ENVIRONMENTAL ASSESSMENT
DOI-BLM-B020-2015-029-EA

Cordex Exploration Company
Eastside Exploration Project

May 2015
U.S. Bureau of Land Management
Tonopah Field Office
Battle Mountain District
1553 South Main Street
P.O. Box 911
Tonopah, NV 89049

MISSION STATEMENT

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CORDEX EXPLORATION COMPANY
EASTSIDE EXPLORATION PROJECT
ESMERALDA COUNTY, NEVADA

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LIST OF ACRONYMS & ABBREVIATIONS

°F	Degrees Fahrenheit
AADT	Annual Average Daily Traffic
AMSL	Above Mean Sea Level
ATV	All-Terrain Vehicle
AUM	Animal Unit Month
BAPC	Bureau of Air Pollution Control
BGEPA	Bald and Golden Eagle Protection Act
BLM	Bureau of Land Management
BMP	Best Management Practice
BMRR	Bureau of Mining Regulation and Reclamation
Cat	Caterpillar
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CESA	Cumulative Effects Study Area
CFR	Code of Federal Regulations
CO	Carbon Monoxide
COOP	Cooperative
Cordex	Cordex Exploration Company
dBA	A-weighted Decibels
EA	Environmental Assessment
EO	Executive Order
EPA	Environmental Protection Agency
EPM	Environmental Protection Measure
ESA	Endangered Species Act of 1973, as amended
ESD	Ecological Site Description
FHWA	Federal Highway Administration
FLPMA	Federal Land Policy and Management Act of 1976
GHG	Greenhouse Gas
GPS	Global Positioning System
H:V	Horizontal:Vertical
HFRA	Healthy Forests Restoration Act
HMA	Herd Management Area
HUC	Hydrologic Unit Code
IM	Instruction Memorandum
kW	kilowatt
lbs/acre	Pounds Per Acre
LR2000	Land and Mineral Legacy Rehost 2000 System
MBTA	Migratory Bird Treaty Act
Mining Law	General Mining Law of 1872, as amended
MOU	Memorandum of Understanding
mph	Miles Per Hour
MSHA	Mine Safety and Health Administration
NAAQS	National Ambient Air Quality Standards
NAC	Nevada Administrative Code
NAGPRA	Native American Graves Protection and Repatriation Act

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 of 1969
NHPA	National Historic Preservation Act if 1966
NNHP	Nevada Natural Heritage Program
NO_x	Nitrogen Oxide
NRCS	Natural Resources Conservation Council
NRHP	National Register of Historic Places
NRS	Nevada Revised Statute
NSAAQS	Nevada State Ambient Air Quality Standards
OHV	Off-Highway Vehicle
Plan	Plan of Operations
PLS	Pure Live Seed
$PM_{2.5}$	Particulate Matter 2.5 Microns
PM_{10}	Particulate Matter 10 Microns
Project	Cordex Exploration Project
PSD	Prevention of Significant Deterioration
P.Z.	Precipitation Zone
REA	Rapid Ecoregional Assessment
RFFA	Reasonably Foreseeable Future Action
RMP	Resource Management Plan
ROD	Record of Decision
ROW	Rights-of-Way
SAD	Surface Area Disturbance
SIP	State Implementation Plan
SO_2	Sulfur Oxide
TCP	Traditional Cultural Properties
TES	Threatened, Endangered, and Sensitive Species
TFO	Tonopah Field Office
U.S.	United States
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VOC	Volatile Organic Compounds
VRM	Visual Resource Management
WRCC	Western Regional Climate Center
WSA	Wilderness Study Area

1.0 INTRODUCTION/PURPOSE OF AND NEED FOR ACTION

1.1 INTRODUCTION

Cordex Exploration Company (Cordex) proposes to conduct surface exploration activities at the Eastside Exploration Project (Project) located approximately 25 miles west of Tonopah, Nevada, in Esmeralda County, on public lands administered by the Bureau of Land Management (BLM) Battle Mountain District Office, Tonopah Field Office (Figure 1-1). The Project is located in part or all of Sections 7, 8, 16, 17, and 18, unsurveyed Township 4 North, Range 39 East, Mount Diablo Base and Meridian (Project Area). The Project can be accessed by traveling west from Tonopah for 19 miles on United States (U.S.) Highway 95, then turning north on the Gilbert/Crow Springs road (between mile markers 38 and 39) and traveling north for 4.5 miles to the Project boundary. The Project is located in the Monte Cristo Mountains, north of Doyle Peak. Figure 1-1 shows the Project location, access, and land status.

Cordex proposes to expand existing Notice-level activities (up to 4.5 acres of surface disturbance) to include exploration activities within the 618-acre Project Area. Cordex proposes to conduct mineral exploration activities that would create approximately 35.7 acres of new surface disturbance over ten years for a total Project-related disturbance of 40.2 acres. Cordex, under the existing Notice NVN-88808, could conduct up to 4.5 acres of surface disturbance while this Environmental Assessment (EA) is prepared. Figure 1-2 shows the location of existing and proposed surface disturbance.

In accordance with 43 Code of Federal Regulations (CFR) 3809 and Nevada Administrative Code (NAC) 519A, Cordex submitted a revised Plan of Operations NVN-093181/Nevada Reclamation Permit (Plan) in September 2014 (revised January 2015) to the BLM and the Nevada Division of Environmental Protection (NDEP), Bureau of Mining Regulation and Reclamation (BMRR). Project-related activities would include exploration drilling, construction of roads, drill pads, and sumps, as well as maintenance of pre-1981 roads.

1.2 PURPOSE AND NEED FOR ACTION

On lands open to location under the General Mining Law of 1872, as amended (Mining Law), the BLM administers the surface of public land and federal subsurface mineral estate under the Mining Law and the Federal Land Policy and Management Act of 1976 (FLPMA). The FLPMA also governs BLM's administration of public land not open to location under the Mining Law.

The purpose of the Proposed Action is to provide Cordex the opportunity to explore, locate, and delineate precious metal (gold) deposits on its mining claims on public lands, as provided for under the Mining Law. The need for the action is established by the BLM's responsibility under Section 302 of the FLPMA and the BLM Surface Management Regulations at 43 CFR 3809, to

respond to a plan of operations and to allow an operator to prospect, explore, and asses locatable mineral resources on public lands, and take any action necessary to prevent unnecessary or undue degradation of the lands.

1.3 DECISION TO BE MADE

The decision the BLM would make, based on the National Environmental Policy Act of 1969 (NEPA), includes the following options: 1) approve the Plan with no modifications; 2) approve the Plan with additional mitigation measures that are needed to prevent unnecessary or undue degradation of public lands and reduce or eliminate the effects of the proposed action or alternatives; or 3) deny the approval of the Plan as currently written and not authorize the Project if it is found that the Proposed Action does not comply with the 3809 regulations and the FLPMA mandate to prevent unnecessary or undue degradation.

1.4 BLM RESPONSIBILITIES AND RELATIONSHIP TO PLANNING

The BLM is responsible for the preparation of this EA, which was prepared in conformance with NEPA, applicable laws and regulations passed subsequently, including the President's Council on Environmental Quality regulations implementing NEPA (40 CFR 1500-1508), U.S. Department of Interior requirements, and the policy guidance provided in the BLM NEPA Handbook H 1790-1 (BLM 2008a). Under 43 CFR 3809.415, the operator of a plan of operations must prevent unnecessary or undue degradation to the public lands.

1.4.1 Conformance with Land Use Plans

The Proposed Action, as described in Chapter 2, is in conformance with the BLM's Tonopah Resource Management Plan (RMP) Record of Decision (ROD) dated October 1997 (BLM 1997). Specifically, on page 23 the RMP ROD identifies the following locatable mineral objective:

> "To provide opportunity for exploration and development of locatable minerals such as gold, silver, copper, lead, zinc, molybdenum, etc. consistent with the preservation of fragile and unique resources in areas identified as open to the operation of mining laws" (BLM 1997).

A standard operating procedure specified in the RMP ROD on page 36 states:

> "Reclamation of disturbed areas to meet BLM standards is required for all levels of activity: casual use, notice, or plans of operations" (BLM 1997).

1.4.2 Local Land Use Planning and Policy

The Esmeralda County Master Plan includes policies that help guide the County's growth, management of natural resources, provision of public services and facilities, and the protection of the public's health, safety, and welfare. Relating to this Project, Policy 1-1 states that "the entire county shall be kept open for prospecting, mining, agriculture, and related activities", and Policy 1-2 states that "the Federal Mining Law of 1872 shall remain in effect as the basic law relating to mining activities (Esmeralda County 2011).

In addition to the Esmeralda County Master Plan, the Esmeralda County Public Lands Policy Plan was developed in response to Nevada Senate Bill 40 (1983), which directs counties to develop plans and strategies for resources that occur within lands managed by federal and state agencies. The purpose of this plan is to accomplish the following: 1) detail Esmeralda County's vision and strong policy voice concerning public lands and potential Congressional actions; 2) define Esmeralda County's public land-related issues and needs; 3) provide locally developed land management policies that enable the federal land management agencies to better understand and respond in a positive fashion to the concerns and needs of Esmeralda County in a collaborative process; 4) increase the role Esmeralda County has in determining the management of federal lands; 5) provide an opportunity to positively address federal land use management issues directly and thereby offer a proactive alternative rather than an after-the-fact response; and 6) encourage public comment and involvement (Esmeralda County 2013). Policy 2-1 reiterates Esmeralda County's support for the "concept of Multiple Use Management as an overriding philosophy for management of the public lands based on multiple use and sustainable yield concepts, and in a way that will conserve natural resources" (Esmeralda County 2013).

1.4.3 Relationship to Other Laws, Policies, and Plans

The Proposed Action is further consistent with other federal, state, and local laws, regulations, and plans to the maximum extent possible. For the purpose and need statement, this includes FLPMA, BLM's 43 CFR 3809 surface management regulations, and State of Nevada mining statutes and regulations.

The surface management regulations recognize that the BLM is required to comply with the NEPA through preparation of an environmental document, in this case an EA, which analyzes the potential impacts of the Proposed Action and any consultation required under other laws including the National Historic Preservation Act of 1966 (NHPA) and the Endangered Species Act of 1973, as amended (ESA).

1.5 SCOPING, PUBLIC INVOLVEMENT, AND ISSUES

1.5.1 Scoping

The Project was internally scoped by the BLM interdisciplinary team at a meeting held on December 11, 2014, at the BLM office in Tonopah, Nevada.

1.5.2 Issues

During this meeting, BLM resource specialists identified the elements associated with supplemental authorities and other resources and uses to be addressed in this document as outlined in Chapter 3. Issues and potential impacts related to the following specific resources associated with the Proposed Action were identified as follows:

- Air Quality;
- Cultural Resources;
- Land Use, Realty and Access;
- Migratory Birds;
- Native American Cultural Concerns;
- Noxious Weeds and Invasive, Non-native Species;
- Noise;
- Rangeland Management/Livestock Grazing;
- Recreation;
- Social and Economic Values;
- Soils;
- Special Status Species (Plants and Wildlife);
- Vegetation;
- Visual Resources;
- Wastes, Solid or Hazardous;
- Water Quantity and Quality (Surface Water and Groundwater);
- Wild Horses and Burros; and
- Wildlife.

2.0 PROPOSED ACTION AND ALTERNATIVES

2.1 INTRODUCTION

The Proposed Action consists of expanding existing/acknowledged Notice-level exploration activities on public land within the 618-acre Project Area and would consist of the following: maintenance of existing access roads; new roads, drill sites; and two staging areas. Figure 1-2 shows the locations of the proposed Project activities. In addition to Notice-level activities (up to five acres of surface disturbance), Cordex proposes to create approximately 35.7 acres of new surface disturbance for a total Project-related disturbance of 40.2 acres. Table 2-1 displays the details of the total Project disturbance.

2.2 EXISTING AND PROPOSED EXPLORATION ACTIVITIES

Cordex is currently authorized to conduct 4.5 acres of surface disturbance within the Project Area under a Notice of Intent (NVN-88808). The authorized surface disturbance includes the construction of drill sites, sumps and roads. Cordex proposes to expand exploration activities up to a total of 40.2 acres within the Project Area (Table 2-1).

Expanded exploration activities would include the following: exploration drilling; road, drill pad, sump construction; and the maintenance of existing pre-1981 roads.

Table 2-1 Existing and Proposed Surface Disturbance Associated with the Project

Project Component	Notice-Level Existing Disturbance (acres)	Proposed Disturbance (acres)	Total Disturbance (acres)
Existing Roads	2.6		2.6
Existing Drill Sites (including sumps)	1.9		1.9
Proposed Drill Sites (including sumps)		7.0	7.0
Proposed Drill Roads		24.1	24.1
Main Access Road (with pads and turnouts)		2.8	2.8
2 Staging Areas (200-feet x 200-feet)		1.8	1.8
Total	**4.5**	**35.7**	**40.2**

Cordex would provide the BLM and NDEP an annual report on or before April 15th of each year that documents surface disturbance locations delineated with a Global Positioning System (GPS) unit, types of surface disturbance, and any completed reclamation. In the event the BLM and/or BMRR determines that exploration activities have varied in such a way that would affect the reclamation and bond calculation, an updated reclamation cost estimate would be supplied with the annual report.

2.2.1 Equipment

Project personnel would access the Project Area in four-wheel drive vehicles. One or more truck-mounted, track-mounted, or articulated buggy-mounted reverse circulation or core drill rigs would be used for drilling in the Project Area. Generally, a Caterpillar (Cat) D7 or D8 bulldozer or equivalent would be used to construct the roads and drill sites where needed. Roads and drill sites would be reclaimed using a bulldozer and/or a Cat excavator or equivalent. The following vehicles and equipment may be used in conjunction with Project activities:

- Up to two reverse circulation truck-mounted, track-mounted, or articulated buggy-mounted rotary drill rigs;
- One truck-mounted, track-mounted, or articulated buggy-mounted core rig;
- Up to three 2,000- to 4,000-gallon water trucks;
- One 6,000- to 9,000-gallon water truck;
- Up to four all-terrain vehicles;
- Up to three pipe trucks;
- Up to two booster trucks;
- Up to two excavators with hydraulic hammer;
- One road grader;
- Up to two dump trucks;
- Up to three auxiliary air compressors;
- Two 5 kilowatt (kW) generators;
- Two or more portable light plant/generators; and
- One large water bladder (40,000-gallon capacity).

Cordex would take steps to prevent fires by ensuring that each field vehicle carries hand tools and a fire extinguisher. Water trucks at the Project Area would be used in the event of fire. All portable equipment, including drill rigs, support vehicles, and drilling supplies, would be removed from the Project Area during extended periods of non-operation.

2.2.2 Personnel

Standard drilling procedures would require that a geologist and a technician be on site throughout drilling activities to manage the drill, log drill holes, determine maximum drill depth, and advise the drill operator as needed. Standard drill crews would consist of a driller and two laborers. The drill operator would be in charge of the drill and would make decisions regarding drilling and equipment. Laborers would be responsible for removing and boxing the recovered core samples, removing the cuttings from the drill rigs, mixing drilling fluids in a portable mud tank, operating water trucks, assisting with drilling operations, and conducting maintenance. Up to a total of 15 individuals (three contract personnel per drill rig crew and two Cordex employees per drill for three drills) may be in the Project Area at the same time. Drilling activities would

generally be limited to daylight hours but may continue up to 24 hours per day for some drilling activities.

During periods of road and drill site construction, one operator per piece of equipment would be required. It is anticipated that one or two excavators, one dozer and one dump truck may be required. This would increase personnel by up to four. This amount of equipment and personnel would be needed for short durations throughout the life of the Project.

When water is trucked in from an offsite location, a contract water driver would be on site during water deliveries. On occasion another water truck driver may be on site for dust abatement.

On rare occasions there may be up to five upper management or visiting government personnel on site.

A total of up to twenty-six people may be on site at one time. However, this would be for short durations.

2.2.3 Staging Areas and Ancillary Facilities

Cordex would establish two staging areas within the Project boundary. Each staging area would be approximately 200 feet by 200 feet (0.91 acre). Both staging areas would be used to store drill cuttings and drill cores. The northern staging area would contain a 40,000-gallon water bladder, one office trailer, one sample logging trailer, one drill mud storage van, one general storage van, one 5 kW generator, and a portable toilet facility. Any idle equipment would be parked at one or both of the staging areas. The southern staging area would be used for drill cutting storage and parking of idle equipment. The staging areas are shown on Figure 1-2 and a schematic of the north staging area is shown on Figure 2-1.

2.2.4 Road Construction and Access

Approximately 58,500 linear feet of existing and new roads would be constructed, with 41,808 feet of new roads, with an average running width of 14 feet. Road construction would occur in areas with varying topography, and as a result, roads would have a disturbance width of between 15 and 48 feet, with an average width of 25 feet including safety berms. Planned surface disturbance associated with road construction is shown in Table 2-1. Exploration roads that require earth-moving would be constructed using typical construction practices for temporary mineral exploration roads to minimize surface disturbance, erosion, and visual contrast, as well as to facilitate reclamation.

The main access road would have an average running width of 14 feet with turnouts located no greater than 1,000 feet apart. The main access road would have eight turnouts. The dimensions of

each turnout would be 10 feet wide and 100 feet long with 50-foot transitions. Planned surface disturbance associated with the turnouts is shown in Table 2-1. Additionally, the main access road would have culverts and low water-crossings where required. Details of the main access road are included in Figure 2-2.

Road construction would be implemented using a Cat dozer, Cat excavators, with or without a hydraulic hammer, Cat road grader, and a dump truck, or equivalent equipment. Road grades would be kept to an average of ten percent or less to minimize erosion. Where steeper grades are unavoidable, water bar spacing would not exceed 400 feet. When drainages must be crossed by a road, Best Management Practices (BMPs) established by the NDEP and the Nevada Division of Conservation Districts through the State Environmental Commission (State of Nevada Conservation Commission 1994) would be followed to minimize the surface disturbance and erosion potential. Cordex would coordinate the implementation of specific BMPs as identified by the BLM and/or BMRR from the Nevada Contractors' Field Guide to Best Management Practices (NDEP 2008), if the BLM and/or BMRR determines they are appropriate for a specific location in the Project Area.

Existing access roads, as shown on Figures 1-1 and 1-2, may require routine maintenance and would consist of smoothing ruts, filling holes, grading, and re-establishing water bars when necessary. In addition, Cordex may need to blade and gravel road segments to minimize fugitive dust, which may require up to 1,000 cubic yards of gravel over the life of the Project. The gravel would be obtained from the BLM Speedway Community Pit (NVN-20298) and hauled to the site using a local contractor.

Balanced cut and fill construction would be used to the extent practicable to minimize the exposed cut slopes and the volume of fill material. Since the depth of the cut would be kept to a minimum, growth media removed during construction would be stockpiled as the fill slope to be used during reclamation. Road construction within drainages would be avoided where possible. When drainages must be crossed by a road, BMPs established by NDEP and the Nevada Division of Conservation Districts through the State Environmental Commission (State Conservation Commission 1994) would be followed to minimize the surface disturbance and erosion potential.

It is not anticipated that blasting would be necessary to construct roadbeds. If drilling and blasting of exploration drill roads should become necessary, prior to blasting, the operator would submit an approved safety plan to the BLM and NDEP.

2.2.5 Drill Sites and Drilling Procedures

One hundred and eighty drill sites would be constructed during the life of the Project. Drill sites in the main drilling area would have working areas that measure approximately 30 feet wide (including the road) by 50 feet long. The five drill sites along the main access road would be approximately 30 feet wide (not including the road) by 100 feet long. All drill sites would be the minimum size necessary to provide for safe access and a safe working area for equipment and crews. Sumps would be installed at each drill site to contain cuttings and manage drilling fluids. Sumps are included within the disturbance of each drill site and would measure approximately 15 feet long, ten feet wide, and five feet deep. To be wildlife and livestock-safe, sumps would be designed to have egress for climb out or fencing to deny access.

Drilling of exploration holes would be completed by utilizing track- or truck-mounted reverse circulation or core drill rigs and support equipment. Up to three drill rigs would operate in the Project Area at a given time. Drill holes would be both angled and vertical with drill depths averaging approximately 850 feet and up to approximately 1,200 feet in depth. Drill holes would range in diameter from 3.8 inches to 5.25 inches. If ground water is encountered, the hole would be plugged pursuant to NAC 534.420. Up to three drill holes may remain open at any one time.

All drill holes would be plugged prior to the drill rig moving from the drill site in accordance with Nevada Revised Statutes (NRS) 534, NAC 534.4369, and NAC 534.4371. If any drill hole produces artesian flow, the drill hole would be contained pursuant to NRS 534.060 and NAC 534.378 and would be sealed by the method described in Subsection 2 of NAC 534.4371. If casings is set in a drill hole, either the drill hole must be completed as a well and plugged pursuant to NAC 534.420 or the casing would be completely removed from the drill hole and then plugged in accordance with NAC 534.4369 and NAC 534.4371. Based on previous Cordex drilling, no artesian flows have occurred in the Project Area.

