucca (U.S. Census Bureau 2010). Even if all 269 employees resided in Winnemucca, this would only represent a 3.6 percent increase in total population. HRDI, however, anticipates that some of the additional employees may choose to live in other communities, such as, Lovelock in Pershing County or Gerlach in Washoe County.

The employees would create a long-term demand for housing. Additional temporary construction contractors would also require lodging during the construction of the new facilities. Housing and temporary accommodation resources in Humboldt and Pershing counties as of 2010 were described in the EIS. At that time, approximately 550 and 450 housing units were unoccupied in Humboldt and Pershing counties, respectively. Both Humboldt and Pershing counties together had 32 hotels/motels and several RV parks. Recently new residential living units were added in the New Frontier subdivision (247 units) and the Candlewood Suites hotel (83 rooms) opened. These housing resources are anticipated to be sufficient for the added demand created by the Proposed Action.

Current unemployment rates in Humboldt County are low. The annual unemployment rate of 5.7 percent for 2013 represents a decrease from the 2011 rate of 8.3 percent. The 5.7 percent rate is typically considered a rate below full employment (economists vary on what constitutes full employment for a community). The U.S. uses a goal of three percent for persons over the age of 20, which was established in the Full Employment and Balanced Growth Act of 1978 [15 U.S.C. §1022(b)(2)]. The Plan Amendment is not anticipated to increase the local demand for employees as many of the new employees would relocate from other areas. There would, however, be indirect employment effects as new residents increase the demand for goods and services. Using the Gold Mining economic sector employment multiplier of 0.7 (Harris and

Dobra 2009), an additional 188 jobs would be created. Even if it is assumed all the jobs would be located in Humboldt County, this only represents 1.9 percent of the total Humboldt County labor force. There would be sufficient labor force to meet the increased demand for employees.

There would also be an increased demand for public services (schools, medical services, water, wastewater, etc.). As identified in the EIS in Section 3.12.2.2.4, most of the public services have adequate services levels and capacity levels to accommodate the additional demand in services (BLM 2012a). The Humboldt County Sheriff's Office (HCSO) continues to have inadequate staffing, but the HCSO would be able to continue providing service to the community, and Proposed Action would not impact the HCSO beyond its current levels of service.

No Action Alternative

Under the No Action Alternative, HRDI would continue mining operations under existing authorizations. The total number of employees anticipated at peak operations would remain at 537. The existing impacts to population, employment, housing, public services, and fiscal conditions would continue. The impacts to Humboldt County's socio-economic resources would be similar to but less than those impacts under the Proposed Action.

4.1.7 Soils

Proposed Action

Plan Modification

The Hycroft Mine Soils Section is tiered to the EIS (BLM 2012a). Sections 3.13.3.1 and 3.13.3.2; pages 3-150 through 3-155 are incorporated by reference. These sections identify the indicators of impacts and assessment methodology.

HRDI would continue to implement the environmental protection measures identified in Section 5.1.2 of the EIS (BLM 2012a) and incorporated into the ROD. The ROD is included in Appendix A of this EA. Under the Plan Modification, an additional 73 acres of soil would be disturbed outside of the authorized disturbance footprint. Direct impacts from the new and reconfigured facilities would include potential increases in soil erosion due to wind and storm water runoff until the disturbed areas were stabilized, i.e., implementation of BMPs. Final reclamation activities in the Plan Modification include the stabilization and revegetation of all disturbed areas within the Mine Project Area.

Growth media stockpiles would be increased by 322,700 cubic yards, and these stockpiles would have a higher erosion potential than the natural environment due to the potential for decreased soil compaction, increased slope gradients, and the loss of stabilizing vegetation cover. Growth media stockpiles would be stabilized and revegetated following the removal of material for the reclamation of other facilities during final reclamation activities.

Residual Impacts

Up to 792 acres of open pit areas may not be backfilled or reclaimed, which would result in permanent loss of growth media and soil productivity in the Mine Project Area. Unintentional and unavoidable loss of minor amounts of growth media during the salvaging processes of these open pits would result from the Plan Modification. Minor degradation in soil stability and productivity may result in the physical processes of stripping, stockpiling, and replacing growth media over the course of mine life in the disturbed areas.

Well Field ROW

The implementation of the environmental protection measures identified in Appendix B would reduce impacts to soil resources and biological soil crusts. The well field would disturb up to a total of 110.5 acres, of which 32.5 acres are related to temporary construction disturbance within the Well Field Project Area. The disturbance would be reclaimed at the end of the mine life when the well field is decommissioned and the temporary disturbance would be reclaimed following construction activities. The exact amount of proposed disturbance to each soil unit within the well field area is unknown as the final well layout has not been determined; therefore, the disturbance could affect any soil association within the well field area. Table 3.8-1 identifies the acreage of each soil unit present within the Well Field Project Area subject to disturbance. Based on soil characteristics, a portion of the Well Field Project Area has a high potential to have biological soil crusts. Disturbance to areas with biological soil crusts would be minimized when feasible. Disturbance to soils would increase potential erosion from wind and water. The erosion potential and hydrological characteristics of each soil association within the Well Field Project area would be minimally affected by the well field activities.

Residual Impacts

The residual impacts of the well field consist of up to 110.5 acres of disturbance and removal of topsoil for construction and drilling activities. The disturbance would continue for the life of the well field, approximately 17 years. The well field would then be reclaimed (wells capped, power poles removed, and pipeline buried). There could be a possibility of the mixing of soils during reclamation activities, which could change the chemical and physical properties of the soils. This would be a minimal impact to the soil associations within the Well Field Project Area.

No Action Alternative

Under No Action Alternative, HRDI would not implement the Plan Modification and develop the rail spur, mill, and tailings storage facilities. Existing mining and processing facilities would continue to operate through the existing permitted action, as described in the No Action Alternative Section (Section 2.2) of this EA. Direct impacts would continue, i.e., potential increase in soil erosion, due to wind and storm water runoff, until the disturbed areas were stabilized, i.e., implementation of BMPs and reclamation. There would be no change in the size or erosion potential of the current growth media stockpiles. The Notice-level disturbance (up to five acres) within the Well Field Project Area would be reclaimed, and there would be no additional disturbance. Direct and indirect impacts would be similar but less than the impacts under the Proposed Action.

Residual Impacts

Under the No Action Alternative, approximately 441 acres of the Brimstone open pit area would not be backfilled or reclaimed, which would result in a permanent loss of growth media and soil productivity in this area. Minor losses of growth media during the salvaging process and minor degradation in soil stability and productivity may result from the physical processes of stripping, stockpiling, and replacing growth media.

Additionally, under the No Action Alternative, mining and processing facilities would remain unchanged and continue to operate as currently authorized. This would result in active mine disturbance for the life of the existing mining processes followed by reclamation. The residual impacts would be similar but less than under the Proposed Action.

4.1.8 Special Status Species

Proposed Action

Environmental protection measures for special status species have been incorporated into the Proposed Action. All three components of the Proposed Action include a standard migratory bird protection measure of conducting pre-construction nesting surveys during the breeding season that would also apply to sensitive bird species. The dates for the migratory bird breeding season are March 1 - August 31. All powerlines included in the Proposed Action would be constructed to the APLIC standards to reduce electrocution hazards to migratory birds including sensitive species (Appendix B). Additional species-specific protection measures have been identified and are discussed below in context.

Plan Modification

Sensitive Bird Species

The BLM sensitive bird species identified in Table 3.9-1 have the potential to occur or are confirmed to use the Mine Project Area and include northern goshawk, golden eagle, western burrowing owl, ferruginous hawk, greater sage-grouse, peregrine falcon, and loggerhead shrike. Potential impacts to birds from proposed activities would include possible direct loss of nests (e.g., crushing) or indirect effects (e.g., abandonment) from increased noise and human presence within close proximity to an active nest site and disturbance to habitat. No raptor nests, including golden eagle nests, were located within areas subject to disturbance within the Mine Project Area.

In general, the Plan Modification would result in disturbance to 73 acres of potential nesting and foraging habitat for sensitive bird species. The majority of the disturbance would occur in the Shadscale Saltbrush-Bailey's Greasewood mosaic and an area mapped as mostly bare. This area does not support raptor nesting habitat. Therefore, sensitive raptor species would only potentially use this area for foraging. A SLERA was conducted to determine the potential risk to bird and raptors from the ponds created as part of the Plan Amendment. Based on the results of the SLERA, the ponds would represent a low-magnitude risk, including the evapoconcentrated post-closure solutions (Geomega 2012). Potential species-specific impacts that have been identified are discussed below.

Greater sage-grouse - No evidence of greater sage-grouse was noted within the Mine Project Area, but there is potential for greater sage-grouse to occur. Approximately 33 acres of potential greater sage-grouse nesting habitat (0.18% of the total nesting habitat within the Majuba Population Management Unit [PMU]) and 32 acres of winter distribution (0.08% of the total wintering habitat within the Majuba PMU) would be disturbed under the Plan Modification. Indirect impacts to the greater sage-grouse as a result of the Plan Modification include the following: increased raptor or scavenger predation from elevated equipment and power poles; visual encroachment or interruptions created by elevated equipment, power poles, vehicular travel and dust; interruption of “bird foot traffic” created by above ground pipes, extended elevated berms, or other linear features that may block passage; noise created by pumps, vehicles, and equipment; and collision with fences and other structures. These impacts would be minimal because there are no active leks near the Mine Project Area. The following recommended mitigation measure was identified to minimize potential impacts to greater sage-grouse habitat within the Mine Project Area

- **Recommended Mitigation Measure:** HRDI should consult with the BLM to develop a species-specific seed mix for revegetation for areas disturbed within potential greater sage-grouse nesting or winter habitat.

Western burrowing owl - Potential habitat for western burrowing owls was identified in the southwestern portion of the Mine Project Area, but no burrowing owls or sign were detected during the surveys. Proposed surface disturbance could result in impacts to western burrowing owls by reducing available habitat. This reduction is unlikely to result in a reduction in population viability within the Mine Project Area. The following is an existing protection measure included in the ROD that would continue to be implemented as part of the proposed action:

- **ROD Stipulation #2:** During burrowing owl nesting season (March to late August), a burrowing owl inventory survey following the Winnemucca BLM’s survey protocol shall be conducted prior to surface disturbance in the areas identified as potential burrowing owl habitat within the Project Area.

Sensitive Mammal Species

Six sensitive bat species have been confirmed or are assumed present within the Mine Project Area. The proposed activities and disturbance in the Plan Modification would not result in the disturbance or removal of bat hibernacula or roosting sites. Approximately 73 acres of potential bat foraging habitat would be disturbed, but reclaimed following mine closure. The bats foraging within the Mine Project Area have likely adapted to the existing disturbance from mining activities during their flight times. The expansion of the surface disturbance may reduce their prey base, but the reclamation of the disturbance would restore the foraging potential.

The SLERA evaluated the potential risk to Little Brown Bat, representative of all of the sensitive bat species that have a potential to occur, from exposure to the proposed ponds. The results predicted a potential exceedance of aluminum during the post-closure scenario at the tailings pond and the heap leach pond. The magnitude of overall exposure risk was low (Geomega 2012). No existing ROD stipulations would apply to the Proposed Action for sensitive bats and no

additional mitigation measures are recommended as the anticipated impacts on bat species from the Proposed Action are minimal.

No other sensitive mammal species were determined to have the potential to occur within the Mine Project Area.

Sensitive Plant Species

No sensitive plant populations were documented within the areas subject to disturbance in the Plan Modification. Disturbance would reduce the potential for special status plant species to inhabit these areas; however, there is similar-like habitat within and adjacent to the Mine Project Area.

Residual Impacts

Residual impacts to special status species would include the loss of vegetative productivity and associated habitat from open pit areas that may not be backfilled or reclaimed (up to 792 acres). Approximately 73 acres of potential special-status species habitat would be disturbed and then reclaimed following mine closure. The reclaimed areas would have more grass and forb forage and less mature shrub forage, which may result in a shift of species use within these areas. As the plant communities mature, larger shrubs may provide additional cover and nesting opportunities for special status wildlife species, similar to the existing conditions.

Well Field ROW

Sensitive Bird Species

The BLM sensitive bird species identified in Table 3.9-1 have the potential to occur or are confirmed to use the Well Field Project Area and include northern goshawk, golden eagle, western burrowing owl, ferruginous hawk, Swainson's hawk, peregrine falcon, loggerhead shrike, and sage thrasher. Potential impacts to sensitive bird species from proposed well field activities are the same as for the Plan Modification and would include direct impacts include possible direct loss of nests (e.g., crushing) or indirect effects (e.g., abandonment) from increased noise and human presence within close proximity to an active nest site and disturbance to habitat. No raptor nests were observed within the areas subject to disturbance, including golden eagle nests, with the exception of one burrowing owl inactive burrow that is discussed below.

In general, the Well Field ROW would result in disturbance of up to 110.5 acres of potential nesting and foraging habitat for sensitive bird species, of which 32.5 acres would be reclaimed immediately following construction. The majority of the disturbance would occur in the two most dominant plant communities of Annual Grassland and Shadscale-Bailey's Greasewood-Annual Grassland mosaic. These habitat types do not support raptor nesting habitat, with the exception of western burrowing owl. In addition, these vegetation types are dominated by grasses, forbs, and sparsely spaced shrubs. Therefore, it is expected that sensitive raptor species would primarily use the Well Field Project Area for foraging and other sensitive bird species have the potential to use the area for both nesting and foraging. Potential species-specific impacts that have been identified are discussed below.

Western burrowing owl – One inactive burrow that may be used by western burrowing owl was identified within the Well Field Project Area. There is a potential for this burrow to be removed during well field construction activities. Therefore, an environmental protection measures was included in the Well Field ROW POD to reduce the potential for direct impacts to western burrowing owl.

- **Well Field ROW EPM:** Western burrowing owl (*Athene cunicularia*) nest surveys would be conducted by a qualified biologist within potential breeding habitat prior to any surface disturbance proposed during burrowing owl breeding season (March 1st through August 31st). Surveys would be conducted no more than ten days and no less than three days prior to initiation of disturbance. Surveys would follow establish BLM standards and protocols and would be approved by the BLM biologist prior to being implemented. If active nests are located, HRDI would immediately notify the BLM biologist and appropriate protection measures, which may include avoidance or restriction of activities, would be established. If no active nests are present within the survey area, implementation of the proposed disturbance would commence within ten days of survey completion.

Sensitive Mammal Species

One sensitive bat species (western pipistrelle) and pale and dark kangaroo mice are assumed to occur within the Well Field Project Area based on habitat characteristics. No bat roosting or hibernacula are present within the area, so western pipistrelle would use the area for foraging of which approximately 110.5 acres of foraging habitat would be disturbed. This impact is considered minimal and habitat would be restored following well field and mine closure in approximately 17 years.

Pale and dark kangaroo mice - There is a potential for small rodent burrows to be crushed or removed during construction, which may include pale and dark kangaroo mice burrows. The disturbance of 110.5 acres of habitat may directly or indirectly affect these species. The entire Well Field Project Area was classified as potential habitat. In order to offset potential impacts to the sensitive kangaroo mice, the Well Field ROW POD included the following environmental protection measure (Appendix B).

- **Well Field ROW EPM:** If disturbance occurs in dark kangaroo mouse (*Microdipodops megacephalus*) habitat or pale kangaroo mouse (*Microdipodops pallidus*) habitat, HRDI would reseed the disturbed areas with a BLM-approved seed mix.

Sensitive Plant Species

Based on results of the sensitive plant surveys conducted within the Well Field Project Area, sand cholla was the only species detected and has the potential to be affected by the Well Field ROW component of the Proposed Action.

Sand cholla - Four individual sand cholla plants were observed in the southern area of the northern section of the Well Field Project Area. HRDI would avoid these sand cholla, to the extent practicable. If the sand cholla cannot be avoided, HRDI implement the following environmental protection measure included in the Well Field ROW POD (Appendix B).

- **Well Field ROW EPM:** To reduce potential impacts to sand cholla (*Grusonia pulchella*), all sand cholla plants in the Well Field Project Area that could not be avoided would be removed by a qualified botanist and transplanted to a BLM-approved area as close to the Well Field Project Area as possible.

The following two recommended mitigation measures were identified to further minimize potential impacts to the species and speed up the necessary approvals for transplantation.

- **Recommended Mitigation Measure:** Based on the types of anticipated disturbance in the Well Field Project Area, a minimum of 50-foot buffer with flagging should be placed around the sand cholla that are to be avoided. If this buffer is not achievable due to site conditions, HRDI should consult with the BLM and coordinate a transplanting effort. Flagging should be removed when no longer deemed necessary.
- **Recommended Mitigation Measure:** In addition to the environmental protection measure, the sand cholla subject to transplantation should be transplanted in Sites 1 and 2 of the HRDI's Crosby's buckwheat transplant site evaluated under CX#DOI-BLM-NV-W030-2013-0010.

Residual Impacts

Approximately 78 acres of habitat would be disturbed in the Well Field Project Area and then reclaimed as a result of the development, operation, and closure of the well field. Approximately 32.5 acres would be temporarily disturbed during construction, but this acreage would be reclaimed immediately upon the completion of construction related activities. Changes to vegetation and soil structure within this may have residual impacts on habitat, but the proposed well field features are dispersed throughout the approximate 3,900-acre project area and adjacent undisturbed habitat available to support sensitive species would minimize residual impacts until reclamation efforts restored the area.

120 kV Powerline ROW

The following environmental protection measure was included in the 120 kV Powerline ROW and is applicable to all sensitive and special-status species.

- **120 kV Powerline ROW EPM:** If a sensitive plant or animal species is identified during construction, work near the sensitive species would be halted, and a qualified biologist familiar with the biology and species likely to be encountered in the Powerline Project Area would be consulted to determine an appropriate buffer and other protective measures. The appropriate resource agencies would be notified of the discovery within 24 hours. If avoidance is infeasible, consultation with the jurisdictional resource agency

would be conducted prior to continuing work in the immediate area of the species. Any federal- or state-listed species discovered on public land would also be reported to the BLM.

Sensitive Bird Species

The BLM sensitive bird species identified in Table 3.9-1 have the potential to occur or are confirmed to use the Powerline Project Area and include northern goshawk, golden eagle, western burrowing owl, ferruginous hawk, Swainson's hawk, western snowy plover, peregrine falcon, pinyon jay, bald eagle, loggerhead shrike, sage thrasher, and Brewer's sparrow. Potential impacts to migratory birds from proposed powerline would include the same construction related impacts as the Well Field ROW and Plan Amendment components of the Proposed Action, but would create a potential for additional impacts to avian species from the operation of the powerline including an increased electrocution hazard. Raptor nests were observed within areas subject to potential disturbance, but no golden eagle nests were observed. Any raptor nest with the potential to be disturbed would be subject to the following environmental protection measure.

- **120 kV Powerline ROW EPM:** NV Energy would follow the USFWS Migratory Bird Permit Memorandum regarding unoccupied migratory bird nest destruction (without birds or eggs) (USFWS 2013).

In general, the 120 kV Powerline ROW component of the Proposed Action would result in disturbance of approximately 514.6 acres of potential nesting and foraging habitat for sensitive bird species, of which 406 acres would be related to construction disturbance and would be reclaimed immediately following construction of the powerline. The proposed alignment crosses a variety of habitats supporting various types of avian species. No raptor nests or cliff nesting habitat was observed within the areas subject to disturbance, but raptor nesting habitat was noted within three miles of the alignment. Therefore, the alignment would be located within hunting territory of raptors nesting within this habitat. Vegetation removal and habitat disturbance would result in a reduction in nesting and foraging habitat for special status avian species within the Powerline Project Area, but the activities are not anticipated to reduce population viability of any particular species as similar nesting and foraging habitat is present in close proximity to the alignment. A large portion of the alignment has existing powerlines adjacent and parallel to the proposed alignment and, therefore, avian species utilizing the Powerline Project Area have likely already altered their flight patterns and are accustomed to powerline structures in the area. As mentioned above, the implementation of the pre-construction nesting bird surveys and the construction of the powerline to APLIC standards would reduce potential impacts to sensitive bird species utilizing the Powerline Project Area. Potential species-specific impacts that have been identified are discussed below.

Western burrowing owl – The entire Powerline Project Area was considered potentially suitable habitat for western burrowing owl, but no sign or individuals were observed during surveys. Therefore, the following environmental protection measures was included in the 120 kV Powerline ROW POD to reduce the potential for direct impacts to western burrowing owl.

- **120 kV Powerline ROW POD EPM:** Western burrowing owl nest surveys would be conducted by a qualified biologist within potential breeding habitat prior to any surface disturbance proposed during burrowing owl breeding season (March 1st through August 31st). Surveys would be conducted no more than ten days and no less than three days prior to initiation of disturbance. Surveys would follow established BLM standards and protocols and would be approved by the BLM biologist prior to being implemented. If active nests are located, NV Energy would immediately notify the BLM biologist and appropriate protection measures, which may include avoidance or restriction of activities, would be established. If no active nests are present within the survey area, implementation of the proposed disturbance would commence within ten days of survey completion.

Sensitive Mammal Species

A total of ten sensitive bat species were confirmed present within the Powerline Project Area during surveys. In addition, Preble's shrew, pale kangaroo mouse, and dark kangaroo mouse are assumed present. The proposed activities and disturbance associated with the 120 kV Powerline ROW would not result in the disturbance or removal of bat hibernacula or roosting sites. Approximately 514 acres of bat foraging habitat would be disturbed, but 406 acres would be immediately reclaimed following construction. The nature of the disturbance from a linear project is dispersed in nature and would not remove large blocks of foraging habitat. Therefore, the bats foraging within the Powerline Project Area may have a temporary reduction in their prey base, but adjacent like-kind habitat is anticipated to be able to support the bat populations and the reclamation of the construction disturbance would restore the majority of the foraging potential. Potential species-specific impacts that have been identified are discussed below.

Pale and dark kangaroo mice - Approximately 1,204 acres (780 acres of public land and 424 acres of private land) or 60.9 percent within the Powerline Project Area is potential pale and dark kangaroo mouse habitat. Approximately 34.3 acres (4.4 percent) of the kangaroo mouse habitat on public land would be permanently disturbed and approximately 26.1 acres (6.2 percent) of kangaroo mouse habitat on private land would be disturbed. These areas would not be reclaimed as permanent infrastructure (power poles and access roads) would be located in these areas. Approximately 76.2 acres (9.8 percent) of habitat on public land and approximately 57.5 acres (13.6 percent) of habitat on private land would be temporarily disturbed. These areas would be immediately reclaimed. There is a potential for small rodent burrows to be crushed or removed during construction, which may include pale and dark kangaroo mice burrows. In order to offset potential impacts to the sensitive kangaroo mice, the Well Field ROW POD included the following environmental protection measure (Appendix B).

- **120 kV Powerline ROW EPM:** If pale or dark kangaroo mouse habitat is disturbed, NV Energy would reseed the disturbed areas with a BLM-approved seed mix.

Preble's shrew – Approximately 449 acres (231 acres of private land and 218 acres of public land) of the Powerline Project Area has potentially suitable habitat for Preble's shrew, of which the majority was rated to have low potential to support the species. This represents 22 percent of the Powerline Project Area. A total of 25 acres of potential Preble's shrew habitat may be disturbed from the activities associated with the 120 kV

Powerline ROW (5 percent of the available habitat). The disturbance would include approximately 2.1 acres of public land and no disturbance on private land of high potential habitat, approximately 4.4 acres of public land and approximately 1.6 acres of private land of moderate potential habitat, and approximately 9.3 acres of public land and approximately 7.6 acres of private land of low potential habitat. There is not an anticipated reduction in the viability of a potential population because there is similar habitat within close proximity to the Powerline Project Area. In order to offset potential impacts to Preble's shrew, the 120 kV Powerline ROW POD included the following environmental protection measure (Appendix B).

- **120 kV Powerline ROW EPM:** If Preble's shrew habitat is disturbed, NV Energy would reseed the disturbed area with a BLM-approved seed mix.

Sensitive Insect Species

Rice's blue butterfly is the only sensitive insect species identified to have the potential to occur within the Powerline Project Area and species specific impacts are discussed below.

Rice's blue butterfly – Approximately 375 acres (189 acres of public land and 186 acres of private land) or 19 percent of the 120 kV powerline area is Rice's blue butterfly habitat, and it is assumed Rice's blue butterfly is present within these habitat areas. The powerline would disturb approximately 13.2 acres of public land and approximately 15.4 acres of private land of the Rice's blue butterfly habitat. Direct impacts to the Rice's blue butterfly would include crushing of the species and the potential removal of the host plant during construction. If the host plant is removed, the direct impacts would be the abandonment of the area by the Rice's blue butterfly and loss of habitat. An additional 38.29 acres Rice's blue butterfly habitat on public land and approximately 30 acres of Rice's blue butterfly habitat on private land would be temporarily disturbed. These areas would be immediately reclaimed upon completion of construction activities. In order to offset potential impacts to Rice's blue butterfly, the 120 kV Powerline ROW POD included the following environmental protection measure (Appendix B).

- **120 kV Powerline ROW EPM:** If Rice's blue butterfly habitat is disturbed, NV Energy would reseed the disturbed areas with host plant seeds (*Eriogonum* spp. and *Oxytheca* spp.).

Sensitive Plant Species

Sensitive plant species observed in the Powerline Project Area included Tonopah milkvetch, Crosby's buckwheat, Nevada oryctes, Lahontan (scented) beardtongue, and sand cholla. The Proposed Action incorporates measures to avoid all known populations of sensitive plants as described below.

- **120 kV Powerline ROW EPM:** Special status plants identified during baseline surveys would be flagged prior to land disturbance activities beginning and avoided.

In order to increase the effectiveness of the environmental protection measure for sensitive plants in the Powerline Project Area, the following mitigation measure is recommended.

- **Recommended Mitigation Measure:** Based on the types of anticipated disturbance in the Powerline Project Area, a minimum of 25-foot buffer with flagging should be placed around the special-status plant species (Tonopah milkvetch, Crosby's buckwheat, Nevada oryctes, Lahontan beardtongue, and sand cholla) detected during baseline surveys. Flagging should be removed when no longer deemed necessary.

Residual Impacts

Residual impacts to special status plants and wildlife would be the loss of habitat associated with the installation of powerline facilities (power poles, the Dun Glen Substation, and access roads) that would be maintained following the end of the mine life to serve other future users. The area of disturbance, however, would be limited to approximately a total of 108.6 acres (84.24 acres on public land and 24.42 acres on private land). The remaining approximately 1,866 acres within the Powerline Project area would have available habitat for these special status species to utilize.

Summary of Proposed Action

Under the Proposed Action, the Project design features, environmental protection measures, and recommended mitigation measures would minimize impacts to special status species. A total of approximately 698.1 acres of potential sensitive species habitat (515.5 acres on public land and 182.6 acres on private land) would be disturbed accounting for approximately three percent of the total project area. However, 438.5 acres would be temporary disturbance from construction activities and would be reclaimed after construction. Not all of the disturbed acreage would be suited for individual sensitive species, but this represents the maximum disturbance that any one species would be subject to.

No Action Alternative

Under the No Action Alternative, the total amount of authorized disturbance would remain at 5,982 acres. The total amount of potential sensitive habitat disturbed would not occur all at one time due to incidental mining and exploration and interim reclamation. The No Action Alternative would result in a net loss of potential sensitive species habitat, but it is not anticipated to contribute to a loss of viability for any particular sensitive species because most mining activity would be concentrated near areas already disturbed and extensive similar habitat is available adjacent to the Mine Project Area. It is unlikely the No Action Alternative would result in a decline in local or regional migratory bird populations. Impacts would be similar to but less than the impacts under the Proposed Action. A thorough analysis of the potential impacts to individual special status species under the No Action Alternative is included in Section 3.14 of the EIS (BLM 2012a).

The BLM would not grant the ROW applications, and the well field would not be developed. Disturbance within the Well Field Project Area would be limited to disturbance associated with the Notice-level water exploration activities (less than 5 acres), and these areas would be reclaimed. Potential habitat would temporarily be affected up to 5 acres, but would be reclaimed.

NV Energy would maintain the existing Dun Glen Substation, the powerline and poles (from I-80 to Dun Glen Substation and section along Jungo Road) and access roads, which may result in temporary disturbance to special status species during maintenance activities.

Residual Impacts

The No Action Alternative would result in the unavoidable loss of up to 441 acres of habitat within the Mine Project Area resulting from surface disturbance in the Brimstone open pit area that would not be backfilled or reclaimed. This may result in an increase in cliff nesting habitat for raptors. Approximately 5,541 acres of habitat would be removed in during the life of the mine and then reclaimed. The reclaimed land would have more grass and forb forage and less mature shrub forage in the short term, which may result in a shift of avian species use within these areas. As the plant communities within the Mine Project Area mature larger shrubs may provide additional cover and nesting opportunities, similar to existing conditions.

4.1.9 Transportation, Access, and Public Safety

Proposed Action

Plan Modification

The Plan Modification would result in an increase of 269 employees to the Hycroft Mine workforce. In an effort to minimize impacts to local roads, HRDI would continue to provide buses to transport employees to and from Winnemucca. HRDI would add the following traffic to Jungo Road: two additional buses would be added at four round trips per day totaling 16 ADT. HRDI is not anticipating any increase in other vehicle traffic: personal vehicles, delivery/vendor trucks, or company vehicles under the Proposed Action. The ADT identified in the EIS in Section 3.15.3.3.1 would not increase (BLM 2012a).

Under the Plan Modification, the Hycroft Mine would continue to utilize the same road network, and there would be no additional public roads constructed. Main public access routes to areas near and beyond the Mine Project Area would remain open and available throughout the life of the mine. Impacts to transportation and access under the Plan Modification would be minimized by the continued implementation of bus transportation for employees, public safety measures (reduced speeds and traffic signals) and use of the rail spur to transport hazardous materials; therefore, the transportation and access resource are not further analyzed.

The majority of impacts to public safety would result from potential accidents with carriers of hazardous materials along Jungo Road. The construction of the rail spur facilities would result in a decrease in overall vehicle trips. There would be a temporary increase in truck deliveries until the rail spur would be 100 percent operational. Table 4.1-7 shows the increase and decrease of anticipated vehicle trips that would result from the construction of the rail spur, including the temporary increase.

The total number of anticipated deliveries per year under the existing conditions is 4,686. Under the Plan Modification, the total proposed deliveries per year via truck would be reduced to 3,852 once the rail spur was 100 percent operational. This equates to an 18 percent decrease in truck traffic.

Table 4.1-7: Projected Hazardous Material Types and Transport Levels on Jungo Road

Fuel/Reagent	Truck Deliveries Per Month Prior to Rail Spur Operation			Truck Deliveries per month with Rail Spur 100% Operational
	Existing	Proposed	Total	
Off-road Diesel Fuel	95	167	262	2
Unleaded Gasoline	4	6	10	10
Motor Oil	18	52	70	2
Antifreeze	0.5	1.5	2	2
Propane	6	8	14	14
Sodium Cyanide	101	111	212	212
Prill	38	28	66	66
Flocculent	0	0 ³	0	1
Froth	0	0 ³	0	2
PAX	0	0 ³	0	6
Lime	120	446	566	3
Antiscalant	8	14	22	1
Total Truck Deliveries per month	390.5	833.5	1,224	321

Table 4.1-9 identifies the current number and proposed number of truck deliveries and anticipated accidents for current and proposed traffic volumes based on the accident rate statistics from Federal Motor Carrier Safety Administration (FMCSA).

Table 4.1-8: Estimate of Annual Number of Spills Resulting from Truck Accidents

Condition	Substance	Total Truck Deliveries Per Year	One-Way Haul Distance (miles)	Accident Rate Per Million Miles Traveled	Calculated Number of Accidents Per Year	Probability of Release Given an Accident	Calculated Number of Spills Per Year
Existing Deliveries	Hazardous Substances	4,686	50	0.36	0.10	17%	0.017
Proposed Deliveries	Hazardous Substances	3,852	50	0.36	0.07	17%	0.012

Source: FMCSA 2001

There would be a reduction in the number of anticipated accidents under the Proposed Action. HRDI would also maintain the same environmental protection measures as identified in the EIS, Sections 2.2.15.4 and 5.1.2, Hazardous Materials Management (BLM 2012a), which were included in the ROD for the EIS. The ROD is included in Appendix A of this EA.

The use of the rail spur, however, would result in the potential for additional vehicle collisions because the materials would be transported to the mine site via pipe or truck on an access road located in the proposed utility corridor. The proposed utility corridor would cross Jungo Road. The anticipated truck trips are included in the calculations provided in Table 4-1.8 and are

included in the potential for accidents/spills identified in Table 4.1-9. To minimize accidents, HRDI would implement traffic control measures. Access road traffic would come to a complete stop prior to crossing Jungo Road and would maintain a 10 mile per hour speed limit within 500 feet of the crossing. In addition, warning signs and reduced speed limits would be posted on Jungo Road within 1,500 feet of the crossing.

Residual Impacts

There would be no residual impacts resulting from the Proposed Action.

No Action Alternative

Under the No Action Alternative, HRDI would not construct the rail spur and expand mining and processing operations. HRDI would maintain its existing level of employment, 537 employees, and existing level of truck deliveries and employee transportation. The traffic impacts along Jungo Road would be greater than the Proposed Action because there would be no reduction in traffic trips on Jungo Road.

Residual Impacts

There would be residual impacts under the No Action Alternative to transportation, access, and public safety because vehicles associated with reclamation activities would continue to use access roads after the Hycroft Mine ceases operating. Jungo Road would also remain open for general public use.

4.1.10 Vegetation

Proposed Action

Plan Modification

Activities in the Plan Modification would disturb approximately 73 acres of vegetation within the Mine Project Area all on public land. The majority of the new disturbance is located in the rail spur area and is within the Shadscale-Bailey's Greasewood community (46.9 acres). The disturbance in each vegetation community and percentage within the Mine Project Area are summarized in Table 4.1-9.

Reclamation and revegetation activities are outlined in Section 2.1.1 of this EA. Reclamation and revegetation activities would be in conformance with the BLM and State of Nevada Reclamation regulations. HRDI would reclaim the disturbance in the Mine Project Area in conformance with the Hycroft Mine Plan Modification. Reclamation and revegetation would minimize the direct impacts to the vegetation communities within the Mine Project Area.

Table 4.1-9: Vegetation Communities Affected by the Proposed Action - Mine Project Area

Vegetation Community, Association, or Coverage Classification	Proposed Disturbance within Mine Project Area (acres)
Bailey's Greasewood	0
Bailey's Greasewood-Desert Scrub	1.4
Shadscale Saltbrush	0
Black Greasewood	1
Wyoming Sagebrush	5.1
Bailey's Greasewood-Wyoming Sagebrush	2.8
Black Greasewood-Bailey's Greasewood	2.3
Shadscale-Bailey's Greasewood	46.9
Shadscale-Wyoming Sagebrush	1.9
Badlands	0.5
Rock outcrop	0
Mostly Bare	11.1
Disturbed	0
Devoid of Vegetation	0
Total Acres (Public Land)	73

Indirect effects to vegetation would include particulate deposition on the vegetation communities from mining activities, in addition to vehicular traffic, within the Mine Project Area. Deposition could result in lowered primary production in plants due to reduced photosynthesis and decreased water-use efficiency. The potential effects on vegetation from dust would be reduced by wind and periodic precipitation, which would remove accumulated dust. In addition, HRDI would continue to implement the dust abatement measures identified in Sections 2.2.15.1 and 5.1.2 of the EIS (BLM 2012a), which were incorporated into the ROD for the EIS. The ROD is included in Appendix A of this EA.

Vegetation removal and subsequent reclamation efforts would result in plant community simplification and the conversion from a shrub-dominated community to a grass/forb-dominated community during activities conducted over the 17-year life of the Hycroft Mine. Once established, shrub species may become dominant within three to five years, depending on precipitation and growth media characteristics. Although the structure of the vegetation would be temporarily modified, the reclaimed plant community is expected to produce adequate cover to stabilize the site and provide forage for use by livestock and wildlife in the long term, thereby meeting reclamation goals.

Residual Impacts

Residual impacts to vegetation would include the permanent loss of vegetative productivity from up to 792 acres of land associated with open pits that may not be backfilled or reclaimed. In addition, and a long-term change in vegetation composition of 73 acres (i.e., shrub dominated communities to grass and forb dominated communities) as a result of the Plan Modification.

Well Field ROW

The well field would include direct impacts of permanently disturb approximately 78 acres within the vegetation communities identified in the well field area. An additional 32.5 acres would be temporarily disturbed from construction activities. The final location of the well field facilities (underground pipeline, powerline, access roads, wells and pump houses) would be determined during final design. The two dominant vegetation communities within the Well Field Area, Annual Grassland and Shadscale-Bailey's Greasewood-Annual Grassland, are anticipated to have the most disturbance. The proposed well field facilities are dispersed and it is not anticipated that they would eliminate an entire community from the project area. In addition, no rare or sensitive vegetation communities would be disturbed from the Well Field ROW activities.

The temporarily disturbed areas would be reclaimed and reseeded upon the completion of construction activities. The permanently disturbed areas would be reclaimed and reseeded at the end of the life of the well field, approximately 17 years. Reclamation and reseeded would be conducted as described in Section 2.1.1 of this EA. The seed mixture would provide forage and cover species similar to the pre-disturbance conditions. Adjacent areas with the same vegetation communities would aid

Vegetation removal and subsequent reclamation efforts would result in plant community simplification and the conversion from a shrub-dominated community to a grass/forb-dominated community during activities conducted over the 17-year life of the well field. Once established, shrub species may become dominant, depending on precipitation and growth media characteristics. Although the structure of the vegetation would be temporarily modified, the reclaimed plant community is expected to produce adequate cover to stabilize the site and provide forage for use wildlife in the long term, thereby meeting reclamation goals.

120 kV Powerline ROW

Direct impacts to vegetation would include permanent disturbance to approximately 108.6 acres (24.42 acres on private land and 84.24 acres on public land) and temporary construction disturbance of approximately 406 acres (approximately 247.8 acres of disturbance on private land and 158.2 acres of disturbance on public land) within Powerline Project Area. NV Energy would maintain the powerline, Centerline Travel Route, and Dun Glen Substation for other users after the Hycroft Mine ceases operating. The final pole placement and facility placement would be determined during final design and may be adjusted in the field to avoid sensitive resources, such as riparian or wetland vegetation communities. Therefore, the exact amount of disturbance in each vegetation community present within the Powerline Project Area listed in Table 3.11-3 can not be quantified. No rare plant communities were observed within the Powerline Project Area and sensitive vegetation communities would be avoided.

The temporarily disturbed areas would be reclaimed after completion of construction activities. Construction sites, pull sites, staging areas, and other temporary disturbance would be reclaimed after the use of these areas would no longer be needed. Areas within the ROW disturbed by construction activities would be recontoured, decompacted, and seeded. Reclamation activities would be in compliance with BLM and State of Nevada standards, and would be performed as identified in environmental protection measures included in Appendix B of this EA.

Residual Impacts

Residual Impacts would include the removal of approximately 108.6 acres (24.42 acres on private land and 84.24 acres on public land) for the construction of facilities NV Energy would maintain the powerline, access roads, and Dun Glen Substation for other users after the Hycroft Mine ceased operating. The permanent removal of vegetation would reduce available habitat for wildlife and grazing areas, but the footprint of this disturbance is dispersed in nature over the 54.3-mile alignment.

No Action Alternative

Under the No Action Alternative, HRDI would continue existing mining operations as previously authorized which include 5,982 acres of authorized disturbance (1,768 acres on private land and 4,214 acres on BLM-administered land) within the Mine Project Area. Under the No Action Alternative, mining activities and vehicular traffic would continue to indirectly affect vegetation by increasing the amount of airborne particulate deposition onto vegetation surfaces. Deposition could result in lowered primary production in plants due to reduced photosynthesis and decreased water-use efficiency. The potential effects on vegetation from dust would be reduced by wind and periodic precipitation, which would remove accumulated dust. In addition, HRDI would continue to implement the dust abatement measures identified in Sections 2.1.15.1 and 5.1.2 of the EIS (BLM 2012a), which were incorporated into the ROD for the EIS. The ROD is included in Appendix A of this EA.

The direct and indirect impacts under the No Action Alternative would, therefore, be similar but less than the impacts under the Proposed Action.

Residual Impacts

Under the No Action Alternative, approximately 441 acres associated with the Brimstone open pit would not be backfilled or reclaimed. A change in vegetation compositions (i.e., tree and shrub dominated communities to grass and forb dominated communities) would result from the authorized disturbance. A conversion from a shrub-dominated community to a grass/forb-dominated community would result from the activities within the No Action Alternative.

Disturbance to vegetation communities within the Well Field Project Area would be limited to the existing Notice-level disturbance conducted by HRDI of up to five acres. These areas would be reclaimed so no residual impacts would result other than the modified vegetation structure until it has reestablished following reclamation.

The existing infrastructure and disturbance (existing powerline from I-80 to Dun Glen, the Dun Glen Substation, and the powerline adjacent to Jungo Road) would be maintained which may require some clearing of vegetation other indirect impacts to vegetation.

The residual impacts to vegetation under the No Action Alternative would be similar to but less than residual impacts under the Proposed Action.

4.1.11 Water Quantity

Proposed Action

Plan Modification and Well Field ROW

The effects of Plan Modification and Well Field ROW are discussed together because they jointly affect this resource.

Impacts for water resources include changes to ground water flows or quantity. Direct impacts to ground water quantity would result from the amount of ground water present in the aquifer as it is drawn down for use as a water source. Indirect impacts to ground water quantity would result from activities that modify the areas or sources that recharge the ground water system. Information on the impacts to ground water quantity was derived from work conducted by HDR to model the predictive effects of well field activities (HDR 2013a and 2013b).

The Hycroft Mine currently obtains water for industrial processing from two production wells located approximately four miles west of the Hycroft Mine site. HRDI is currently authorized to extract an annual average rate of 6,500 gpm from these wells based on the EIS analysis (BLM 2012a), but authorized with the State Engineer to extract up to an average of 12,760 gpm of water rights. Under the Proposed Action, HRDI would operate up to 11 new production wells, together with the existing production wells and potable well, to supply an annual average of between 5,370 and 12,760 gpm of water over the 17-year life of the Hycroft Mine. This represents an average increase of 400 gpm over the life of the mine above the currently authorized 6,500 gpm. Water consumption would be greatest during the first five years of the Hycroft Mine and decrease thereafter.

As stated above, the existing authorizations allow for pumping to an annual average rate of 6,500 gpm of ground water use over the life of the Hycroft Mine, and therefore, this rate forms the baseline condition for the Proposed Action. The Proposed Action would increase pumping to an average rate of 6,900 gpm; therefore, the net effect of the Proposed Action is an additional 400 gpm of ground water use over the current 6,500 gpm for the life of the Hycroft mine, versus the effects of no pumping.

HDR (2013b) modeled the effects of pumping an annual average rate of 5,370 to 12,870 gpm over the 17-year life of the Hycroft Mine. Prior to modeling the effects of proposed pumping increases, the model was calibrated to an existing condition representing current authorized ground water usage at the Hycroft Mine. The effect of well field pumping on regional ground water levels was modeled for a 200-year period (17 years of pumping, followed by 183 years of recovery). Pumping would occur at an average rate of 6,900 gpm over the 17-year life of the Hycroft Mine, plus an additional five years for reclamation activities, with individual rates for each year varying depending on the quantity required for operations. Table 4.1-10 identifies the pumping rate for the life of the Hycroft Mine.

Table 4.1-10: Estimated Pumping Rate for the Well Field

Year	PW-2	PW-3	PW-5 (MW-C)	PW-7 (MW-I)	PW-8 (MW-M)	PW-10 (MW-H)	PW-11 (MW-O)	PW-12 (MW-P)	PW-13 (MW-Q)	PW-14 (MW-U)	Total Pumping Rate (gpm)
2014	2,000	2,000	1,000	1,000	1,667	0	0	0	0	0	7,667
2015	2,000	2,000	1,000	1,000	2,500	2,500	1,000	870	0	0	12,870
2016	2,000	2,000	1,000	1,000	2,500	2,320	0	0	0	0	10,820
2017	2,000	2,000	1,000	1,000	2,500	2,320	0	0	0	0	10,820
2018	2,000	2,000	1,000	1,000	2,500	1,500	995	0	0	0	10,995
2019	2,000	2,000	1,000	370	0	0	0	0	0	0	5,370
2020	2,000	2,000	1,000	370	0	0	0	0	0	0	5,370
2021	2,000	2,000	1,000	370	0	0	0	0	0	0	5,370
2022	2,000	2,000	1,000	370	0	0	0	0	0	0	5,370
2023	2,000	2,000	1,000	370	0	0	0	0	0	0	5,370
2024	2,000	2,000	1,000	370	0	0	0	0	0	0	5,370
2025	2,000	2,000	1,000	370	0	0	0	0	0	0	5,370
2026	2,000	2,000	1,000	370	0	0	0	0	0	0	5,370
2027	2,000	2,000	1,000	370	0	0	0	0	0	0	5,370
2028	2,000	2,000	1,000	370	0	0	0	0	0	0	5,370
2029	2,000	2,000	1,000	370	0	0	0	0	0	0	5,370
2030	2,000	2,000	1,000	370	0	0	0	0	0	0	5,370

Source: HDR 2013b

The model results show that at the end of pumping, there is approximately 25 feet of drawdown in the confined aquifer, the major water-bearing zone, and 15 feet of drawdown in the unconfined aquifer. The isoline representing one foot of drawdown for both aquifers is between seven and eight miles from the center of the cone of the depression. Drawdown of ground water beyond the one foot isoline in the playa and artesian spring system located in the western arm of the playa is not expected.

The model uses ground water recharge rates from infiltration from long-term, steady-state precipitation and runoff. Direct surface infiltration from acute wet periods such as flooding was not accounted for in aquifer recharge. As a result, the model presents a conservative recharge scenario.

Ground water levels begin to recover immediately after the cessation of pumping. In the immediate area of the well field, 75 percent recovery is anticipated 25 years after the cessation of pumping. In areas distal to the immediate well field, 75 percent recovery is expected after 100 years. Model results indicate that full recovery of the aquifers is expected 175 years after the cessation of pumping. Overall recharge rates of the aquifers are not expected to change under pumping conditions; the net effect of pumping is to temporarily remove water from storage in the aquifers.

Residual Impacts

Residual impacts associated with the operation of the well field consist of a decrease in the ground water elevation in both aquifers for up to 175 years.

No Action Alternative

Under existing production wells would continue to be operated up to the current authorized quantity of an average of 6,500 gpm. However, HRDI owns additional water rights and may choose to increase this rate with additional permitting and authorizations.

4.1.12 Wildlife

Proposed Action

Plan Modification

The Plan Modification would result in 73 acres of wildlife habitat being removed disturbed within the Mine Project Area. The removal of this vegetation would directly affect wildlife species by removing or altering available habitat. The disturbance would be reclaimed at the end of operations. Wildlife may be displaced by activities, but would likely shift spatially into adjacent available habitat. There is similar habitat within and adjacent to the Mine Project Area where mobile wildlife could relocate. Activities described in the Hycroft Mine Monitoring Plan would continue to be implemented under the Proposed Action, including bird netting and fence installation to prevent wildlife access into mine ponds and monitoring on a routine schedule to check for breaches. The process water ponds are monitored on a daily basis for the condition of the wildlife exclusion features and the presence of mortalities.

Direct impacts to general wildlife and game species as a result of the Plan Modification are not quantifiable. Some individuals may be directly impacted either positively or negatively, but due to the available habitat in adjacent areas, no impacts to regional populations are anticipated to result from the Plan Modification. The construction of the rail spur would decrease the amount of truck deliveries and traffic which has the potential to reduce the number of wildlife collisions on access roads.

Indirect impacts to wildlife may include disturbance from human activity and noise. However, the existing operations at the Hycroft Mine and the existing UPRR railroad line serve as the basis to measure the Proposed Action. The operation of the rail cars on the rail spur may create additional noise within the rail spur area. The increased noise for the trains, however, would be offset by the reduction in truck-generated noise since the trains would replace a number of weekly truck trips. Therefore, these impacts would be incremental in nature compared to the existing conditions.