Cordex would follow standard drilling procedures and require a company representative to be on site or on call throughout drilling activities. The company representative would monitor and coordinate the layout and construction of each drill site, the setup of the drill rig, drilling progress, demobilization, and cleanup of the drill site. A company geologist would also coordinate drilling activities, log each hole according to the geologic features encountered, determine the maximum depth of each hole, and advise the drill operator as needed. The company representative and geologist would travel to and from the drill site in separate four-wheel drive pickup trucks and/or an all-terrain vehicle (ATV).

Standard drill rig crews would consist of a drill operator and one or two helpers. The helpers normally remove and box the recovered core samples, the cuttings from reverse circulation rigs, mix drilling fluids in the portable mud tank, operate the water truck, assist with drilling

operations, and conduct maintenance as necessary. The crew would be transported to and from the drill site in one four-wheel drive vehicle per drill rig.

2.2.6 Water Management Plan

Water would be used for dust suppression and during drilling operations. Up to 15,000 gallons of water would be used daily during active drilling periods. It is anticipated that during the life of the Project, approximately 500,000 gallons of water would be used. Water would be utilized with nontoxic drilling additives.

During peak drilling activity one large capacity water truck (6,000 gallons to 9,000 gallons) may make up to three trips daily from an offsite location to the north staging area. The water would be offloaded at the north staging area, and the water truck from each drill rig would transport the water from the staging area to the drill site. The water would be purchased from a local water hauling contractor. The contractor would purchase water from the Tonopah Public Water System. A fire hydrant water meter would be installed on an existing fire hydrant and the water would be loaded into the water truck and hauled to the water bladder located at the north staging area. If water is needed for fugitive dust, the contractor would use the water truck for fugitive dust suppression. If use of the road between the Project Area and U.S. Route 95 necessitates dust suppression from vehicle traffic associated with the Project, the road would be sprayed with water from the water truck. In a letter dated October 28, 2014, the Esmeralda County Road Department approved Cordex's request to operate water trucks on the Gilbert Road. Once the Project is approved, Cordex would enter into a "Road Maintenance Agreement" with Esmeralda County for the maintenance of the county road between the Project boundary and U.S. Route 95.

Drill fluids would be managed with the use of sumps at each drill site. BMPs for sediment control would be utilized during construction, operation, and reclamation to minimize sedimentation from disturbed areas. Proposed construction and drilling activities would avoid riparian and wetland areas, if present; however, none are known to occur in the Project Area. In order to facilitate proper drainage and prevent erosion, all bladed roads would have water bars constructed, as needed. If the BLM and/or BMRR identify specific conditions in the Project Area that warrant the implementation of additional BMPs regarding sediment control or erosion, Cordex would coordinate the implementation of the those BMPs with the BLM and/or BMRR.

Sediment control structures may include; however, are not limited to, sumps, fabric or certified weed-free straw bale filter fences, siltation or filter berms, and down-gradient drainage channels in order to prevent unnecessary or undue degradation to the environment. If needed, the use of a sand separation system would be used in conjunction with the sediment sumps so that the re-circulating of drill fluids can be maximized. Sediment traps (sumps), constructed as necessary within the drill pad disturbance, would be used to contain drill cuttings.

None of the drilling additives to be used on the Project contain hazardous substances and all are approved for well drilling. Material Safety Data Sheets for common drill additives are included in the Plan.

2.2.7 Use and Occupancy

Under 43 CFR 3710, Subpart 3715.0-5, occupancy means full or part-time residence on the public lands. It also means activities that involve residence; the construction, presence, or maintenance of temporary or permanent structures that may be used for such purposes; or the use of a watchman or caretaker for the purpose of monitoring activities. Residence or structures include, but are not limited to, barriers to access, fences, tents, motor homes, trailers, cabins, houses, buildings, and storage of equipment or supplies.

One office trailer, one logging trailer, one mud storage trailer, potentially a water storage device, one portable generator, equipment storage and one portable toilet would be used at the north staging area. A night watchman may be employed in the north staging area. Details of the north staging area are shown on Figure 2-1. The south staging area would not have any structures.

2.2.8 Solid and Hazardous Materials

Hazardous materials utilized at the Project Area would include diesel fuel, gasoline, and lubricating grease. Approximately 500 gallons of diesel fuel would be stored in fuel delivery systems on vehicles and drill rigs. Approximately 100 gallons of gasoline would be stored in fuel delivery systems for light vehicles.

All refuse generated by the Project would be disposed of at an authorized landfill facility off site, consistent with applicable regulations. No refuse would be disposed of on site. Water or nontoxic drilling fluids, additives, gels, and abandonment materials would be utilized as necessary during drilling and would be stored at the Project Area.

Approximately 100 pounds of lubricating grease would be stored on the drill rigs or transported by drill trucks. All containers of hazardous substances would be labeled and handled in accordance with Nevada Department of Transportation (NDOT) and Mining Safety and Health Administration (MSHA) regulations. In the event that a reportable quantity of hazardous or regulated materials, such as diesel fuel, is spilled, measures would be taken to control the spill, and the NDEP, and the Emergency Response Hotline would be notified, as required. If any oil, hazardous material, or chemicals are spilled during operations, they would be cleaned up in a timely manner. After clean up, the oil, toxic fluids, or chemicals and any contaminated material would be removed and disposed of at an approved disposal facility.

2.2.9 Reclamation

Reclamation would be completed to the standards described in 43 CFR 3809.420 and NAC 519A. Reclamation would meet the reclamation objectives as outlined in the United States Department of Interior Solid Minerals Reclamation Handbook #H-3042-1 (BLM 1992a), Surface Management of Mining Operations Handbook H-3809-1 (BLM 2012), and revegetation success standards per BLM/NDEP *Revised Guidelines for Successful Mining and Exploration Revegetation* (NDEP 1998). All Cordex drill sites, sumps, road construction, and staging areas would be re-contoured and reseeded. All culverts would be removed, low-water crossings would be re-contoured and any gravel used for road stabilization would be removed.

Reclamation would be designed to achieve post-exploration land uses consistent with the BLM's land use management plans for the area, which are outlined in the Tonopah RMP (BLM 1987a). Reclamation is intended to return disturbed land to a level of productivity comparable to pre-exploration levels. Post-exploration land use includes wildlife habitat, livestock grazing, hunting, and dispersed recreation. The post-exploration land use is not expected to differ from the pre-exploration land use."

The standard operating schedules at the Project area would be up to 24 hours a day, 365 days a year. No temporary or interim closures of the exploration program are planned. However, due to weather conditions, mechanical or technical difficulties, unfavorable economic conditions, litigation, severe seismic events, or other unforeseen events, activities may have to be temporarily ceased.

In the event that continuous operation is interrupted due to economic considerations or unforeseen circumstances, care and maintenance may be initiated as outlined below:

- Roads: The major roads would receive maintenance, as necessary.
- Erosion Control Measures: All erosion control measures and BMPs would be regularly inspected and maintained.

Per NAC 519A.320(2), Cordex would notify the BLM and the NDEP Bureau of Mining Regulation and Reclamation in writing within 90 days after any project suspension that is anticipated to last longer than 120 days. Cordex would identify the nature and reason for the suspension, the duration of the suspension, and the events expected to result in either resumption of exploration or the abandonment of the exploration project.

After exploration activities are terminated, reclamation would involve re-grading disturbed areas related to this Project to their approximate original contour. Where the road is located on fill, the side slopes would be rounded and graded to 2.5H:1V (horizontal:vertical) during reclamation.

The Project would then be seeded using the BLM-recommended reclamation seed mixture described below in Revegetation (Section 2.2.9.5). Staging areas would be scarified and reseeded, if necessary. Yearly visits to the site would be conducted to monitor the success of the revegetation for a period of at least three years or until revegetation success has been achieved per "Nevada Guidelines for Successful Revegetation" (NDEP 1998).

2.2.9.1 Schedule of Reclamation

Exploration activities would occur over approximately 10 years. All reclamation work, with the exception of revegetation monitoring, would be completed no later than two years after the completion of activities under this Project. Cordex would conduct concurrent reclamation of disturbed areas once it is determined that the disturbance is no longer required for Project activities. Revegetation activities are limited by the time of year during which they may be effectively implemented. Site conditions and/or yearly climatic variations may require that this schedule be modified to achieve revegetation success. Additional reclamation activities include the removal of all equipment, supplies, and materials brought onto public land at the end of the Project life. Table 2-2 outlines the anticipated reclamation schedule on a quarterly basis, which would be followed to achieve the reclamation goals set forth above.

Table 2-2 Anticipated Exploration Reclamation Schedule

Techniques	Quarter				Year(s)
	1st Jan-Mar	2nd Apr-Jun	3rd Jul-Sep	4th Oct-Dec	
Regrading		X	X	X	Within two years of Project completion
Seeding				X	Within two years of Project completion
Monitoring		X	X		Three years beyond regrading and seeding

2.2.9.2 Drill Hole Plugging

Drill holes would be plugged in accordance with NRS 534, NAC 534.4369 through NAC 534.4371, and guidance from the BLM. In the event that ground water is encountered, drill holes would be plugged pursuant to NAC 534.420.

Most drill holes would be plugged immediately after drilling is completed and samples have been collected; three drill holes may be left open at any time. All drill holes would not remain open for more than 60 days unless a waiver is granted from the State Engineer (Division of Water Resources), pursuant to NAC 534.449. No drill holes would be left open at the end of the Project.

2.2.9.3 Re-grading and Reshaping

Re-grading and reshaping of all constructed drill sites, including sumps, and exploration roads would be completed to approximate the original topography. Fill material, enhanced with growth

media, would be pulled onto the roadbeds to fill the road cuts and restore the slope to natural contours. Roads and drill sites would be re-graded and reshaped with an excavator or bulldozer. As described in the Plan, only excavators would be used on slopes greater than 30 percent. The proposed surface disturbance associated with the construction activities has been categorized by slope angle and the total disturbance of each segment calculated accordingly as outlined in the Plan. For upgraded roads, drill pads and staging areas that do not require replacement of sidecast material, reclamation would be accomplished with an excavator bucket/ripper or a dozer to knock down and smooth any berms and relieve road compaction.

Should any drainages be disturbed, they would be reshaped to approach the pre-construction contours. All culverts would be removed and low-water crossings would be reshaped. The resulting channels would be of the same channel dimension, pattern, and profile as up and downstream reaches and would be made non-erosive by use of surface stabilization techniques (rip-rap) where necessary, and ultimately revegetated. Following completion of earthwork, all disturbed areas would be broadcast seeded.

2.2.9.4 Handling and Application of Topsoil

Topsoil at the staging areas would be stockpiled within the cleared area. On steeper slopes, topsoil would be stored as side-cast along the periphery of the pads. Although this would mix the limited existing quantities of topsoil with the sub-soils, experience has shown that the resulting surface soils can support vegetation.

2.2.9.5 Revegetation

Generally, seedbed preparation and seeding would take place in the fall after regrading of disturbed areas. All reclaimed areas would be broadcast seeded with a cyclone-type bucket spreader. Broadcast seed would be covered by harrowing, raking, or other site-specific appropriate methods as necessary to provide seed cover and enhance germination. Reclaimed surfaces would be left in a textured or rough condition (i.e., small humps, pits, etc.) to enhance moisture retention and revegetative success while minimizing erosion potential.

The seed list provided by the BLM and shown in Table 2-3, is based on known soil and vegetative conditions and was selected to establish a plant community that would support the post-exploration land use. The mix is designed to provide species that can exist in the environment of central Nevada, are proven species for revegetation, or are native species found in the plant communities prior to disturbance. Broadcast seeding would be at a rate of 14 pounds of pure live seed (PLS) per acre. Changes or adjustments to the reclamation plant list or application rate would be completed in consultation with and approval by the BLM and BMRR. The seed mixture would be certified PLS and weed free. Straw bales used for erosion control would also be certified as weed free.

Timing of revegetation activities is critically important to the overall success of the program. Seeding activities would be timed to take advantage of optimal climatic periods and would be coordinated with other reclamation activities. In general, earthwork and drainage control would be completed in the summer or early fall. Seedbed preparation would generally be completed in the fall, either concurrently with or immediately prior to seeding. Seeds would be sown 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. In either case, seeding would not be completed when the ground is frozen or snow covered.

Seeding procedures would be dependent upon site characteristics. Re-contoured pads, sumps and roads with severe slopes would be seeded with hand-held broadcast seeders. An electric broadcast seeder mounted on an ATV may be used on staging areas and roads with gentle slopes. A chain drag mounted behind the ATV may be used to cover the seed.

The BLM-recommended reclamation seed mix for the Project is shown in Table 2-3. Only certified weed-free seed would be used for reclamation seeding. Straw bales used for erosion control would also be certified as weed-free.

Table 2-3 BLM-recommended Reclamation Seed Mix for the Project

Common Name	Scientific Name	Pounds per Acre
Indian ricegrass	*Achnatherum hymenoides*	3
Bottlebrush squirreltail	*Elymus elymoides* ssp. *elymoides*	2
Fourwing saltbrush	*Atriplex canescens*	3
Shadscale	*Atriplex confertifolia*	4
Small burnett	*Sanguisorba minor*	1
Blue flax	*Linum lewisii*	1
	Total	**14**

2.2.9.6 Removal or Stabilization of Building, Structures, and Support Facilities

Temporary logging/office trailers, mud storage van, portable toilets, generators, equipment, and supplies would be removed following completion of the Project. These facilities would be removed by being transported off site with trucks and/or trailers. Materials, including scrap, trash, and unusable equipment, would be removed on a daily or weekly basis and disposed of in accordance with federal and state regulations and laws.

2.2.10 Applicant Committed Environmental Protection Measures

Cordex commits to the environmental protection measures (EPMs) below to prevent unnecessary or undue degradation during construction, operation, and reclamation of the Project. The measures are derived from the general requirements established in the BLM's Surface

Management Regulations at 43 CFR 3809 and BMRR mining reclamation regulations, as well as water quality, air quality, and other environmental protection regulations.

Water Quality

Exploration drill holes would be surveyed and plugged as an operational procedure immediately after completion of drilling in accordance with NAC 534.4369 and 534.4371. The drill holes would be plugged by placing drill cuttings or bentonite grout, concrete grout, or neat cement plug into the total depth of the hole, or if ground water is encountered, plugged as a well pursuant to NAC 534.420. All drill holes would be plugged either with concrete grout, cement grout, or neat cement from 20 feet below the surface to the surface. Storm water BMPs would be used at the Project Area to minimize erosion from storm water.

Drill cuttings would be contained and the fluids managed utilizing appropriate control measures. Sediment traps would be used as necessary and filled at the end of the drill program. Only nontoxic fluids would be used in the drilling process. To be wildlife and livestock-safe, sumps would be designed to have egress for climb out or fencing to deny access. Cordex would follow the Spill Contingency Plan included in the Plan.

Cordex would follow the Spill Contingency Plan outlined below:

Materials and equipment necessary for spill cleanup would be kept at each drill rig. Equipment and materials would include, but not be limited to, shovels, gloves, safety glasses, sorbent materials, sand, sawdust, and plastic/metal trash containers specifically for this purpose.

Well-maintained equipment would be used to perform the work required at the Project. When practicable, equipment maintenance would be performed off site. In the event of oil, fuel, lubricating grease, or other equipment leaks, cleanup would be conducted as soon as possible. If the leak is on compacted soil, an oil-absorbing product, such as Absorb®, may be applied. Once the cleanup product has absorbed the spill material, the product is removed and disposed of according to state and federal regulations. Any contaminated soil would be removed, managed, and disposed of at an off-site facility in compliance with state and federal regulations.

In the event of oil, fuel, or hydraulic fluid leaks, cleanup would be conducted as soon as possible. In the event of a major spill, the following actions would be taken in addition to any federal, state, and local health and safety regulations:

- Contain the spread or migration of the spill using the on-hand supply of erosion control structures and/or by creating dirt berms, as feasible and necessary.

- Regulated wastes will be removed from the Project area and disposed of in a state, federal, or local designated area.

- If a spill of a petroleum constitute is considered to meet the reportable quantity per the NDEP's guidelines (greater than 25 gallons or greater than 3 cubic yards of impacted material) or a reportable quantity for hazardous waste is released based on the U.S. Environmental Protection Agency (EPA) guidelines established under Title III List of Lists (40 CFR Part 302), the BLM and NDEP (775) 687-4670 would be notified within 24 hours and the appropriate remedial actions and confirmation sampling will be conducted under direction of the NDEP.

Migratory Birds

Land clearing or other surface disturbance associated with the activities within the Project Area would be conducted outside of the avian breeding season, whenever feasible, to avoid potential destruction of active bird nests or young birds in the area. When surface disturbance must be created during the avian breeding season, (March 1 through July 31), a qualified biologist would survey the area prior to land clearing activities. Pre-disturbance surveys for migratory birds are only valid for seven days. If the disturbance for the specific location does not occur within seven days of the survey, another survey would be needed. However, if the vegetation has been fully cleared from the work area within the seven day clearance survey time frame, no additional clearance survey would be required for the disturbed area because it would no longer consist of potential migratory bird nesting habitat. If active nests are located, or if other evidence of nesting (i.e., mated pairs, territorial defense, carrying nesting material, transporting food) is observed, a protective buffer (the size depending on the habitat requirements of the species and location of the nest) would be delineated after consultation with the BLM resource specialist and the entire area avoided, preventing destruction or disturbance to nests until they are no longer actively breeding or rearing young, or until the young have fledged. The start and end dates of the seasonal restriction may be based on site-specific information, such as elevation and winter weather patterns, which affect breeding chronology.

Cordex's biologist would recommend to the BLM an avoidance buffer around the nest which the BLM, in coordination with the Nevada Department of Wildlife (NDOW) and the U.S. Fish and Wildlife Service (USFWS), would review and approve prior to surface disturbance. Cordex's biologist would inform Cordex when the birds have left the nest. Cordex would not conduct any drilling or surface disturbing activities within the exclusion zone until the biologist determines that the birds are no longer nesting.

Raptors

In order to avoid impacts to nesting raptors in the Project Area, Cordex would ensure that the unoccupied potential raptor nest and the unoccupied golden eagle nest located within the Project Area would be surveyed by a qualified biologist annually prior to conducting surface disturbance

in the avian breeding season (March 1 through July 31) to determine whether the nest is occupied or not. Each year during the nesting season (March 1 to July 31), Cordex would coordinate with the BLM to determine an avoidance buffer of any active raptor nests. Active raptor nests are reported annually to the BLM.

Bats

Cordex would not conduct surface disturbing activities within 200 feet of existing adits, shaft openings, or caves to prevent any impacts to bat species potentially residing in or near these structures. If a BLM qualified biologist surveys the site and determines that bats are not residing in or near the structure, the aforementioned exclusion zone would not apply. The NDOW would conduct an internal survey of the existing adit within the Project Area, and the NDOW would assume all financial and legal liability for the survey. The NDOW would coordinate with Cordex prior to conducting the survey to determine the best time to conduct the survey in order to avoid potential conflicts with Cordex's operations on site.

Cordex would avoid direct physical disturbance (e.g., grading or drilling) to rock outcrops that may potentially be used for bat roosting habitat within the Project Area. According to the 2006 Revised Nevada Bat Conservation Plan, rock outcrops that may potentially be used for bat roosting habitat would be considered rock outcrops measuring six meters (approximately 20 feet) or greater in height (Bradley et al. 2006).

Special Status Plant Species

In order to prevent direct impacts to these populations, Cordex would erect and maintain orange fencing around a 10-foot buffer of the special status plants when working around them to prevent accidental impacts to the species.

Cultural and Paleontological Resources

In compliance with BLM Instruction Memorandum (IM) No. NV-2011-004 dated November 5, 2010; Cordex implemented cultural baseline surveys prior to submittal of the Plan.

A class III pedestrian transect survey was conducted within the Project boundary. Cordex would coordinate with the BLM in order to avoid impacts to cultural resources identified during the survey.

Pursuant to 43 CFR 10.4(g), Cordex 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 30 days, or when notified to proceed by the BLM authorized officer.

In the event that previously undiscovered paleontological resources are discovered in the performance of any surface disturbing activities, the item(s) or condition(s) would be left intact and immediately brought to the attention of the authorized officer of the BLM. If significant paleontological resources are found, avoidance, recordation, and data recovery would be required.

Pursuant to the State Protocol Agreement Section VI.B, any cultural resource discovered by the permit holder, or any person working on their behalf, during the course of activities on federal land would be immediately reported to the BLM Authorized Officer by telephone, with written confirmation. The permit holder would suspend all operations within 100 meters (330 feet) of such discovery and protect it until an evaluation of the discovery can be made by the authorized officer. If the BLM determines, in consultation with the SHPO, that the site is or may be eligible for the NRHP, a BLM archaeologist would determine an exclusion zone adequate to protect the resource. Cordex would not conduct any surface disturbing activities within this exclusion zone without further authorization from the BLM, which may require further environmental and/or cultural analyses. The holder is responsible for the cost of evaluation and mitigation. Operations may resume only upon written authorization to proceed from the authorized officer.