Residual Impacts

The Plan Amendment would result in 73 acres of wildlife habitat being removed but these areas would be subject to reclamation following mine closure. The reclaimed area would have more grass and forb forage and less mature shrub forage. The Plan Modification would also result in the removal of up to 792 acres of wildlife habitat resulting from open pit areas that may not be backfilled or reclaimed. However, this may increase raptor nesting habitat.

Well Field ROW

The Well Field ROW would result in disturbance of up to 110.5 acres of wildlife habitat, of which 32.5 acres would be reclaimed immediately following construction. Construction and operation of the well field would directly affect wildlife habitat through the removal of vegetation in the areas proposed for surface disturbance. All disturbance is subject to reclamation and revegetation and would be seeded with the BLM-approved seed mix that includes native seeds or plants that are comparable with native soils located in the well field area and include forb and shrub species to provide forage for wildlife.

Wildlife displaced by well field activities would likely shift spatially into adjacent available habitat. There is similar habitat adjacent to the well field area where wildlife displaced by well field project-related disturbance could relocate. Once construction of the well field is completed, human presence would be infrequent. HRDI employees would visit the site to monitor the structures and make any necessary repairs.

Residual Impacts

Approximately 78 acres of wildlife habitat would be removed and would not be reclaimed until the well field was decommissioned. Once the well field facilities were removed, the area would be reclaimed. The reclaimed land would have more grass and forb forage and less mature shrub forage until the succession of the vegetation communities. Browsers would benefit the most from the early seral stage vegetation in the short term. As the plant communities within the well field area mature larger shrubs may provide additional cover and functionality for a greater variety of species.

120 kV Powerline ROW

In general, the 120 kV Powerline ROW component of the Proposed Action would result in disturbance of approximately 514.6 acres of habitat, of which 406 acres would be related to construction disturbance and would be reclaimed immediately following construction of the powerline. The proposed alignment crosses a variety of habitats supporting a wide variety of wildlife species.

Direct and indirect impacts may include temporary displacement from suitable habitats during construction activities, a small increase in habitat fragmentation, and loss of a small amount of habitat due to the proposed ten-foot wide Centerline Travel Route and pole installation sites. In addition, some fossorial and/or slow moving animals may be harmed or lost during ground disturbance. Direct impacts to individual general wildlife and game species as a result of the 120 kV powerline are not quantifiable. Some individuals may be directly impacted either positively or negatively, but due to the available habitat in adjacent areas, no impacts to regional populations are anticipated but there is a potential as a result from the 120 kV Powerline ROW. The combination of the common nature of the habitats in the Powerline Project Area, the adaptability of many of the typical wildlife species known to occur, reclamation of the temporarily disturbed areas, and all other factors being equal, it is projected that post-construction populations of habitat use by common wildlife and game species would be approximately equal to pre-construction powerline populations and habitat use.

Residual Impacts

Residual impacts would result from the permanent placement of facilities within the Powerline Project Area totaling up to 108.6 acres. Ongoing operations and maintenance activities to the powerline may cause short-term and limited disturbance to wildlife during these routine activities, but would represent an ongoing disturbance regime. However, existing powerlines in the vicinity of the 120 kV Powerline ROW are currently being maintained and have already established this type of disturbance to wildlife in the area.

Summary of Proposed Action

Under the Proposed Action, the Project design features, environmental protection measures for sensitive species would minimize impacts to general wildlife species. A total of approximately 698.1 acres of wildlife habitat (515.5 acres on public land and 182.6 acres on private land) would be disturbed accounting for approximately three percent of the total project area. However, 438.5 acres would be temporary disturbance from construction activities and would be reclaimed after construction. Disturbance related to mining operations in the Mine Project Area and Well Field Project area would be an incremental increase over existing conditions and the same with regard to powerline operations and maintenance activities.

No Action Alternative

Under the No Action Alternative, HRDI would continue to operate the existing Hycroft Mine, which would continue to directly and indirectly affect wildlife. Approximately 5,982 acres of habitat would be disturbed over the life of the mine (17 years). Wildlife would continue to be displaced under the No Action Alternative because the mine activities would continue. Wildlife

displaced by the No Action Alternative activities would likely shift spatially into adjacent available habitat. A complete analysis of the impacts to wildlife under the No Action Alternative is in Section 3.18.3 of the EIS (BLM 2012a).

Under the No Action Alternative, HRDI could continue their Notice-level exploration activities in the Well Field Project Area and disturb up to 5 acres of which all would be reclaimed. The impacts under the No Action Alternative are similar to but less than the Proposed Action.

Under the No Action Alternative, NV Energy would continue to operate and maintain the existing Dun Glen Substation and existing powerlines. No new disturbance other than related to operations and maintenance would occur. The direct effects to wildlife discussed in the Proposed Action would not occur under the No Action Alternative. The indirect effects to wildlife from the No Action Alternative would be similar to but less than the Proposed Action.

Residual Impacts

The continuation of mining activities under the No Action Alternative would result in a maximum of 5,982 acres of disturbance, including 441 acres from the Brimstone open pit that would not be backfilled or reclaimed. This would result in short-term removal of wildlife habitat, which would be reclaimed as a result of mine development, operation, and closure. The reclaimed land would have more grass and forb forage and less mature shrub forage in the short term. Browsers would benefit the most from the early seral stage vegetation in the short term. As the plant communities within the reclaimed area mature larger shrubs may provide additional cover for larger animals. Impacts, therefore, would be similar to but less than impacts under the Proposed Action.

4.2 Cumulative Impacts

For the purposes of this EA, the cumulative impacts are the sum of all past, present (including the Proposed Actions), and reasonably foreseeable future actions (RFFAs) resulting primarily from mining and mineral exploration, ROW construction and maintenance, commercial activities, and public uses. The purpose of this cumulative analysis in this EA is to evaluate the the Proposed Actions and No Action Alternatives contributions to the cumulative environment. A cumulative impact is defined under federal regulations 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. Cumulative impacts can result from individual minor but collectively significant actions taken place over a period of time” (40 CFR 1508.7).

The extent of the CESA would vary with each resource, based on the geographical or biological limits of that resource. As a result, the list of projects considered under the cumulative analysis varies according to the resource being considered. In addition, the length of time for cumulative effects to occur would vary according to the duration of impacts from each Proposed Action on the particular resource.

For the purposes of this analysis and under federal regulations, ‘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 the CESA for each resource to be evaluated in this chapter.

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

Step 3: Identify and quantify the location of potential specific impacts from the three Proposed Actions and Connected Action and compare these contributions to the overall impacts.

Step 4: Evaluate the combined effects of the information and data identified within each CESA as it relates to the resources brought forward for cumulative impact analysis.

Assumptions for Cumulative Analysis

Direct and indirect environmental consequences of the Proposed Action and the No Action Alternative were evaluated in Sections 4.1 through 4.1.12 for the various environmental resources. These resources have been brought forward for cumulative impact analysis. The three components of the Proposed Action are considered together in this analysis.

The supplemental authority element, Native American Religious Concerns, was not brought forward into cumulative analysis as any issues or impacts have not been identified to date in association with the Proposed Action. Consultation is ongoing and would be conducted for the treatment plan component of the Proposed Action.

Transportation, Access, and Public Safety was not brought forward for detailed cumulative analysis as the construction of the rail spur under the Proposed Action would reduce traffic volumes on roads and environmental protection measures would address public safety issues. The cumulative impact resulting from the Proposed Action would have a beneficial and positive cumulative impact on traffic volumes and safety. The No Action Alternative would have no cumulative effect as the current traffic volumes under the No Action Alternative represent baseline conditions.

Description of CESA Boundaries

The geographical areas considered for the analysis of cumulative effects vary in size and shape to reflect each evaluated environmental resource and the potential area of impact. The descriptions of the CESA boundaries for the Plan Modification, Well Field ROW, and 120 kV Powerline ROW are described in Table 4.2-1. The CESA boundaries are shown on Figures 11 and 12.

Table 4.2-1: Cumulative Effects Study Areas by Resource

Resource	CESA Description	CESA Name	Size of CESA (acres)	Figure Reference
Plan Modification				
Air Quality	50-kilometer radius around the Hycroft Mine fence	Mine Air Quality CESA	2,208,582	Figure 11
Cultural Resources	An area surrounding the Mine Project Area and Well Field Project Area, encompassing the historic town of Sulphur and a portion of the Applegate Trail	Cultural CESA (Mine and Well Field)	71,449	Figure 11
Migratory Birds Soils Special Status Plant Species Vegetation Water Quantity Wildlife (General)	Devil’s Corral HUC 5 Watershed plus a one-mile buffer around the Well Field Project Area	Mine and Well Field Other Resources CESA	129,107	Figure 11
Social Values and Economics	Humboldt County	Social Values and Economics CESA	6,210,560	No Figure
Special Status Wildlife Species	A four-mile buffer around the Mine Project Area and Well Field Project Area, and a portion of the Majuba greater sage-grouse PMU	Special Status Wildlife CESA (Mine and Well Field)	150,652	Figure 11
Vegetation	Black Rock Desert Hydrographic Basin	Mine Vegetation CESA	1,389,498	Figure 11
Well Field ROW				
Cultural Resources	An area surrounding the Mine Project Area and Well Field Project Area encompassing the historic town of Sulphur and a portion of the Applegate Trail	Cultural CESA (Mine and Well Field)	71,449	Figure 11
Migratory Birds Soils Special Status Plant Species Vegetation (Well Field Only) Water Quantity Wildlife (General)	Devil’s Corral HUC 5 Watershed plus a one-mile buffer around the Well Field Project Area	Other Resources CESA (Mine and Well Field)	129,107	Figure 11
Special Status Wildlife Species	A four-mile buffer around the Mine Project Area and Well Field Project Area, and a portion of the Majuba greater sage-grouse PMU	Special Status Wildlife CESA (Mine and Well Field)	150,652	Figure 11

Resource	CESA Description	CESA Name	Size of CESA (acres)	Figure Reference
120 kV Powerline ROW				
Cultural Resources	A one-mile buffer around the proposed powerline	Powerline Cultural CESA	123,670	Figure 12
Migratory Birds Noxious Weeds, Invasive and Nonnative Species Special Status Species Vegetation Wildlife (General)	A four-mile buffer around the Powerline Project Area	Powerline CESA	296,425	Figure 12

4.2.1 Past and Present Actions

On the basis of aerial photographic data, the BLM's Land and Mineral Legacy Rehost 2000 System (LR2000) database (which records lands and mineral actions) reports ran in January 2014, agency records, and current agency Geographic Information Systems (GIS) records and analysis, the following past and present actions, which have impacted resources within the CESAs to varying degrees, have been identified and are discussed in the following sections.

Mineral Exploration and Mining

The BLM's LR2000 database was queried for mineral exploration or mining activities (Notices and plans of operation) in the CESAs (with resources potentially affected by surface disturbance) by section, Township, and Range. Past and present mineral exploration and mining activities within the CESAs include the following: mining and exploration plans of operation, exploration Notices, mineral material disposal sites, and community material pits. The LR2000 database was queried on January 29, 2014, for the CESAs. Table 4.2-2 is a summary of the past and present mineral activities within each CESA.

Table 4.2-2: Past and Present Mining and Mineral Exploration Disturbance in the CESAs

CESA	Type	Total Acres of Disturbance
Mine Air Quality CESA	Notices	657
	Plans of Operation	18,817
	Mineral Material Disposal Sites	453
	Mine Air Quality CESA Total	19,927
Mine Vegetation CESA	Notices	34
	Plans of Operation	12,946
	Mineral Material Disposal Sites	210
	Mine Vegetation CESA Total	13,190

CESA	Type	Total Acres of Disturbance
Cultural CESA (Mine and Well Field)	Notices	11
	Plans of Operation	12,946
	Mineral Material Disposal Sites	0
	Cultural CESA Total	12,957
Special Status Wildlife CESA (Mine and Well Field)	Notices	15
	Plans of Operation	12,946
	Mineral Material Disposal Sites	5
	Special Status Wildlife CESA Total	12,966
Mine and Well Field Other Resources CESA	Notices	17
	Plans of Operation	12,946
	Mineral Material Disposal Sites	0
	Other Resources CESA Total	12,963
Powerline Cultural CESA	Notices	10
	Plans of Operation	12,946
	Mineral Material Disposal Sites	667
	Powerline Cultural CESA Total	13,623
Powerline CESA	Notices	15
	Plans of Operation	12,946
	Mineral Material Disposal Sites	749
	Powerline CESA Total	13,710

Source: BLM 2014

Rights-of-Way

The LR2000 database was used to query the various types of ROWs that have been applied for or approved in the CESAs by section, Township, and Range, and section include the following: roads and highways; railroads; power transmission facilities; communication sites; telecommunications; irrigation/water facilities; oil and gas pipelines; wind generation facilities; and other ROWs. The acreage of surface disturbance associated with these ROWs cannot be precisely 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. In addition, certain types of ROWs can fragment habitat or create barriers or hazards for wildlife passage. The LR2000 database was queried on January 29, 2014. The approximate acreage of each type of ROW within each CESA is listed in Table 4.2-3.

Table 4.2-3: Past and Present ROW Acreages in the CESAs

ROW Type	Mine Air Quality CESA	Mine Vegetation CESA	Cultural CESA (Mine & Well Field)	Special Status Wildlife CESA (Mine & Well Field)	Mine and Well Field Other Resources CESA	Powerline Cultural CESA	Powerline CESA
Roads and Highways	1,591	1,010	264	264	264	986	986
Railroads	5,648	2,126	1,270	1,270	1,290	3,482	5,515
Power Transmission	1,252	805	47	47	47	786	811
Communication Sites	34	23	19	19	19	19	19
Telecommunications	1,370	1,044	0	210	210	564	564
Irrigation/Water Facilities	5,606	221	40	40	40	5,068	5071
Oil and Gas Pipelines	571	0	0	0	0	571	571
Other	1,591	26	0	0	0	0	0
Total	23,688	5,255	1,640	1,850	1,870	11,477	13,538

Source: BLM 2014

Livestock Grazing and Rangeland Improvements

The grazing allotments located in or that cross the boundaries of each of the CESAs are listed in Table 4.2-4. Table 4.2-5 lists the rangeland improvements located within each of the seven CESAs.

Table 4.2-4: Allotments Located within the CESAs

Allotment	Mine Air Quality CESA	Mine Vegetation CESA	Cultural CESA (Mine and Well Field)	Special Status Wildlife CESA (Mine and Well Field)	Mine and Well Field Other Resources CESA	Powerline Cultural CESA	Powerline CESA
Blue Mountain	X					X	X
Blue Wing – Seven Troughs	X	X	X	X	X	X	X
Bottle Creek	X	X					
Buffalo Hills	X	X					
Coal Canyon – Poker	X						
Deer Creek		X					
Desert Valley	X						
Dyke Hot		X					
Happy Creek		X					
Humboldt House	X						
Humboldt Valley	X					X	X
Jackson Meadows		X					
Jackson Mountains	X		X	X	X	X	X

Allotment	Mine Air Quality CESA	Mine Vegetation CESA	Cultural CESA (Mine and Well Field)	Special Status Wildlife CESA (Mine and Well Field)	Mine and Well Field Other Resources CESA	Powerline Cultural CESA	Powerline CESA
Knott Creek		X					
Majuba	X	X	X	X	X	X	X
Mormon Dan	X						
Old Gunnery Range	X	X	X	X	X		
Paiute Meadows	X	X					
Pine Forest		X					
Prince Royal	X					X	X
Ragged Top	X						
Rodeo Creek		X					
Rye Patch	X						
Sand Dunes	X						X
Soldier Meadows	X	X					
White Horse							X
Wilder- Quinn		X					

Source: BLM 2005

Table 4.2-5: Rangeland Improvements within the CESAs

CESA	Rangeland Improvement Type
Mine Air Quality CESA	Catchments (4); cattle guards (8), corrals (4); developed springs (37); enclosure (1); gates (2); reservoirs (11); troughs (36); wells (12); windmills (11); allotment fences (152 miles); enclosures (6.6 miles); fences (79.5 miles); pipelines (24 miles); private fences (153 miles)
Mine Vegetation CESA	Catchments (5); cattle guards (8); corrals (15); developed springs (29); enclosure (1); reservoirs (21); troughs (26); wells (20); windmills (5); allotment fences (85 miles); enclosures (8 miles); fences (56 miles); pipelines (11 miles); private fences (52 miles)
Cultural CESA (Mine and Well Field)	Corrals (1); developed spring (1); fences (15.1 miles)
Special Status Wildlife CESA (Mine and Well Field)	Corral (1); developed spring (2); well (1); fences (32.6 miles)
Mine and Well Field Other Resources CESA	Corral (1); developed spring (1); well (1); fences (29.3 miles)
Cultural Powerline CESA	Cattle guard (1); corral (1); developed springs (2); well (1); fences (77 miles)
Powerline CESA	Corrals (2); developed springs (4); wells (2); fences (142.4 acres)

Wildland Fires

Wildland fires burned approximately 2.5 acres of the Cultural CESA (Mine and Well Field), approximately 27,441 acres of the 120 kV Powerline Cultural CESA, approximately 22 acres of the Mine and Well Field Other Resources CESA, approximately 56,065 acres of the Powerline CESA, approximately 22 acres of the Special Status Wildlife CESA, and approximately 31,223 acres of the Mine Vegetation CESA between 2000 and 2013 (Figures 11 and 12).

Wildlife and Game Habitat Management

Research and management of big game and wildlife are undertaken by the NDOW and BLM, and may include modification to existing habitat and rangeland facilities. Hunt Units located in or cross the boundaries of each CESA are shown in Table 4.2-6.

Table 4.2-6: Hunt Units within Each CESA

CESA	Hunt Units
Mine Air Quality CESA	012, 014, 034, 035, 041, 042, 043
Mine Vegetation CESA	012, 014, 015, 022, 032, 034, 035, 041, 042
Cultural CESA (Mine and Well Field)	034, 035, 041, 042
Special Status Wildlife CESA (Mine and Well Field)	034, 035, 041, 042
Mine and Well Field Other Resources CESA	034, 035, 041, 042
Powerline Cultural CESA	034, 035, 042, 043, 044
Powerline CESA	034, 035, 041, 042, 043, 044

Dispersed Recreation

Dispersed recreation, such as hunting, rock hounding, wildlife viewing, fishing, primitive camping, and limited off-road vehicle travel, occurs throughout all the CESAs; however, there are no data on the level of use that are quantifiable to use in the analysis.

4.2.2 Reasonably Foreseeable Future Actions

Mineral Exploration and Mining

There are mineral development and exploration RFFAs within the CESAs. Table 4.2-7 shows the number of foreseeable acres of mineral development and exploration activities within each CESA per the pending applications listed in LR2000. There were no proposed material sites or community pits listed in LR2000.

Rights-of-Way

There are pending or proposed ROW RFFAs within the CESAs. Table 4.2-7 shows the number of foreseeable acres of ROW applications within each CESA listed in LR2000.

Table 4.2-7: Pending Mineral Activities and ROWs within the CESAs

CESA	Type	Acres of Disturbance
Mine Air Quality CESA	Plans of Operation	8
	Notices	2
	ROWs	494
Mine Vegetation CESA	Plans of Operation	7
	Notices	2
	ROWs	443
Cultural CESA (Mine & Well Field)	Plans of Operation	0
	Notices	2
	ROWs	352
Special Status Wildlife CESA (Mine & Well Field)	Plans of Operation	0
	Notices	2
	ROWs	352
Mine and Well Field Other Resources CESA	Plans of Operation	0
	Notices	2
	ROWs	352
Powerline CESA	Plans of Operation	0
	Notices	0
	ROWs	299

Source: BLM 2014

Livestock Grazing and Rangeland Improvements

Livestock grazing is expected to continue at management levels established in the various grazing allotments including in the vicinity of the Proposed Action. There are currently no projects proposed as part of ongoing livestock management programs at the BLM-BRFO within the CESAs.

Wildland Fires and Vegetation Treatments

Fire suppression activities are expected to continue to occur in the CESAs, as wildland fires are also expected to occur, and are likely to include areas previously burned and seeded.

Dispersed Recreation

Recreational use within the CESAs is expected to continue consistent with past and present use, with dispersed outdoor recreational activities being the predominant type of recreation.

4.2.3 Cumulative Impacts for the Proposed Action

This section of the EA considers the nature of the cumulative effect and analyzes the incremental impact to which all three components of the Proposed Action contribute to the collective impact. The analysis is considered a conservative estimate of the potential cumulative impacts as some of the CESAs overlap and past, present, and RFFAs are double counted in some instances. Further, many of the disturbances permitted, such as ROWs and mineral exploration and mining activities, are subject to reclamation and do not represent permanent disturbance within a CESA.

4.2.3.1 Air Quality

The CESA for air quality is the Mine Air Quality CESA, which encompasses approximately 2,208,582 acres and is shown on Figure 11.

Past and Present Actions: Present actions within the Mine Air Quality CESA that are likely contributing to air quality impacts include wildland fire, dispersed recreation, mineral exploration and mining activities, industrial operations (i.e., construction facilities, power generation facilities, and generators), and transportation networks. These activities are principally contributing point source particulate matter emissions and fugitive dust to the air quality impacts; however, products of combustion are also emitted. Impacts from wildland fires would be of short duration and localized. Table 4.2-8 provides a summary of the vehicular emissions resulting from vehicle travel on I-80.

Table 4.2-8: Vehicular Emissions from I-80 within the Mine Air Quality CESA

Section	Emissions (pounds per hour)						Emissions (tons per year)					
	PM ₁₀	PM _{2.5}	CO	NO _x	SO ₂	VOC	PM ₁₀	PM _{2.5}	CO	NO _x	SO ₂	VOC
I-80 Paved	0.75	0.73	6.59	24.41	0.27	1.08	3.26	3.21	28.87	106.90	1.16	4.74

Notes: Based on NDOT traffic counts and EPA emission factors.
Source: BLM 2012a

Three operating mines are located within the Mine Air Quality CESA and are operating under BAPC Class II Operating permits: Springer Mine, Florida Canyon Mine, and the existing Hycroft Mine. The Springer Mine stationary emission sources, as outlined in Permit No. AP1041-0106.03, include waste rock transfers and tungsten ore stockpiles, ore conveyor transfer, molybdenum precipitation circuit, natural gas boilers, wet milling, wet and dry product transfers, baghouse operations, and primary and secondary ore crushing (this facility has not yet begun producing). The Florida Canyon Mine stationary emission sources, as outlined in Permit No. AP1061-2442, include loaders, rock hoppers, jaw crusher, conveyors, crushers, radial stackers, lime silos, furnace, kilns, steam boilers, and mercury retorts. These permits specify emission limits for air pollutants in order to control the contributions of pollutants to the air basin. In addition, the Hycroft Mine operations are permitted under a Class II Operating Permit. The vehicle emissions at the existing Hycroft Mine likely result in an exceedance of the 1-hour SO₂ and NO₂ ambient air quality standards. Table 4.2-9 summarizes the permitted criteria pollutant emissions from the three facilities, based on the current air quality permits.

Table 4.2-9: Criteria Pollutant Emissions from Existing Mining Operations

Facility	Emissions (tons per year)			
	PM ₁₀	SO ₂	NO ₂	CO
Hycroft	78.23	1.99	20.96	0.43
Florida Canyon	27.68	0.01	4.90	2.82
Springer	19.62	0.08	24.48	10.82
Total	125.13	2.08	50.34	14.07

Source: BLM 2012a

The Proposed Action analysis in the EIS (BLM 2012a) includes a summary of the existing conditions at the Hycroft Mine as summarized in Section 4.1.1 of this EA (No Action Alternative). Estimated HAPs emissions and Greenhouse Gas emissions from the existing Hycroft Mine Operations are included for reference in Table 4.2-10 and Table 4.2-11, respectively.

Table 4.2-10: Hazardous Air Pollutants Emissions for the Existing Hycroft Mine Operations

HAPs	Existing Hycroft Mine Operations Total (tpy)
Formaldehyde	0.0104
Benzene	0.0016
Acetaldehyde	0.0038
Naphthalene	0.0001
Xylenes	0.0013
1,3-Butadiene	0.0008
Acrolein	0.0005
Toluene	0.0008
Ethylbenzene	0.0005
Propionaldehyde	0.0034
2,2,4- Trimethylpentane	0.0002
Methyl tert-butyl ether	0.000
Antimony	0.2482
Arsenic	0.5160
Beryllium	0.1868
Cadmium	0.2438
Chromium	0.3854
Cobalt	1.2070
Lead	0.4773
Manganese	0.9971
Mercury	0.0254
Nickel	1.5887
Selenium	0.1495
Total HAPs	6.05

Source: Hycroft EIS (BLM 2012a)

Table 4.2-11: Current Fuel and Power Consumption and Greenhouse Gas Emissions at the Hycroft Mine

Energy Source	Existing Hycroft Mine Operations Total
Diesel Fuel Consumption (gallons per year)	8,100,00
Gasoline Consumption (gallons per year)	178,200
Propane Consumption (gallons per year)	191,250
Electricity Consumption (megawatt-hours per year)	2.6
Greenhouse Gas Emissions (tons CO ₂ per year)	128,030

Source: Hycroft EIS (BLM 2012a)

RFFAs: RFFAs within the Mine Air Quality CESA that may contribute to impacts to air quality include dispersed recreation; transportation; mining and mineral activities, and ROWs. The pending RFFAs in LR2000 total 504 acres within the CESA. Air quality impacts from RFFAs could include generation of fugitive dust during hard rock mining and exploration. Emissions may also be generated from processing facilities, burning of fossil fuels by heavy equipment and other vehicles, vehicle travel on paved and unpaved roads, fugitive dust from travel on unpaved roads, and wildland fires. Some of these emissions would be localized and subject to BAPC air quality permits and compliance, development of mitigation measures, and implementation of operational performance standards. Others would be more long term and basin wide.

Cumulative Impacts: Each of the identified individual projects within the Mine Air Quality CESA, including existing and proposed mining operations, emit air pollutants. With the possible exception of motor vehicle emissions, the existing and proposed mining operations are the major sources of criteria pollutants within the Mine Air Quality CESA. The air quality modeling for the Plan Modification shows that the levels of these pollutants are below the applicable standards, except for the 1-hour NO₂ NAAQS, which result from motor vehicle emissions and fugitive sources of NO₂. The Plan Modification would result in cumulative impacts to air quality that would exceed the federal 1-hour standards for NO₂, which is the same impact as the Proposed Action when considered individually. The RFFAs would result in additional emissions similar to those currently emitted by the existing operations within the Mine Air Quality CESA. The major sources of pollutants (except for motor vehicle emissions) within the Mine Air Quality CESA, include the existing activities at the Hycroft Mine, which operate under permit conditions established by the BAPC. The cumulative emissions are generally dispersed, and the stationary sources would be regulated by the BAPC to ensure that impacts would be reduced to levels that are consistent with the ambient air quality standards. Therefore, the Proposed Action would not result in the airshed and basin being classified as a non-attainment area.

4.2.3.2 Cultural Resources (including historic trails)

As shown on Figures 11 and 12 the following CESAs were used in this analysis:

- Cultural CESA (Mine and Well Field) - 71,449 acres
- Powerline Cultural CESA - 123,670 acres

Past and Present Actions: Most past actions did not consider potential effects to cultural resources. Projects and development disturbances conducted prior to 1966 (i.e., prior to the NHPA) or those activities without a federal or state nexus generally did not identify or quantify cultural resource sites or impacts to them. Visual impacts to certain classes of primarily historic cultural resources have only recently been examined in detail. Recent directives intended to protect the viewsheds of National Historic Trails have placed more emphasis on consideration of this aspect of development and more emphasis is now being placed on these issues. Consideration of impacts to cultural resources in relation to the development of the Hycroft Mine starting in the 1980s focused on data recovery on archaeological sites, but there is no doubt in hindsight, that that activity affected the setting of the Applegate Trail. The current mine workings are visible for several miles along the length of the trail. More recent mine developments are viewed with the existing mine as a backdrop and the change on landscape from more recent actions appears minimal compared to the scale of previous development.

Given that eligibility determinations are based primarily on sites' surface characteristics, there is room for error given that surface manifestations do not always accurately reflect the nature and density of subsurface deposits. Other factors at play are the differences of opinion among professional archaeologists as to what research (and therefore archaeological sites) is important, and the evolving nature of archaeological research. In some cases, sites now thought to be lacking the ability to answer important questions may become important as archaeological method and theory progress but may not be preserved. The courts have determined that cultural resource management standards, such as those employed for the current Projects meet the objectives of the NHPA and other pertinent statutes, but this does not necessarily imply that there are not project-specific or cumulative losses of cultural resources or information important to understanding the past.

Past and present actions within the Cultural CESA and Powerline Cultural CESA that have the potential to create surface disturbance and contribute to the degradation of cultural artifacts and historic trails (Applegate and California) could have included and may currently include the following: wildlife and game habitat management; livestock grazing; and dispersed recreation. In addition, quantifiable past and present actions in the Cultural CESA (Mine and Well Field) include the following: approximately 12,957 acres of approved mineral activities (including the existing Hycroft Mine); approximately 1,640 acres of ROWs; and approximately 2.5 acres of wildland fires. Quantifiable past and present actions in the Powerline Cultural CESA include the following: approximately 13,623 acres of mineral activities; approximately 11,477 acres of ROWs; and approximately 27,441 acres of wildland fires. Impacts from past and present actions to the Applegate and California Trails, however, would be dependent on the proximity of the actions to the Applegate and California Trails, the topographic conditions, and the nature of the action (above or below ground, height, color, dimensions, and size).

RFFAs: ROW construction and maintenance (approximately 352 acres in the Cultural CESA and approximately 299 acres in the 120 kV Powerline Cultural CESA), mineral exploration and mining (approximately two acres in the Cultural CESA), including reclamation, dispersed recreation, livestock grazing, and wildland fires, are likely to continue within the Cultural CESA and Powerline Cultural CESA. These activities may impact the views to the Applegate and California Trails depending on the proximity of the RFFAs to these trails, the topographic conditions, and the nature of the action (above or below ground, height, color, dimensions, and size).

Cumulative Impacts: There would be no cumulative impacts to eligible cultural resources from the Proposed Action because sites would either be avoided or impacts would be mitigated through the continued implementation of the Hycroft Treatment Plan and the new treatment plan for the Proposed Action. Any potential direct or indirect impacts to the views from the Applegate Trail within the Cultural CESAs associated with the Plan Modification, Well Field ROW, and Powerline ROW would be localized. The new treatment incorporated into the Proposed Action would offset impacts to Jungo Road and the historic trails. Based on the above analysis and findings, there would no incremental cumulative impacts to trails as a result of the Proposed Action, when combined with the impacts from the past and present actions and RFFAs.

4.2.3.3 Migratory Birds, Special Status Wildlife Species, Wildlife (General)

As shown on Figures 11 and 12, the following CESAs were used in this analysis:

- Special Status Wildlife CESA (Mine and Well Field) – 150,652 acres
- Mine and Well Field Other Resources CESA – 129,107 acres
- Powerline CESA – 296,425 acres

Past and Present Actions: Past and present actions that could have impacted and may be currently impacting migratory birds, special status wildlife, and general wildlife and their habitat include livestock grazing, wildlife and game habitat management, wildland fires, dispersed recreation, utility and other ROW construction and maintenance, mineral exploration, and mining. The existing Hycroft Mine and well field activities are authorized for up to 5,987 acres of disturbance. Impacts to these resources and their habitat have resulted from the following: 1) indirect impacts for the destruction of habitat associated with building roads and clearing vegetation; 2) indirect impacts from disruption of migratory bird habitat from human presence or noise from mining or other heavy equipment, water trucks, and four-wheel drive 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. Impacts to habitat from grazing include trampling of vegetation or nesting areas near streams, springs, or riparian areas within the CESAs. Impacts to habitat from recreation activities include destruction of native vegetation or nesting areas from off-road vehicles that traveled off of established roadways.

The following quantifiable impacts to habitat were used in the analysis:

- Historic fires have burned approximately 56,109 acres in the CESAs.
- Authorized mineral exploration and mining Notices or plans of operation and material sites total approximately 39,639 acres of surface disturbance in the CESAs (including the current Hycroft Mine Plan and well field Notice).
- Approximately 17,258 acres of ROWs were issued within the CESAs.

Non-quantifiable past and present activities include activities in the NDOW hunt units, which have the potential to create noise and disturbance to wildlife species or remove or alter habitat. In addition, livestock grazing and associated management could have contributed to the spread of noxious weeds, invasive and nonnative species, which could have had an indirect effect on habitat.

RFFAs: Potential impacts to migratory birds and wildlife species and their habitat from livestock grazing, wildlife and game habitat management, dispersed recreation, mineral exploration, mining, or loss of native vegetation associated with potential wildland fires could occur. There are no specific data to quantify impacts to migratory birds and wildlife or their habitat as a result of livestock grazing, wildlife and game habitat management, dispersed recreation, or potential wildland fires within the CESAs. Currently, a total of approximately six acres of mineral activities and approximately 1003 acres of ROW projects are proposed within the three CESAs. These pending projects are all required to incorporate protection measures for migratory birds and likely to have protection measures for sensitive wildlife species and, therefore are not

expected to directly harm migratory birds or sensitive wildlife species, but may result in habitat removal or alteration.

Cumulative Impacts: The Proposed Action would impact up to approximately 698 acres of habitat. When added to the past, present, and RFFA disturbance acres, the cumulative total is 114,714 acres within a total CESA measuring 576,184 acres (representing 20% of the total CESA). Based on the above analysis and findings, incremental cumulative impacts to migratory birds, special status wildlife species, and general wildlife as a result of the Proposed Action would represent disturbance to an incremental disturbance of 0.12% within the CESAs. Cumulative indirect effects would primarily be a result in human presence and disturbance during the construction phase of the Proposed Action, environmental protection measures incorporated into the Proposed Action, and immediate reclamation of construction related disturbance totaling 438.50 acres would lessen the potential impacts. The operational phase of the Proposed Action would be similar to existing conditions and are not anticipated to cumulatively indirectly impact wildlife resources, including migratory birds.

4.2.3.4 Noxious Weeds, Invasive, and Nonnative Species

As shown on Figure 12, the following CESA was used in this analysis:

- Powerline CESA – 296,425 acres

Past and Present Actions: Past and present actions with impacts created from noxious weeds and invasive and nonnative species could have included and may currently include livestock grazing, wildland fires, dispersed recreation, utility and other ROW construction and maintenance, mineral exploration, and mining. The existing Hycroft Mine and well field activities are authorized for up to 5,987 acres of disturbance. These actions could have disturbed vegetation and soils creating an opportunity for invasive plant colonization and the introduction of noxious weed, invasive or nonnative species seeds.

The following quantifiable impacts, creating surface disturbance and have the potential to promote impacts associated with noxious weeds and invasive species, were used in the analysis:

- Historic fires have burned approximately 56,065 acres in the CESA.
- Authorized mineral exploration and mining Notices or plans of operation and material sites total approximately 13,710 acres of surface disturbance in the CESA (including the current Hycroft Mine Plan).
- Approximately 13,538 acres of ROWs were issued within the CESA.

RFFAs: Potential impacts from noxious weeds and invasive and nonnative species as a result of livestock grazing, dispersed recreation, mineral exploration, utility and other ROW construction and maintenance, or loss of native vegetation associated with potential wildland fires are expected to continue. There are approximately 299 acres of pending ROW projects in the Powerline CESA, and approximately two acres of pending mineral exploration notice projects.

Cumulative Impacts: The Proposed Action would impact up to approximately 698 acres. When added to the past, present, and RFFA disturbance acres, the cumulative total is 83,313 acres within a CESA measuring 296,425 acres (representing 28% of the total CESA). Based on the

above analysis and findings, incremental cumulative impacts resulting from disturbance associated with the Proposed Action would represent an incremental disturbance of 0.24% within the CESA. Impacts from noxious weeds and invasive and nonnative species would primarily result from vehicle travel associated with construction and maintenance activities of the powerline and temporary disturbance associated with construction activities. Cumulative indirect effects would result during the construction phase of the Proposed Action, but environmental protection measures incorporated into the Proposed Action, and immediate reclamation of construction related disturbance associated with the powerline totaling 406 acres would lessen the potential impacts. The operational phase of the Proposed Action would be similar to existing conditions and are not anticipated to cumulatively indirectly impact resources from noxious weeds and invasive species.

4.2.3.5 Social Values and Economics

The CESA for social values and economics is defined as Humboldt County.

Past and present actions: Past and present actions that have are currently influencing social values and economics include the existing mining operations at the Hycroft Mine (employment of 537 workers), construction and development projects in the County, livestock grazing, utility and other ROW construction and maintenance, wildland fires, recreation, land development, and mineral development and exploration. Impacts to social values and economics from these activities include increased population, increased demand for public services, increased employment opportunities, increased revenues from the communities within the CESA, and increased expenditures by the communities within the CESA. The extent of these impacts vary with the type of activity and have not been quantified; however, the majority of the impacts from past and present activities do not have any ongoing impacts and are considered to be part of the existing social and economic climate within the CESA. No specific projects have been identified within the CESA to use in a quantitative analysis.

RFFAs: Continued growth is expected in Humboldt County and similar projects and activities would continue to influence social and economic values. No specific projects have been identified within the CESA to use in a quantitative analysis.

Cumulative Impacts: The Proposed Action would add 269 employees to the Hycroft Mine workforce and when combined with the current anticipated levels at the mine, a total of 806 employees would comprise the workforce. This would make HRDI the top employer in Humboldt County, ahead of the Humboldt County School District and Newmont Mining Corporation. As discussed, in Section 4.1.6 of this EA, the Proposed Action is not anticipated to stress housing demand or any other resource in the County. Therefore, no cumulative impacts would result from the Proposed Action within the CESA other than the beneficial tax revenues that would be generated by the facilities expansion.

4.2.3.6 Soils, Vegetation, and Special Status Plants

As shown on Figures 11 and 12, the following CESAs were used in this analysis:

- Mine Vegetation CESA - 1,389,498 acres
- Mine and Well Field Other Resources CESA – 129,107 acres
- Powerline CESA – 296,425 acres

Past and Present Actions: Past and present actions that have impacted and are currently impacting soils, vegetation, and potential sensitive plant species habitat include livestock grazing, dispersed recreation, utility and other ROW construction and maintenance, mineral exploration, soil compaction due to travel by heavy equipment on unpaved roads, and mining. The existing Hycroft Mine and well field activities are authorized for up to 5,987 acres of disturbance. These actions may have directly disturbed or impacted soils and vegetation, increased erosion or sedimentation potential, removed biological soil crusts, promoted growth of nonnative species, or contributed to loss of habitat functionality. Although no direct impacts to sensitive plant would result from the Proposed Action with the inclusion of environmental protection measures, indirect impacts to potential habitat are related to soil and vegetation disturbance.

The following quantifiable impacts were used in the analysis:

- Historic fires have burned approximately 87,310 acres in the CESAs.
- Authorized mineral exploration and mining Notices or plans of operation and material sites total approximately 39,863 acres of surface disturbance in the CESAs (including the current Hycroft Mine Plan and well field Notice).
- Approximately 20,663 acres of ROWs were issued within the CESAs.

RFFAs: Livestock grazing, dispersed recreation, mineral exploration, utility and other ROW construction and maintenance, soil compaction due to travel by heavy equipment on unpaved roads, or loss of native vegetation associated with potential wildland fires are expected to continue. There are approximately 13 acres of proposed disturbance from pending minerals projects and 1,094 acres of pending ROW projects in the CESAs.

Cumulative Impacts: The Proposed Action would impact up to approximately 698 acres of soils, vegetation, and potential sensitive plant species habitat. When added to the past, present, and RFFA disturbance acres, the cumulative total is 149,641 acres within a CESA measuring 1,815,030 acres (representing 8% of the total CESA). Based on the above analysis and findings, incremental cumulative impacts to vegetation, soils, and potential special status plant species habitat as a result of the Proposed Action would represent disturbance to an immeasurable incremental disturbance within the CESA (~0%). Impacts from nonnative species would primarily result from vehicle travel associated with construction and maintenance activities of the powerline and temporary disturbance associated with construction activities. Cumulative indirect effects would result during the construction phase of the Proposed Action, but environmental protection measures incorporated into the Proposed Action, and immediate reclamation of construction related disturbance totaling 438.5 acres would lessen the potential impacts. The operational phase of the Proposed Action would be similar to existing conditions and are not anticipated to cumulatively indirectly impact soil and vegetation resources.

4.2.3.7 Water Quantity

As shown on Figure 11, the following CESA was used in this analysis:

- Mine and Well Field Other Resources CESA – 129,107 acres

Past and Present Actions: Past and present actions that have impacted and are currently impacting ground water quantity include mineral exploration and mining activities, and ranching operations including grazing and irrigation from wells that had or have the potential to deplete ground water resources within the CESA. Existing authorized pumping of ground water at the Hycroft Mine is an average of 6,500 gpm.

RFFAs: Potential impacts to ground water quantity from mineral exploration and mining activities, and ranching operations including grazing and irrigation from wells, are expected to continue within the CESA. These activities would have the potential to impact ground water resources within the CESA.

Cumulative Impacts: The Proposed Action would result in the installation of up to 11 new production wells that would pump at an average total rate of 6,900 gpm, an incremental 400 gpm increase above the existing usage at the Hycroft Mine. Ground water levels would begin to recover immediately after the cessation of pumping. In the immediate area of the mine and well field, 75 percent recovery is anticipated within 25 years after the cessation of pumping. It is not anticipated that the Proposed Action in combination with existing water rights and uses would cumulatively affect the basin, which was demonstrated through using baseline conditions in the modeling. HRDI has already secured the water rights associated with the Proposed Action. Additional water rights within the basin would still be available for other uses.

4.2.4 Cumulative Impacts from the No Action Alternative

The cumulative impact analysis for the No Action Alternative is in large the same cumulative impact analysis for the proposed action in Section 4.4 of the EIS (BLM 2012a), which analyzes the existing mining operations at the Hycroft Mine. The total disturbance from the No Action Alternative from mine operations totals 5,982 acres of surface disturbance on private and public land and an additional five acres of disturbance on public land is associated with the well field Notice-level activities. The past and present actions and RFFAs used in this analysis for the Proposed Action would have the same incremental contribution to the No Action Alternative. Therefore, the No Action Alternative would overall have similar but slightly less cumulative impacts than the Proposed Action.

5 RECOMMENDED MITIGATION AND MONITORING

5.1 Proposed Action

5.1.1 Plan Modification

Under the Plan Modification, HRDI would continue to implement the environmental protection measures and mitigation measures that were incorporated into the ROD. The ROD is included in Appendix A of this EA. These measures would apply to all new activities and disturbance. One exception to the ROD stipulations is that the dates for the migratory bird breeding season have been updated since the issuance of the ROD and is now March 1 - August 31 (rather than April 15 - July 15 as it is written in the EIS ROD). HRDI would use these updated avian breeding season dates.

One mitigation measures is recommended for the Plan Modification component of the Proposed Action beyond the measures included in the ROD as follows:

- **Recommended Mitigation Measure:** HRDI should consult with the BLM to develop a species-specific seed mix for revegetation for areas disturbed within potential greater sage-grouse nesting or winter habitat.

5.1.2 Well Field ROW

Environmental Protection Measures for the Well Field ROW component are incorporated into the Proposed Action and attached in Appendix B for reference. In addition to these measures, the following resource-specific mitigation measures are recommended:

Cultural Resources (including Historic Trails)

- **Recommended Mitigation Measure:** The treatment plan should address mitigation of direct and indirect impacts to historic Jungo Road and the Memorandum of Agreement, implementing the treatment plan, should be signed by BLM, Nevada SHPO, and HRDI prior to any FONSI and subsequent DR being issued by the BLM-BRFO.

Special Status Species

- **Recommended Mitigation Measure:** Based on the types of anticipated disturbance in the Well Field Project Area, a minimum of 50-foot buffer with flagging should be placed around the sand cholla that are to be avoided. If this buffer is not achievable due to site conditions, HRDI should consult with the BLM and coordinate a transplanting effort. Flagging should be removed when no longer deemed necessary.
- **Recommended Mitigation Measure:** In addition to the environmental protection measure, the sand cholla subject to transplantation should be transplanted in Sites 1 and 2 of the HRDI's Crosby's buckwheat transplant site evaluated under CX#DOI-BLM-NV-W030-2013-0010.

5.1.3 120 kV Powerline ROW

Environmental protection measures for the 120 kV Powerline ROW component are incorporated into the Proposed Action and attached in Appendix B for reference. In addition to these measures, the following resource-specific mitigation measures are recommended:

Cultural Resources (including Historic Trails)

- **Recommended Mitigation Measure:** The treatment plan should address mitigation of direct and indirect impacts to the 11 eligible sites and the Memorandum of Agreement, implementing the treatment plan, should be signed by BLM, Nevada SHPO, and HRDI prior to any FONSI and subsequent DR being issued by the BLM-BRFO.
- **Recommended Mitigation Measure:** The field aspects of the treatment plan should be completed before construction is allowed to proceed within 100 meters of any of the eleven sites identified as requiring data recovery or additional recording. A report describing the results of the treatment plan implementation should be submitted to the BLM within approximately one year of completion of all aspects of the fieldwork. A bond should be posted to ensure that funding is provided to complete the report and other products described in the treatment plan.
- **Recommended Mitigation Measure:** If the implementation of the treatment plan would require disturbance outside the Powerline Project Area, NV Energy should conduct a sensitive plant survey prior to disturbance activities. If a sensitive plant is identified during the survey, NV Energy should consult the BLM before conducting disturbance activities.
- **Recommended Mitigation Measure:** To avoid direct impacts to the California Trail (Segments 1 and 2) NV Energy should utilize Tungsten Road and the Railroad Access Road during construction and maintenance activities.

Special Status Species

- **Recommended Mitigation Measure:** Based on the types of anticipated disturbance in the Powerline Project Area, a minimum of 25-foot buffer with flagging should be placed around the special-status plant species (Tonopah milkvetch, Crosby's buckwheat, Nevada oryctes, Lahontan beardtongue, and sand cholla) detected during baseline surveys. Flagging should be removed when no longer deemed necessary.

5.2 No Action Alternative

For the No Action Alternative, HRDI would continue to implement the environmental protection measures included in the ROD and Plan of Operations approval for the EIS (BLM 2012b). These measures include both applicant-committed measures and additional mitigation measures and stipulations identified during the EIS process to reduce impacts. The ROD has been included for reference in Appendix A of this EA. HRDI is currently using the updated migratory bird season dates for survey efforts.

6 TRIBES, INDIVIDUALS, ORGANIZATIONS, OR AGENCIES CONSULTED

6.1 Native American Consultation

Letters describing the Plan Amendment and the well field were sent on December 27, 2012, to the Pyramid Lake Paiute Tribe, Summit Lake Paiute Tribe, and Fort McDermitt Paiute and Shoshone Tribe. Consultation occurred with the Fort McDermitt Paiute Shoshone Tribe. Table 6.1-1 contains the meeting dates and topics of discussion.

Table 6.1-1: Meetings with Tribes

Meeting Date	Agency	Tribe	Topic
April 15, 2013	BLM	Fort McDermitt Paiute Shoshone	Visual Simulations

Consultation was conducted during the preparation of the Blue Mountain EA (BLM 2007) and the WWEC PEIS (DOE 2008).

During consultation for the Blue Mountain EA, the BLM consulted with the Lovelock Tribe and Winnemucca Tribe. The BLM sent a certified letter on November 14, 2006, and follow-up calls were made to each Tribe. Neither Tribe responded to the BLM's request for consultation (BLM 2007).