Public Safety and Access

Public safety would be maintained throughout the duration of the Project. All equipment and other facilities would be maintained in a safe and orderly manner. Signage would be placed warning the public that the area is an active exploration site and heavy equipment traffic may be present. A temporary sign would also be placed warning the public and project personnel of possible flash floods. Cordex would monitor weather conditions for the possibility of flash floods and warn Project personnel as conditions warrant. Speed would be limited to 25 miles per hour (mph) on County roads and 15 mph on exploration roads.

All unattended sumps would be adequately fenced or bermed to preclude access. To ensure wildlife and livestock safety, sumps would be designed to have egress for climb out.

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

All solid wastes would be disposed of in a state, federal, or local designated site. Pursuant to 43 CFR 8365.1-1(b) (3), no sewage, petroleum products, or refuse would be dumped from any trailer or vehicle.

If a spill of a petroleum constituent is considered to meet the reportable quantity per the NDEP's guidelines (greater than 25 gallons or greater than three cubic yards of impacted material or any quantity if a water body is impacted), or a reportable quantity for hazardous waste is released based on the Federal Environmental Protection Agency guidelines established under Title III List of Lists (40 CFR Part 302), the NDEP would be notified within 24 hours, and the appropriate remedial actions and confirmation sampling would be conducted under direction of the NDEP. No solid waste would be permitted in sumps.

Cordex would comply with all applicable state and federal fire laws and regulations. All reasonable measures would be taken to prevent and suppress fires in the Project Area.

Any identified public hazards such as open historic mine workings would be secured per Nevada Division of Minerals standards.

Fire Management

In the event the proposed Project activities start or cause a wildland fire, Cordex would be responsible for all the costs associated with the suppression. The following precautionary measures would be taken to prevent and report wildland fires:

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

Air Quality

The NDEP issued a Class II Air Quality Operating Permit, Surface Area Disturbance (SAD) Permit AP1041-3524, FIN A1791 for the Plan. Emissions of fugitive dust from disturbed surfaces would be minimized by an incremental approach to acreage disturbance, concurrent reclamation, the application of water to roads and the use of wind-break fencing designed to limit wind erosion. All roads used by Cordex may require that water be applied to control dust.

Noxious Weeds

Cordex would be responsible for controlling all noxious weeds in newly disturbed areas until the reclamation activities have been determined to be successful and released by the BLM Authorized Officer and BMRR. Noxious weeds would be controlled through implementation of the following BMPs: concurrent reclamation efforts; operator control; removal of invasive, non-native, and noxious weeds on reclaimed areas; washing heavy equipment prior to entering the Project Area; and avoiding areas of known invasive, non-native, and noxious weeds during periods when the weeds may be spread by vehicles.

If noxious weeds or other invasive species deemed detrimental by the BLM are found, a BLM weed specialist would be consulted and an appropriate treatment plan developed and implemented. Control standards and measures would comply with applicable State and federal regulations. Weed treatments may include the use of herbicides, and only those herbicides approved for use on public lands by the BLM would be evaluated for use.

Night Skies

Minimal night drilling is anticipated. To minimize effects from lighting, Cordex would utilize hooded 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. Cordex would utilize lighting designed to reduce the impacts to night skies.

Wild Horses and Burros

Cordex will immediately report any conflicts with or concerns about wild horses in the Project Area to the Tonopah Field Office Wild Horse and Burro Specialist.

2.3 NO ACTION ALTERNATIVE

The NEPA requires that an alternative of No Action be analyzed in an EA. Under the No Action Alternative, the Proposed Action would not be approved. Cordex may continue exploration activities under their approved Notice for approximately 4.5 acres of surface disturbance and may revise the Notice to include up to five acres of disturbance. The five acres may be reclaimed and released by the BLM, based on compliance with the revegetation success release criteria;

thereby, allowing Cordex to create another Notice for up to five acres of disturbance for exploration activities in the future. Activities associated with this total disturbance of up to five acres of surface disturbance include maintenance of existing access roads, construction of exploration roads, and construction of drill pads, and reclamation. The Project Area would remain in the existing conditions, and would remain available for future mineral exploration and mining activities, or for other multiple-use actions, as approved by the BLM.

2.4 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED ANALYSIS

Cordex and BLM considered two alternatives to the Proposed Action, but were eliminated from further analysis.

2.4.1 Cross Country/Overland Travel Only Alternative

This alternative would include only overland or cross country travel and would not include construction of new roads. Utilization of cross country travel exclusively for the Project would eliminate much of the exploration area due to topographic constraints. This alternative would not meet the purpose and need of the Project, and would not allow Cordex to reasonably evaluate and characterize the mineral potential in the Project Area.

2.4.2 Use Only Existing Roads Alternative

Under this alternative, all exploration activities would use only existing roads and no new roads would be constructed. Utilization of existing roads only would eliminate portions of the exploration area. This alternative does not meet the purpose and need, and would not allow Cordex to fully evaluate and characterize the mineral potential in the Project Area.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 INTRODUCTION

The purpose of this section of the EA is to describe the existing environment of the Project Area, as well as environmental consequences from implementation of the Proposed Action or the No Action Alternative. Cordex is currently authorized to conduct 4.5 acres of surface disturbance within the Project Area under a Notice (NVN-88808). The existing notice-level surface disturbance includes construction of drill sites, sumps, and roads. The proposed Project would expand activities to include up to 40.2 acres (rounded to 40 acres for analysis) and would consist of drill site, sump, and road construction, as well as overland travel and staging areas. The existing baseline condition of the Project Area serves as the basis for the analysis of the Proposed Action and No Action Alternative.

Supplemental Authorities that are subject to requirements specified by statute or Executive Order (EO) must be considered in all BLM environmental documents. The elements associated with the supplemental authorities listed in the BLM NEPA Handbook (BLM 2008a) and in the Nevada IM 2009-030, Change 1 (BLM 2009), are listed in Table 3-1. The table lists the elements and the determination whether the element is present in the Project Area and whether the element would be affected by the Proposed Action.

Table 3-1 Elements Associated with Supplemental Authorities and Rationale for Detailed Analysis for the Proposed Action

Supplemental Authority Element	Not Present	Present/ Not Affected	Present/May Be Affected	Rationale/Reference Section
Air Quality			X	The Proposed Action may affect air quality. See Section 3.2.1.
Areas of Critical Environmental Concern	X			This element is not present within the Project Area or its vicinity and is not further analyzed in this EA.
Cultural Resources		X		The Proposed Action would not affect significant or unevaluated cultural resources. See Section 3.2.2.
Environmental Justice	X			Even though minority and low-income populations occur within Esmeralda County (U.S. Census Bureau 2009), minority or low-income groups would not be disproportionately affected by health or environmental effects as a result of implementation of the Proposed Action or No Action Alternative. This element is not further analyzed in this EA.
Farm Lands (Prime or Unique)	X			This element is not present within the Project Area or its vicinity and is not further analyzed in this EA.

Supplemental Authority Element	Not Present	Present/ Not Affected	Present/May Be Affected	Rationale/Reference Section
Fish Habitat	X			Native fish habitat is not present within the Project Area or its vicinity and is not further analyzed in this EA.
Floodplains		X		Although there are no FEMA-mapped floodplains, portions of the Project Area exhibit characteristics of a floodplain as defined in EO 11988. The Proposed Action is considered the practicable alternative as allowed under EO 11988 as Cordex has incorporated BMPs into the Project design as well as concurrent reclamation that would minimize impacts within the floodplain.
Forests (Healthy Forests Restoration Act [HFRA] projects only)	X			This Project does not meet the requirements to qualify as an HFRA project; therefore, this element is not further analyzed in this EA.
Human Health and Safety (Herbicide Projects)	X			The Project may use herbicides to eradicate noxious weeds; however, EO 13045, "Protection of Children from Environmental Health Risks and Safety Risks," would not apply to this Project as there would be no children on the site during application of the herbicides. This element is not further analyzed in this EA.
Migratory Birds			X	The Proposed Action may affect migratory birds. See Section 3.2.5.
Native American Cultural Concerns			X	See Section 3.2.3.
Noxious Weeds, Invasive, and Non-native Species			X	The Proposed Action may affect noxious weeds, invasive, and non-native species. See Section 3.2.6.
Threatened or Endangered Species	X			Federally threatened and endangered species have been determined not to be present within the Project Area. See Section 3.2.12 (Special Status Species) for further discussion.
Wastes, Solid or Hazardous			X	The Proposed Action includes the use of hazardous materials. See Section 3.2.15.
Water Quantity and Quality, Surface and Ground			X	The Proposed Action may affect surface and ground water quantity and quality. See Section 3.2.16.
Wetlands and Riparian Zones	X			This element is not present within the Project Area or its vicinity and is not further analyzed in this EA.
Wild and Scenic Rivers	X			This element is not present within the Project Area or its vicinity and is not further analyzed in this EA.

Supplemental Authority Element	Not Present	Present/ Not Affected	Present/May Be Affected	Rationale/Reference Section
Wilderness/Wilderness Study Areas (WSAs)/lands with wilderness characteristics	X			Wilderness, WSAs, or lands with wilderness characteristics are not present within the Project Area or its vicinity. A statewide inventory has been completed, and there are no lands with wilderness characteristics in the Project Area. The BLM conducted a lands with wilderness characteristics inventory of the Project Area in March 2015 and determined there are no lands with wilderness characteristics in the Project Area. These elements are not further analyzed in this EA.

Elements present are analyzed in Section 3.2. Those elements listed under the supplemental authorities that do not occur in the Project Area and are not affected by the Project are not evaluated further in this EA, based on the rationale provided in Table 3-1.

In addition to the elements listed under supplemental authorities, the BLM considers other resources and uses that occur on public lands and the issues that may result from the implementation of the Proposed Action. Other resources or uses of the human environment considered for this EA are listed in Table 3-2 below.

Table 3-2 Resources or Uses Not Associated with Supplemental Authorities

Other Resources or Uses	Not Present	Present/ Not Affected	Present/May Be Affected	Rationale/Reference Section
Fire Management	X			The Proposed Action would not affect fire management. See Section 3.2.3.
Forestry and Woodland Resources	X			This element is not present within the Project Area or its vicinity and is not further analyzed in this EA.
Geology and Mineral Resources		X		The Proposed Action would not involve the removal of large quantities of earth that may potentially lead to structural instability. Only a small amount of material would be removed from drill holes and would not affect potential mineral resources in the ground. Compared to the overall ore deposition in Esmeralda County and Nevada, the amount of minerals extracted as a result of the proposed exploration activities is in effect miniscule and would not have any appreciable impact on geology and minerals. This element is not further analyzed in this EA.

Other Resources or Uses	Not Present	Present/ Not Affected	Present/May Be Affected	Rationale/Reference Section
Lands Use, Realty, and Access			X	The Proposed Action may affect land use, realty, and access. See Section 3.2.5.
Noise			X	The Proposed Action may result in noise impacts. Noise impacts are discussed under wildlife in Section 3.2.19.
Paleontological Resources	X			See Section 3.2.8.
Rangeland			X	The Proposed Action may affect rangeland. See Section 3.2.9.
Recreation			X	The Proposed Action may affect recreation. See Section 3.2.10.
Social Values and Economics			X	A maximum of 26 people would be on site at any one time during the life of the Project. The Project would have a short-term positive effect to local communities and Esmeralda County. See Section 3.2.11.
Soils			X	Soils may be affected by the Proposed action. See Section 3.2.12.
Special Status Plant Species			X	Special status plant species were found in the Project Area and the vicinity during 2014 field surveys. See Section 3.2.13.
Special Status Wildlife Species (Including Golden Eagles)			X	Special status wildlife species were found in the Project Area and the vicinity during 2014 field surveys. See Section 3.2.13.
Vegetation			X	Vegetation may be affected by the Proposed Action. See Section 3.2.14.
Visual Resources			X	The Proposed Action may affect visual resources. See Section 3.2.15.
Wild Horses and Burros			X	The Proposed Action is within a Herd Management Area (HMA), and may affect wild horses and burros. See Section 3.2.18.
Wildlife			X	The Proposed Action may affect wildlife. See Section 3.2.19.

Present resources or uses are discussed and analyzed in Section 3.2. Those other resources listed that do not occur in the Project Area and would not be affected by the Project are not evaluated further in this EA, based on the rationale provided in Table 3-2.

The potential effect of the No Action Alternative on both supplemental authorities and other resources or uses is discussed in Section 3.3.

3.2 EFFECTS OF THE PROPOSED ACTION

3.2.1 Air Quality

3.2.1.1 Affected Environment

Air Quality

The Federal Clean Air Act 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. Regulatory air standards that are potentially applicable to the Project include the following: National Ambient Air Quality Standards (NAAQS) and the Nevada State Ambient Air Quality Standards (NSAAQS).

The Bureau of Air Pollution Control (BAPC) is the agency in the State of Nevada delegated with the responsibility for implementing a State Implementation Plan (SIP) (excluding Washoe and Clark Counties, which have their own SIP). Included in a SIP are the State of Nevada air quality permit programs (NAC 445B.001 through 445B.3791, inclusive). Also part of a SIP is the NSAAQS. The NSAAQS are generally identical to the NAAQS with the exception of the following: a) an additional standard for carbon monoxide (CO) in areas with an elevation in excess of 5,000 feet above mean sea level (AMSL); b) a hydrogen sulfide standard; c) the revised NAAQS for particulate matter of aerodynamic diameter less than 2.5 microns ($PM_{2.5}$); d) the revised NAAQS for particulate matter of aerodynamic diameter less than ten microns (PM_{10}); e) ozone (Nevada has yet to adopt the new and revised federal standards); and f) a violation of state standards occurring with the first annual exceedance of an ambient standard, while federal standards are generally not violated until the second annual exceedance. In addition to establishing the NSAAQS, the BAPC is responsible for the Prevention of Significant Deterioration (PSD) program, enforcing the New Source Performance Standards, and implementing the Federal Operating Permit Program (Title V) throughout the State of Nevada.

The attainment status relative to the NSAAQS within the Project Area is determined by monitoring ambient levels of criteria pollutants. An attainment designation means that no violations of NSAAQS or NAAQS have been documented in the region. An unclassified designation means that there is a lack of monitoring data available to classify the area. The Project Area is located in the Big Smokey Valley/Tonopah Flat hydrographic basin (137A). The NDEP has placed Basin 137A in a monitoring state for PSD for PM_{10}, but there is a lack of data to definitively classify it as a PSD area (NDEP 2015). The existing air quality is typical of largely undeveloped regions of the western United States with limited sources of pollutants.

Climate and Meteorology

The Project Area is located at the northern end of the Monte Cristo Range. The elevations within the Project Area range from 5,192 feet AMSL to 6,270 feet AMSL. According to the Western Regional Climate Center (WRCC) from information at the Tonopah Cooperative (COOP) station 20 miles southeast of the Project Area, average summer (June through August) temperatures are

approximately 71 degrees Fahrenheit (°F) and average winter (December through February) temperatures are approximately 33 °F. The average annual precipitation is approximately five inches (WRCC 2015).

Current Conditions

The BLM published the final Rapid Ecoregional Assessment (REA) for the Central Basin and Range in June 2013 (Comer et al. 2013). REAs examine climate change and other widespread environmental influences that are affecting western landscapes. REAs look across an ecoregion to more fully understand ecological conditions and trends; natural and human influences; and opportunities for resource conservation, restoration, and development. The REAs provide regional information that can inform local management efforts.

Over the past 100 years, the weather, vegetation cover, and wildfire regimes of the Central Basin and Range ecoregion have changed, suggesting a change in the ecoregion's climate regime. Changes in temperature and precipitation have resulted in changes to vegetation cover and wildfire regimes. Changes are expressed in species composition, changes in vegetation communities, and increasing quantities of invasive species. Many areas once dominated by sagebrush have piňon-juniper encroachment as well as downy brome (cheatgrass).

Greenhouse Gas Emissions

Greenhouse gases (GHGs) are those that allow short-wave solar radiation to enter the earth's atmosphere but absorb long-wave infrared radiation reemitted from the earth's surface. GHGs can affect climate patterns, which in turn can affect resource management.

Gases exhibiting greenhouse properties come from both natural and human sources. Water vapor, carbon dioxide, methane, and nitrous oxide are examples of GHGs that have both natural and man-made sources, while other GHGs, such as chlorofluorocarbons, are exclusively man-made.

Sources of GHG emissions vicinity of the Project Area are wildfires and prescribed burns, vehicles (including off-highway vehicle [OHVs]), construction and operation for mineral and energy development, and grazing livestock, wild horses, and burros. To the extent that these activities increase, GHG emissions are also likely to increase.

Climate Change

Climate represents the long-term statistical characterization of daily, seasonal, and annual weather conditions such as temperature, relative humidity, precipitation, cloud cover, solar radiation, and wind speed and direction. Climate is the composite of generally prevailing weather conditions of a particular region throughout the year, averaged over a series of years. A region's

climate is affected by latitude, terrain, and altitude, as well as nearby water bodies and their currents.

Warmer and more arid conditions, coupled with a shorter snow season, have led to limited water supplies and severe drought in parts of the state. By 2100, the average temperature in Nevada is predicted to increase by 3 °F to 4 °F in the spring and fall and by 5 °F to 6 °F in the summer and winter. El Niño events are predicted to increase in frequency and duration as a result of global climate change. These temperature changes would affect evaporation and precipitation in the state, likely resulting in the decreased availability of water (National Conference of State Legislatures 2008).

In the Central Basin and Range ecoregion, climate models suggest there is no strong trend toward either wetter or drier conditions either in the near future (through the 2020s) or in the long term (through the 2050s) (Comer et al. 2013). However, models show significant increases in maximum monthly temperatures by 2020, primarily in the summer months (July, August, and September). The highest maximum temperature increase projected is 6 °F. These increases are predicted to occur mostly in the southern and northeastern edges of the ecoregion. Forecasts for 2060 predict substantial increases in maximum temperature for all months. Similar to forecasts for 2020, the greatest increases are predicted during the summer months and along the southern and northeastern edges of the ecoregion (Comer et al. 2013). Model forecasts for minimum temperatures show a considerable change in both rate and magnitude over most of the study area. July through September showed the greatest degree of change over most of the region.

Data for precipitation suggest no strong trend toward either wetter or drier conditions in any month for the ecoregion. With the exception of a slight increase in summer monsoon rains toward the south and east, there were no significant forecasted trends in precipitation for any other months in either the near-term (2020s) or midcentury (2050s) projections (Comer et al. 2013).

Potential effects of these forecasts on the landscape may include increased fuel loads in higher elevations, increased frequency and duration of droughts, expansion of invasive species in higher elevations, increased wind erosion, and changes in wildfire regimes (Comer et al. 2013). However, the potential effects of the Project on climate change are beyond the scope of this EA and are not further analyzed in this EA.

3.2.1.2 Environmental Consequences

The Project has the potential to disturb approximately 40 acres; however, this disturbance would be completed incrementally. Travel on access roads and Project-related activities within the Project Area would create emissions, which would have a potential impact on air quality.

Fugitive dust, in the form of PM_{10} and $PM_{2.5}$, would be caused by the operation of the following equipment: up to two drill rigs, one core rig, up to three pipe trucks, up to two booster truck, up to two excavators with hydraulic hammers, one road grader, up to two dump trucks, one bulldozer; one water truck, and up to four pickup trucks. Vehicle emissions, in the form of sulfur dioxide (SO_2), nitrogen oxide (NO_x), CO, volatile organic compounds (VOC), GHGs and HAP emissions would occur anytime the internal combustion engines on the vehicles are operating. An emissions inventory was performed using Environmental Protection Agency-Air Pollution (EPA-AP) 42 emission factors. The emissions generated by the Project were compared to the EPA's significant emission rate (40 CFR 52.21) to determine Project impacts on air quality. Table 3-3 shows the tons of emissions of the above identified pollutants. The EPA's significant emission rates are detailed in Table 3-3 as well.

Table 3-3 Fugitive Dust and Combustion Emissions Associated with the Project

Project Emissions Summary (tons/year)									
Emission Type	**PM**	**PM_{10}**	**$PM_{2.5}$**	**SO_2**	**NO_x**	**CO**	**VOCs**	**GHG CO_2e**	**HAP Total**
Calculated Fugitive Emissions (Dust and Tailpipe)	13.16	4.92	2.53	2.52	38.72	9.76	9.52	1,640.3	0.04
EPA Significant Emission Rate	25	15	10	40	40	100	40	--	--

As detailed in Table 3-3, maximum yearly predicted emissions generated from the Project would be below the EPA's significant emission rates. All exploration activities with surface disturbance exceeding 20 acres are required to obtain a Surface Area Disturbance (SAD) permit from the BAPC, which includes a Dust Control Plan. The BAPC's issuance of the SAD permit and requirement that the Project operate in compliance with the Dust Control Plan are intended to ensure that fugitive dust emissions are minimized to the maximum extent possible using BMPs. The Dust Control Plan stipulates that travel on roads within the Project Area be conducted at prudent speeds and include watering roads to suppress dust, as necessary, to minimize the potential effects of fugitive dust on air quality. The emissions associated with the exploration Project would occur in a rural area where there are minimal emissions generated from other activities. Combustion emissions from motor vehicles are regulated by the EPA through the limiting of emissions during the manufacture of the vehicles and then regular maintenance of the vehicles. The amount of emissions generated from Project activities is below the EPA standards, and through the implementation of the EPMs, there would be no appreciable impacts to air quality. Therefore, this resource element is not carried forward in additional analysis.