Appendix C of the WWEC PEIS, which summarizes the tribal consultation process for the WWEC Project, is incorporated by reference (DOE 2008). The potentially affected Tribes were contacted via mail during the public scoping period. Nine Tribes responded with issues and concerns. After the public scoping period, a series of regional meetings was held and 29 Tribes sent representatives to these meetings. All Tribes invited to the meetings were provided informational materials, regardless of attendance. Government-to-government consultation was then initiated. Consultation was conducted throughout the preparation of the draft PEIS, and the most common concerns were potential effects on the availability of energy to tribal groups and potential effects on the environment, as well as effects on traditional cultural properties. When requested, proposed corridors were moved to avoid areas of Native American concern. Where there was local precedent and the established working relationship with local Tribes required it, Agency offices included Native Americans in the internal review process of the draft PEIS.

The Tribes were provided copies of the draft PEIS, and the Tribes responded with letters, e-mails, and comments at public meetings. Concerns identified by the Tribes were included in Appendix C of the WWEC PEIS and Appendix B (Summary of Public Comment). Concerns included impacts to cultural resources on federal lands, the corridor width and location, and environmental concerns. The concerns were addressed by expanding the cumulative effects analysis, modifying corridors to avoid localized cultural resources, and modifying the width of corridors, as needed, to allow sufficient width for development to avoid sensitive resources or to be re-routed to avoid sensitive locations (DOE 2008).

6.2 Coordination and/or Consultation (Agencies)

In preparing this EA, the BLM communicated with and received input from federal, state, and local agencies, as well as private organizations and individuals. The following is a list of the agencies and private organizations that provided input.

Federal Government Agencies

National Park Service

United States Fish and Wildlife Service

State Government Agencies

Nevada Department of Wildlife

Nevada Natural Heritage Program

Local Governments

Humboldt County

Public Utilities

NV Energy

Private Organizations

Hycroft Resources and Development, Inc.

6.3 Individuals and/or Organizations Consulted

The BLM and HRDI met with representatives of the OCTA and Trails West on June 23, 2013. The primary purpose of the meeting was to discuss visual impacts from the well field to the Applegate Trail, specifically the visual impacts from the well field pump houses and fencing.

6.4 Public Outreach/Involvement

The preliminary EA will be made available for public review and comment through the NEPA Register for 30 days from the date of posting. The NEPA Register is accessed through the BLM ePlanning webpage at:

http://www.blm.gov/pgdata/content/wo/en/prog/planning/planning_overview/eplanning2.html

7 LIST OF PREPARERS

7.1 Bureau of Land Management

Table 7.1-1: BLM Interdisciplinary Team

BLM Interdisciplinary Team Member and Title	EA Area(s) of Responsibility
Kathleen Rehberg Geologist	Project Lead, Geology, Minerals, and Energy, Transportation, Noise
Lynn Ricci Planning and Environmental Coordinator	NEPA Compliance
Gerald Moritz BLM Coordinator	Project Assistant
Kathryn Ataman, Ph.D. Archaeologist	Cultural Resources; Paleontological Resources
Jeanette Black Environmental Protection Specialist	Hydrology, Water Quality/Quantity
Thomas Olsen, Ph.D. Geological Engineer, BLM NV State Office	Geochemistry, Hydrology
Craig Nicholls National Air Quality Modeler BLM National Operations Center	Air Quality
Josh Sidon, Ph.D. Economist BLM National Operations Center	Environmental Justice, Social Values, Economics
Kathleen Cadigan Wildlife Biologist	Special Status Species; T&E Species; General Wildlife
Robert Bunkall GIS Specialist	GIS
Mark Hall, Ph.D. Archaeologist	Native American Religious Concerns
Robert Burton Natural Resource Specialist	Vegetation, Soils, Invasive and Nonnative Species
Zwaantje Rorex Wilderness Specialist	Wilderness; Lands with Wilderness Characteristics
Angie Arbonies Rangeland Management Specialist	Range Resources
Julie McKinnon Realty Specialist	Land Use Authorizations
Joey Carmosino Outdoor Recreation Planner	Recreation; Visual Resource Management
Fred Holzel Geologist	Wastes, hazardous and solid; Public Health and Safety
Samantha Gooch Wild Horse and Burro Specialist	Wild Horses

7.2 Cooperating Agencies

In preparing this EA the BLM communicated with and received input from state and local agencies. Table 7.2-1 identifies the cooperating agencies.

Table 7.2-1: Cooperating Agencies

Name	Agency
Kenny Pirkle	NDOW
Bill Deist	Humboldt County

7.3 Third-Party Consultants

Table 7.3-1: Third-Party Consultants

Name	Title	EA Area of Responsibility
Rich DeLong	Project Principal	Technical Review, Air Quality, Water Quantity
Opal Adams	Project Manager	Paleontology, Cultural Resources, Trails, Visual Resources, Noise, Technical Review
Audra Miller	Assistant Project Manager	Special Status Species; Wildlife; Soils; Vegetation; Socio-Economics; Transportation
Keshab Simkhada	Senior Specialist	Air Quality
Tiffany Lunday	Senior Environmental Specialist I	Water Quality (Quantity)
Timber Weiss	Environmental Specialist	Wildlife; Soils; Vegetation
Jess Kohler	GIS Specialist	GIS
Catherine Lee	Senior Specialist	Cumulative Impacts

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9 FIGURES AND PHOTOS

APPENDIX A

**HYCROFT MINE RECORD OF DECISION AND
PLAN OF OPERATIONS APPROVAL**

RECORD OF DECISION AND PLAN OF OPERATIONS APPROVAL

DOI-BLM-NV-WO30-2011-0001-EIS

Plan of Operations Number: NVN-064641

Hycroft Mine Expansion Project

August 2012

Prepared by:

U.S. Bureau of Land Management
Winnemucca District
Black Rock Field Office
5100 E. Winnemucca Blvd.
Winnemucca NV 89445-2921



Black Rock Field Office/Nevada

BLM

It is the mission of the Bureau of Land Management to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

BLM/NV/WN/ES/12-2+1793

DOI-BLM-NV-W030-2011-0001-EIS

**RECORD OF DECISION
AND
PLAN OF OPERATIONS APPROVAL**

**HYCROFT MINE EXPANSION PROJECT
FINAL ENVIRONMENTAL IMPACT STATEMENT**

**Plan of Operation Number: NVN-064641
DOI-BLM-NV-W030-2011-0001-EIS**

**Bureau of Land Management
Winnemucca District
Black Rock Field Office
Winnemucca, Nevada**

**Cooperating Agencies:
U.S. Environmental Protection Agency
Nevada Department of Wildlife**



**Gene Seidlitz
District Manager**



Date Signed

Introduction

The Black Rock Field Office (BRFO) of the United States Department of the Interior, Bureau of Land Management (BLM) received an Amended Plan of Operations (the Hycroft Mine Expansion Project [Project]) from Hycroft Resources and Development, Inc. (HRDI) in April 2010 (NVN-064641) (Plan). The Project includes the expansion of HRDI's existing precious metal mining operation and Project boundary (Proposed Action). The Project is located on public land administered by the BLM and private land controlled by HRDI in Humboldt and Pershing Counties, Nevada, approximately 55 miles west of Winnemucca, Nevada.

Under the Proposed Action, HRDI proposes expanded mining and mineral exploration activities on public lands at the existing Hycroft Mine, which will expand the Project boundary and create additional surface disturbance. The expansion will include 2,172 acres of new surface disturbance on private and public land, for a total Project surface disturbance of 5,235 acres. The expansion will expand the existing Project boundary, which encompasses approximately 8,858 acres, by an additional 5,895 acres to bring the total Project area to 14,753 acres of public and private land. When the project was proposed, Hycroft Mine employed approximately 200 workers. The Proposed Action will increase the mine life by an additional 12 years and increase employment to 537 mine personnel.

RECORD OF DECISION

Based on the Hycroft Mine Expansion Environmental Impact Statement (EIS), DOI-BLM-NV-W030-2011-0001-EIS, and the following rationale, it is my decision to select the Proposed Action alternative, including the applicant's committed environmental measures at EIS section 2.1.15, and all of the BLM recommended mitigation in the EIS for the Proposed Action. The Amended Plan of Operations Approval (APO) is subject to these mitigation measures which are attached herein as the *Hycroft Mine Expansion Amended Plan of Operations Authorization Stipulations and Applicant Committed Environmental Protection Measures*. The Bureau's authority applies only to activities on public land. However, federal law and policy require that mitigation measures associated with this project apply to private lands of the project as well as to the public lands.

Rationale

Rationale for this decision is based on factors including, but not limited to:

- 1) The Proposed Action conforms to the BLM's Sonoma Gerlach Management Framework Plan (MFP) dated July 1982. Specifically, in Section .42 Minerals, Objective M-1 states: "Make all public lands and other federally owned minerals available for the exploration and development of mineral and material commodities."
- 2) The Proposed Action conforms to the BLM's Paradise Denio MFP dated July 1982. Specifically, in Section .42 Minerals, Objective M 1.0 states: "Provide the public the opportunity to acquire minerals from the public lands to meet market demands."

- 3) Based on the consultation, coordination and public involvement that has occurred, it is determined that this is a well informed decision.
- 4) This decision will provide opportunities on public lands for HRDI to conduct mining exploration and development.
- 5) Based on the environmental impact analysis contained in the EIS, it is determined that this decision will not result in any undue or unnecessary environmental degradation of the public lands.
- 6) This decision is consistent with other federal, state and local plans to the maximum extent consistent with Federal law and Federal Land Policy and Management Act provisions.
- 7) The National Historic Preservation Act Section 106 process was completed prior to this decision being made. The *Memorandum of Agreement between the DOI, Bureau of Land Management, Winnemucca District and the Nevada State Historic Preservation Officer regarding the Data Recovery at the Hycroft Mine Expansion Project in Humboldt and Pershing Counties, Nevada* was signed on August 6, 2012.
- 8) The selected alternative will not adversely impact any threatened or endangered species or significant scientific, cultural or historical resources.
- 9) The selected action, subject to implementation of all mitigation recommended in the EIS meets the purpose and need for the federal action.
- 10) Implementation of the attached *Hycroft Mine Expansion Project ROD and Plan Approval Stipulations and Applicant Committed Environmental Protection Measures* will serve to monitor for impacts and reduce or prevent impacts.
- 11) Based on the above stated points and the discussion that follows, the Proposed Action is the environmentally preferred course of action.
- 12) Based on the President's National Energy Policy and Executive Order 13212, the Proposed Action will not generate any adverse energy impacts or limit energy production and distribution. Therefore, no "Statement of Adverse: Energy Impact" is required per WO IM No 2002-053 and NV IM 2002-049.

Native American Consultation

Certified letters requesting a consultation meeting on the proposed Project were mailed on December 23, 2010, to the following tribes: Fort McDermitt Paiute and Shoshone Tribe, the Lovelock Paiute Colony, the Pyramid Lake Paiute Tribe, the Shoshone-Paiute Tribes of Duck Valley, the Summit Lake Paiute Tribe, and the Winnemucca Indian Colony. Consultation meetings were held with the Fort McDermitt Paiute and Shoshone Tribe on June 10 and July 18, 2011, Pyramid Lake Paiute Tribe on February 15 and May 31, 2011, and the Summit Lake Paiute Tribe on February 19, 2011. Consultation meetings between the BLM and the Fort McDermitt Paiute and Shoshone Tribe occurred in the proposed Project Area on February 17, 2012 and March 29, 2012. Additional consultation meetings between the BLM and the tribe occurred on March 19, April 16, and June 19, 2012.

From consultation in February 2012 and March 2012, the Fort McDermitt Paiute and Shoshone Tribe asserted that the area around Pulpit Rock, including the cliff face to the east and northeast, is a sacred site. The Proposed Action would not impact Pulpit Rock or the cliff face based on a 250-foot buffer from the cliff face to the proposed waste rock facility; therefore, no direct or

indirect impacts are anticipated from the Proposed Action. In the May 31, 2011 meeting, Pyramid Lake Paiute Tribe reiterated the sacredness of Pulpit Rock.

Fort McDermitt Paiute and Shoshone Tribe also expressed concerns related to the springs in the area. Some springs are considered sacred by the Northern Paiutes and Shoshone, and some are believed to be the home of supernatural creatures dubbed “Water Babies” (Hultkrantz 1986). The springs in the proposed Project Area will not be impacted by the Proposed Action; therefore, no direct or indirect impacts are anticipated from the Proposed Action.

From the site visits, the Fort McDermitt Paiute and Shoshone Tribe expressed concerns that 35 isolated stone features may have cultural or spiritual significance. These isolated stone features may have been trail markers for the trail between Rosebud Canyon and Pulpit Rock or they may have other cultural sensitivity to tribal members. These features are within the proposed Project Area and may be adversely impacted by the Proposed Action. Evaluation and potential mitigation of these isolated stone features will be addressed in the *Memorandum of Agreement between the DOI, Bureau of Land Management, Winnemucca District and the Nevada State Historic Preservation Officer regarding the Data Recovery at the Hycroft Mine Expansion Project in Humboldt and Pershing Counties, Nevada (Treatment Plan)*.

The BLM has consulted with the following tribes:

- Fort McDermitt Paiute and Shoshone Tribe
- Lovelock Paiute Colony
- Pyramid Lake Paiute Tribe
- Shoshone-Paiute Tribes of Duck Valley
- Summit Lake Paiute Tribe
- Winnemucca Indian Colony

Cooperating Agencies

The cooperating agency relationships established during this project facilitated the exchange of views and expertise between BLM personnel and other government officials and staff. This form of consultation, unique to planning and NEPA processes, was crucial to the shaping of this EIS. The BLM formalized cooperating agency relationships with two governmental parties: U.S Environmental Protection Agency and the Nevada Department of Wildlife.

Intergovernmental Partners

Under the Federal Land Policy and Management Act (FLPMA) of 1976, the BLM’s coordination responsibilities include maximizing consistencies with the plans and policies of other government entities.

Coordination was conducted with the Nevada Division of Environmental Protection, Bureau of Mining Regulation and Reclamation (NDEP/BMRR) as specified within Memorandum of

Understanding (MOU) 3000-NV920-0901, MOU for Mining and Mineral Related Activities within the State of Nevada.

Public Involvement

Public Scoping

To initiate the public scoping process, the BLM published the Notice of Intent to Prepare an Environmental Impact Statement for the Proposed Hycroft Mine Expansion Project, Humboldt and Pershing Counties, Nevada in the Federal Register (Vol. 76, No. 63, page 18243) on Friday, April 1, 2011. A news release was also issued by the BLM on Tuesday, April 5, 2011, that stated the comment period to accept public comments was open for 90 days until June 29, 2011.

Three public open house meetings were held as follows: May 10, 2011 in Lovelock, Nevada; (a total of six members of the public attended this meeting and three written comments were provided); May 11, 2011 in Gerlach, Nevada; (a total of six members of the public attended this meeting, but no written comments were provided); and May 12, 2011 in Winnemucca, Nevada (a total of ten members of the public attended this meeting and two written comments were provided).

Issues of Concern Identified in Project Scoping

Issue	EIS Reference
What are the expected point source and fugitive emissions from the proposed action including particulate matter with aerodynamic diameter less than ten microns (PM10), and 2.5 microns (PM2.5), and greenhouse gases?	Section 3.2 Air and Atmospheric Resources
What are the mercury emissions from the proposed Project?	Section 3.2 Air and Atmospheric Resources
What are the effects to cultural resource sites?	Section 3.3 Cultural Resources
What is the effect of the Project on adjacent mineral resources?	Section 3.10 Geology, Minerals, and Energy
What are the noise effects to the NCA, the nearby private residence, the wilderness area, and the historic trail?	Section 3.11 Noise
What are the effects on the population of Crosby's buckwheat?	Section 3.16 Special Status Species
What are the effects on the availability of Golden eagle nesting habitat?	Section 3.6 Migratory Birds

Issue	EIS Reference
How would special status bat species be impacted by the Proposed Action?	Section 3.16 Special Status Species
How would increased traffic on Jungo Road affect public safety (i.e., collision with cows or reduced visibility from increased dust?)	Section 3.17 Transportation, Access, and Public Safety
What effect does the Project have on the viewshed?	Section 3.19 Visual Resources
What effect does the Project have on the night skies?	Section 3.19 Visual Resources
What would be the cumulative impacts from the Project?	Chapter 4 Cumulative Impacts

Draft EIS

To solicit public comments and feedback on the Draft EIS, the BLM published the Notice of Availability of the Draft Environmental Impact Statement for the Hycroft Mine Expansion, Humboldt and Pershing Counties, Nevada in the Federal Register (Vol. 77, No. 18, page 4360) on Friday, January 27, 2012. There was a 45-day public review period following the publication in the Federal Register.

The BLM held three public open house meetings as follows: February 14, 2012 in Winnemucca, Nevada; February 15, 2012 in Lovelock, Nevada; and February 16, 2012 in Gerlach, Nevada.

A total of 79 comment letters were received on the Draft EIS and categorized as follows: 73 letters were in general support of the Project with no substantive comments to address. One letter was in general opposition of the Project with no specific issues identified. Five comment letters contained substantive comments and were appropriately addressed in respective sections of the FEIS. Refer to Section 8.3 Public Comments on the Draft EIS and Responses for an in depth analysis of public comments.

One Federal agency commented (Region IX of the Environmental Protection Agency); one state agency commented (Nevada State Clearinghouse); and one Native American Tribe commented (Fort McDermitt Paiute and Shoshone Tribe).

Final EIS (FEIS)

The Notice of Availability for the FEIS was published in the Federal Register (vol. 77, No. 130, page 40047) on July 6, 2012, and the 30 day availability period ended on August 6, 2012. The BLM received a total of 41 comments during this 30-day period. Thirty-nine of these comments were in support of the project (37 emails, and two letters from the City of Winnemucca and Humboldt County). One email was in general opposition of the project, and a comment letter was received from the EPA, which was evaluated and considered before approving this ROD for the project.

Alternatives Including the Proposed Action

The Proposed Action, which is the preferred alternative, includes:

- Expansion of the plan boundary and use of the entire project area for exploration;
- Incorporates five rights-of-way; expands four existing open pits;
- Backfills all or portions of three open pits;
- Builds a dispatch center and expands maintenance facilities;
- Expands haul road and secondary roads, waste rock facilities, and heap leach facilities;
- Expands existing and constructs two ready line and heavy equipment fueling facilities;
- Operates a portable crusher with conveyors at the south heap leach facility;
- Constructs, operates, and then closes the south heap leach facility, Merrill-Crowe process plant, and solution ponds; constructs storm water diversions, installs culverts, and other storm water controls;
- Closes the existing Class III landfill and constructs a new Class III landfill;
- Drills one potable water well and one process well;
- Relocates the existing Brimstone substation, upgrades the existing Crofoot substation, and extends power lines to new process areas;
- Constructs growth media stockpiles and reclaims the project constituent with the proposed reclamation plan.

The Proposed Action is a 20-year Project, including a 12-year extension of the mine life, and increases employment to 537 mine personnel.

The Proposed Action and No Action alternatives were analyzed in detail. The FEIS considered and eliminated from detailed analysis the following alternatives: Daylight Only Hours of Operation; Modified Exploration Activities; Different Waste Rock Facility and Heap Leach Pad Configurations; and Project Design to Meet Federal Air Quality Standards. Consult the FEIS for a complete discussion of alternatives and for the rationale for eliminating specific alternatives from detailed analysis.

Environmentally Preferred Alternative

The BLM's environmentally preferred alternative is also the BLM's preferred alternative. The BLM's preferred alternative includes all of the environmental protection measures of the Amended Plan of Operations (APO) and all mitigation measures identified in the FEIS.

The APO, approved below, provides for the continuation and expansion of mining and ore processing in an area where mining has been identified as an appropriate land use as stated in the Winnemucca District MFP's. Approval of the APO will allow HRDI to utilize and expand its current workforce, equipment and infrastructure to expand the Hycroft Mine. The mitigation measures specified in the ROD, will minimize potential adverse environmental impacts identified in the FEIS. The monitoring requirements specified in this ROD will assist the BLM

and others to identify, avoid, and/or mitigate, if necessary, any unforeseen adverse environmental impacts that may occur. The environmental measures committed to by HRDI and the stipulations (including monitoring) in this combined ROD/Plan Approval will provide environmental protection during and after implementation of the Agency Preferred Alternative and provide BLM periodic opportunities to re-evaluate its analysis of potential impacts during and after implementation.

PLAN OF OPERATIONS APPROVAL DECISION UNDER SURFACE MANAGEMENT REGULATIONS (43 CFR§3809)

The Winnemucca District, Black Rock Field Office (WD/BRFO), has reviewed the Hycroft Mine Expansion amended Plan of Operations (case file NVN-064641) that was submitted in April 2010, and was last amended in July 2012. An Environmental Impact Statement (EIS), DOI-BLM-NV-W030-2011-0001-EIS was prepared and is detailed in the above Record of Decision (ROD).

It is my decision to approve the amendment to Plan NVN-064641, including the environmental protection measures specified in the plan of operations. This approval is subject to the attached stipulations, referenced in the above ROD (pages 1-6). HRDI may only perform those actions that have been described in the Plan. Implementation of the aforementioned conditions will prevent unnecessary or undue degradation.

The surface occupancy proposed in the Plan meets the conditions specified in the applicable regulations (43 CFR§3715). The BLM is in concurrence with the occupancy of the subject lands. HRDI must comply with sections 3715.2, 3715.2-1, and 3715.5 of the regulations.

This approval does not constitute: certification of ownership to any person or company named in your plan of operations; recognition of the validity of any mining claims named in your plan of operations; or recognition of the economic feasibility of the proposed operations.

No work is authorized under the amended plan of operations until HRDI has complied with all federal, state and local regulations, including obtaining all necessary permits from the Nevada Division of Environmental Protection (NDEP) and other federal, state and local agencies.

Activities approved in this decision shall not begin until the BLM Nevada State Office issues a decision accepting the reclamation financial guarantee. An updated Reclamation Cost Estimate (RCE) for your amended project was received by the BLM on July 16, 2012. We have reviewed your RCE and agree that an increased financial guarantee amount of \$42,180,212 would satisfy the requirements to have your proposed project reclaimed. You must also seek concurrence from the Nevada Division of Environmental Protection, Bureau of Mining Regulation and Reclamation (NDEP/BMRR). The types of financial instruments that are acceptable to the BLM are found at 43 CFR 3809.555. Please contact the BLM Nevada State Office at (775) 861-6400 for further information on the financial guarantee process.

If you are adversely affected by this decision, you may request that the BLM Nevada State Director review this decision. If you request State Director Review, the request must be received in the BLM Nevada State Office at: **BLM Nevada State Office, State Director, 1340 Financial Blvd., Reno, Nevada 89502**, no later than 30 calendar days after you receive or have been notified of this decision.

The request for State Director Review must be filed in accordance with the provisions in 43 CFR 3809.805. This decision will remain in effect while the State Director Review is pending, unless you request and obtain a stay (suspension) from the State Director. If you request a stay, you

have the burden of proof to demonstrate that a stay should be granted using the standards and procedures for obtaining a stay (43 CFR 4.21) from the Interior Board of Land Appeals (IBLA).

If the State Director does not make a decision on your request for review of this decision within 21 days of receipt of the request, you should consider the request declined and you may appeal this decision to the IBLA. You may contact the BLM Nevada State Office to determine when the BLM received the request for State Director Review. You have 30 days from the end of the 21-day period in which to file your Notice of Appeal with this office at 5100 E. Winnemucca Blvd., Winnemucca, Nevada, 89445, which we will forward to IBLA.

Under 43 CFR 3809.801(a)(1), if you wish to bypass a State Director Review, this decision may be appealed directly to the IBLA in accordance with the regulations at 43 CFR part 4. Your Notice of Appeal must be filed in this office at 5100 E. Winnemucca Blvd., Winnemucca, Nevada, 89445, within 30 days from receipt of this decision. As the appellant you have the burden of showing that the decision appealed from is in error. Enclosed is BLM Form 1842-1 which contains information on taking appeals to the IBLA. This decision will remain in effect while the IBLA's decision is pending, unless you request and obtain a stay under 43 CFR 4.21. If you request a stay, you have the burden of proof to demonstrate that a stay should be granted under the criteria in 43 CFR 4.21.