3.2.2 Cultural Resources

3.2.2.1 Affected Environment

The area of potential effect consists of the Project Area, which is approximately 618 acres. This block was subjected to a Class III cultural resources inventory, which was conducted in May of 2014 by GC Environmental, Inc. Although several small lithic scatters, trash scatters and historic road segments were identified and recorded, as were eighteen isolated occurrences including thirteen claim cairn features, no historic properties were identified to be present within the area of potential effect.

3.2.2.2 Environmental Consequences

There are no NRHP-eligible cultural resource sites within the Project Area. Inadvertent discoveries of previously undetected cultural resources would be treated as required under 43 CFR 10.4 and 43 CFR 3908.420(8)(b). Any such discovery would be immediately reported to the authorized BLM officer. All operations in the immediate area of the discovery would be suspended, and the site would be protected until the authorized officer may develop an appropriate plan for management of the resource. Through implementation of EPMs outlined in Section 2.2.10, no impacts to eligible or unevaluated cultural resources are expected. Since no impacts are expected to eligible or unevaluated cultural resources are expected in the Project Area, the resource not carried forward for additional analysis.

3.2.3 Fire Management

3.2.3.1 Affected Environment

No fuel reduction or habitat enhancement projects have been conducted or are proposed within the Project Area; however, the BLM has ongoing hazardous fuels reduction and habitat enhancement projects in the Project Area vicinity.

3.2.3.2 Environmental Consequences

Implementation of the Proposed Action would be coordinated with the BLM's Tonopah Field Office (TFO) Manager in order to ensure the safety of Cordex personnel during all periods of prescribed fire activity in the area. Based on the EPMs outlined in Section 2.1.9, and the fact that the Project Area would continue to be accessible, impacts to fire management are not anticipated. In addition, reclamation measures include seeding with vegetation types that may be more favorable than other vegetation types to fire avoidance and suppression in the long term.

No impacts to fire management from the Proposed Action are anticipated; therefore, fire management is not carried forward for additional analysis.

3.2.4 Native American Cultural Concerns

3.2.4.1 Affected Environment

Located within the traditional territory of the Western Shoshone, the TFO administrative boundary contains spiritual, traditional, and cultural resources, and sites to engage in social practices that aid in maintaining and strengthening the social, cultural, and spiritual integrity of the Tribes. The BLM conducted Native American consultation on March 21, 2014, by sending letters to the Timbisha Shoshone Tribe, Yomba Shoshone Tribe, and Fallon Paiute-Shoshone Tribe. A site visit was conducted on June 11, 2014, with members of the Timbisha Shoshone Tribe. No concerns were identified during the visit. The Yomba Shoshone Tribe and Fallon Paiute Shoshone Tribe had no concerns with the Project.

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

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

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

- Actions that conflict with tribal land acquisition efforts.

In accordance with the NHPA (P.L. 89-665), the NEPA, the FLPMA (P.L. 94-579), the American Indian Religious Freedom Act of 1978 (P.L. 95-341), the Native American Graves Protection and Repatriation Act (NAGPRA) (P.L. 101 601) and EO 13007, the BLM must provide affected Tribes an opportunity to comment and consult on the proposed Project. The BLM must attempt to limit, reduce, or possibly eliminate any negative impacts to Native American traditional/cultural/spiritual sites, activities, and resources.

3.2.4.2 Environmental Consequences

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

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

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

During the Project's activities, if any cultural properties, items, or artifacts (i.e., stone tools, projectile points, etc.) are encountered, it must be stressed to those involved in the proposed Project activities that such items are not to be collected. The EPM in Section 2.2.10 states that all activities would be halted immediately in the event of a discovery of a cultural resource. Cultural and archaeological resources are protected under the Archaeological Resources Protection Act (16 United States Code 470ii) and the FLPMA.

Though the potential for disturbing Native American gravesites within most project areas is extremely low, inadvertent discovery procedures must be noted. Under the NAGPRA,

Section (3)(d)(1), the discovering individual must notify the authorized officer in writing of such a discovery. If the discovery occurs in connection with an authorized use, the activity, which caused the discovery, is to cease and the materials are to be protected until the land manager can respond to the situation (Section 2.2.10).

At this time, no impacts related to Native American Cultural Concerns have been identified and are not anticipated from the Proposed Action. Tribal relations and coordination does not terminate with the land use decision itself, but rather continues to engage Tribes regarding treatments, mitigation, reclamation, and disposition of artifacts and deports.

3.2.5 Land Use, Realty, and Access

3.2.5.1 Affected Environment

The proposed Project is located in northern Esmeralda County, Nevada, in the Monte Cristo Range. The Project Area would be accessed by traveling west from Tonopah, Nevada, for 19 miles on U.S. Highway 95, then turning north on the Gilbert Road (between mile marker 38 and 39) and traveling north for 4.5 miles to the Project boundary. The Project Area is located entirely on public land administered by the BLM Battle Mountain District Office, Tonopah Field Office in Tonopah, Nevada. The Project Area is administered according to the Tonopah RMP and ROD (BLM 1997). The Project is within Esmeralda County, and the 2013 Final Esmeralda County Public Lands Policy Plan (Esmeralda County 2013) and the Esmeralda County Master Plan (Esmeralda County 2011) provide guidance on how Esmeralda County can work collaboratively with Federal planning agencies, including the BLM, on public land use issues. In 1985, the Esmeralda County Board of Commissioners adopted the 1985 Esmeralda County Policy for Public Lands. Esmeralda County began reviewing existing policies and issues within the 1985 Esmeralda County Policy for Public Lands in 2009, and finalized the revised plan in 2013.

The Tonopah RMP covers south-central Nevada in Nye and Esmeralda Counties, encompassing 6.1 million acres of public land (BLM 1997). The RMP guides the management of the public land resources for portions of Nye and Esmeralda Counties of south-central Nevada. Significant resources and program emphases in the plan include: wildlife habitat, special status species, riparian areas, forestry and vegetative products, livestock grazing, wild horses and burros, lands and rights-of-way, cultural resources, recreation, utility corridors, and locatable and leasable minerals (BLM 1997). The RMP designates 6,028,948 acres (99 percent of the Tonopah Planning Area) open to the operation of existing mining laws (BLM 1997). The RMP states the "BLM provides for mineral entry, exploration, location, and operations pursuant to the mining laws in a manner that: 1) will not unduly hinder the mineral activities, and 2) assures that these activities are conducted in a manner which will prevent undue or unnecessary degradation of the public land" (BLM 1997). In terms of public access, the Tonopah RMP designates off-highway

vehicle restrictions for portions of the Monte Cristo Range, which includes portions of the Project Area. Public access is limited to existing roads and trails in the areas designated with off-highway vehicle restrictions.

The Esmeralda County Public Lands Policy Plan Policy 7-1 encourages the "careful development and production of Esmeralda County's metal, mineral and geothermal resources while recognizing the need to protect the environment and ecological resources" (Esmeralda County 2013). The plan describes minerals resources as being desirable and necessary to the Esmeralda County economy (Esmeralda County 2013). Policy 7-3 states, Esmeralda County would support "State and Federal policies that encourage both large and small-scale mining and geothermal operations. Regulatory requirements, e.g., documentation, permitting, should be minimized and expedited in order to maintain the principles of the existing mining and leasing laws, including the Mining Law of 1872". Policy 7-4 states that mining operations should incorporate the appropriate BMPs for the protection of the environmental qualities and the multiple use of public lands (Esmeralda County 2013). The Esmeralda County Master Plan Economic Activity policies encourage mining activities under the Federal Mining Law of 1872. Policy 7.2 states "the goal is to maintain and enhance natural resource-based industries including mining, agriculture, ranching, recreation and tourism, and seek value-added manufacturing of those resources" (Esmeralda County 2011).

The primary land uses within and adjacent to the Project Area include: mining; livestock grazing; wildlife habitat; and dispersed outdoor recreation. The BLM Land and Mineral Legacy Rehost 2000 System (LR2000) was queried to determine rights-of-way (ROWs) and land use authorizations within the Project Area (T4N, R39E, Sections 7, 8, 16, 17, and 18). Authorized ROWs and land use authorizations within the Project Area include the following: approximately 245 feet of Esmeralda County Road 12 (NVN 054391-RS-2477 varied width); and approximately 4.5 acres of disturbance associated with Cordex's Notice for the Eastside Exploration Project (NVN 088808). The Monte Cristo Guzzler #1 is approximately 400 feet south of the Project Area (NVN 053768) (BLM 2015a).

The NDOT publishes an annual traffic report providing details on the amount of traffic on certain locations on Nevada roads. Table 3-4 details annual average daily traffic (AADT) levels from 2010 to 2013 at monitoring Station 0230034 (U.S. 95, Maine Street, 500 feet North of Cemetery Road North of Tonopah), which is the closest monitoring station to the Project Area.

Table 3-4 Annual Average Daily Traffic (2010 – 2013)

Station	Route/Location	AADT (Average Number of Vehicles) per Year			
		2010	2011	2012	2013
0230034	U.S. 95, Maine Street, 500 feet North of Cemetery Road North of Tonopah	4,000	4,000	4,500	5,100

Source: (NDOT 2014)

3.2.5.2 Environmental Consequences

Cordex is currently authorized for Notice-level exploration operations within portions of the proposed Project Area. As a result, the Proposed Action would be a continuation of already authorized exploration operations. However, increasing the disturbance area, as requested with the Proposed Action, would result in a change of land use for portions of the Project Area.

Potential impacts to land use would include a temporary impact to dispersed recreational opportunities and access to the Monte Cristo grazing allotment because localized Project activities may temporarily block access on roads to and through the Project Area. However, livestock grazing and dispersed recreation access would not be permanently restricted in the Project Area during exploration operations. The proposed activities and associated disturbances would be incremental over a ten-year period, and would occur in localized areas around drill pads and roads. Thus, as described in the EA, the proposed disturbances are small in terms of both acreage and individual surface disturbances, and are spaced in time. Dispersed recreational activities, as well as grazing, would still be allowed throughout the Project Area where active exploration operations are not occurring. Some exploration roads would be temporarily blocked during drilling activities, but temporarily blocked roads would not prevent access to other portions of the Project Area because other routes may be used in and around the Project Area. Impacts to public access and existing ROWs and land use authorizations within the Project Area would be short-term and negligible because public access would be maintained through the life of the Project, and land use activities (e.g., grazing and recreation operations) would likely continue throughout a majority of the Project Area.

Construction of drill roads may increase off-highway vehicle activity within the Project Area during the life of the exploration operations. However, drill roads not needed for subsequent drilling operations would be reclaimed, so impacts from increased off-highway vehicle use within the Project Area would be negligible. There would be an incremental increase of traffic on U.S. Highway 95 and Gilbert Road. The Proposed Action would consist of a maximum of 26 people being on site at one time (Cordex 2014). It is anticipated that there would be approximately 8 daily trips for pickup trucks carrying drill crew and geologists to the Project, and two to five daily trips for the water truck. The increase in daily traffic is not expected to affect traffic conditions on U.S. Highway 95, which according to the NDOT's 2013 Annual Traffic Report (Table 3-4), has a 2013 AADT of 5,100 trips at traffic count station 0230034 (located at the Nye County and Esmeralda County line) (NDOT 2014). Traffic impacts would be temporary, and would only occur during exploration operations. Once exploration operations cease, no residual impact from traffic generation resulting from the proposed Project would occur. Esmeralda County has given written authorization for Cordex to use Gilbert Road (Esmeralda County 2014). The increase in traffic generation resulting from the Proposed Action would not result in an appreciable impact to U.S. 95 or Gilbert Road. The additional traffic

generated from the Proposed Action would result in a short-term, negligible increase in traffic generation on U.S. Highway 95 and Gilbert Road. Land use, realty, and access are not analyzed further in this EA.

3.2.6 Migratory Birds and Raptors

3.2.6.1 Affected Environment

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

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

Baseline surveys for wildlife species were conducted in May and June 2014 within and adjacent to the Project Area. The baseline surveys included surveys for migratory birds and raptors (Stantec 2014a). Additional surveys for raptors (Stantec 2014b) and bats (Stantec 2014c) were performed, and these additional surveys are discussed in Section 3.2.12. Table 3-5 lists all bird species observed within the Project Area during the surveys.

Table 3-5 Bird Species Detected in the Project Area

Common Name	Scientific Name
Black-throated sparrow	*Amphispiza bilineata*
Common raven	*Corvus corax*
Golden eagle	***Aquila chrysaetos***
Gray flycatcher	*Empidonax wrightii*
Horned lark	*Eremophila alpestris*
Prairie falcon	*Falco mexicanus*
Red-tailed hawk	*Buteo jamaicensis*
Rock wren	*Salpinctes obsoletus*
Sage sparrow	*Amphispiza belli*
Say's phoebe	*Sayornis saya*

Source: Stantec 2014a
Note: BLM Special Status Species are denoted in bold print.

In addition, the NDOW, the Nevada Natural Heritage Program (NNHP), and the USFWS were contacted to request information regarding wildlife use and nesting raptors in the area. In a response letter provided on April 24, 2014, for the proposed Project, the NDOW identified the following migratory birds as having potential to reside in the vicinity (four-mile buffer) of the Project Area: American kestrel (*Falco sparverius*); bald eagle (*Haliaeetus leucocephalus*); barn owl (*Tyto alba*); burrowing owl (*Athene cunicularia*); Cooper's hawk (*Accipiter cooperii*); ferruginous hawk (*Buteo regalis*); golden eagle (*Aquila chrysaetos*); great horned owl (*Bubo virginianus*); long-eared owl (*Asio otus*); merlin (*Falco columbarius*); northern goshawk (*Accipiter gentilis*); northern harrier (*Circus cyaneus*); northern saw-whet owl (*Aegolius acadicus*); osprey (*Pandion haliaetus*); peregrine falcon (*Falco peregrinus*); red-tailed hawk (*Buteo jamaicensis*); rough-legged hawk (*Buteo lagopus*); sharp-shinned hawk (*Accipiter striatus*); Swainson's hawk (*Buteo swainsoni*); turkey vulture (*Cathartes aura*); and western screech-owl (*Megascops kennicottii*) (NDOW 2014). The NDOW stated that American kestrel, great horned owl, and northern harrier have been directly observed in the vicinity of the Project Area.

The NDOW queried its raptor nest database and found 28 known raptor nest sites within ten miles of the Project Area (NDOW 2014). The 2014 golden eagle nesting survey identified a total of 15 unoccupied and one occupied golden eagle nest sites within four miles of the Project Area (Stantec 2014b). However, the occupied nest was empty during the June 9, 2014, survey. One unoccupied golden eagle nest was located in the northern portion of the Project Area on a cliff facing north towards the Gilbert Road. In addition to golden eagle nest sites, five occupied and two unoccupied prairie falcon nests, one occupied red tailed hawk nest, and seven unoccupied potential raptor nests were identified within four miles of the Project Area during the 2014 survey. One unoccupied potential raptor nest was identified along a proposed drill road in the Project Area during the 2014 survey.

Migratory bird species that have additional protection or management attention are discussed in detail in Section 3.2.12.

3.2.6.2 Environmental Consequences

The Proposed Action would create surface disturbance and associated removal of vegetation, which may result in the destruction of active nests or disturb the breeding behavior of migratory bird species including raptors. The exploration activities may also increase the potential of vehicle-related mortality. Vegetation removal and ground disturbance would result in a temporary reduction of 40 acres of foraging and breeding habitat for migratory birds and foraging habitat for raptors within the Project Area. This acreage would not be disturbed all at one time due to the incremental approach of the exploration surface disturbing activities associated with the Proposed Action. All surface disturbance associated with Project-related

activities would be reclaimed, and post-exploration land use is expected to return disturbed land to a level of productivity comparable to pre-exploration levels.

Cordex would plan to conduct surface disturbance outside the avian breeding season (March 1 through July 31) to avoid potential destruction of active bird nests or young birds in the area. However, if work during the avian breeding season is unavoidable, Cordex has committed to having a qualified biologist to conduct nest surveys prior to any surface disturbing activities associated with exploration activities during the avian breeding season. If active nests are located, or if other evidence of nesting (i.e., mated pairs, territorial defense, carrying nesting material, transporting food) is observed, a protective buffer (the size depending on the habitat requirements of the species) would be delineated and the entire area avoided, preventing destruction or disturbance to nests until they are no longer active. This EPM would ensure that no direct impacts to migratory birds are likely to occur under the Proposed Action. Indirect impacts resulting from vegetation removal and Project noise may lead to temporary spatial redistribution of individuals or habitat-use patterns during the life of the Project. Additional information on noise impacts is described in Section 3.2.18.

In order to avoid impacts to nesting raptors in the Project Area, Cordex would ensure that the unoccupied potential raptor nest and the unoccupied golden eagle nest located within the Project Area would be surveyed by a qualified biologist annually prior to conducting surface disturbance in the avian breeding season (March 1 through July 31) to determine whether the nest is occupied or not. If the nest is occupied, Cordex would coordinate with the BLM to avoid impacts to the occupied nest through avoidance buffers.

It is unlikely that implementing the Proposed Action would result in a decline in local or regional migratory bird populations because birds are mobile and capable of redistributing to undisturbed suitable habitats. As a result of the proposed Project EPMs, impacts to migratory birds and raptors from the Proposed Action are expected to be short-term and not significant.

3.2.7 Noxious Weeds, Invasive, and Non-native Species

3.2.7.1 Affected Environment

Noxious weeds, invasive, and non-native species are species that are highly competitive, highly aggressive, and spread easily. Noxious weeds and invasive plant species have been defined as pests by law or regulation. The BLM defines a noxious weed as, “a plant that interferes with management objectives for a given area of land at a given point in time” (BLM, 2014). The BLM Battle Mountain District recognizes the current noxious weed list designated by the State of Nevada Department of Agriculture statute, found in NAC 555.010. An "invasive species" is defined as a species that is non-native to the ecosystem under consideration and whose

introduction causes or is likely to cause economic or environmental harm or harm to human health (EO 13112, signed February 3, 1999).

The BLM's policy relating to the management and coordination of noxious weed and invasive plant species is set forth in the BLM Manual 9015-Integrated Weed Management (BLM 1992b). 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 2015b).

According to the 2014 field surveys and the baseline report prepared for the Project, no noxious weeds, invasive or non-native species were identified within the Project Area (Stantec 2014a).

3.2.7.2 Environmental Consequences

The Proposed Action would result in surface disturbance of approximately 40 acres within the Project Area which may increase the potential for the spread and establishment of noxious weeds, invasive, and non-native species. These impacts would be reduced based on implementation of the EPMs outlined in Section 2.2.10. These EPMs include: concurrent reclamation efforts; operator control; removal of invasive, non-native, and noxious weeds on reclaimed areas; washing heavy equipment prior to entering the Project Area; and avoiding areas of known invasive, non-native, and noxious weeds during periods when the weeds may be spread by vehicles. As outlined in the Plan, Cordex would continually monitor areas of active disturbance to reduce the potential for the spread or establishment of noxious weeds. In addition, Cordex would monitor and treat any noxious weed infestations that resulted from ground-disturbing activities within the Project Area for at least three years following the treatment of the infestation until reclamation is completed. Treatments would be permitted, applied, and recorded per BLM policy. Should a population of noxious weeds be detected, Cordex would coordinate with the BLM on methods for weed management. Impacts from noxious, invasive, and non-native species from the Proposed Action would occur during Project activities and continue until reclamation is deemed completed, but are considered minimal as a result of the Project's EPMs and monitoring; therefore, this resource is not further evaluated in this EA.

3.2.8 Paleontological Resources

3.2.8.1 Affected Environment

The geology of the Eastside Project is known from the United States Geological Survey Map MF-2260 with accompanying text published in 1994 (Stewart et al. 1994), and detailed geologic mapping (at scales 1:4800 and 1:2400) was completed between 2011 and 2014 for the Project Area. The rocks in the 618-acre Project Area are all mid-Tertiary to younger in age. From oldest to youngest, these rocks include the following: 1) undivided sedimentary rock unit (Tsu) unit, including bedded volcaniclastic and epiclastic tuffs and fresh-water lake sediments; 2) Gilbert

Andesite (Tg) unit, known as the Gilbert Andesite, which erupted 15 million years before present determined by Potassium/Argon (K/Ar) radiometric age dating (Stewart et al. 1994); and 3) the cogenetic units consisting of rhyolite flow domes (Tr), vitrophyres (Trv) marginal to the flow domes, and Trt consisting of tuffs and volcanic breccias erupting from the rhyolite flow domes, all of which are dated at 7.2 million years before present determined by K/Ar radiometric dating (Stewart et al. 1994). Alluvial materials derived from recent weathering (map units Tal and Qal) cover all the above units in places, especially off the range front to the east in the Project Area (Delaney 2015).

Northerly and northeasterly normal faults cut all the units, save the recent alluvium. Mapped hydrothermal alteration consists of opal replacement, massive silica replacement, and spotty quartz and adularia veining and stockworks. Rusty Iron-staining affects many surface outcrops, especially in areas of hydrothermal alteration, and is thought to have been derived from the oxidation of pyrite during weathering in the late Tertiary, Quaternary, and continuing today (Delaney 2015).

No fossils have been recognized by the geologists that have mapped and described the Project Area, except the local accumulations of diatomite in the fresh water sediments in map unit Tsu. Diatomite is common in Nevada in this geologic setting and is mined for uses in filtering and agricultural products in Storey, Churchill, Humboldt, and Pershing Counties, Nevada (Delaney 2015).

3.2.8.2 Environmental Consequences

Based on the review of the geologic setting of the Project Area, significant vertebrate fossils are not likely to occur within the geological formations mapped in the Project Area. Cordex would comply with the EPMs (Section 2.2.10) identified for paleontological resources. The Proposed Action would not result in impacts to paleontological resources; therefore, this resource is not further analyzed in this EA.

3.2.9 Rangeland Management/Livestock Grazing

3.2.9.1 Affected Environment

The Project Area is located within the Monte Cristo Grazing Allotment. The allotment consists of 504,181 acres, with 502,404 acres consisting of BLM administered public land and 1,777 acres consisting of private land. The allotment has a carrying capacity of 9,352 Animal Unit Months (AUMs). The active grazing period of the allotment is March 1 to June 10 and November 15 to February 28 (BLM 2015c). The number of acres per AUM is 54. The Monte Cristo Allotment is managed as "I Category" (i.e., improve the current resource condition) (BLM 1997). An AUM represents the amount of forage required to support one cow and her calf

for one month. No fencing, cattle guards, or other permitted rangeland improvements are present within the Project Area (BLM 2015a).

3.2.9.2 Environmental Consequences

The Project would disturb 40 acres, less than 0.01 percent of the entire allotment. This disturbance would equal approximately one AUM, 0.01 percent of the total AUMs in the allotment. The impacts associated with this Project would be temporary, and may result in the short-term loss of forage and grazing area within the Project Area. Disturbance would be created incrementally and dispersed throughout the Project Area and would be reclaimed and revegetated concurrently, when feasible. The majority of the disturbance would occur in rocky areas not well suited for livestock grazing. Since less than 0.01 percent of the available allotment area and AUMs would be impacted and the majority of the operations would occur in areas less suitable for grazing, impacts to grazing management and livestock grazing from the exploration operations would be short-term and negligible. Therefore, this resource is not carried forward for further analysis.

3.2.10 Recreation

3.2.10.1 Affected Environment

Recreational uses of the public land in the vicinity of the Project Area consist primarily of dispersed recreation activities including the following: camping; hiking; motorcycle and OHV riding; horseback riding; hunting; rockhounding; photography; rock climbing; nature study; wildlife/wild horse/burro viewing; picnicking; and cross country skiing. The Project Area is located within NDOW Hunt Unit 213. The NDOW Big Game Status Handbook has no data on mule deer in Hunt Unit 213 and Management Area 21 mule deer populations appear to have remained static at comparatively low levels for quite some time within this area (NDOW 2013). Hunting of pronghorn antelope and desert big horn sheep occurs in this hunt unit, as well as small mammals and upland and migratory game birds. The Tonopah RMP designates off-highway vehicle restrictions for portions of the Monte Cristo Range, which includes portions of the Project Area. Public access is limited to existing roads and trails in the areas designated with off-highway vehicle restrictions (BLM 1997).

3.2.10.2 Environmental Consequences

The Proposed Action would result in up to 40 acres of temporary surface disturbance, which would reduce opportunities for dispersed recreation, including hunting, within the Project Area. Project-related activities may temporarily block access on roads to and through the Project Area. A temporary change in wildlife movement may occur during active exploration operations. Wildlife hunters would likely hunt in nearby areas during periods of active operations if opportunities were temporarily limited in the Project Area. In the long-term, recreational activities would remain at current use levels. Impacts from the Proposed Action on recreation

resources are anticipated to be short-term and negligible because there is similar land available to dispersed recreational visitors in the vicinity of the Project Area, and recreation uses would return to similar levels at completion of the Project and following reclamation. In addition, all roads would remain open during Project activities, and there would be no fencing to preclude use, except for fences around sumps to protect wildlife and humans. Therefore, this resource is not carried forward for further analysis.

3.2.11 Social Values and Economics

3.2.11.1 Affected Environment

The Project Area is located in Esmeralda County. Esmeralda County is located in west central Nevada and is bordered on the east by Nye County, on the north by Mineral and Nye Counties, and on the south and west by Inyo and Mono Counties in California. Goldfield is the Esmeralda County seat. Esmeralda County is roughly trapezoidal in shape, and covers approximately 2.29 million acres. Over 97 percent of Esmeralda County's total area is administered by the federal government, with the BLM administering 94 percent of the public land in Esmeralda County (Esmeralda County 2011).

The primary communities in Esmeralda County are: Goldfield, Gold Point (Hornsilver), Dyer, Fish Lake Valley, Silver Peak, and Lida. According to the U.S. Census Bureau, the population of Esmeralda County in 2011 was 783. The majority of this population lives in the towns of Silver Peak and Goldfield, with populations of 107 and 268 respectively (U.S. Census Bureau 2010a). Fish Lake Valley, located between the White Mountains and the Silver Peak Range, is the main area of agriculture in Esmeralda County (Esmeralda County 2011).

According to the U.S. Census Bureau, the median household income in Esmeralda County was approximately $39,712 annually (U.S. Census Bureau 2010b). The labor force was 685 in 2014, with a 3.1 percent unemployment rate (NDETR 2014a and 2014b). The total population of Esmeralda County in 2013 was estimated to be 858 by the Nevada State Demographer's Office and 979 (±173 margin of error) by the U.S. Census Bureau (NSDO 2013; U.S. Census Bureau 2010c). The largest employment industries in Esmeralda County include natural resources and mining; construction; government (e.g., Esmeralda County and Esmeralda County School District); trade, transportation and utilities (NDETR 2014c; Esmeralda County 2011).

3.2.11.2 Environmental Consequences

Mining and mineral exploration are important economic activities in Esmerelda County. The Project would employ a temporary workforce of approximately 15 individuals. The temporary workforce would stay primarily in Tonopah, which is in Nye County. The Project may contribute to the local economy through the purchase of goods and services; however, the purchase of goods and services would likely occur more in Nye County (i.e., Tonopah) rather than in

Esmeralda County due to the close proximity of the Project to Tonopah. The industries that would primarily benefit from potential increased spending within the communities include construction, retail trade, services, and accommodations.

The personnel required for the Project would be short-term and would not create a noticeable increase in demand for additional public or private services (e.g., law enforcement, emergency response, fire protection, health care and social services, water, and solid waste) and would not impact public schools, the permanent housing market, or other services associated with permanent workers. However, these employees may support local businesses (primarily in Tonopah), and may generate additional sales and use tax receipts because the purchase of equipment, supplies and construction materials needed for the Proposed Action would be subject to sales tax as would consumer purchases by the workforce. Impacts to the social and economic vales that would result from the Proposed Action are anticipated to be short-term and negligible when compared to the overall economic contributions to the surrounding communities.

3.2.12 Soils

3.2.12.1 Affected Environment

A soil survey review for the Project Area was conducted during the 2014 Biological Baseline Report surveys. Soils within the Project Area were mapped by the National Resources Conservation Service (NRCS) and are described in the Soil Survey of Esmeralda County Area, Nevada (NRCS 1991). The original NRCS soil mapping indicated the following map units were present within the Project Area:

- 110: Blacktop-Rock outcrop-Pintwater association;
- 190: Terlco-Wardenot association;
- 193: Terlco-Pintwater-Wardenot association;
- 400: Annaw-Wardenot-Ardivey association; and
- 402: Annaw-Wardenot-Pintwater association.

During the field surveys, soil profiles within the third-order soil map units were evaluated using methods described in the *Field Book for Describing and Sampling Soils* (NRCS 2012). Soil profile description sites were excavated by hand to determine concurrence or deviation from the described soil types. Soil sampling occurred on June 24 and 25, 2014. Field verification indicated that map unit 402 should be combined with map unit 400. Table 3-6 shows the refined map units and acreages.

Table 3-6 Soil Map Units and Acreages within the Project Area

Map Unit Name	NRCS Map Unit Number	Acres in the Project Area (field verified)
Blacktop-Rock Outcrop-Pintwater Association	110	482
Terlco-Wardenot Association	190	8
Terlco-Pintwater-Wardenot Association	193	17
Annaw-Wardenot-Ardivey Association	400	111
	Total	**618**

The NRCS descriptions of these soil types are described below.

Blacktop-Rock Outcrop-Pintwater Association (110)
This soil unit is found on hills and mountains at elevations between 5,000 and 6,500 feet AMSL. The composition of this soil type is approximately: 40 percent Blacktop very gravelly fine sandy loam, 30 to 75 percent slopes; and 25 percent rock outcrop; and 20 percent Pintwater very cobbly fine sandy loam, 30 to 50 percent slopes. The contrasting inclusions consist of: six percent Stewval very gravelly sandy loam, 15 to 50 percent slopes; five percent Downeyville very cobbly fine sandy loam, moist, 30 to 50 percent slopes; and four percent Izo very gravelly sand, two to eight percent slopes. This soil type is found in the majority of the Project Area.

Terlco-Wardenot Association (190)
This soil unit is found on fan piedmonts at elevations between 4,700 and 5,800 feet AMSL. The composition of this soil type is approximately: 60 percent Terlco very gravelly fine sandy loam, two to eight percent slopes; and 25 percent Wardenot gravelly fine sandy loam, two to eight percent slopes. The contrasting inclusions consist of: nine percent Izo very gravelly sand, two to eight percent slopes; and six percent Oricto very cobbly fine sandy loam, two to four percent slopes. This soil type is found along the northern fringe of the Project Area.

Terlco-Pintwater-Wardenot Association (193)
This soil unit is found on fan piedmonts and rock pediments at elevations between 5,000 and 6,000 feet AMSL. The composition of this soil type is approximately: 40 percent Terlco very gravelly fine sandy loam, two to eight percent slopes; 30 percent Pintwater very cobbly fine sandy loam, 15 to 30 percent slopes; and 15 percent Wardenot gravelly fine sandy loam, two to eight percent slopes. The contrasting inclusions consist of: six percent Badland; five percent Rock outcrop; and four percent Izo very gravelly sand, two to eight percent slopes. This soil type is found along the northwestern fringe of the main Project Area.

Annaw-Wardenot-Ardivey Association (400)

This soil unit is found on fan piedmonts at elevations between 4,700 and 5,800 feet AMSL. The composition of this soil type is approximately: 45 percent Annaw very gravelly loamy sand, two to eight percent slopes; 25 percent Wardenot very gravelly loamy sand, two to eight percent slopes; and 15 percent Ardivey very gravelly sandy loam, moist, two to eight percent slopes. The contrasting inclusions consist of: six percent Haplic Durargids, two to eight percent slopes; five percent Terlco very gravelly fine sandy loam, two to eight percent slopes; and four percent Izo very gravelly sand, two to eight percent slopes. This soil type is found in the southeast portion of the main Project Area.

Detailed descriptions of the soil associations within the Project Area are shown on Figure 3-1 and listed in Table 3-7.

The conditions of soil associations within the Project Area are a result of both natural processes and human-related activities. Human related activities that may have affected soil surface properties include overland travel, livestock grazing, and road construction which likely has resulted in soil compaction, vegetation disturbance and removal, and increased exposure to wind and water erosion. Extreme weather may have affected the soil processes from exposure to wind and water.

Table 3-7 Summary of Soil Mapping Units and Characteristics

Association	Soil Series	Range in Depth to Restrictive Feature	Landscape position/ % Slope	Profile Soil Texture	Permeability	Erosion Hazard by Water	Erosion Hazard by Wind
Blacktop-Rock Outcrop-Pintwater Association (110)	Blacktop	4 to 10 inches (Lithic Bedrock)	Hills; 30% to 75%	0 to 4 inches: very gravelly fine sandy loam 4 to 14 inches: unweathered bedrock	Moderate	Severe	Slight
	Rock Outcrop	--	Scattered peaks on hills and mountains	--	--	--	--
	Pintwater	10 to 20 inches (Lithic Bedrock)	Hills; 30% to 50%	0 to 3 inches: very cobbly fine sandy loam 3 to 11 inches: extremely gravelly sandy loam	Moderately Rapid	Severe	Slight
Terlco-Wardenot Association (190)	Terlco	More than 80 inches	Fan piedmont remnants; 2% to 8%	0 to 2 inches: very gravelly fine sandy loam 2 to 12 inches: gravelly clay loam 12 to 19 inches: very gravelly sandy loam 19 to 60 inches: very gravelly loamy sand	Slow	Slight	Moderate
	Wardenot	More than 80 inches	Inset fans; 2% to 8%	0 to 7 inches: gravelly fine sandy loam 7 to 60 inches: stratified very gravelly fine sandy loam to extremely cobbly loamy sand	Rapid	Slight	Severe

Association	Soil Series	Range in Depth to Restrictive Feature	Landscape position/ % Slope	Profile Soil Texture	Permeability	Erosion Hazard by Water	Erosion Hazard by Wind
Terlco-Pintwater-Wardenot Association (193)	Terlco	More than 80 inches	Fan piedmont remnants; 2% to 8%	0 to 2 inches: Very gravelly fine sandy loam 2 to 12 inches: Gravelly clay loam 12 to 19 inches: very gravelly sandy loam 19 to 60 inches: Very gravelly loamy sand	Slow	Slight	Moderate
	Pintwater	10 to 20 inches (Lithic Bedrock)	Side slopes of rock pediment remnants; 30% to 50%	0 to 3 inches: very cobbly fine sandy loam 3 to 11 inches: extremely gravelly sandy loam	Moderately Rapid	Severe	Slight
	Wardenot	More than 80 inches	Inset fans; 2% to 8%	0 to 7 inches: gravelly fine sandy loam 7 to 60 inches: stratified very gravelly fine sandy loam to extremely cobbly loamy sand	Rapid	Slight	Severe
Annaw-Wardenot-Ardivey Association (400)	Annaw	More than 80 inches	Fan piedmont remnants; 2% to 8%	0 to 3 inches: very gravelly loamy sand 3 to 11 inches: very gravelly sandy loam 11 to 60 inches: stratified extremely gravelly loamy coarse sand to very gravelly loamy sand	Moderately Rapid	Slight	Moderate
	Wardenot	More than 80 inches	Lower areas of fan piedmonts; 2% to 8%	0 to 7 inches: gravelly fine sandy loam 7 to 60 inches: stratified very gravelly fine sandy loam to extremely cobbly loamy sand	Rapid	Slight	Severe
	Ardivey	More than 80 inches	Fan piedmont remnants; 2% to 8%	0 to 4 inches: very gravelly sandy loam 4 to 14 inches: very gravelly loam 14 to 60 inches: extremely gravelly loamy sand	Moderately slow	Slight	Slight

Source: NRCS 1991

3.2.12.2 Environmental Consequences

The total surface disturbance associated with implementation of the Proposed Action would impact up to 40 acres, or approximately seven percent of the Project Area. The disturbance includes approximately 27 acres associated with drill roads and the main access road including turnouts. Road grades would be kept to an average of 10 percent or less to minimize erosion. Where steeper grades are unavoidable, water bar spacing would not exceed 400 feet. Disturbance may occur in any of the soil series within the Project Area. Disturbance within the Project Area would be short-term, and disturbances would be reclaimed (regraded and seeded) concurrently when possible. The soil associations within the Project Area vary from slight to severe in the erosion potential from wind and water. The Proposed Action would increase the potential for wind and water erosion of disturbed areas until reclamation is successfully completed. The potential impacts to soils would be reduced by the EPMs incorporated in the Project design as described in Section 2.2.10 and BMPs which would help reduce sediment runoff from disturbed areas during operations. These erosion control measures would include sediment control structures such as sumps, fabric or certified weed-free straw bale filter fences, siltation or filter berms, and down-gradient drainage channels.

Topsoil cut for new exploration roads would result in the mixing of soil associations and the loss of soil characteristics. Soils would be cut and used as temporary construction fill as part of the road and drill pad construction. Subsequent reclamation efforts would place the soils back in the temporary cuts. Furthermore, as a result of reclamation of all drill sites, sumps, staging areas, overland travel, and road construction, the post-exploration topography is expected to be similar to pre-Project conditions, which would reestablish the site characteristics of slope and aspect of soil associations within the Project Area. Contouring and seeding the disturbed areas as soon as they are no longer needed would minimize long-term impacts associated with the Project.

3.2.13 Special Status Species

3.2.13.1 Affected Environment

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

- Federally Threatened or Endangered Species: Any species the USFWS has listed as an endangered or threatened species under the ESA throughout all or a significant portion of its range;

- Proposed Threatened or Endangered Species: Any species the USFWS has proposed for listing as a federally endangered or threatened species under the ESA;

- Candidate Species: Plant and animal taxa under consideration for possible listing as threatened or endangered under the ESA;

- Delisted Species: Any species in the five years following their delisting;

- BLM Sensitive Species: Native species found on BLM-administered lands for which the BLM has the capability to significantly affect the conservation status of the species through management, and either: 1) there is information that a species has undergone, is undergoing, or is predicted to undergo a downward trend such that the viability of the species or a distinct population segment of the species is at risk across all or a significant portion of the species range; or 2) the species depends on ecological refugia or specialized or unique habitats on BLM-administered lands, and there is evidence that such areas are threatened with alteration such that the continued viability of the species in that area would be at risk (BLM 2008b); and

- State of Nevada Listed Species: State-protected animals that have been determined to meet BLM's Manual 6840 policy definition.

To further support the preparation of this EA, the USFWS, the NNHP, and the NDOW were contacted to obtain a list of threatened and endangered and sensitive species that have the potential to occur within the Project Area (USFWS 2014a; NNHP 2014; and NDOW 2014). In addition, the most recent BLM Sensitive Species List, which includes threatened and endangered species, was evaluated to determine if any species had the potential to occur within the Project Area.

BLM sensitive species are taxa that are not already included as BLM special status species under the following: 1) federally listed, proposed, or candidate species; or 2) State of Nevada listed species. BLM policy is to provide these species with the same level of protection as is provided to candidate species as described in BLM Manual 6840.06.2C.

In addition to federally listed species (i.e., protected by the ESA) discussed above, the BLM also protects special status species by policy (BLM 2008b). The list includes certain species designated by the State of Nevada, as well as species designated as "sensitive" by the Nevada BLM State Director. Various BLM-sensitive raptor, bird, and plant species identified within the Project Area during field surveys are discussed below.

<u>Federally-Listed Wildlife and Plant Species</u>

Information from the NNHP indicated that no federally threatened or endangered animal or plant species have the potential to occur within the Project Area (NNHP 2014). The USFWS indicated that Columbia spotted frog (*Rana luteiventris*) and greater sage grouse (*Centrocercus urophasianus*) (both candidate species), the threatened Lahontan cutthroat trout (*Oncorhynchus clarkia* ssp. *henshawi*) and the endangered Paiute cutthroat trout (*Oncorhynchus clarkia* spp. *seleniris)* may be impacted by Project activities (USFWS 2014a). Vegetation in the Project Area is dominated by desert scrub species, and the NDOW has indicated there is no known greater sage-grouse habitat in the vicinity of the Project Area (NDOW 2014). In addition, there are no

perennial waters in the Project Area; therefore, there is no suitable habitat for Columbia spotted frog, Lahontan cutthroat trout, or the Paiute cutthroat trout within the Project Area. Due to lack of habitat, the above federally-listed species identified with potential to occur within the Project Area by the USFWS are not analyzed any further in this EA.

BLM Special Status Wildlife Species

The NNHP did note that habitat may be available for three BLM sensitive species, the California myotis (*Myotis californicus*), the western small footed myotis (*Myotis ciliolabrum*) and the western pipistrelle (*Parastrellus hesperus*). The NNHP also noted that habitat may occur for the pale kangaroo mouse (*Microdipodops pallidus*), a taxon determined to be imperiled by the NNHP (NNHP 2014).

Two acoustic bat surveys were conducted in order to assess the seasonal presence of bats in the Project Area in the summer and fall of 2014 (Stantec 2014c). Bat sampling within the Project Area was conducted with ANABAT detectors at suitable roosting and foraging habitat, and recorded calls were sent to Dr. Michael O'Farrell Biological Consulting for analysis and identification of bats to the genus or species level.