Request for Stay

If you wish to file a petition (request) pursuant to regulations 43 CFR 4.21 for a stay of the effectiveness of this decision during the time that your appeal is being reviewed by IBLA, the petition for a stay must accompany your notice of appeal. A petition for a stay is required to show sufficient justification based on the standards listed below. Copies of this notice of appeal and petition for a stay must also be submitted to each party named in the decision and, to the IBLA, and to the appropriate Office of the Solicitor (see 43 CFR 4.413) at the same time the original documents are filed with this office. If you request a stay, you have the burden of proof to demonstrate that a stay should be granted.

Standards for Obtaining a Stay

Except as otherwise provided by law or other pertinent regulation, a petition for a stay of a decision pending appeal shall show sufficient justification based on the following standards:

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

Approval of the Plan by the BLM does not constitute a determination regarding the viability or ownership of any unpatented mining claims involved in the mining operation. Approval of the Plan in no way implies the economic viability of the operations. Any modification to the Plan must be coordinated with and approved by the authorized officer. Surface occupancy related to the Plan is reasonably associated with the mining operation. The Bureau's authority applies only

to activities on public land. However, federal law and policy require that mitigation measures associated with this project apply to private lands of the project as well as to the public lands.

This Decision is issued pursuant to 43 CFR 3809.803. It is effective immediately. In the case of an appeal before the Office of Hearings and Appeals (OHA), this Decision will remain in effect unless OHA grants a stay under §4.21(b) of this title.

**HYCROFT MINE EXPANSION PROJECT ROD AND PLAN APPROVAL
STIPULATIONS AND APPLICANT COMMITTED ENVIRONMENTAL
PROTECTION MEASURES**

STIPULATIONS

1. The identified golden eagle nest removal shall be coordinated with the United States Fish and Wildlife Service (USFWS). The nest removal shall occur outside of golden eagle nesting season. Prior to the removal of the nest, a biologist shall survey the nest to ensure that it is not active.
2. During burrowing owl nesting season (March to late August), a burrowing owl inventory survey following the Winnemucca BLM's survey protocol shall be conducted prior to surface disturbance in the areas identified as potential burrowing owl habitat within the Project Area.
3. Bat exclusion activities shall be conducted in the east and west Silver Camel workings prior to disturbance of this area. Exclusion activities shall include the following: spreading exclusion materials (one-inch chicken wire or one-inch polyethylene avian netting) across the open workings, allowing bats to exit the site while discouraging their return; exclusions shall be conducted at each opening with potential connection to the east and west Silver Camel workings prior to closure for a minimum of three to five nights; exclusion materials shall be monitored nightly throughout the period of exclusion to reduce the potential for exclusion material collision stress, injury, and death; external surveys using night vision or thermal imaging equipment shall be conducted to verify site vacancy; fire smoke bombs shall be used on the final night of exclusion prior to closure; and physical closures shall be conducted immediately following confirmation of vacancy. In addition to bat exclusion from the Silver Camel workings, warm and cold season surveys shall be conducted in the vicinity of the Project for potential mitigation sites should additional mitigation be deemed necessary by the BLM.
4. Salvage and transplanting efforts for Crosby's buckwheat in the Project Area shall be conducted to preserve the genetics of the populations. Salvage activities shall occur prior to any ground disturbing activities in the areas identified as Crosby's buckwheat habitat, as additional plants may have established since the last survey effort in the Project Area. The salvaged plants shall be transplanted in three locations: one in the nearest suitable habitat outside of the Project Area; and at two different locations within the National Conservation Area or Wilderness Area where an established population already exists. Details of the transplanting effort and post-transplant monitoring shall be further coordinated with local botanical experts, including the BLM, to maximize the potential for success of the transplanting effort. As an additional measure, HRDI shall provide funding towards the research and preservation of rare plants in Nevada.
5. HRDI shall develop, and submit to the BLM for approval, a treatment plan to address the potential impacts to the 21 eligible sites within the Project APE area of direct impacts (i.e., proposed disturbance and facilities footprint) and the five sites most likely to be subject to indirect impacts. The treatment plan and associated Memorandum of Agreement shall be signed prior to the ROD. HRDI shall implement the treatment plan prior to any surface disturbance of eligible sites within the area of direct impacts and the

five sites most likely to be subject to indirect impacts. A mitigation plan is a standard and effective approach to reduce adverse effects to cultural resources. Indirect impacts to eligible cultural resources other than the five sites mentioned above within the Project APE are not considered to be significant, at this time. The treatment plan shall include the following measures:

- a. HRDI shall develop and submit to the BLM for approval, a mine workers education program on the consequences of unauthorized collection of artifacts within 90 days of ROD effective date.
 - b. HRDI shall install perimeter fencing delineating the proposed Project Area boundary within 180 days of ROD effective date to deter the public from visiting historic properties and potentially collecting artifacts.
 - c. HRDI shall maintain existing eligible roads (CrNV-22-6274, 9717, and 9894 [Jungo Road]) during all phases of the Project within the limits of the existing eligible roads cross section as feasible considering all appropriate health and safety regulations (e.g., MSHA and OSHA, with the exception of CrNV-02-11443 [Seven Troughs Road], which would be relocated. Mitigation for adverse effects to this historic road shall be described in the treatment plan. HRDI shall contract a qualified archaeological consulting firm, approved by the BLM, to provide quarterly monitoring for Year 1 and yearly monitoring for each subsequent year of eligible roads (CrNV-22-6274, 9717, and 9894 [Jungo Road] and CrNV-02-11443 [Seven Troughs Road]) to reduce the direct and cumulative effects of above described maintenance. Should damage be detected during monitoring, BLM may choose to consult with SHPO to determine if additional protective measures or further action to mitigate the impact are required.
 - d. In addition, HRDI (through a qualified archeological consulting firm) shall conduct quarterly monitoring during the first year, and twice a year monitoring of a sample of other eligible sites within the indirect effects area. The sample would consist of ten sites (both historic and prehistoric) concentrating on those containing artifacts likely to be of interest to illegal collectors. After each monitoring visit, a letter report shall be sent to the BLM within two weeks of the fieldwork.
6. An as-built map will be submitted to the BLM WD/BRFO by April 15 of each year, showing topography, township, range and sections, locations of all mine operations and activities, including new areas of disturbance, and areas that have been reclaimed with month and year the area was regraded or reseeded.
 7. The financial guarantee, or portions thereof, shall be released upon the BLM WD/BRFO and NDEP/BMRR concurrence that adequate reclamation has been successfully completed. Bond release criteria shall be those set forth in regulations at 43 CFR 3809, and the *Nevada Guidelines for Successful Revegetation for the Nevada Division of Environmental Protection, the Bureau of Land Management and the U.S.D.A. Forest*

Service (Instruction Memorandum #NV99-013). Bond release will be conducted according to the Surface Management Regulations at 43 CFR 3809.590 through 3809.594.

8. The Migratory Bird Treaty Act prohibits the destruction of nests (nests with eggs or young) of migratory birds. In order to avoid potential impacts to breeding migratory birds, a nest survey shall be conducted within potential breeding habitat prior to any surface disturbance during the avian breeding season (April 15 to July 15). 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) shall be delineated and the buffer area avoided to prevent destruction or disturbance to nests until they are no longer active. The site characteristics used to determine the size of the buffer are: a) topographic screening; b) distance from disturbance to nest; c) the size and quality of foraging habitat surrounding the nest; d) sensitivity of the species to nest disturbances; and e) the protection status of the species.
9. Bi-annually, starting in 2013, until the final release of revegetation, the operator shall complete a noxious weed survey within the entire plan of operations boundary. The operator shall then have a licensed contractor treat the noxious weeds as appropriate and as approved by the BLM. A report of the findings and treatment method(s) shall be sent to the BLM within 60 days after treatment. A pesticide use proposal would need to be submitted to the BLM for approval prior to noxious weed treatment.
10. The operator shall ensure that all mine and exploration equipment is power-washed before entering the Project Area to prevent the spread of noxious weeds. Washing of this equipment is not authorized on public lands, unless an approved wash-point/facility is established in conjunction with your plan.
11. No hazardous or toxic waste, waste oil or lubricants shall be disposed of on public lands. Trash and other debris shall be contained on the work site and then hauled to an approved landfill. Burial and/or burning of trash and other debris is not authorized without specific permits from BLM and other appropriate agencies.
12. All hazardous material spills regardless of size would be cleaned up. Motorized equipment would be inspected daily by the operator for leaks or fluid loss and would be maintained to prevent leaks or fluid loss. If fluids are lost due to leaks during operations, the operator would shut down the leaking machine and would collect any contaminated soil (if present) in a 55 gallon barrel for transport offsite to a permitted facility for proper treatment and disposal. Used oil, antifreeze, batteries, tires and other recyclable materials resulting from equipment maintenance will be collected in closed containers or on pallets, as appropriate, and will be removed from the site on a regular, frequent basis for recycling. Under no circumstances will large quantities of these or other used materials be allowed to accumulate at the site, nor will any of these materials be disposed on or in the land at the site.

13. All reporting requirements specified by the Nevada Division of Environmental Protection or Nevada Department of Wildlife shall also be reported to the BLM WD/BRFO.
14. Pursuant to 43 CFR 10.4(g) the holder of this authorization must notify the authorized officer, by telephone, with written confirmation, immediately upon the discovery of human remains, funerary items, sacred objects, or objects of cultural patrimony. Further, pursuant to 43 CFR 10.4(c) and (d), you must stop activities in the immediate vicinity of the discovery and protect it from your activities for 30 days or until notified to proceed by the authorized officer.
15. As directed in 43 CFR 3809.420(b)(9) *Protection of survey monuments*, it is the responsibility of the HRDI to bear the total cost of any necessary restoration or reestablishment activity of the affected monument(s). Correspondingly, in the course of any surface disturbance activity when PLSS/Cadastral corners or accessories may or have been subject to obliteration, destruction, or damage, it will be the responsibility of HRDI to protect and preserve the PLSS/Cadastral monumentation.
16. The following precautionary measures should be taken to prevent wildland fires. In the event your operations should start a fire, you could be held liable for all suppression costs under Title 43 CFR 9212.4. These are in addition to any requirements imposed by the Mine Safety and Health Administration or other governing agencies for work-area fire protection.
 - a. All vehicles should carry at a minimum a shovel and five gallons of water (preferably in a backpack pump), in addition to a conventional fire extinguisher.
 - b. Adequate fire fighting equipment (a shovel, a pulaski, standard fire extinguisher(s), and an ample water supply) should be kept readily available at each active drill site.
 - c. Vehicle catalytic converters should be inspected often and cleaned of all flammable debris.
 - d. All cutting/welding torch use, electric-arc welding, and grinding operations should be conducted in an area free, or mostly free, from vegetation. An ample water supply and shovel should be on hand to extinguish any fires created from sparks. At least one person in addition to the cutter/welder/grinder should be at the work site to promptly detect fires created by sparks.
 - e. Any fire restrictions or closures issued by the BLM WDO will be publicized in the local media, and notice will be posted at various sites throughout the district. We will not individually contact operators. Your plan serves as an authorization that may exempt your operations from certain restrictions in those orders. Your personnel will be responsible for being aware of and complying with the requirements of those orders.
 - f. Any wildland fire observed should be reported immediately to the BLM Central Nevada Interagency Dispatch Center at (775) 623-3444.

APPLICANT COMMITTED ENVIRONMENTAL PROTECTION MEASURES

The following environmental protection measures incorporated into the Proposed Action were designed in accordance with applicable laws and regulations and are considered industry standard with the exception of the lighting mitigation measure and the wildlife water development measure, which were developed and incorporated into the Proposed Action as a result of comments received during Project scoping.

Air Quality

Air emissions, including point and fugitive dust sources, would be controlled in accordance with the air quality operating permits for the Project and would be controlled in accordance with present BMPs shown in the *Hycroft Mine Dust Control Plan* and in the table below:

Committed Practices for Fugitive Dust Control

Area	Control Practice
Drilling	Wet drilling as needed
Blasting	Stemming Optimize blast pattern
Exploration, clearing/grubbing	Application of water and dust suppressants Limit vehicle speed Controlling vehicle access by fences or berms
Hauling	Control vehicle speed Application of water and dust suppressants
Crushing	Water sprays Enclosures Minimize drop height
Conveying	Water sprays Enclosures Minimize drop height
WRF	Surface wetting Concurrent vegetation
Ancillary areas and growth media stockpiles	Application of water and dust suppressants Place gravel or pave Control vehicle access by fences or berms Revegetation

Source: HRDI 2010a.

Cultural Resources and Native American Religious Concerns

- Pursuant to 43 CFR 10.4(g), HRDI 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 (c) and (d), the operator would immediately stop all activities in the vicinity of the discovery and not commence again for a maximum of 30 days or when notified to proceed by the BLM authorized officer.

- HRDI would not knowingly disturb, alter, injure, or destroy any historical or archaeological site, structure, building, or object. If HRDI discovers any cultural resource that might be altered or destroyed by operations, the discovery would be left intact and reported to the authorized BLM officer.
- In order to prevent impacts to cultural resources, HRDI would avoid eligible or unevaluated cultural sites within the Project Area. HRDI would ensure that eligible or unevaluated cultural sites within the Project Area are mapped and flagged by a qualified cultural resource specialist with a GPS unit prior to surface disturbance.
- HRDI would avoid Pulpit Rock and the known rock shelter locations within the Project Area by establishing a 250-foot setback from the cliff areas and Pulpit Rock for operational activities. HRDI may fence the Project boundary, but an arrangement would be reached with the Northern Paiute tribes to allow them access to Pulpit Rock and the cliff face.

Fire Management

HRDI would comply with applicable federal and state fire laws and regulations and would take reasonable measures to prevent and suppress fires in the area of operations. HRDI and contractors would be required to carry fire extinguishers, hand tools, or backpack-type water pumps in their vehicles to suppress small fires.

Hazardous Materials Management

Solid and hazardous wastes would be managed according to the *Solid and Hazardous Waste Management Plan* (HRDI 2010c). Used oil, antifreeze, diesel fuel, grease, oil, solvents, ammonium nitrate, emulsion, and Class A explosives would be utilized as part of HRDI's proposed activities. Approved staging facilities, safety measures, transportation, and handling requirements are already in use and would continue to be utilized for the proposed Project. Used materials would be recycled where possible.

Aerosol cans would be emptied and de-pressurized prior to disposal. Liquid drained from aerosol cans would be tested to determine their waste status and managed appropriately. Accumulation of pressurized cans would be minimized.

Hazardous waste would be stored in properly labeled storage containers, dumpsters, or barrels. Storage containers would be closed except when materials were being placed in the containers. The storage containers would be clearly labeled or marked with the dates when accumulation began and when the container was filled. Storage containers would be in good repair with no defects and would be suitable for off-site shipment under NDOT requirements. Hazardous wastes would be shipped to an approved location by a certified hazardous waste vendor in accordance with Resource Conservation Recovery Act requirements.

Lighting

HRDI would utilize screening on proposed stationary lights and light plants. Lighting would be directed onto the pertinent site only and away from adjacent areas not in use with safety and proper lighting of the active work areas being the primary goal. Lighting fixtures would be hooded and shielded as appropriate. The Proposed Action would also modify or retrofit the existing lighting facilities. HRDI would utilize the lighting measures provided in the *Hycroft Mine Lighting Management Plan* (HRDI 2011a), which are designed to reduce the impacts to night skies.

Migratory Birds

Land clearing and surface disturbance would be timed to prevent destruction of active bird nests or young of birds during the avian breeding season and in accordance with the Winnemucca District policies to comply with the Migratory Bird Treaty Act of 1918 (MBTA). If surface disturbing activities were unavoidable during the breeding season, HRDI would have a qualified biologist survey areas proposed for disturbance for the presence of active nests immediately prior to the disturbance.

Wildlife Water Developments

HRDI would coordinate with the NDOW if the existing small game guzzlers are impacted by the Project development to relocate the affected guzzler. In addition, HRDI would work with the NDOW on the development of a new big game guzzler in the vicinity of the Project Area to offset potential loss of big game habitat.

Noxious, Invasive and Nonnative Species

HRDI would work with the BLM to prevent the spread of noxious, invasive, and nonnative species in the area affected by the expansion. The ongoing weed control program would continue in the area of the proposed activity. Employees and contractors would be educated to identify weeds that could occur in the area disturbed. Should invasive weeds be identified, HRDI would take appropriate measures to prevent their spread, as identified in the *Hycroft Mine Noxious Weed Monitoring and Control Plan* (HRDI 2010d).

Storm Water

Best Management Practices would be used to limit erosion and sediment transport from proposed facilities and disturbed areas during construction and operation, in accordance with the Nevada General Storm Water Permit NVR300000 and the Storm Water Pollution Prevention Plan (SWPPP). Following construction activities and in accordance with the BLM requirements, areas such as growth media stockpiles would be seeded as

soon as practical and safe. Concurrent reclamation would be conducted to accelerate stabilization of disturbed areas.

In addition to the BMP inspections and reporting, an annual evaluation would be conducted, preferably following the spring runoff period. This evaluation would result in the preparation of a written report documenting the following:

- Inspection of areas contributing to storm water discharges containing pollution (i.e., sediment or product spills/leaks);
- Evaluation of BMPs for their effectiveness in reducing storm water pollutant loads; and
- Schedule for modifying the BMPs and revisions to the SWPPP, if practical reductions of pollutants can be achieved.

Monitoring

As part of the *Hycroft Mine Monitoring Plan*, HRDI proposes to monitor the following in compliance with state permits and other plans: air quality; WRFs and ore stockpiles; reagent and diesel storage; heap leach facilities; sediment controls; ground water; reclamation; noxious weeds; and wildlife (HRDI 2010e).

APPENDIX B

**APPLICANT-COMMITTED
ENVIRONMENTAL PROTECTION MEASURES**

WELL FIELD RIGHT-OF-WAY ENVIRONMENTAL PROTECTION MEASURES

1. General Environmental Protection Measures

- Public safety would be maintained throughout the life of the Well Field Project. All equipment and other facilities would be maintained in a safe and orderly manner;
- Prior to construction, Well Field Project personnel would be instructed on the protection of cultural and ecological resources;
- Disturbance would be minimized to the extent practicable to reduce impacts to vegetation and soils;
- Any survey monuments, witness corners, or reference monuments would be protected;
- In the event that any existing roads are damaged as a result of Well Field Project activities, HRDI would return the roads to their original condition;
- HRDI would avoid impact to existing ROWs held by other users;
- The ROW area would be regularly patrolled and properly maintained in compliance with applicable safety codes;
- Fences and gates would be repaired or replaced to their original condition if they are damaged by construction activities
- New roads would be built at right angles to washes to the extent practicable. Construction and maintenance activities would be conducted to minimize disturbance to vegetation and drainage channels. Existing roads would be left in or restored to a condition equal to or better than their condition prior to construction;
- At the conclusion of the well field development, all new access roads not required for maintenance would be permanently closed using methods approved by the landowner/manager (e.g., stockpiling and replacing topsoil or rock replacement); and
- All construction vehicle movement outside the ROW would be restricted to designated access or public roads.

Additional resource specific protection measures are included below.

2. Air Quality

Emissions produced during grading and construction of the proposed Well Field Project is of short-term duration and would cease upon completion of construction. Dust would be minimized by application of water to disturbed areas. HRDI has obtained a Surface Area Disturbance (SAD) permit for the Mill (#AP1041-3269), and HRDI updated the SAD permit to include the Well Field Project Area. Construction would comply with all the requirements of the SAD permit. Initially proposed protection measures designed to minimize impacts to air quality would include the following:

- Water would be applied to the ground during the construction and utilization of the access roads and other disturbed areas as necessary to control dust;
- During excavation, backfilling, contouring, and rehabilitation, the disturbed soil should be wetted, chemically treated, or treated by other means satisfactory to the Authorized Officer (AO), sufficiently in order to effectively reduce airborne dust and reduce soil erosion. A regular maintenance program would include, but is not limited to, soil stabilization and reapplication of dust abatement methods as necessary;
- All requirements of those entities having jurisdiction over air quality matters would be adhered to and any permits needed for construction activities would be obtained. Open burning of construction trash would not be allowed;
- All pads and structure pads would be watered prior to and during all construction activities. All Well Field Project personnel would be educated on the site dust control plan; and
- Access to work areas would be by overland travel whenever possible to minimize grading access roads.

3. Hazardous or Solid Wastes

Initially proposed mitigation measures to ensure compliance with applicable hazardous materials regulations would include the following:

- Equipment would be properly maintained to reduce the possibility of leaks and hose ruptures. In the event of a discharge or spill, cleanup procedures would be implemented immediately to ensure that no materials would be available for transport by storm water runoff e.g., would be repaired or removed from the site;
- Portable chemical toilets would be utilized and all human waste would be hauled off site;
- All wastes would be removed from the Well Field Project Area and disposed of in a state, federal, or local designated area;
- Hazardous materials would not be drained onto the ground or into streams or drainage areas. Totally enclosed containment would be provided for all trash. All construction waste including trash, litter, garbage, other solid waste, petroleum products, and other potentially hazardous materials would be removed to a disposal facility authorized to accept such materials. No debris of any kind would be deposited in or on the ROW; and
- No biodegradable debris would be left in the ROW.

4. Cultural Resources

Proposed protection measures for cultural resources during Well Field Project construction include the following:

- HRDI would not knowingly disturb, alter, injure, or destroy any historical or archaeological site, structure, building, or object. If HRDI discovers any cultural resource that might be altered or destroyed by operations, the discovery would be left intact and reported to the AO;
- In order to prevent impacts to cultural resources, HRDI would avoid eligible or unevaluated cultural sites within the Well Field Project Area. HRDI would ensure eligible or unevaluated cultural sites within the Well Field Project Area are mapped and flagged by a qualified cultural resource specialist with a Global Positioning System (GPS) unit prior to surface disturbance;
- Any areas containing cultural resources of significance would be avoided, or the potential for impacts mitigated in a manner acceptable to the BLM. HRDI employees, contractors, and suppliers would be reminded that all cultural resources are protected and if uncovered would be left in place and reported to the HRDI representative and/or their supervisor;
- An appropriate buffer would be established around eligible and unevaluated cultural sites in the vicinity of the Well Field Project activities. HRDI would avoid eligible and unevaluated cultural sites; and
- Cultural resources would continue to be considered during post-EA phases of the POD implementation. Any cultural or paleontological resources (historic or prehistoric site or object) discovered by the Contractor, or any person working on his/her behalf on public land, would be immediately reported to the AO. The Contractor would suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the AO. An evaluation of the discovery would be made by the AO to determine appropriate actions to prevent the loss of significant cultural or scientific values. HRDI or the Contractor would be responsible for the cost of evaluation. The AO would make any decision regarding suitable mitigation measures after consulting with HRDI or the Contractor. HRDI or the Contractor would be responsible for the resultant mitigation costs.

5. Soil and Water Resources

The following Project protection measures would be applied for soil and water resources:

- To minimize erosion from storm water runoff, access roads would be maintained consistent with the BMPs applicable to development roads. BLM Best Management Practices (BMPs) for storm water would be followed, as applicable, on public land.

6. Biological Resources

6.1 Noxious Weeds

HRDI is committed to limit the spreading of noxious weeds and would commit to implementing the following noxious weed control methods.

- HRDI would incorporate the Well Field ROW area into their existing Noxious Weed Monitoring and Control Plan (NWMCP), which was prepared for the Hycroft Mine (HRDI 2011). The NWMCP includes objectives for the controlling of noxious weeds; managing noxious weeds, including preventing, treating, and post-treatment management; monitoring; and coordinating with the BLM. Prior to revising the NWMCP to include the Well Field ROW area, HRDI would review the NWMCP with the BLM to determine if newer noxious weed management techniques should be incorporated into the NWMCP. Through adaptive management, the NWMCP would be updated to incorporate new techniques that are learned for noxious weed prevention and control throughout the life of the Well Field Project.