During the pre-field habitat evaluation, potential habitat was identified for the dark kangaroo mouse (*Microdipodops megacephalus*). Field survey methods in suitable habitat for dark kangaroo mouse followed the methodologies outlined in the document *Multiple Species Inventory and Monitoring Technical Guide* (Manley et al. 2006). Animals were captured using Sherman large folding traps (Stantec 2014a).

Bats

Bat sampling was conducted at two locations within the Project Area: 1) an adit, and 2) a large rock outcropping (Figure 3-2). The bat surveys resulted in ten species of bats being identified between the two ANABAT detector locations (Table 3-8). All ten bat species recorded in the Project Area are BLM special status species.

Table 3-8 AnaBat Results, June and October 2014

Scientific Name	Common Name	Adit		Rock Outcrop	
		June[1]	October[2]	June[1]	October[3]
		Number of Calls			
Antrozous pallidus	Pallid bat	750	0	213	0
Lasionycteris noctivagans	Silver-haired bat	0	0	0	100
Lasiurus cinereus	Hoary bat	0	100	0	25
Myotis ciliolabrum	Western small-footed bat	113	0	763	25
Myotis evotis	Long-eared myotis	0	0	13	0

Scientific Name	Common Name	Adit		Rock Outcrop	
		June[1]	October[2]	June[1]	October[3]
		Number of Calls			
Myotis thysanodes	Fringed myotis	163	0	0	0
Myotis volans	Long-legged myotis	138	0	388	0
Myotis yumanensis	Yuma myotis	688	0	1,500	50
Parastrellus hesperus	Western pipistrelle	125	29	0	25
Tadarida brasiliensis	Mexican free-tailed bat	13	143	1,125	0
	Grand Total	**1,990**	**272**	**4,002**	**225**

[1]Based on eight nights of data.
[2]Based on seven nights of data.
[3]Based on four nights of data.

The silver-haired bat (*Lasionycteris noctivagans*) was not recorded during the summer sampling and was only recorded at the rock outcrop site during the fall sampling. The hoary bat (*Lasiurus cinereus*) was recorded at both locations, but only during the fall sampling. The Mexican free-tailed bat (*Tadarida brasiliensis*) was only recorded during the fall sampling at the adit location, and was the most frequently recorded species during the fall sampling.

The silver-haired bat was the species most frequently recorded at the rock outcrop location during the fall sampling, while the Mexican free-tailed bat was the most frequently recorded at the adit location during the fall sampling. The most frequently detected bat during summer sampling at the rock outcrop was the Yuma myotis. The pallid bat was detected most frequently at the adit during the summer sampling. No pallid bats were detected at the adit location during the fall survey. Six species were detected during fall sampling compared to eight detected in the summer. This suggests that the four species only recorded during the summer sampling (pallid bat, long-eared myotis, fringed myotis, and long-legged myotis) may not hibernate in the vicinity of the Project Area.

Dark Kangaroo Mouse

The dark kangaroo mouse surveys were conducted between June 17 and 27, 2014. Small mammal live trapping was conducted and included focused surveys to detect the presence or absence of the dark kangaroo mouse. No dark kangaroo mice were captured during the survey. Incidental capture of other small mammal species was recorded. Although no dark kangaroo mice were trapped or observed, trapping efforts did result in a total of 323 small mammal captures. Recorded captures included the following: 144 long-tailed pocket mice; 63 piñon mice; 38 white-tailed antelope squirrels; 52 Ord's kangaroo rats; 20 Great Basin pocket mice; five desert woodrats; and one southern grasshopper mouse.

Desert Bighorn Sheep

Desert bighorn sheep (*Ovis canadensis*) were identified within the Project Area during the biological baseline surveys conducted in May and June of 2014. Habitat for desert bighorn sheep typically occurs in steep, mountain rocky terrain and arid environments in areas with perennial water sources, whether natural or human made. The NDOW has classified the Monte Cristo Range as year-round, occupied bighorn sheep distribution, which includes the Project Area.

Golden Eagle

The Bald and Golden Eagle Protection Act (BGEPA) prohibits the "take" or possession of bald and golden eagles with limited exceptions. Take, as defined in the BGEPA, includes, "to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb." Disturb means, 'to agitate or bother a bald or golden eagle to a degree that causes or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding feeding or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding or sheltering behavior." Two golden eagle nesting surveys were conducted within the Project Area and a four-mile buffer of the Project Area. The survey included two aerial (rotor-wing) flights to locate nests, habitat, and to determine activity. The initial survey was conducted on April 30 and May 1, 2014 with a follow-up survey on June 9, 2014 (Stantec 2014b). The surveys were performed using the protocols outlined in the *Interim Golden Eagle Technical Guidance: Inventory and Monitoring Protocols*; and *Other Recommendations in Support of Golden Eagle Management and Permit Issuance* (Pagel, Whittington & Allen 2010).

Potential nesting habitat for golden eagles includes cliffs and rocky outcrops, which occur within the Project Area. The golden eagle nesting surveys identified 15 unoccupied and one occupied golden eagle nest sites within the survey area. The one occupied nest site had one chick present in the nest during the April 30, 2014, survey. However, this nest was empty during the June 9, 2014, survey. One unoccupied golden eagle nest was located in the northern portion of the Project Area on a cliff facing north towards the Gilbert Road. In addition to golden eagle nest sites, five occupied and two unoccupied prairie falcon nests, one occupied red-tailed hawk nest, and seven unoccupied potential raptor nests were identified within the baseline survey area. These nests range in distance from being within the Project boundary to four miles from the Project boundary.

In addition to nest inventories, 12 raptor observations were made during the 2014 aerial surveys, which included one golden eagle, 10 prairie falcons, and one red-tailed hawk.

BLM Special Status Plant Species

Surveys were conducted for threatened, endangered, and sensitive (TES) plant species during the 2014 baseline biological surveys (Stantec 2014a). The survey utilized the protocol document titled *Survey Protocols Required for NEPA/ESA Compliance for BLM Special Status Plant Species*. The following BLM special status plant species were identified with potential to occur during the habitat evaluation process for the biological baseline surveys:

- Eastwood milkweed (*Asclepias eastwoodiana*);
- Sagebrush cholla *(Grusonia pulchella*);
- Holmgren lupine (*Lupinus homgrenianus*); and
- Nye County fishhook cactus (*Sclerocactus nyensis*).

The plant survey was conducted May 22 through 23, 2014. The survey identified all the species encountered and located two BLM sensitive plant species: one occurrence of sagebrush cholla and two occurrences of Nye County fishhook cactus, also known as Tonopah pincushion (Stantec 2014a). One sagebrush cholla plant was found within the Cobbly Loam 5-8 inch Precipitation Zone (P.Z.) ecological site community. The Nye County fishhook cacti were found within the Loamy Slope 3-5 inch P.Z. ecological site community. Section 3.2.13 provides more detail on vegetation mapping and ecological site communities within the Project Area. No occurrences of Eastwood milkweed, Holmgren lupine, or any other BLM special status plant species were observed.

3.2.13.2 Environmental Consequences

BLM Special Status Wildlife Species

The Proposed Action would result in the disturbance of approximately 40 acres of foraging, nesting, and roosting habitat for BLM special status wildlife species over the life of the Project. Reclamation would begin at the earliest practicable time within the areas considered inactive, without favorable mineral potential, or completed. Reestablishment of vegetation would take place within three years of Project reclamation. Although improvement of disturbed habitat may occur in the Project Area as surface disturbance is reclaimed and revegetated and a greater amount of habitat becomes available for special status species, short-term, indirect impacts to special status species would occur due to the short-term, temporary loss of vegetation as a result of Project-related surface disturbance. Surface disturbing activities may also increase the spread of noxious weeds and invasive plant species. The quality of the habitat may be reduced for sensitive species if noxious weeds and invasive plant species increase within the Project Area. Cordex would utilize appropriate EPMs, as outlined in Section 2.2.10, to reduce the potential for the increase of noxious weeds and invasive plant species both during surface disturbance and reclamation. As a result of the EPMs, impacts from the Project on the spread of noxious and

invasive weeds on wildlife habitat would be short-term and negligible. Impacts to individual sensitive species are detailed below.

Bats

Vegetation removal, including ground disturbance, would result in a temporary reduction of potential foraging area in the Project Area for bat species. This acreage would not all be disturbed at one time due to the incremental approach of mineral exploration activities. In addition, noise and disturbance activities generated from Project operations would have the potential to cause bat species to avoid utilizing specific locations within the Project Area, or the entire Project Area itself, for foraging and other activities. Foraging bats may be displaced to adjacent suitable habitat during operations. Exploration operations would occur near the rock outcrop in the southern portion of the Project and within 300 feet of the adit at the north end of the Project which may impact the quality of the roosts or hibernacula at the adit (if present). However, the Project activities would not result in a permanent loss of suitable roosts or hibernacula in the Project Area. The phasing and reclamation of the Project would reduce long-term impacts to foraging habitat. There would be no permanent loss of roosting or winter hibernacula habitat within the Project Area. The Proposed Action may impact individual bat populations foraging in the Project Area; however, these impacts are not expected to result in a reduction to these populations and would not result in significant impacts.

Dark Kangaroo Mouse

No dark kangaroo mice were captured during the 2014 biological surveys. However, the four Ecological Site Descriptions (ESDs) located within the Project Area include a shrub component suitable for the dark kangaroo mouse. The Project would temporarily disturb approximately 40 acres of potentially suitable dark kangaroo mouse habitat. However, the incremental disturbance and reclamation of the Project would reduce impacts to potential dark kangaroo mouse habitat. The Proposed Action may impact individual dark kangaroo mice foraging in the Project Area; however, these impacts are not expected to impact dark kangaroo populations and would not result in significant impacts.

Desert Bighorn Sheep

Desert bighorn sheep may be impacted by the exploration activities. Impacts may include a temporary loss of habitat, habitat avoidance, habitat fragmentation, and vehicle-related collisions. Noise and increased human activity in the Project Area may displace individual bighorn sheep to adjacent habitat during operations. Section 3.2.18 provides more detail on noise impacts to wildlife resulting from the Project activities. Habitat fragmentation as a result of the Proposed Action may impact individual bighorn sheep in the Project Area; however, the Project includes an incremental approach to disturbance and reclamation and is not expected to impact bighorn sheep populations and would not result in significant impacts. The speed limit on

exploration roads would be 15 mph; therefore, the Project is unlikely to significantly contribute to vehicle-related collisions or deaths.

The potential displacement of bighorn sheep from the Project Area may result in increased use of adjacent habitat. As a result, this may increase the use of water sources within adjacent habitat which may result in reduction of these water sources and increase stress on bighorn sheep. In order to mitigate impacts to bighorn sheep, mitigation for the proposed Project would include the construction of a guzzler approximately five miles south of the Project Area in the Monte Cristo Range. The guzzler is discussed in more detail below under Section 3.2.12.3 (Mitigation Measures). As a result of the proposed mitigation, the guzzler would reduce impacts on bighorn sheep.

Golden Eagle

The golden eagle nesting surveys identified 15 unoccupied and one occupied golden eagle nest sites within the survey area (i.e., the Project Area and a four-mile buffer of the Project Area). The one occupied nest site had one chick present in the nest during the April 30, 2014, survey. However, this nest was empty during the June 9, 2014, survey. One unoccupied golden eagle nest was located in the northern portion of the Project Area on a cliff facing north towards the Gilbert Road. Impacts to nesting golden eagles would potentially occur if nesting was attempted during exploration operations. Project disturbance may lead to avoidance, dispersal (flushing), nest abandonment, or mortality from vehicle-related collisions. Project disturbance would also temporarily impact golden eagle foraging. Project activities would potentially displace golden eagles from nests to surrounding foraging and nesting habitat. Golden eagles may use existing unoccupied nests; therefore, exploration activities may result in direct impacts if the nest is occupied at the time of operations.

In order to avoid impacts to nesting raptors in the Project Area, Cordex would ensure that the unoccupied potential raptor nest and the unoccupied golden eagle nest located within the Project Area would be surveyed by a qualified biologist annually prior to conducting surface in the avian breeding season (March 1 through July 31) to determine whether the nest is occupied or not. If the nest is occupied, Cordex would coordinate with the BLM to avoid impacts to the occupied nest (Section 2.2.10). Project disturbance would result in potential habitat fragmentation and vegetation removal which may impact individual golden eagles in the Project Area; however, with the implementation of the EPM and the incremental approach to disturbance and reclamation, the Project is not expected to impact golden eagle populations and would not result in significant impacts.

3.2.13.3 Mitigation Measures

3.2.13.3.1 Monte Cristo 6 Guzzler

In order to mitigate the loss of habitat or potential impacts to water sources to bighorn sheep from the Proposed Action, a guzzler would be installed. In coordination with the BLM and NDOW, the guzzler would be located approximately five miles south of the Project Area in the Monte Cristo Range, in Esmeralda County, Nevada (Figure 3-2). The proposed Monte Cristo 6 Guzzler is located in Section 5, Township 3 North, Range 38.5 East, Mount Diablo Base and Meridian. A biological baseline survey of the guzzler was performed on July 26, 2014.

The proposed guzzler would include a 40-foot by 80-foot metal apron connected to storage tanks via no more than 500 feet of two-inch polyethylene pipe. Each storage tank would measure approximately 8.5 feet wide, 16 feet long and 2.5 feet high. The tanks would be placed successively on a dirt pad with standard plywood placed between the tanks and the ground to protect the tanks from rock punctures. Water would be transported from the tanks no more than 100 feet in a polyethylene pipe, buried in a six inch deep and four inch wide trench from the storage tanks to a 2.5-foot tall steel drinker. The drinker would be concreted in place resulting in a disturbance footprint of approximately 36 square feet. A galvanized pipe-rail fence would be constructed around the drinker at the water development and a four-strand wire fence would be constructed around the tanks and apron. Due to the remoteness of the proposed guzzler site, construction materials, supplies, and personnel would be transported by helicopter directly from roads administered by the BLM or from previously disturbed sites along those roads. Annual inspection would be conducted by the NDOW personnel following construction to ensure proper functionality and to monitor use by wildlife. Aerial inspection would be conducted during the winter of each year. Maintenance activities would be confined to the existing disturbance boundary. A 200-foot buffer around the guzzler and associated features was surveyed which included general wildlife and vegetation, as well as special status species of vegetation and wildlife (Figure 3-2).

Suitable habitat for desert bighorn sheep, a BLM special status species, was identified within the area for the guzzler. However, no wildlife sign was identified in the proposed guzzler area, but it is expected that the wildlife detected in the Project Area may also utilize or travel through the proposed guzzler area. The dominant shrub species observed was black sagebrush (*Artemesia nova*). Other species observed during the survey included the following: yellow rabbitbrush (*Chrysothamnus viscidiflorus*); spiny hopsage (*Grayia spinosa*); Indian ricegrass (*Achnatherum hymenoides*); green molly (*Bassia Americana*); shadscale saltbush (*Atriplex confertifolia*); squirreltail grass (*Elymus elymoides*); and littleleaf horsebrush (*Tetradymia glabrata*). No sensitive plant species or their habitats were identified in the proposed guzzler area (Stantec 2014d).

3.2.13.3.2 Impacts of Mitigation Implementation

Short-term impacts during construction of the guzzler would result in soil disturbance and vegetation removal or disturbance which may result in loss of forage area for some wildlife, as well as the potential to spread noxious and non-native weeds. However, the disturbance area of the guzzler is comparatively small (0.13 acre), and weed management actions similar to the Proposed Action would be initiated during the guzzler construction to reduce potential impacts from noxious and non-native weeds. Impacts to air quality during construction from dust and equipment emissions would be localized and temporary. Impacts following construction of the guzzler may include restricted access, for smaller species of wildlife and humans, resulting from the fencing around the drinker and tanks.

Short-term impacts are expected to soil, air quality, vegetation, noxious weeds, wild horses, and wildlife during construction. However, in the long-term, the proposed guzzler would provide an additional water source for wildlife, including migratory birds, which would be beneficial following its construction and during its use. Impacts to water resources from the guzzler would be negligible since the quantity of water that is captured by the guzzler is relatively small (average annual precipitation is five inches), and of the water captured only three percent would infiltrate and recharge ground water (State of Nevada 2011).

3.2.13.3.3 Effectiveness of Mitigation

Guzzlers are built to primarily benefit big game and upland bird species, but they also provide a valuable source of water for wildlife of all types and sizes (NDOW 2015). The proposed mitigation of constructing a guzzler would be effective at creating an additional water source to be utilized by wildlife that may move out of the Project Area to avoid Project-related activities.

<u>BLM Special Status Plant Species</u>

The TES plant surveys conducted for the Project located two BLM sensitive plant species. These two species included: one occurrence of sagebrush cholla and two occurrences of Nye County fishhook cactus. The Project would result in indirect impacts by disturbing habitat for sagebrush cholla consisting of sandy to rocky flats and habitat for Nye County fishhook cactus consisting of dry rocky soils and low outcrops in the upper salt desert and lower sagebrush zones. These impacts would be expected to last until Project reclamation is completed and suitable conditions return for these species. Direct impacts to these species may occur from a drill road which would be constructed within 60 feet of the identified Nye County fishhook cactus and the main access road would be constructed within 60 feet of the sagebrush cholla. In order to prevent direct impacts to these populations, Cordex would erect and maintain orange fencing around a 10-foot buffer of the special status plant individuals identified during the 2014 baseline surveys when working around them to prevent accidental impacts to the species. Since the Project would avoid direct disturbance of the sagebrush cholla and Nye County fishhook that were identified within

the Project Area, so no direct impact would occur to those species identified within the Project Area. Impacts resulting from habitat disturbance would result in a short-term impact to BLM special status plant species until reclamation is completed. Surface disturbing activities may also increase the spread of noxious weeds and invasive plant species, which would have an impact on special status plant species habitat. Cordex would utilize appropriate EPMs, as outlined in Section 2.2.0, to reduce the potential for the increase of noxious weeds and invasive plant species both during surface disturbance and reclamation. As a result of the EPMs, impacts from the spread of noxious and invasive weeds on special status plant species would be short-term and negligible.

3.2.14 Vegetation

3.2.14.1 Affected Environment

Vegetation mapping was conducted utilizing the NRCS ESDs, information and photos from the field assessment, and aerial imagery (Stantec 2014a). ESD acreages within the Project Area are detailed in Table 3-9. A description of the ESDs within the Project Area is detailed below and is shown on Figure 3-3.

Table 3-9 Ecological Sites Present within the Project Area

Ecological Site	Ecological Site ID Number	Acres	Percent of Total
Rock Outcrop*	N/A	34	5
Coarse Gravelly Loam 3-5" P.Z.	R029XY039NV	21	3
Cobbly Loam 5-8" P.Z.	R029XY036NV	109	18
Loamy Slope 3-5" P.Z.	R029XY033NV	432	70
Shallow Calcareous Slope 8-12" P.Z.	R029XY014NV	22	4
	Total	**618**	**100.0**

ID: Identification
N/A: Not Applicable
*This community is not an Ecological Site and therefore does not have an Ecological Site ID Number.

Rock Outcrop

This community type does relate to an ESD. This community is composed of rock outcrops, cliffs, and canyon landscape features. Vegetation is sparse to absent, and when vegetation is present it consists mainly of shrubs.

Coarse Gravelly Loam 3-5" P.Z. (R029XY039NV)

This ecological site typically occurs on lower fan piedmonts with slopes ranging from zero to 15 percent. Elevations range from 3,000 to approximately 5,000 feet AMSL. Dominant plant species are Indian ricegrass and shadscale (*Atriplex confertifolia*), with lesser amounts of Bailey's greasewood (*Sarcobatus baileyi*) and burrobush (*Ambrosia dumosa*). Average annual production is 350 pounds per acre (lbs/acre).

Within the Project Area, this community occurs in the drainages and lower fan piedmonts. In the Project Area, this community is dominated by Bailey's greasewood, with lesser amounts of shadscale, bud sagebrush (*Picrothamnus desertorum*), and yellow rabbitbrush (*Chrysothamnus viscidiflorus*). Spiny menodora (*Menodora spinescens*), winterfat (*Krascheninnikovia lanata*), and Wiggin's cholla (*Cylindropuntia echinocarpa*) are also present within this community.

Cobbly Loam 5-8" P.Z. (R029XY036NV)

This ecological site typically occurs on lower piedmont slopes and alluvial flats of basin floors on all aspects. Slopes range from two to over 30 percent, with elevations ranging from 4,500 to 5,500 feet AMSL. This community is dominated by spiny menodora, with lesser amounts of Indian ricegrass and shadscale. Average annual production is 300 lbs/acre.

Within the Project Area, this community is representative of a typical Cobbly Loam 5-8" P.Z., and occurs on lower alluvial flats and lower piedmont slopes. In the Project Area, the community is dominated by spiny menodora, with lesser amounts of shadscale and Bailey's greasewood. This community also has small amounts of winterfat, bud sagebrush, Shockley's desert-thorn (*Lycium shockleyi*), green molly (*Bassia americana*), King's eyelashgrass (*Blepharidachne kingii*), and James' galleta (*Pleuraphis jamesii*).

Loamy Slope 3-5" P.Z. (029XY033NV)

This ecological site typically occurs on summits and side slopes of fan piedmonts, rock pediments, and pedisediments on all aspects. Slopes range from two to 75 percent, with elevations ranging from 3,000 to 5,000 feet AMSL. Shadscale dominates this community, with Indian ricegrass sparsely present in the community. Average annual production is 50 lbs/acre.

This community is most similar to the Loamy Slope 3-5" P.Z. ecological site and covers the most acreage within the Project Area (Table 3-9). Similar to a typical Loamy Slope 3-5" P.Z., this community is dominated by shadscale with small components of other shrubs and occurs on summits and side slopes of fan piedmonts. The other shrubs present within this community in the Project Area include Bailey's greasewood, spiny menodora, Shockley's desert-thorn, winterfat, yellow rabbitbrush, Nevada jointfir (*Ephedra nevadensis*), and littleleaf horsebrush (*Tetradymia glabrata*). There are also small amounts of Indian ricegrass and King's eyelashgrass.

Shallow Calcareous Slope 8-12" P.Z. (029XY014NV)

This ecological site typically occurs on summits and back slopes of foothills and mountains, and upper piedmont slopes. Slopes range from two to over 75 percent, with elevations ranging from 5,200 to 7,000 feet AMSL. Black sagebrush dominates the community with Indian ricegrass and needle and thread (*Hesperostipa comata*) present in the understory. Average annual production is 200 lbs/acre.

Although not present in the preliminary vegetation mapping, this community is present within the Project Area. This community has an overstory of black sagebrush with small amounts of other shrubs. The components of Indian ricegrass and needle and thread were largely lacking. This site occurs on a back slope of a foothill in the Project Area.

3.2.14.2 Environmental Consequences

Approximately 40 acres would be disturbed over the 10-year Project life. Of the 40 acres of proposed disturbance, five acres of disturbance would occur from Notice-level exploration activities on public lands. Exploration disturbance would be incremental and would occur within all of the ESDs within the Project Area.

The Project would result in disturbance or removal of up to approximately 40 acres of vegetation over the life of the Project. The Project has the potential for disturbance within all ESDs specified in Table 3-9. A loss of vegetation would occur from the construction of proposed drill roads, staging areas, and drill pads and sumps. Impacts may also result from the increased potential for the spread of noxious and invasive weed species, which would reduce habitat suitability for some vegetation species. The surface disturbance associated with exploration activities within the Project Area would be reclaimed and reseeded concurrently whenever feasible. Reclamation associated with the Proposed Action would begin upon completion of Project activities using the BLM-approved seed mixture shown in Table 2-3, and native species would eventually move back into the disturbed areas. Monitoring activities are included in the Proposed Action which would ensure that the revegetation meets reclamation standards. Project EPMs would also help to prevent the spread of noxious and invasive weed species. The Project would have short-term impacts on vegetation within the Project Area until reclamation is completed and vegetation is re-established. The Project is not expected to impact the overall health of the vegetation communities within the Project Area.

3.2.15 Visual Resources

3.2.15.1 Affected Environment

The Visual Resource Management (VRM) system designates classes for BLM-administered lands in order to identify and evaluate scenic values to determine the appropriate levels of management during land use planning (Table 3-10). Each management class portrays the relative value of the visual resources and serves as a tool that describes the visual management objectives (BLM 1986).

Lands within the Project Area are currently designated as VRM Class IV. The objective of this class is to provide for management activities that allow for major modification of the existing character of the landscape, while making every attempt to minimize the visual impact of the activities through careful location, minimal disturbance and repeating the basic elements of form,

line, color, and texture (BLM 1986). The Project is located in the northeastern portion of the Monte Cristo Range. The Project Area is characterized by basin and range topography with relatively steep drainages flowing through narrow canyons. The middle-ground and background landscape within the Project Area consists of high slope (vertical) mountainous terrain, with lower slope (horizontal) valleys in the foreground occurring on the eastern portion of the Project Area. Color primarily consists of earth tones with hues of brown and tan. Vegetation within the Project Area is detailed in Section 3.2.13 as well as in the baseline report (Stantec 2014a). Vegetation surveys completed during the 2014 biological surveys detailed various shrubs, grasses and herbaceous plants as well as four cacti species (Stantec 2014a). The texture of the landscape consists of contrasting gradational landscape changes throughout the Project Area, with a more coarse texture in the middle-ground and background (mountainous areas) and a smoother texture in the foreground (valleys). Approximately 50 percent of the site consists of 15 percent or greater slopes.

There are no major travel ways within the Project Area. The only major highway is U.S. Highway 95, which is approximately six miles south of the Project Area, and the Project is not clearly visible from travelers on that highway due to the varying elevation/topographic changes between the highway and the Project drill pad and road locations. However, Project activities may be somewhat visible around the Project access off of Gilbert Road. There are also numerous secondary travel ways adjacent to the Project Area which results in horizontal, linear forms within the landscape background.

The activities associated with mineral exploration and surface disturbance may require modifying the existing character of the landscape. However, there has been previous surface disturbance from mineral exploration and road construction activities in the Project Area which are currently part of the existing visual landscape.

Table 3-10 BLM Visual Resource Management Classes

Class	Description
I	The objective of this class is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.
II	The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any change must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.

Class	Description
III	The objective of this class is to partially retain the existing character of the landscape. The level of change to the character should be moderate. Management activities may attract attention, but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.
IV	The objective of this class is to provide for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. Management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements.

Source: BLM 1986

3.2.15.2 Environmental Consequences

Project activities may change the existing scenic quality of the landscape. Activities would primarily occur within the middle-ground and background (as viewed from various travel ways adjacent to the Project), with some drill activities occurring in the foreground by the main access off of Gilbert Road. Construction of drill roads would increase the number of horizontal and linear forms within the scenic landscape, which primarily consists of vertical, mountainous terrain. Construction of the drill pads and staging areas would add regular, rectangular forms with a uniform, horizontal, smooth texture from vegetation removal which would contrast with the existing irregular, vertical, coarse texture of the existing middle-ground and background landscape. Vegetation removal may create areas of patchy texture as compared to the existing landscape. However, drilling operations have already occurred within the Project Area, and the existing landscaping already exists of drill roads and reclaimed drill pads. Drilling would occur primarily in slopes exceeding 15 percent; however, drilling operations would also occur in slopes less than 15 percent along the main Project access and the eastern portion of the Project. The topography of the Project Area may reduce some of the visual impacts resulting from the Project by breaking up a direct line-of-sight to the disturbances with various topographic features and varying grade changes. The drilling equipment would create the appearance of tall, vertical forms which would add opposing colors that are not present in the existing landscape, which would also include reflective surfaces.

Because dispersed recreation occurs throughout the Project Area, the drill roads and drill pads would likely be visible to recreationists using the Project Area from certain viewpoints. In addition, Project activities may be visible outside of the Project Area where the elevation is higher than where activities are occurring such as Doyle Peak approximately one mile south of the Project Area. Project activities may be visible from certain viewpoints on U.S. Highway 95, and on Gilbert Road. However, Project activities would not be obtrusive due to the varied elevations of the Project Area. Areas where drilling operations occur on nearly flat land would result in the largest visual impact from Gilbert Road.

The Project activities would modify the landscape characteristics, and would deviate from the form, line, color, texture, and pattern common with the existing landscape character. However, the Project is consistent with the management objectives for Class IV. Incremental reclamation of drill pads and drill roads would assist in reducing any long-term visual impacts to the existing landscape. A relatively small amount of disturbance (seven percent of the total Project Area) would be associated with the Proposed Action. The largest visual contrast would result from drill pads, staging areas, and the drilling equipment. Even after reclamation, these disturbed areas may result in visual contrasts as the vegetation is re-establishing; however, these would all be temporary visual contrasts, and upon reclamation, native vegetation would gradually re-establish within the disturbed areas. Project related disturbances and reclamation would be incremental throughout the Project area, which would minimize impacts to the visual setting within the Project Area. All visual contrast and changes would be expected to dissipate after reclamation is completed. Since the Project is consistent with the management objectives for Class IV, and there is existing exploration disturbance as part of the visual landscape, the proposed Project would have short-term, negligible impacts to visual resources.

3.2.16 Wastes, Solid or Hazardous

3.2.16.1 Affected Environment

Federal hazardous material and waste laws and regulations are applicable to hazardous substances used, stored, or generated by the Project. Applicable federal laws would include the following: the Resource Conservation and Recovery Act of 1976; Hazardous and Solid Waste Amendments; Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA [aka Superfund]); and the Superfund Amendments and Reauthorization Act of 1986. Pursuant to regulations promulgated under Section 102 of CERCLA, as amended, release of a reportable quantity of a hazardous substance to the environment in a 24-hour period must be reported to the National Response Center (40 CFR Part 302). A release of a reportable quantity on public land must also be reported to the BLM.

Similarly, State of Nevada hazardous material and waste laws and regulations are applicable to hazardous substances used, stored, and generated by the operation of the Project. NAC 459.996 requires immediate reporting of a release of a reportable quantity of a hazardous substance in accordance with the requirements of NAC 445A.347 to the NDEP, based on Table 302.4 in 40 CFR Part 302.

Hazardous materials utilized at the Project Area would include diesel fuel, gasoline, and lubricating grease. Approximately 500 gallons of diesel fuel would be stored in fuel delivery systems on vehicles and drill rigs. Approximately 100 gallons of gasoline would be stored in fuel delivery systems for light vehicles. Approximately 100 pounds of lubricating grease would be

stored on the drill rigs or transported by drill trucks. All containers of hazardous substances would be labeled and handled in accordance with NDOT and MSHA standards.

All refuse generated by the Project would be disposed of at an authorized landfill facility off site, consistent with applicable regulations. No refuse would be disposed of on site. Portable chemical toilets would be available in the Project Area for use by Project personnel. The human waste and portable chemical toilets would not be buried on site.

3.2.16.2 Environmental Consequences

The generation of wastes and the use of hazardous materials as a result of the Proposed Action may result in the release of these wastes or materials. Vehicles traveling on public roads in the Project Area may result in the potential release of hazardous materials and wastes (e.g., fuel, antifreeze, battery acid, lead tire weights, mercury switches, or catalytic converters) for the duration of travel. In the event that a reportable quantity of hazardous or regulated materials, such as diesel fuel, is spilled, measures would be taken to control the spill, and the NDEP, and the Emergency Response Hotline would be notified, as required. If any oil, hazardous material, or chemicals are spilled during operations, they would be cleaned up in a timely manner. After clean up, the oil, toxic fluids, or chemicals and any contaminated material would be removed and disposed of at an approved disposal facility. Measures to prevent spills and BMPs are detailed in the Cordex Spill Prevention Plan (Cordex 2014).

Through the implementation of the spill measures outlined in the Spill Prevention Plan, no impacts to the environment from wastes are anticipated as a result of the Proposed Action. This resource will not be carried forward for further analysis in this EA.

3.2.17 Water Quantity and Quality (Surface Water and Groundwater)

3.2.17.1 Affected Environment

Surface Water

The United States Geological Survey (USGS) and the Nevada Division of Water Resources (NDWR), Department of Conservation and Natural Resources, have divided the State of Nevada into discrete hydrologic units for water planning and management purposes (NDWR 2015a). The Proposed Action is located in Hydrographic Basin 137A (Big Smokey Valley/Tonopah Flat). The Project Area is within the Lower Peavine Creek Hydrologic Unit Code (HUC) 10 Watershed (637 square miles) and is intersected by the Liberty Springs-Peavine Creek HUC 12 sub-watershed (389 square miles).

Surface water within the Project Area is mainly dependent upon seasonal precipitation. According to the WRCC data from the Tonopah COOP station 20 miles southeast of the Project, annual precipitation around the Project Area for the period of record from 1902 to 2013 ranged

from two to 10 inches, with an average precipitation of five inches annually and an average snowfall of 14 inches annually. Average summer (June through August) temperatures are approximately 71 °F and average winter (December through February) temperatures are approximately 33 °F (WRCC 2015). Most precipitation occurs from rainfall and snowpack at the higher elevations (NRCS 1991).

Several intermittent drainages occur within the Project Area, but there are no perennial drainages or springs in the Project Area. No perennial drainages exist within four miles of the Project Area. Surface water runoff from the Project Area flows east into Big Smokey Valley. Some surface water drains north at the western half of the Project Area, but eventually drain east toward Big Smokey Valley. No wetlands, springs, or riparian areas classified by the NHD or the USFWS National Wetland Inventory were identified within the Project Area, although potential wetlands and springs exist within one mile of the Project Area (USGS 2014; USFWS 2014b).

Ground Water

The Project Area lies within the Great Basin aquifer system and more specifically, overlies the Basin and Range basin-fill aquifer. The most permeable basin-fill deposits are present in the depressions created by the late Tertiary to Quaternary block faulting and can be classified by origin as alluvial-fan, lake-bed, or fluvial deposits. The most important hydrologic features of the basins are the alluvial fans. The basin fill receives most of its recharge through the coarse sediments deposited in the fans. These highly permeable deposits allow rapid infiltration of water as streams exit the valleys that are cut into the almost impermeable rock of the surrounding mountains and flow out onto the surface of the fans (Planert and Williams 1995).

The Big Smokey/Tonopah Flat Hydrographic Basin is considered to be a designated groundwater basin by the NDWR, which means it is a basin where permitted ground water rights approach or exceed the estimated average annual recharge and the water resources are being depleted or require additional administration. In the interest of public welfare, State water officials declare preferred uses (e.g., municipal and industrial, domestic, agriculture, etc.) for designated basins. The Big Smokey Valley/Tonopah Flat Hydrographic Basin is approximately 1,603 square miles in size. The perennial yield of the basin is 6,000 acre feet per year. The total permitted withdrawal for the basin is 23,152 acre feet per year. Total allocated water rights within the basin exceed this perennial yield. Water use within the basin is largely from mining and milling and irrigation (NDWR 2015b).

No ground water allocation occurs within the Project Area, and no other beneficial use ground water wells have been identified within the boundaries of the Project Area. Two vested stock water rights occur approximately two miles west of the Project Area (NDWR 2015c). Based on previous exploration drilling in the Project Area, the discovered ground water depth is over

1,000 feet depending on the surface elevation. Anticipated drill hole depths associated with the Project would be on average 850 feet and up to approximately 1,200 feet below ground surface.

3.2.17.2 Environmental Consequences

Surface Water

Surface water features within the Project Area are limited to intermittent drainages that traverse the Project Area in a north to east trend. Exploration activities would largely avoid surface water resources because there are no seeps, springs, or perennial drainages within the Project Area. Impacts may occur from construction of drill roads and drill pads which may affect the pathways of storm water runoff. In addition, culverts and low water-crossings may be required for drill roads and the main access road. Where drainages must be crossed by a road, BMPs established by NDEP and the Nevada Division of Conservation Districts through the State Environmental Commission (1994) would be followed to minimize the surface disturbance and erosion potential. Erosion control measures would also be used to limit impacts from stormwater runoff. Sediment control structures would include straw bale filter fences, siltation or filter berms, and down-gradient drainage channels. Sediment traps (sumps) would be constructed as necessary within the drill pad disturbance to contain all drill cuttings and fluids. Other potential impacts to surface water quality may result from spills and sedimentation or erosion from surface disturbing activities. The potential impacts to surface water quality from spilled petroleum products would be minimized by the implementation of the Spill Contingency Plan included in Appendix D of the Plan (Cordex 2014). The potential impacts to surface water quality from sedimentation would be minimized by the implementation of the EPMs outlined in Section 2.2.10, as well as incremental reclamation. The proposed Project would have short-term, negligible impacts on surface water resources.

Ground Water

The Project anticipates using approximately 15,000 gallons of water daily and approximately 500,000 gallons of water over the life of the Project, this is approximately 17 acre feet per year. All water would be supplied from a local water hauling contractor that would be purchased from the Tonopah Public Water System. The Project would use approximately 0.07 percent of the permitted water withdrawals in the basin; therefore, the impacts from the Project on ground water quantity would be negligible. Based on past drilling activities, the depth to groundwater within the Project Area is over 1,000 feet below ground surface. If ground water is encountered, Cordex would follow the drill plugging procedures outlined in Section 2.2.9.2. Because no shallow water has been encountered on previous exploration operations within the Project Area, it is not anticipated that the proposed Project would result in any reduction to surface water or groundwater within or adjacent to the Project Area as a result of aquifer drainage. The Proposed Action is also not expected to impact ground water quality because the drill holes would be abandoned in accordance with NRS 534, NAC 534.4369 and NAC 534.4371. No drill holes

would be left open at the end of the Project. In addition, only water or nontoxic fluids would be used during drilling. Therefore, this resource is not carried forward for further analysis.

3.2.18 Wild Horses

3.2.18.1 Affected Environment

The BLM manages wild horses under the authority of the Wild Free-Roaming Horses and Burros Act of 1971 as amended (P.L. 92-195) which states that the BLM "shall manage wild free-roaming horses and burros in a manner that is designed to achieve and maintain a thriving natural ecological balance on the public lands." The Project Area lies within the Pilot Mountain Herd Management Area (HMA). The size of the HMA totals approximately 477,135 acres, of which 255,804 acres are within the Carson City District. The Carson City District is responsible for administering the entire HMA. The HMA encompasses the Monte Cristo Range, Gabbs Valley Range, and Pilot Mountains.

The Pilot Mountain HMA has had a relatively low rate of wild horse population increase at approximately a 10 percent rate of annual increase over the past 10 years (BLM 2010). Based on Herd Area and Herd Management Area Statistics for Fiscal Year 2014, the Pilot Mountain herd has an estimated horse population of 583 with an appropriate management level of 249 to 415 horses (BLM 2014). Water sources within the Project Area is limited for wild horse use, and vast majority of the Project terrain consists of greater than 20 percent slopes which would limit wild horse use of the Project Area.

3.2.18.2 Environmental Consequences

Impacts to wild horses may be caused by increased human activity, increased vehicle traffic on Project roads, and noise associated with drilling and construction activities. More detail on noise impacts is discussed in Section 3.2.18. It is expected that wild horses would avoid drill sites during drilling activities and increase use in other portions of the HMA, which may result in changes to usage patterns and distribution within the HMA. Changes to patterns of use by wild horses within the HMA caused by increased vehicle traffic, road construction, and human presence may cause the wild horses to use the Project Area less, and increase use in other areas within the HMA. This may cause impacts to the other areas within the HMA if increased use causes degradation to the vegetation and water sources. In the unlikely event that human activity disturbs the population during peak foaling season (March 1-June 30), newborn foals may be orphaned or abandoned. However, based on review of aerial maps, topographic maps and GIS data, there is a lack of water sources within the Project Area, and there is more suitable habitat surrounding the Project Area with less steep slopes for foraging, foaling and easier access to water sources.

Approximately 40 acres of the 477,135-acre Pilot Mountain HMA would be disturbed by the Project, which is a negligible amount (eight hundredths percent) of disturbance within the HMA. However, impacts to the wild horses through human disturbance may cause them to reduce or eliminate use of a larger Project Area (618 acres), increasing use of other portions of the HMA over the ten-year life of the Project. However, avoidance of the 618 acres is one tenth percent of the total Pilot Mountains HMA acreage. Potential impacts to the normal distribution and movement patterns of wild horses and burros would likely be temporary in nature, would not result in permanent displacement, but would occur over the life of the Project. Since the Project disturbance would be incremental, and the limited amount of equipment on site at one time, the wild horses may adapt to the noise created by exploration activities such as road traffic, road construction and drilling. Some wild horses may avoid the area while others may tolerate the noise and continue foraging and breeding activities in the vicinity of the Project Area.

Even though there may be suitable habitat and forage area within the Project Area for wild horses, based on review of aerial maps, topographic maps and GIS data, there is a lack of water sources within the Project Area, and there is more suitable habitat surrounding the Project Area with less steep slopes for foraging and easier access to water sources. In addition, the Project would result in eight hundredths percent disturbance of the HMA, and the total Project Area would be one tenth percent of the HMA which would result in negligible impacts within the HMA. Therefore, long-term impacts to wild horses are not anticipated from surface disturbance proposed with the Project activities. Short-term impacts would primarily consist of potential avoidance of a comparatively small amount of area within the overall HMA.

3.2.19 Wildlife

3.2.19.1 Affected Environment

General wildlife surveys were conducted simultaneously with the other 2014 baseline surveys. Ten avian species, 18 mammalian species, and eight reptilian species were observed within the Project Area. During the dark kangaroo mouse trapping efforts, a total of 323 small mammal captures were recorded, which included long-tailed pocket mice; piñon mice; white-tailed antelope squirrels; Ord's kangaroo rats; Great Basin pocket mice; desert woodrats; and southern grasshopper mouse. Ten BLM special status wildlife species were identified or observed within the Project Area, and are discussed in detail in Section 3.2.12. Wildlife species identified within the Project Area are detailed in Table 3-11.