6.2 Vegetation

Environmental protection measures designed to protect vegetation during construction would include:

- In newly disturbed temporary work areas, the soil would be salvaged and would be distributed and contoured evenly over the surface of the disturbed area after completion of construction. The soil surface would be left rough to help reduce potential wind erosion;
- Grading would be minimized by utilizing overland travel within work areas whenever possible; and
- Following Well Field Project construction, areas of disturbed land no longer required for operations would be reclaimed to promote the reestablishment of native plant and wildlife habitat.

6.3 BLM Sensitive Species

- To reduce potential impacts to sand cholla (*Grusonia pulchella*), all sand cholla plants in the Well Field Project Area that could not be avoided would be removed by a qualified botanist and transplanted to a BLM-approved area as close to the Well Field Project Area as possible;
- If disturbance occurs in dark kangaroo mouse (*Microdipodops megacephalus*) habitat or pale kangaroo mouse (*Microdipodops pallidus*) habitat, HRDI would reseed the disturbed areas with a BLM-approved seed mix and;
- Burrowing owl (*Athene cunicularia*) nest surveys would be conducted by a qualified biologist within potential breeding habitat prior to any surface disturbance proposed during burrowing owl breeding season (March 1st through August 31st). Surveys would be conducted no more than ten days and no less than three days prior to initiation of

disturbance. Surveys would follow established BLM standards and protocols and would be approved by the BLM biologist prior to being implemented. If active nests are located, HRDI would immediately notify the BLM biologist and appropriate protection measures would be established, which may include avoidance or restriction of activities. If no active nests are present within the survey area, implementation of the proposed disturbance would commence within ten days of survey completion.

6.4 Migratory Birds and Raptors

HRDI would implement the following project design features and protection measures to protect avian resources:

- The proposed transmission line would provide raptor protection in compliance with the standards described in the “Suggested Practices for Raptor Protection on Powerlines, The State of the Art in 2006” (APLIC 2006);
- All power poles would utilize raptor anti-electrocution and perch protection construction standards or equipment;
- In order to avoid potential impacts to breeding migratory birds, a nest survey would be conducted by a qualified biologist within potential breeding habitat prior to any surface disturbance proposed during the avian breeding season (March 1st through August 31st). Surveys would be conducted no more than ten days and no less than three days prior to initiation of surface disturbance. Surveys would follow established BLM standards and protocols and would be approved by the BLM biologist prior to being implemented. If active nests are located, the BLM biologist would be notified immediately and appropriate protection measures, which may include avoidance or restriction of activities, would be established. If no active nests are present in the area survey, implementation of the surface disturbance would commence within ten days of survey completion;
- If guy wires are installed within the Well Field ROW, HRDI would install collision deterrent devices, e.g., line marker, or suitable bird diverter devices, as appropriate; and
- HRDI would follow the U.S. Fish and Wildlife Service (USFWS) Migratory Bird Permit Memorandum regarding unoccupied migratory bird nest destruction (without birds or eggs) outside of the migratory bird nesting season (March 1st – August 31st) (USFWS 2013).

6.5 Wildlife

The following measure would help reduce impacts to wildlife using the Well Field Project Area:

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

7. 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 followed. All personnel would be advised of their responsibilities under the applicable fire laws and regulations. It would be the responsibility of the Contractor to notify the BLM, Central Nevada Interagency Dispatch Center (CNIDC) at (775) 623-3444, Winnemucca Fire Department 911 and the BLM Winnemucca District Office at (775) 623-1500, when a Well Field Project related fire occurs within or adjacent to the construction area.

HRDI or its Contractor would be responsible for any fire started in or out of the Well Field Project Area by its employees or operations during construction. HRDI or its Contractor would be responsible for fire suppression and rehabilitation. HRDI or its Contractor would take aggressive action to prevent and suppress fires on and adjacent to the Well Field Project Area and would utilize its workers and equipment on the Well Field Project for fighting fires within the Well Field Project Area.

All equipment would have the following safeguards to guard against wildland fires: a) all vehicles would be equipped with shovels, and fire extinguishers. Large equipment would be equipped with at least five gallons of water; b) vehicle catalytic converters would be inspected and cleaned of flammable debris on a regular basis; c) no cutting, welding, or grinding operations would be conducted in areas of vegetation, and all such activities would be accompanied by a fire watch; and d) any wildland fires observed would be reported immediately to the BLM CNIDC.

120 kV POWERLINE ROW ENVIRONMENTAL PROTECTION MEASURES

NV Energy has committed to implementing the environmental protection measures listed in this section, which are divided into 11 categories: General, Soil Disturbance, Blasting, Storm Water Management, Noxious Weeds, Vegetation, Water Features, Wildlife and Sensitive Species, Cultural and Paleontological Resources, Hazardous Materials and Waste, Air Quality, and Fire Prevention and Response.

1. General Measures

- The limits of the temporary work areas would be marked with staking and/or flagging. All environmentally sensitive areas, if any, would be fenced for avoidance;
- Prior to construction, all construction personnel would be instructed on the protection of sensitive biological, cultural, and paleontological resources that have the potential to occur on site;
- NV Energy would limit construction in residential areas to between daylight and dusk, seven days a week;
- All construction vehicle movement would be restricted to the ROW, pre-designated access roads, and public roads;
- Smoking would only be permitted in paved or cleared areas. All cigarettes would be thoroughly extinguished and disposed of in a trash receptacle;
- Non-specular conductors would be installed to reduce visual impacts;
- NV Energy would avoid impacts to existing ROWs; and
- All existing roads would be left in a condition equal to or better than their preconstruction condition.

2. Soil Disturbance

- In areas where significant grading would be required, topsoil (where present) would be stockpiled and segregated for later reapplication; and
- Construction would be prohibited when the soil is too wet to adequately support construction equipment.

3. Air Quality

- Driving speeds would be limited to 20 miles per hour (mph) on unpaved roads and on the ROW;
- All areas subject to ground disturbance would be watered as needed to control dust;

- Public streets would be swept if visible soil material is tracked onto them by construction vehicles; and
- Excavation and grading activities would be suspended when winds (instantaneous gusts) exceed 25 mph and visible dust that creates a health hazard to neighboring property owners and/or visibility impacts to vehicular traffic persists.

4. Storm Water Management

NV Energy would apply for a storm water permit. NV Energy would develop a Storm Water Pollution Prevention Plan (SWPPP) that incorporates BMPs, typically in the form of straw wattles, downgradient from disturbed project areas and around spoil and stock piles.

5. Water Features and Floodplains

- All construction vehicles and equipment staging or storage and all construction activities would be located at least 100 feet away from any streams, wetlands, and other water features;
- Power poles would be located outside the ordinary high water mark for streams or rivers.

6. Vegetation

- Wherever possible, vegetation would be left in place. Where vegetation must be removed, it would be cut at ground level to preserve the root structure and allow for potential resprouting; and
- All temporary construction areas, including stringing sites and structure pads that have been disturbed, would be recontoured and restored as required by the landowner or land management agency. The method of restoration typically would consist of seeding or revegetating with native plants (if required), installing cross drains for erosion control, and placing water bars in the road. Seed would be certified as weed-free and would consist of a seed mix approved by the BLM.

7. Noxious Weeds

- Prior to preconstruction activities, qualified NV Energy personnel or a specialist would identify all noxious weeds present on the land to be included in the ROW Grant and provide this information to the BLM. A determination would be made by the BLM of any noxious weeds that require flagging for treatment. NV Energy would treat the noxious weeds as required by the BLM;
- All gravel and/or fill material would be certified as weed-free and from a BLM-approved source;
- All off-road equipment would be cleaned (power or high-pressure cleaning) of all mud, dirt, and plant parts prior to initially moving equipment onto public land. Equipment would be cleaned again if it leaves the Powerline Project site prior to reentry;

- Disturbances to areas infested with noxious weeds would be avoided to the extent possible;
- Any equipment or vehicles used in an area infested with noxious weeds would be thoroughly cleaned before they are moved to a new location using contained portable washing stations or offsite;
- As soon as work is completed, disturbed areas would be seeded with an appropriate seed mix approved by the BLM to establish ground cover by native species; and
- The Powerline Project Area would be monitored annually for three years to identify new infestations of noxious weeds within the ROW. Any new infestations would be treated using methods approved by the BLM.

8. Wildlife and Sensitive Species

- Potential habitat for sensitive species identified during the preconstruction survey would be flagged or fenced with temporary construction/snow fencing for avoidance. If avoidance is infeasible, consultation with appropriate jurisdictional agencies would be conducted prior to work in the area(s);
- Burrowing owl nest surveys would be conducted by a qualified biologist within potential breeding habitat prior to any surface disturbance proposed during burrowing owl breeding season (March 1st through August 31st). Surveys would be conducted no more than ten days and no less than three days prior to initiation of disturbance. Surveys would follow established BLM standards and protocols and would be approved by the BLM biologist prior to being implemented. If active nests are located, NV Energy would immediately notify the BLM biologist and appropriate protection measures, which may include avoidance or restriction of activities, would be established. If no active nests are present within the survey area, implementation of the proposed disturbance would commence within ten days of survey completion;
- If pale or dark kangaroo mouse habitat is disturbed, NV Energy would reseed the disturbed areas with a BLM-approved seed mix;
- If Preble's shrew habitat is disturbed, NV Energy would reseed the disturbed area with a BLM-approved seed mix;
- To avoid impacts to the northern leopard frog, NV Energy would avoid construction in northern leopard frog habitat. If NV Energy needs to disturb northern leopard frog habitat, NV Energy would not engage in construction activities during hibernation season (October –April) or during breeding season (April – May);
- If Rice's blue butterfly habitat is disturbed, NV Energy would reseed the disturbed areas with host plant seeds (*Eriogonum* spp. and *Oxytheca* spp.);
- In order to avoid potential impacts to breeding migratory birds, a nest survey would be conducted by a qualified biologist within potential breeding habitat prior to any surface disturbance proposed during the avian breeding season (March 1st through August 31st). Surveys would be conducted no more than ten days and no less than three days prior to initiation of surface disturbance. Surveys would follow established BLM standards and

protocols and would be approved by the BLM biologist prior to being implemented. If active nests are located, the BLM biologist would be notified immediately and appropriate protection measures, which may include avoidance or restriction of activities, would be established. If no active nests are present in the area survey, implementation of the surface disturbance would commence within ten days of survey completion;

- NV Energy would follow the USFWS Migratory Bird Permit Memorandum regarding unoccupied migratory bird nest destruction (without birds or eggs) (USFWS 2013);
- If guy wires are installed within the ROW, NV Energy would install collision deterrent devices, e.g., line marker, or suitable bird diverter devices, as appropriate;
- Excavations left open overnight would be covered or fenced to prevent livestock or wildlife from falling in. All covers would be secured in place and strong enough to prevent livestock or wildlife from falling in;
- Special status plants identified during baseline surveys would be flagged prior to land disturbance activities beginning and avoided;
- If a sensitive plant or animal species is identified during construction, work near the sensitive species would be halted, and a qualified biologist familiar with the biology and species likely to be encountered in the Powerline Project Area would be consulted to determine an appropriate buffer and other protective measures. The appropriate resource agencies would be notified of the discovery within 24 hours. If avoidance is infeasible, consultation with the jurisdictional resource agency would be conducted prior to continuing work in the immediate area of the species. Any federal- or state-listed species discovered on public land would also be reported to the BLM;
- Structures would be constructed to conform to those practices described in the Suggested Practices for Raptor Protection on Power Lines Manual: The State of the Art in 2006 developed by the Edison Electric Institute (APLIC 2006).

9. Cultural and Paleontological Resources

- Wherever possible, NV Energy would avoid cultural resources identified as eligible for inclusion on the National Register of Historic Places (NRHP). Where avoidance is not possible, a treatment plan would be developed through consultation between the BLM, State Historic Preservation Office (SHPO), and applicable Tribes;
- Prior to construction, NV Energy and/or its contractors would train workers and individuals involved with the Powerline Project regarding the potential to encounter historic or prehistoric sites and objects, proper procedures in the event that cultural items or human remains are encountered, prohibitions on artifact collection, and respect for Native American religious concerns. As part of this training, all construction personnel would be instructed to inspect for paleontological and cultural objects when excavating or conducting other ground-disturbing activities;
- If potential resources were found, work would be halted immediately within a minimum distance of 300 feet from the discovery, and a professional archaeologist (holding a valid Cultural Resources Permit from Nevada BLM) would be mobilized to the site to evaluate the find. Any potential resources would not be handled or moved. The professional

archaeologist would then determine whether the find needs to be evaluated by a paleontologist or Native American representative. The appropriate specialist(s) would then make a determination of the significance of the find and the steps to be followed before proceeding with the activity. Any cultural and/or paleontological resource discovered during construction on public or federal land would be reported immediately to the BLM. Work would not commence until the BLM issues a notice to proceed. The BLM would notify and consult with the SHPO and appropriate Tribes on eligibility and suitable treatment options. If significant resources are discovered, they would be recovered, transported, and stored at an approved curation facility that meets the standards specified in Title 36 CFR Part 79; and

- If human remains were encountered during the Powerline Project construction, all work within 300 feet of the remains would cease, and the remains would be protected. If the remains are on land managed by the BLM, the BLM representatives would be immediately notified. If the remains are Native American, the BLM would follow the procedures set forth in 43 CFR Part 10, Native American Graves Protection and Repatriation Regulations (NAGPRA). If the remains are located on state or private land, the Nevada SHPO and the BLM would be notified immediately. Native American human remains discovered on state or private land would be treated under the provisions of the Protection of Indian Burial Sites section of the NRS in Chapter 383. The Nevada SHPO would consult with the Nevada Indian Commission and notify the appropriate Native American Tribe. Procedures for inadvertent discovery are listed under NRS 383.170.

10. Hazardous Materials and Waste

- 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 leaking material would be contained with a bucket or absorbent materials until repairs can be made;
- All hazardous waste materials would be properly labeled in accordance with Title 40 CFR Part 262. A list of hazardous materials expected to be used during construction of the Powerline Project is presented in Table 2.3-5;
- Hazardous material storage, equipment refueling, and equipment repair would be conducted at least 100 feet away from streams or other water features;
- Spilled material 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; and
- All sanitary wastes would be collected in portable, self-contained toilets at all construction staging areas and other construction operation areas and managed in accordance with local requirements.

11. Blasting

- At a minimum, all explosive storage facilities would be weather-resistant, fire-resistant, bullet-resistant, and theft-resistant;
- Potential rockslide/landslide areas would be avoided to the maximum extent possible and a blasting geologist would be consulted prior to blasting in these areas;
- Blasts would be designed to minimize ground vibrations that could cause slope instability and impacts to wells and/or springs;
- Blasting within 500 feet of wells and/or springs would be avoided to the maximum extent possible;
- Prior to blasting activities, all underground utilities would be located and marked to determine their location in relation to the ROW. NV Energy and/or its contractor would perform pre- and post-blast inspections of existing structures that may sustain damage due to blasting operations;
- NV Energy and/or its contractor would take proper precautions to minimize or avoid damaging structures or utilities located within 150 feet of blasting operations. Precautions may include rippling the charge detonations further apart or reducing the amount of charge material that detonates simultaneously;
- To prevent or minimize the amount of rock particles cast into the air following detonation, blasting mats would be used;
- A signaling system would be used to alert individuals of an impending blast. The signaling system would include the following components:
 - A warning signal: five minutes prior to the blasting signal, a one minute series of long audible signals would be sounded at the blast site;
 - A blasting signal: one minute prior to the blast, a series of short, audible signals would be sounded at the blast site;
 - An all-clear signal: a prolonged, audible signal would be sounded at the blast site following the post-blast inspection of the blast area;
 - To inform construction personnel of the signaling protocol, signs explaining the protocol would be posted at the staging areas and other appropriate locations.
- If any damage to structures occurs due to blasting operations, NV Energy and/or its contractor would repair the damage as quickly as possible after becoming aware of the damage. In the event of damage to any water supply systems, NV Energy and/or its contractor would provide an alternative water source until the original water supply system was restored.

12. Fire Prevention and Response

- NV Energy would designate a Fire Marshal (NV Energy Fire Marshal), who would coordinate with the BLM’s fire management representative, as necessary;
- The Fire Marshal would be responsible for the following tasks:
 - Conducting regular inspections of tools, equipment, and first aid kits for completeness;
 - Conducting regular inspections of storage areas and practices for handling flammable fuels to confirm compliance with applicable laws and regulations;
 - Posting smoking and fire rules at centrally visible locations on site;
 - Coordinating initial response to contractor-caused fires within the ROW;
 - Conducting fire inspections along the ROW;
 - Ensuring that all construction workers and subcontractors are aware of all fire protection measures;
 - Remaining on duty and on site when construction activities are in progress and during any additional periods when fire safety is an issue, or designating another individual to serve in this capacity when absent;
 - Reporting all wildfires in accordance with the notification procedures described below;
 - Initiating and implementing fire suppression activities until relieved by agency or local firefighting services in the event of a Powerline Project-related fire. Powerline Project fire suppression personnel and equipment, including water tenders, would be dispatched within 15 minutes from the time that a fire is reported;
 - Coordinating with the NV Energy Project Manager regarding current fire conditions potential and fire safety warnings from the BLM and communicating these to the contractor’s crews;
- The NV Energy’s Construction Foreman or Fire Marshal would immediately notify firefighting services of any fires on site. A list of emergency fire contacts for the Powerline Project Area is presented in Table 1.

Table 1: Emergency Fire Contacts

• CALL 911 FIRST	
Department	Phone Number
BLM	CNIDC (775) 623-3444 or (800) 535-6076
	(Fire Management Office) (775) 753-0304

- Contractors would be notified to stop or reduce construction activities that pose a significant fire hazard until appropriate safeguards are taken;
- If an accidental fire occurs during construction, immediate steps to extinguish the fire (if it is manageable and safe to do so) would be taken using available fire suppression

equipment and techniques. Fire suppression activities would be initiated by NV Energy and/or its contractor until relieved by agency or local firefighting services;

- Smoking would only be permitted in designated cleared areas and would be prohibited while walking or working in areas with vegetation or while operating equipment. In areas where smoking is permitted, all burning tobacco and matches would be completely extinguished and discarded in ash trays, not on the ground;
- “NO SMOKING” signage and fire rules would be posted at construction staging areas, helicopter fly yards, and key construction sites during the fire season;
- Fire suppression equipment would be present in areas where construction tools or equipment have the potential to spark a fire;
- Extra precautions would be taken when fire danger is considered to be high;
- All field personnel would be instructed regarding emergency fire response. The contractors would receive training on the following:
 - Initial fire suppression techniques;
 - Fire event reporting requirements;
 - Methods to determine if a fire is manageable;
 - Fire control measures to be implemented by field crews on site;
 - When the worksite should be evacuated;
 - How to respond to wildfires in the vicinity; and
 - How to maintain knowledge of and plans for evacuation routes.
- All flammable material, including dead vegetation, dry grasses, and snags (fallen or standing dead trees), would be cleared a minimum of ten feet from areas of equipment operation that may generate sparks or flames;
- No open burning, campfires, or barbeques would be allowed along the ROW; at construction staging areas and substations; on access roads; or in any other project-related construction areas;
- All welding or cutting of powerline structures or their component parts would be approved by the NV Energy’s Construction Foreman or Administrator. Approved welding or cutting activities would only be performed in areas cleared of vegetation a minimum of ten feet around the area. Welding or cutting activities would cease one hour before all fire response personnel leave a construction area to reduce the possibility of welding activities smoldering and starting a fire. Welder vehicles would be equipped with fire suppression equipment;
- All internal combustion engines, both stationary and mobile, would be equipped with approved spark arresters that have been maintained in good working condition. Light trucks and cars with factory-installed (type) mufflers in good condition may be used on roads cleared of all vegetation with no additional equipment required. Vehicles equipped with catalytic converters are potential fire hazards and would be parked on cleared areas only;

- The use of torches, fuses, highway flares, or other warning devices with open flames would be prohibited. NV Energy and its contractors would only use electric or battery-operated warning devices on site;
- Equipment parking areas, small stationary engine sites, and gas and oil storage areas would be cleared of all extraneous flammable materials. “NO SMOKING” signs would be posted in these areas at all times;
- Fuel tanks would be grounded;
- NV Energy and the contractors would provide continuous access to roads for emergency vehicles during construction;
- All motorized vehicles and equipment would be equipped with the following fire protection items:
 - One long handled round point shovel;
 - One ax or Pulaski fire tool;
 - One five-pound ABC Dry Chemical Fire Extinguisher;
 - One five-gallon water backpack (or other approved container) full of water or other extinguishing solution; and
 - Hard hat, work gloves, and eye protection.
- Project construction worksites would include the following equipment:
 - Power saws, if required for construction, equipped with an approved spark arrester and accompanied by one five-pound ABC Dry Chemical Fire Extinguisher and a long-handled, round-point shovel when used away from a vehicle;
 - Fuel service trucks with one 35-pound capacity fire extinguisher charged with the necessary chemicals to control electrical and fuel fires;
 - At least two long-handled, round-point shovels and two five-pound ABC Dry Chemical Fire Extinguishers at wood cutting, welding, or other construction work sites that have a high risk of starting fires;
 - At least one radio and/or cellular telephone to contact fire suppression agencies or the project management team; and
 - Backpumps filled with water (two at each wood-cutting site, one at each welding site, and two at each tower installation or construction site, or any activity site at risk of igniting fires).
- During periods of increased fire danger, a fire suppression vehicle would be available in the construction area or stationed near high-risk construction work sites and would be equipped with the following items:
 - One water tank with a minimum capacity of 500 gallons;
 - 250 feet of 0.75-inch heavy-duty rubber hosing;
 - One pump with a discharge capacity of at least 20 gpm. (The pump would have fuel capacity to operate for at least a two-hour period.);
 - One tool cache (for fire use only) containing at a minimum:

- Two long handled round point shovels;
 - Two axes or Pulaski fire tools; and
 - One chainsaw of 3.5 (or more) horsepower with a cutting bar of at least 20 inches in length.
- If a fire is unmanageable, field crews would evacuate and call “911” or the district dispatch for the area (Table 2.3-6). All fires would be reported to the jurisdictional fire agency, regardless of size and action taken.

APPENDIX C

EXISTING RIGHTS-OF-WAY WITHIN OR ADJACENT TO THE WELL FIELD AND POWERLINE PROJECT AREAS

Existing BLM-Issued Rights-of-Way

BLM Serial Number	Authorization Description	ROW Holder	Location		Dimension*
			Township, Range	section(s)	
Well Field Project Area					
NVN-046959	Pipeline, two wells, water line	HRDI	35N, 29E	26-32	Not available
NVN-042787	Telephone line	Sprint Communications	35N, 28E	35-36	Not available
NVN-049807 (withdrawn)	Pipeline, Access Routes, Overhead powerline	Sierra Pacific Power	35N, 28E 35N, 29E	35-36 7	Not available
AT&T (closed)	Telephone line	AT&T	34N, 28E 34N, 29E	12-13 7	Not available
Powerline Project Area					
NVN-001932	Powerline	Sierra Pacific Power Co	33N, 34.5E	12	37.5
NVCC-004692	Railroad	Union Pacific Railroad Co	35N, 33E 35N, 34E 36N, 34E	1 1 33, 34, 35, 36	200
NVCC-005736	Railroad station	Union Pacific Railroad Co	36N, 34E	34	317
NVN-0007195	Powerline	Sierra Pacific Power Co	33N, 34.5E	36	50
NVN-0008404	Humboldt House	NDOT	32N, 34.5E	1	400
NVCC-020942	Highway	NDOT	33N, 34.5E	36	400
NVN-042787	Fiber optic communications line	Sprint Communications Co. LP	35N, 33E 35N, 34E 36N, 34E	6 6 34, 36	10
NVN-046728	Imlay to Sulphur 60kV power transmission line	Sierra Pacific Power Co	35N, 29E 35N, 30E	24 17	50
NVN-050143	Powerline	Sierra Pacific Power Co	35N, 33E 36N, 34E	2 34, 36	25
NVN-053607	Jungo Road	Humboldt County	35N, 32.5E 35N, 33E 36N, 34E	7 6 34, 36	60
NVN-054679	Tungsten Road	Pershing County	33N, 34.5E	25	100
NVN-058610	Gas pipeline	Paiute Pipeline Co	33N, 35E	6	50
NVN-058966	60kV overhead powerline	Sierra Pacific Power Co	35N, 30E	23	295
NVN-061570	Jungo Road well	Humboldt County	36N, 34E	34	6.62 acres
NVN-062018	Fiber optic communications line	Nevada Bell	33N, 34.5E	36	20
NVN-065550	Fiber optic communications line	WilTel Communications	33N, 34.5E	36	20
NVN-081311	Sand/gravel pit	DOI - BLM	35N, 32E	20	20 acres
NVN-082701	120 kV power transmission line and access road	NGP Blue Mountain LLC	33N, 34.5E	12	75
NVN-086634	Access Road	NGP Blue Mountain LLC	36N, 34E	34	12

Note: The table includes existing ROWs within or adjacent to the three Project Areas.

APPENDIX D

EXAMPLE OF VISUAL IMPACT ANALYSIS FORM

APPENDIX D

**VISUAL EFFECTS ASSESSMENT
AND KNOWN OBSERVATION POINT PHOTOGRAPHS**

Resource Name and #: California Emigrant Trail/CrNV-22-3305/26PE3479

Resource Eligibility (NRHP Criteria): Eligible under Criteria A and D

Date: 4/17/2013

Recorders: Allen McCabe and D. Craig Young

Zone 11 NAD83 UTM's of Resource: Begin Segment 1: 408469 mE 4503573 mN
End Segment 1: 408681 mE 4503626 mN
Begin Segment 2: 408459 mE 4503932 mN
End Segment 2: 408690 mE 4504055 mN
Begin Segment 3: 407107 mE 4514534 mN
End Segment 3: 407359 mE 4514769 mN

Project Legal Description: Segment 1: SE ¼ of SE ¼ of Sec. 36, T33N R0E R34 ½ E
Segment 2: NE ¼ of Sec. 36, T33N R0E R34 ½ E
Segment 3 (southwest end): NE ¼ of SE ¼ of Sec. 36, T34N R34E
Segment 3 (northeast end): SW ¼ of NW ¼ of Sec. 31, T33N R35E

Project Dimensions: Transmission Line Corridors

Acreage: 0.81

Project Description:

NV Energy's Interstate 80 (I-80) to Hycroft Mine power transmission project consists of three components: a re-build within the existing service right-of-way from I-80 to the Dun Glen Substation; a potential re-route alternative replacing the existing right-of-way across the Humboldt River floodplain between I-80 and the substation; and new transmission line construction from the substation to Hycroft Mine. The proposed project crosses public and private land in Pershing and Humboldt counties, Nevada; the public lands are administered by the BLM Winnemucca District Office.

The project entails replacement of the existing line from I-80, near Mill City, northward for three miles to the Dun Glen Substation; all work will be confined to the existed right-of-way. Alternatively, a three-mile re-route corridor has been proposed for the segment, which would remove transmission facilities from the Humboldt River floodplain. The existing line along the floodplain would be dismantled, though poles would be cut-off to avoid subsurface disturbance. North of Dun Glen Substation, the proposed project entails new construction of H-frame transmission facilities from the substation north to Jungo Road. At Jungo Road the project will utilize an existing transmission line, but replace the current single-pole facilities with taller single-pole structures on which the existing and new lines can be co-located. This section of the project will continue west to Hycroft Mine near the townsite of Sulphur.

The California Trail follows the Humboldt River corridor as it traverses Nevada. Within this corridor, emigrants followed several routes. Although groups of emigrants may have taken numerous tracks through the project area, three well-established routes intersect our inventory corridor – the Dry Cutoff, the Northside River Route, and the Southside River Route. Far Western personnel encountered three well-preserved segments of the trail that likely correspond with two (Dry Cutoff and Southside River) of the three routes; the project corridor also crosses two additional segments of the approximate alignment of the Northside River Route. Two of the three conspicuous segments (Segments 1 and 2) are located north of I-80 and south of the Humboldt River and the third one (Segment 3) is located along the range front of the Eugene Mountains well south of Jungo Road. The two segments north of the river (Segments 4 and 5) ostensibly represent the Northside River Route, although this route has never been physically located;

available information suggests that the trail passed through the area (Brock and Buck 2012). The proximity of the proposed transmission line to five segments of the trail is reason for this visual analysis. Both the re-build corridor and the new transmission line project corridor intersect these segments.

The segments of the California Trail intersected by the inventory corridor are elements of the National Historic Trail system and thus require evaluation regarding potential contribution to the overarching research and interpretive value of the trail system. Whether a given segment contributes to the overall interpretive and research value of the trail system is generally evaluated using a classification system developed by Oregon California Trail Association (OCTA). There are five trail classes, with Classes 1 through 3 generally considered contributing, and Classes 4 and 5 non-contributing. The trail is considered eligible to the National Register Criterion A and Criterion D (Ross-Hauer 2008; Vierra et al. 2008). Segments 1 and 2 are elements of the Southside Route and are rated as Class 1 and 2 and recommended as contributing elements of the California Trail system. Ross-Hauer and Vierra et al. (2008) (2008) previously recommended a trace of the Dry Cutoff, Segment 3, as a contributing element to the overall system; this recommendation remains unchanged. We map Segments 4 and 5 where the project corridor intersects the Class 5 section of the Northside River route as approximately depicted on the OCTA map.

Field Techniques:

Class III inventory fieldwork included pedestrian survey coverage of a 50-foot-wide corridor for the re-build right-of-way; this coverage intersected Segments 1 and 2. Field personnel encountered Segment 3 during survey coverage of the 300-foot-wide corridor for the proposed new transmission line section. Project field supervisor, Allen McCabe, documented each of the five trail segments, including digital photographs, on April 17, 2013. Overview images used in preparation of IMACS site records document each trail segment feature and include views of existing transmission lines and poles, when present.

Far Western principal investigator D. Craig Young visited the project area on May 5, 2013 and documented the transmission line corridor at several scales (overview and close up) in relation to the California Emigrant Trail. A series of digital photographs paired with GPS data points serve as “known observation points” for the analysis of potential visual effects to the trail (Appendix F, Known Observation Point Photographs). Multiple aspects of view and scaled overviews provide general landscape and site-specific perspective on the trail and the potential visual impact of the proposed transmission lines as well as existing features associated with modern land use.

Types of Effect:

View of Project? Yes

Effect: The proposed transmission line project will constitute a visual impact to various routes of the trail, largely from the poles for the overhead utility lines. However, this impact is no greater than those already within the project area (i.e., I-80, the Union Pacific Railroad, existing power transmission lines, Toncston Road, two-track access roads) and as such, it is not considered to have a significant impact to the resource. The scale of view affects the perceived degree of impact. The replacement of the existing line will not alter current visual effects to Segments 1 and 2. The installation of a new transmission line, which crosses Segment 3, will constitute a new visual impact.

Viewshed & Landscape Context

Breadth of Viewshed from Historic Property Affected: 90° 180° X 270° 360°

Is the resource part of a larger cultural landscape? Y/N: Yes

If “yes”, then does the resource contribute to the significance of that landscape or is the landscape part of the resource’s overall setting? The landscape is an aspect of the trail’s overall setting.

Segment 1

Aspect of Historic Integrity	
<i>Setting-physical environment of a historic property</i>	Segment 1 appears to be a trace of the Southside Route located south of the Humboldt River floodplain and running east-west along the south side of the Union Pacific Railroad and an unpaved parallel access road. A two-track access road connecting I-80 with the railroad frontage road occurs at the western end of Segment 1.
<i>Feeling-a property’s expression of the aesthetic or historic sense of a particular period of time.</i>	Integrity of feeling is diminished at Segment 1 due to modern linear features along the Humboldt River transportation corridor, including I-80, the railroad, electrical transmission lines, and track roads.
<i>Association-the direct link between an important historic event or person and a historic property</i>	The modern transportation corridor has degraded the integrity of setting for Segment 1. Modern land use weakens the association between historic-era emigrant travel and Segment 1 of the Trail.

Segment 2

Aspect of Historic Integrity	
<i>Setting-physical environment of a historic property</i>	Segment 2 is a trace of the Southside Route located south of the Humboldt River floodplain and running east-west north of the Union Pacific Railroad.
<i>Feeling-a property’s expression of the aesthetic or historic sense of a particular period of time.</i>	Integrity of feeling is diminished at Segment 2 due to modern linear features along the Humboldt River transportation corridor, including I-80, the railroad, electrical transmission lines, and County Road 400/Toncston Road.
<i>Association-the direct link between an important historic event or person and a historic property</i>	The modern transportation corridor has degraded the integrity of setting for Segment 2. Modern land use weakens the association between historic-era emigrant travel and Segment 2 of the Trail.

Segment 3

Aspect of Historic Integrity	
<i>Setting-physical environment of a historic property</i>	Segment 3 is a trace of the Dry Cutoff located along the lower range front of the Eugene Mountains.
<i>Feeling-a property’s expression of the aesthetic or historic sense of a particular period of time.</i>	Integrity of feeling is somewhat diminished at Segment 3 due an existing electrical transmission line.
<i>Association-the direct link between an important historic event or person and a historic property</i>	Although one transmission line (not associated with the current project) occurs within the area, the integrity of setting for Segment 3 appears intact. Modern land use has not weakened the association between historic-era emigrant travel and Segment 3 of the Dry Cutoff.

Segments 4 and 5

Aspect of Historic Integrity	
<i>Setting-physical environment of a historic property</i>	Segments 4 and 5 are located north of the Humboldt River and approximate the alignment of the Northside River Route.
<i>Feeling-a property's expression of the aesthetic or historic sense of a particular period of time.</i>	As Class 5 trails, these segments are considered non-contributing elements of the resource.
<i>Association-the direct link between an important historic event or person and a historic property</i>	As Class 5 trails, these segments are considered non-contributing elements of the resource.

Indirect Effect Criteria: Distance, Contrast, Obstruction, and Fragmentation

Distance to Project:

Foreground (< 2 mi.) The power transmission line will cross over the trail segments

Middleground (2-5 mi.) _____

Background (> 5 mi.) _____

Expected Degree of Project Contrast: *None Weak X Moderate Strong*

Describe Project features and how they will contrast with landscape (line, form, color, texture, scale, or space): A two-pole transmission line currently crosses trail Segments 1 and 2, and a new transmission line will cross Segment 3. The potential re-route alternative will cross Segment 4, while the existing line crosses Segment 5. The visibility of the transmission lines is largely restricted to the linear configuration of the wooden poles that support the overhead lines. While the lines themselves are visible, their visual presence diminishes with distance. The accompanying map depicts 12 known observation points (KOP), each with a set of digital images at various aspects and at overview and close up scales (Appendix C). KOPs 11 and 12 capture trail Segments 1 and 2 with the existing transmission line, while KOP 2 affords a view of the trail Segment 3 locale. KOPs 4 and 5 capture “approximate” trail segments 4 and 5, respectively.

Level of Obstruction: (Obstruction of views of important landscape components): *None X*

Partial Obstruction Obstruction

Describe project features and how they obstruct landscape components that contribute to the property's integrity/significance:

Level of Fragmentation (Open Space): *Little to No Fragmentation X Moderate Fragmentation*

Fragmentation of Open Space

Describe how open space is/is not fragmented by Project elements: The project generally has a small profile and does not fragment open space. The existing transmission line crosses Segments 1 and 2. Other existing, but unrelated, components of the cultural landscape in the vicinity of the Southside Route of the trail do cause fragmentation. Replacement of the transmission line across Segments 1 and 2 will not add to landscape fragmentation.

A new section of transmission line will cross the Dry Cutoff Route of the trail at Segment 3. The slope of the range front in the vicinity of the trail creates a horizon that changes in relation to position on the resource, which diminishes the visual effect of the line. Installation of the transmission line across Segment 3 will not create landscape fragmentation.

The proposed re-route alternative will cross Segment 4, and the existing transmission line crosses Segment 5. Installation of either transmission line across Segment 4 or 5 will not create landscape fragmentation; these segments are considered non-contributing elements of the resource.

Notification of Interested Publics:

Communication with OCTA and Trails West is ongoing.

References Cited:

Brock, Richard K., and Donald E. Buck

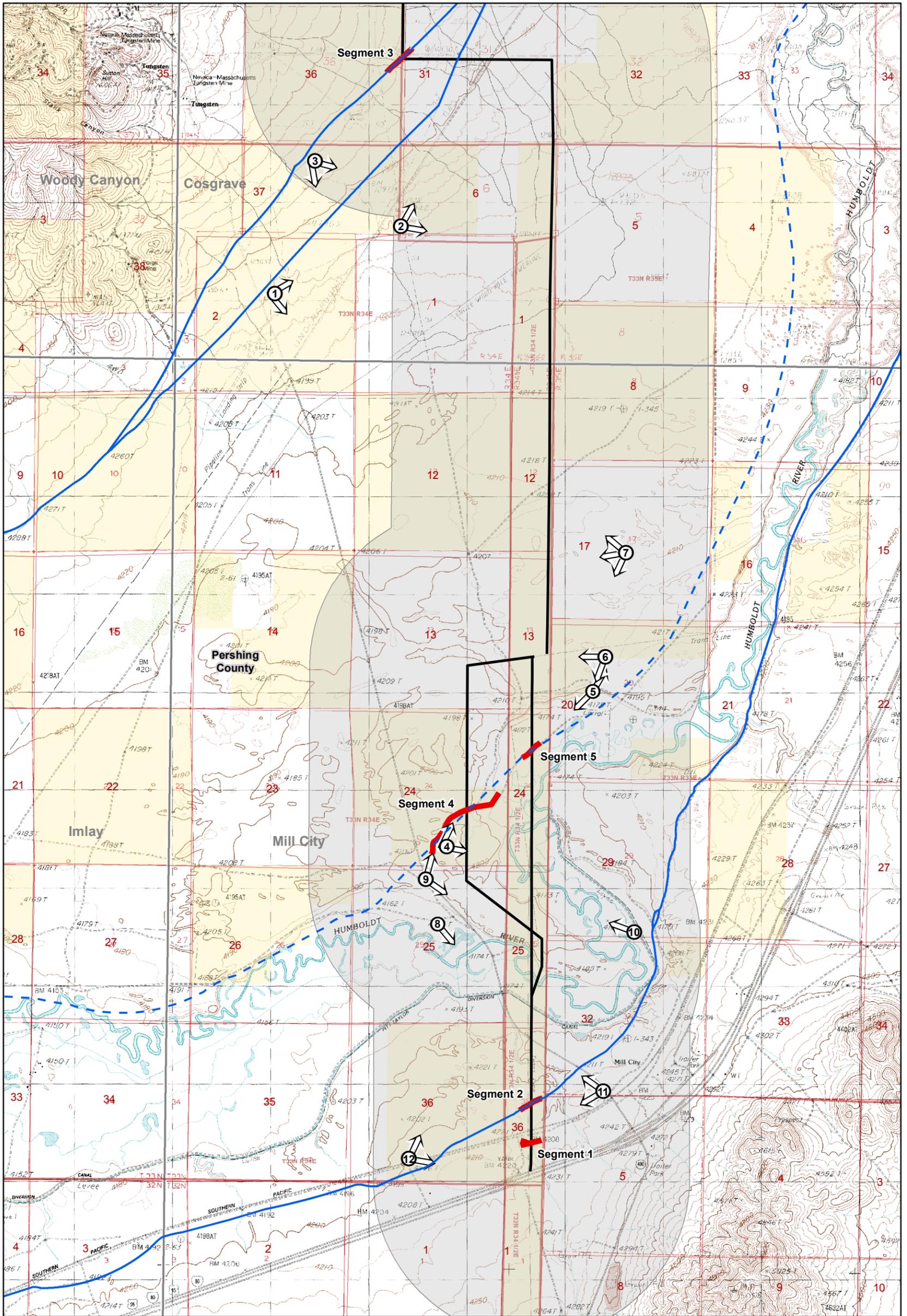
2012 Guide to the California Trail along the Humboldt River. *An Emigrant Trails West Series Guidebook*. Trails West, Inc., Reno, Nevada.

Ross-Hauer, JoEllen

2008 A Class III Cultural Resources Inventory of 1,333 Acres for the Golden Predator Springer Facility, Pershing County, Nevada.

Vierra & Associates and Native-X

2008 A Cultural Resource Inventory for the Proposed Nevada Geothermal Power Plant and Transmission Line, Humboldt and Pershing Counties, Nevada. CRR 2-2968. On file at the Bureau of Land Management, Winnemucca Field Office.



	Known Observation Point		Indirect Effects Buffer
	California Trail		USGS Topo Boundary
	California Trail Approximate Route		T/R Lines
	CrNV-02-3305 (FW)		Private
	Proposed Linear		Bureau of Land Management

1499 Hycoft - Powerline Survey
USGS 1:24,000 Quadrangles
Pershing County, Nevada

Kilometers

Miles

NORTH

1 inch = 0.63 Miles

Appendix D: Photo Locations

Appendix D: Known Observation Points for California Trails



Folder: 1499 DCY01 File: DSC_0360
Known Observation Point 1 (Overview) (View: 140°)



Folder: 1499 DCY01 File: DSC_0361
Known Observation Point 1 (Close-up) (View: 140°)

Appendix D: Known Observation Points for California Trails



Folder: 1499 DCY01 File: DSC_0362
Known Observation Point 1 (405800 4512244) (View: 60°)



Folder: 1499 DCY01 File: DSC_0363
Known Observation Point 2 (Overview) (View: 150°)

Appendix D: Known Observation Points for California Trails



Folder: 1499 DCY01 File: DSC_0364
Known Observation Point 2 (Close up) (View: 150°)



Folder: 1499 DCY01 File: DSC_0365
Known Observation Point 2 (Overview) (View: 30°)

Appendix D: Known Observation Points for California Trails



Folder: 1499 DCY01 File: DSC_0366
Known Observation Point 2 (Close up) (View: 30°)



Folder: 1499 DCY01 File: DSC_0367
Known Observation Point 2 (Overview) (View: 100°)

Appendix D: Known Observation Points for California Trails



Folder: 1499 DCY01 File: DSC_0368
Known Observation Point 2 (Close up) (View: 100°)



Folder: 1499 DCY01 File: DSC_0369
Resource at Known Observation Point 2

Appendix D: Known Observation Points for California Trails



Folder: 1499 DCY01 File: DSC_0370
Known Observation Point 3 (Overview) (View: 170°)



Folder: 1499 DCY01 File: DSC_0371
Known Observation Point 3 (Close up) (View: 170°)

Appendix D: Known Observation Points for California Trails



Folder: 1499 DCY01 File: DSC_0372
Known Observation Point 3 (Overview) (View: 105°)



Folder: 1499 DCY01 File: DSC_0373
Known Observation Point 3 (Close up) (View: 105°)

Appendix D: Known Observation Points for California Trails



Folder: 1499 DCY01 File: DSC_0374
Resource at Known Observation Point 3 (406222 4513586) (View: 55°)



Folder: 1499 DCY01 File: DSC_0375
Known Observation Point 4 (Overview) (View: 100°)

Appendix D: Known Observation Points for California Trails



Folder: 1499 DCY01 File: DSC_0376
Known Observation Point 4 (Close up) (View: 100°)



Folder: 1499 DCY01 File: DSC_0377
Known Observation Point 4 (Overview) (View: 25°)

Appendix D: Known Observation Points for California Trails



Folder: 1499 DCY01 File: DSC_0378
Known Observation Point 4 (Close up, 407949 4507010) (View: 25°)



Folder: 1499 DCY01 File: DSC_0379
Known Observation Point 5 (Overview) (View: 225°)

Appendix D: Known Observation Points for California Trails



Folder: 1499 DCY01 File: DSC_0380
Known Observation Point 5 (Close up) (View: 225°)



Folder: 1499 DCY01 File: DSC_0381
Known Observation Point 5 (Overview) (View: 30°)

Appendix D: Known Observation Points for California Trails



Folder: 1499 DCY01 File: DSC_0382
Known Observation Point 5 (Close up, 409271 4508243) (View: 30°)



Folder: 1499 DCY01 File: DSC_0383
Known Observation Point 6 (Overview) (View: 270°)



Folder: 1499 DCY01 File: DSC_0384
Known Observation Point 6 (Close up) (View: 270°)



Folder: 1499 DCY01 File: DSC_0385
Known Observation Point 6 (Overview) (View: 200°)



Folder: 1499 DCY01 File: DSC_0386
Known Observation Point 6 (Close up, 409295 4508554) (View: 200°)



Folder: 1499 DCY01 File: DSC_0387
Known Observation Point 7 (Overview) (View: 205°)



Folder: 1499 DCY01 File: DSC_0388
Known Observation Point 7 (Close up) (View: 205°)



Folder: 1499 DCY01 File: DSC_0389
Known Observation Point 7 (Overview) (View: 260°)



Folder: 1499 DCY01 File: DSC_0390
Known Observation Point 7 (Close up) (View: 260°)



Folder: 1499 DCY01 File: DSC_0391
Known Observation Point 7 (Overview) (View: 310°)



Folder: 1499 DCY01 File: DSC_0392
Known Observation Point 7 (Close up, 409481 4509634) (View: 310°)



Folder: 1499 DCY01 File: DSC_0393
Known Observation Point 8 (Overview) (View: 140°)



Folder: 1499 DCY01 File: DSC_0394
Known Observation Point 8 (Close up, 407715 4505894) (View: 140°)



Folder: 1499 DCY01 File: DSC_0395
Known Observation Point 9 (View: 125°)



Folder: 1499 DCY01 File: DSC_0396
Known Observation Point 9 (View: 15°)



Folder: 1499 DCY01 File: DSC_0397
Known Observation Point 10 (Overview) (View: 290°)



Folder: 1499 DCY01 File: DSC_0398
Known Observation Point 10 (Close up, 409739 4505628) (View: 290°)



Folder: 1499 DCY01 File: DSC_0399
Known Observation Point 11 (Overview) (View: 305°)



Folder: 1499 DCY01 File: DSC_0400
Known Observation Point 11 (Close up) (View: 305°)



Folder: 1499 DCY01 File: DSC_0401
Known Observation Point 11 (Close up, 409319 4504028) (View: 240°)



Folder: 1499 DCY01 File: DSC_0402
Known Observation Point 11 (Close up, 409319 4504028) (View: 240°)



Folder: 1499 DCY01 File: DSC_0403
Known Observation Point 12 (Overview) (View: 100°)



Folder: 1499 DCY01 File: DSC_0404
Known Observation Point 12 (Close up) (View: 100°)



Folder: 1499 DCY01 File: DSC_0405
Known Observation Point 12 (Overview) (View: 25°)



Folder: 1499 DCY01 File: DSC_0406
Known Observation Point 12 (Close up, 407339 4503358) (View: 25°)



Folder: 1499 DCY01 File: DSC_0407
Known Observation Point 13 (Overview) (View: 190°)



Folder: 1499 DCY01 File: DSC_0408
Known Observation Point 13 (Close up) (View: 190°)



Folder: 1499 DCY01 File: DSC_0409
Known Observation Point 13 (Overview) (View: 135°)



Folder: 1499 DCY01 File: DSC_0410
Known Observation Point 13 (Close up, 397032 4498845) (View: 135°)



Folder: 1499 DCY01 File: DSC_0411
Known Observation Point 14 (Overview) (View: 70°)



Folder: 1499 DCY01 File: DSC_0412
Known Observation Point 14 (Close up) (View: 70°)



Folder: 1499 DCY01 File: DSC_0413
Known Observation Point 14 (Overview) (View: 190°)



Folder: 1499 DCY01 File: DSC_0414
Known Observation Point 14 (Close up, 392813 4493198) (View: 190°)



Folder: 1499 DCY01 File: DSC_0415
Known Observation Point 15 (Overview) (View: 90°)



Folder: 1499 DCY01 File: DSC_0416
Known Observation Point 15 (Close up) (View: 90°)



Folder: 1499 DCY01 File: DSC_0417
Known Observation Point 15 (Overview) (View: 165°)



Folder: 1499 DCY01 File: DSC_0418
Known Observation Point 15 (Close-up, 391861 4491164) (View: 165°)



Folder: 1499 DCY01 File: DSC_0419



Folder: 1499 DCY01 File: DSC_0420