Table 3-11 Wildlife Species Observed in the Project Area

Scientific Name	Common Name
Birds	
Amphispiza belli	Sage sparrow
Amphispiza bilineata	Black-throated sparrow
Aquila chrysaetos	**Golden eagle**
Buteo jamaicensis	Red-tailed hawk
Corvus corax	Common raven
Empidonax wrightii	Gray Flycatcher
Eremophila alpestris	Horned lark
Falco mexicanus	Prairie falcon
Salpinctes obsoletus	Rock wren
Sayornis saya	Say's phoebe
Mammals	
Ammospermophilus leucurus	White-tailed antelope ground squirrel
Antilocapra americana	Pronghorn antelope
Antrozous pallidus	**Pallid bat**
Chaetodipus formosus	Long-tailed pocket mouse
Dipodomys ordii	Ord's kangaroo rat
Lepus californicus	Black-tailed jackrabbit
Myotis ciliolabrum	**Western small-footed myotis**
Myotis evotis	**Long-eared myotis**
Myotis thysanodes	**Fringed myotis**
Myotis volans	**Long-legged myotis**
Myotis yumanensis	**Yuma myotis**
Neotoma lepida	Desert woodrat
Onychomys torridus	Southern grasshopper mouse
Ovis canadensis nelsoni	**Desert bighorn sheep**
Parastrellus Hesperus	**Western pipistrelle bat**
Perognathus parvus	Great Basin pocket mouse
Peromyscus truei	Piñon mouse
Tadarida brasiliensis	**Mexican free-tailed bat**
Reptile	
Crotaphytus collaris	Common collard lizard
Uta stansburiana	Common side-blotched lizard
Sceloporus magister	Desert spiny lizard
Phrynosoma platyrhinos	Desert-horned lizard
Gambelia wislizenii	Long-nosed leopard lizard
Sonora semiannulata	Western ground snake
Cnemidophorus tigris	Western whiptail lizard
Callisaurus draconoides	Zebra tailed lizard

Note: BLM Special Status Species are denoted in **bold** print.

3.2.19.2 Environmental Consequences

Direct impacts to wildlife would consist of temporary habitat and forage area loss, disturbance from human activity and noise, temporary displacement and fragmentation. Approximately 40 acres would be disturbed over the ten-year life of the Project. Of the 40 acres of disturbance proposed, up to five acres of disturbance would occur from existing Notice-level exploration activities. Disturbance associated with surface exploration activities may occur anywhere within the Project Area. The surface exploration disturbance would be created incrementally and would be dispersed throughout the Project Area. Reclamation would occur concurrently with Project activities when feasible, and complete reclamation (regarding and seeding) would occur within two years after Project completion, which would reduce potential impacts from the Project on wildlife.

Project-related surface disturbing activities would result in habitat fragmentation in the Project Area. The bulk of scientific studies to date indicate that impacts of habitat loss are generally greater than those of habitat fragmentation (Fahrig 1997, Fahrig 2003). Studies to date have found that impacts from habitat fragmentation on biodiversity or wildlife species abundance were measurable when habitat availability was reduced by 60 to 90 percent of the landscape (Andren 1994, With and Crist 1995, Fahrig 1997, Hill and Caswell 1999, Jansson and Angelstam 1999, Fahrig 2001, Flather and Bevers 2002). The proposed 40 acres of additional disturbance would equate to less than seven percent of the total land surface in the Project boundary. Currently, the shadscale and spiny mendora types constitute 88 percent of the mapped land cover within the Project boundary (see Table 3-9). Proposed disturbances might reduce this acreage by a maximum of approximately seven percent. Thus, anticipated habitat loss is well below thresholds where it is thought that habitat fragmentation will result in a measurable impact on wildlife populations.

Additionally, impacts of habitat loss and fragmentation are generally greater for species that are habitat obligates rather than species that are habitat generalists. The species reported in the Project area (Stantec 2014a) are largely habitat generalists. These are regionally common species, with mobility and adaptability to varied habitats. Based on the moderate density of these species throughout the region, the fact that proposed disturbances resulting in potential habitat loss to the species would be small relative to their total range, and relative adaptability of the species to anthropogenic activities, the proposed disturbances would likely have negligible impacts on wildlife resources in these areas.

No long-term impacts to wildlife habitat are likely to occur within the Project Area because reclamation would be designed to return disturbed lands to a level of productivity comparable to pre-exploration levels. After exploration activities have been terminated, reclamation would involve regrading disturbed areas to their approximate original contour. In addition, sumps

associated with drill sites would be built with an incline on one end so entrapped animals could easily exit the sump, or would be adequately fenced to preclude access.

Exploration activities, including the construction of roads and overland travel, may disturb wildlife due to the presence of humans and by creating noise and dust. However, wildlife foraging activities within the Project Area would continue because the proposed surface disturbance activities only cover a small portion of the entire Project Area (approximately six percent of the entire Project Area). Indirect, short-term impacts to wildlife would occur due to the temporary loss of vegetation as a result of Project-related surface disturbance. However, whereas these impacts may affect individual populations, they are not expected to result in a reduction to overall wildlife populations. As a result, the proposed Project is not expected to result in significant impacts to overall wildlife populations.

Disturbance to wildlife would include temporary auditory or visual irritation to individuals in or near the exploration activities. Individuals foraging in or near the exploration activities would likely disperse in the short-term to other habitat or foraging area adjacent to the Project Area. Noise impacts would be created from the equipment operating on site. Based on the Federal Highway Administration (FHWA) Construction Noise Handbook (Table 9.1) (FHWA 2006), decibel levels (expressed in A-weighted decibels [dBA]) of the primary equipment on site are included in Table 3-12.

Table 3-12 Sound Intensity by Equipment

Equipment Description	Specification 721.560 L_{max} at 50 feet (dBA, slow)
Truck-mounted Drill Rig	84 dBA
Track-mounted Drill Rig	84 dBA
Core Drill Rig	84 dBA
Excavator	85 dBA
Excavator with Hydraulic Hammer	85 dBA
Road Grader	85 dBA
Dump Truck	84 dBA
Air Compressor	80 dBA
5 kW Generators	82 dBA
Light Plant/Generators	82 dBA
Pickup Trucks	55 dBA

Note: dBA data was taken from FHWA Construction Noise Handbook Table 9.1 (FHWA 2006).

Sound intensity drops by approximately six decibels for every doubling of distance (Tontechnick-Rechner-sengpielaudio 2015). This means that at four times the distance, the expected dBA drop would be 12 dBA. Therefore, noise impacts to wildlife would be greatest at the source and would reduce the further away wildlife gets from the source.

Even though no noxious or non-native species were identified within the Project Area, the potential still exists to spread noxious and non-native weeds throughout the Project Area, which would impact wildlife habitat and forage areas. Cordex would implement EPMs for noxious weeds, outlined in Section 2.2.10, which would reduce the impact of noxious weeds and invasive species to wildlife habitat in the Project Area.

A minor increase in traffic resulting from Project activities may result in an increased likelihood of vehicle collision or trampling of small mammals. However, vehicle collisions and trampling would be minimized with the enforcement of speed limit restrictions in the Project Area.

Surface disturbance would remove potential areas for the reptiles to lay their eggs or the disturbance may destroy eggs laid within disturbance areas. Loss of vegetative cover and burrows may result in greater mortality due to predators. However, impacts would be temporary, and vegetation would be restored subsequent to reclamation.

3.3 EFFECTS OF THE NO ACTION ALTERNATIVE

Under the No Action Alternative, none of the impacts associated with the Proposed Action would occur. However, mineral exploration activities would continue and create up to five acres of surface disturbance under Notice NVN-88808 in the proposed Project Area.

3.3.1 Air Quality

Under the No Action Alternative, Notice-level exploration activities under Notice NVN-88808 would continue and include surface disturbance of up to five acres on public land. Cordex would control dust by minimizing surface disturbance and observing prudent speed limits. Under the No Action Alternative, dust would be generated by travel on dirt roads and emissions would be generated from drill rigs, support equipment, and vehicles during exploration activities. These emissions would cause minimal impacts to air quality. The reclamation of surface disturbance would gradually eliminate long-term impacts to air quality from wind erosion of disturbed soils. Under the No Action Alternative, impacts would be similar but proportionally less than under the Proposed Action, as there would be approximately 35 fewer acres of new surface disturbance under the No Action Alternative.

3.3.2 Cultural Resources

Under the No Action Alternative, there would be no impacts to significant cultural resources because they would be avoided. Therefore, impacts under the No Action Alternative would be the same as under the Proposed Action.

3.3.3 Native American Cultural Concerns

Under the No Action Alternative, Cordex would continue their Notice-level surface mineral exploration activities. The BLM TFO has continual consultation with the local Tribes regarding ongoing and proposed projects and land management activities. No concerns pertaining to the existing Notice-level exploration activities have been brought to the BLM's attention; therefore, at this time there would be no impacts to Native American Cultural Concerns under the No Action Alternative.

3.3.4 Land Use, Realty, and Access

Under the No Action Alternative, up to five acres of surface disturbance would continue within the Project Area under Notice-level exploration activities. Impacts from these actions on land use, realty, and access may include temporary restricted access in immediate areas of exploration activities. However, access would not be permanently restricted. The reclamation of surface disturbance would gradually eliminate long-term impacts to land use, realty, and access. Under the No Action Alternative, impacts would be similar but proportionally less than under the Proposed Action, as there would be approximately 35 fewer acres of new surface disturbance under the No Action Alternative.

3.3.5 Migratory Birds and Raptors

Under the No Action Alternative, up to five acres of surface disturbance would continue within the Project Area under Notice-level exploration activities. This may result in the temporary loss of approximately five acres of migratory bird nesting or foraging habitat. Reclamation of surface disturbance would gradually eliminate potential impacts to migratory birds. Impacts to migratory birds under the No Action Alternative would be similar, but proportionally less than the Proposed Action, as there would be approximately 35 fewer acres of new surface disturbance under the No Action Alternative.

3.3.6 Noxious Weeds, Invasive, and Non-native Species

Under the No Action Alternative, up to five acres of surface disturbance would continue within the Project Area under Notice-level exploration activities. Impacts associated with the No Action Alternative may result in the establishment of noxious weeds, invasive, and non-native species. Reclamation of surface disturbance, including reseeding, associated with Notice-level exploration activities, would gradually decrease potential impacts of noxious weeds, invasive, and non-native species. Under the No Action Alternative, impacts would be similar but proportionally less than under the Proposed Action, as there would be approximately 35 fewer acres of new surface disturbance under the No Action Alternative.

3.3.7 Paleontological Resources

Impacts associated with the No Action Alternative would be similar to impacts associated with the Proposed Action. Based on the discussion of the geologic formations present in the Project Area, under the No Action Alternative, there would be no significant impacts to paleontological resources.

3.3.8 Rangeland Management/Livestock Grazing

Under the No Action Alternative, up to five acres of surface disturbance would continue within the Project Area under Notice-level exploration activities. Impacts to rangeland management under the No Action Alternative would be similar, but proportionally less than the Proposed Action (essentially no AUM would be lost under the No Action Alternative versus a loss of approximately one AUM associated with the Proposed Action).

3.3.9 Recreation

Under the No Action Alternative, ongoing mineral exploration activities currently permitted in the Project Area consist of surface drilling activities. The same recreational activities that would occur under the Proposed Action would continue to occur under the No Action Alternative. Impacts would be similar under the No Action Alternative as under the Proposed Action, as all roads would remain open and there would be no fencing of the Project Area to preclude use, except for fences around the sumps for safety purposes. Under the No Action Alternative, impacts would be similar but proportionally less than under the Proposed Action, as there would be approximately 35 fewer acres of new surface disturbance that may impact recreational use within the area.

3.3.10 Social Values and Economics

Under the No Action Alternative, ongoing mineral exploration activities currently permitted in the Project Area consist of surface drilling activities. This type of exploration requires a smaller work force and is more intermittent in nature. The No Action Alternative would result in beneficial impacts to the local economies, as the workers would obtain lodging, meals, and supplies in these local communities. However, under the No Action Alternative, impacts to public services and housing would be less than under the Proposed Action, as there would be fewer employees needing services in impacted communities compared to the Proposed Action.

3.3.11 Soils

Under the No Action Alternative, up to five acres of surface disturbance would continue within the Project Area under Notice-level exploration activities. The potential for wind and water erosion of disturbed soils would be similar but proportionally less than the Proposed Action, as there would be approximately 35 fewer acres of new surface disturbance.

3.3.12 Threatened, Endangered, Candidate, Sensitive, and Special Status Species

Under the No Action Alternative, up to five acres of surface disturbance would continue within the Project Area under Notice-level exploration activities. Reclamation of surface disturbance, including reseeding, associated with Notice-level exploration activities, would minimize impacts to threatened, endangered, candidate, sensitive and special status species. Under the No Action Alternative, impacts would be similar but proportionally less than under the Proposed Action, as there would be approximately 35 fewer acres of new surface disturbance under the No Action Alternative.

3.3.13 Vegetation

Under the No Action Alternative, up to five acres of surface disturbance would continue within the Project Area under Notice-level exploration activities. Reclamation of surface disturbance, including reseeding, associated with Notice-level exploration activities, would minimize impacts to vegetation. Under the No Action Alternative, impacts would be similar but proportionally less than under the Proposed Action, as there would be approximately 35 fewer acres of new surface disturbance under the No Action Alternative.

3.3.14 Visual Resources

Under the No Action Alternative, up to five acres of surface disturbance would continue within the Project Area under Notice-level exploration activities. Under the No Action Alternative, no additional exploration operations would occur, and reclamation of the temporary disturbance from drill pads and roads from existing permitted operations would occur shortly after disturbance. The Project Area has previously been disturbed and altered from past mineral exploration activities, however, the impact caused by the No Action alternative to the existing environment would be less than the impacts created by the Proposed Action. The No Action Alternative would also meet Class IV management objectives.

Visual resources would not immediately change from current condition if the proposed Project is not implemented.

3.3.15 Wastes, Hazardous or Solid

Under the No Action Alternative, existing permitted surface disturbance would continue within the Project Area under Notice-level exploration activities which would include the generation of wastes and the use of hazardous materials. This may result in the release of these wastes or materials. The No Action Alternative only involves surface exploration drilling and does not include the storage of hazardous or regulated materials. The source of spills or leaks would be from the drill rigs operating at the site. Therefore, the No Action Alternative has less potential for spills because the scale of activities is less than the Proposed Action.

3.3.16 Water Quantity and Quality (Surface Water and Groundwater)

Under the No Action Alternative, up to five acres of surface disturbance would continue within the Project Area under Notice-level exploration activities. With the use of BMPs to prevent erosion and sediment transport, impacts to water quality would not be anticipated. Should the drill holes encounter ground water, the holes would be plugged in accordance with NAC 534.420. Under the No Action Alternative, impacts would be similar but proportionally less than under the Proposed Action, as there would be approximately 35 fewer acres of new surface disturbance under the No Action Alternative.

3.3.17 Wild Horses

Under the No Action Alternative, up to five acres of surface disturbance would continue within the Project Area under Notice-level exploration activities. Cordex would place fences around drill sumps, limiting impacts to wild horses. Additionally, sumps associated with drill sites would be built with an incline on one end so entrapped animals could easily exit the sump. Impacts to wild horses may be caused by surface disturbing activities on approximately five acres within the Project Area; however, water sources would not be impacted and it is expected wild horses would avoid drill sites during drilling operations. Water is available in areas within the HMA adjacent to the Project Area. Impacts to wild horses under the No Action Alternative would be similar to, but less than the impacts associated with the Proposed Action.

3.3.18 Wildlife

Under the No Action Alternative, up to five acres of surface disturbance would continue within the Project Area under Notice-level exploration activities. Reclamation of existing surface disturbance would gradually eliminate impacts to wildlife. Under the No Action Alternative, impacts would be similar but proportionally less than under the Proposed Action, as there would be approximately 35 fewer acres of new surface disturbance under the No Action Alternative.

4.0 CUMULATIVE EFFECTS STUDY AREA

4.1 INTRODUCTION

A cumulative impact is defined as an impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions (RFFAs), regardless of which agency (federal or nonfederal) or person undertakes such other actions. Cumulative impacts can result from individually minor, but collectively significant, actions taking place over a period of time (40 CFR 1508.7).

This analysis examines potential cumulative impacts from past, present, and RFFAs combined with the Proposed Action within the cumulative effects study area (CESA) specific to the resource for which cumulative impacts may be anticipated.

These cumulative impacts include both direct and indirect actions occurring as a result of the Proposed Action and how they affect the resources of concern. These impacts are additive and do not always result in a one-to-one relationship but rather can compound the degree of effect. The significance of effects should be determined based on context (i.e., the setting of the Proposed Action) and intensity (40 CFR 1508.27(b)(7)). Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Intensity refers to the severity of effect. Factors that may be used to define the intensity of effects include the magnitude (relative size or amount of an effect), geographic extent, duration, and frequency of the effects.

4.2 CUMULATIVE EFFECT STUDY AREAS

Environmental consequences of the Proposed Action and alternatives are described in Chapter 3 for the various resources. Discussed in the following sections are the resources that have the potential to be cumulatively impacted by the Proposed Action within the identified CESA. Based on the analysis in Section 3.0, the Proposed Action is expected to have negligible impacts to Air Quality, Cultural Resources, Solid or Hazardous Wastes, Ground Water Quantity and Quality, Land Us/Realty/Access, Noise, Paleontological Resources, Rangeland Management, and Recreation. These resources are not further discussed in the cumulative impacts section.

Based on the analysis in Section 3.0, the following resources to be analyzed in the cumulative impacts section are those for which the Proposed Action would have an impact and include the following: Migratory Birds; Noxious Weeds, Invasive, Non-native Species; Social Values and Economics; Soils; Special Status Plant Species; Special Status Wildlife Species; Vegetation; Visual Resources; Surface Water Quality and Quantity; Wild Horses; and Wildlife. The geographic areas considered for further analysis of cumulative effects vary in size and shape to reflect each evaluated environmental resource and the potential area of impact to each from the Proposed Action as determined through the analysis in Section 3.0.

The Vegetation CESA is comprised of the Monte Cristo Grazing Allotment boundary. This CESA boundary is used to analyze cumulative impacts from noxious weeds, invasive, non-native species and to vegetation.

The Soils, Water, and Visual CESA is comprised of an immediate watershed that follows the HUC 12 boundary in the Monte Cristo Range on its western boundary and follows topographic features and drainages in Big Smokey Valley on its eastern boundary.

The Wildlife CESA is comprised of NDOW Hunt Unit 213. This CESA boundary is used to analyze cumulative impacts to Migratory Birds, Special Status Wildlife Species, and Wildlife.

The Wild Horses CESA is comprised of the Pilot Mountain HMA. This CESA boundary is used to analyze cumulative impacts to wild horses.

Table 4-1 lists the analyzed resources, the name, description, and size of each CESA. Figures 4.2.1 and 4.2.2 illustrate the geographic extent of the CESAs.

Table 4-1 Cumulative Effects Study Areas

Resource	Cumulative Effects Study Areas			
	Name	Description	Acres	Figure
Noxious Weeds, Invasive, Non-native Species, Vegetation	Vegetation CESA	Monte Cristo Grazing Allotment	504,181	4-1
Soils, Special Status Plant Species, Surface Water and Visual Resources	Soils,Water, and Visual CESA	Immediate watershed that follows the HUC 12 boundary in the Monte Cristo range on its western boundary and follows topographic features and drainages in Big Smokey Valley on its eastern boundary	46,860	4-1
Migratory Birds, Special Status Wildlife Species, Wildlife	Wildlife CESA	NDOW Hunt Unit 213	383,554	4-1
Wild Horses	Wild Horses CESA	Pilot Mountain HMA	477,135	4-2

4.2.1 Past, Present, and Reasonably Foreseeable Future Actions

4.2.1.1 Past and Present Actions

Past and present actions in the four CESAs include the following: livestock grazing; utility and other ROW construction and maintenance; mineral exploration (including approved surface exploration within the Project Area) and mining operations; guzzler; wild horse management activities; and dispersed recreation. The BLM's Land & Mineral Legacy Rehost 2000 System (LR2000) database was used to query the various types of past and present ROWs and mineral exploration and mining activities within the CESAs by section, Township, and Range. Results

from that query are detailed in Table 4-3. There are no recorded wildland fires from 2000 to 2013 within the Project boundary, or any of the four CESAs.

Livestock Grazing

Livestock grazing occurs within all the CESAs. One allotment occurs within the Vegetation CESA; portions of one allotment occur within the Soils, Water, and Visual CESA; portions of two allotments occur within the Wildlife CESA; and portions of five allotments occur within the Wild Horse CESA. The allotments located in each of the CESAs are listed in Table 4-2. Existing surface disturbance associated with rangeland improvements such as fencing, cattle guards and troughs, occurs within the CESAs. The actual disturbance associated with these features in the CESAs was not readily available.

Table 4-2 Allotments Located Within the CESAs

Grazing Allotment Name	CESA			
	Vegetation	Soils, Water, and Visual	Wildlife	Wild Horses
Gillis Mountain	--	--	--	X
Pilot-Table Mountain	--	--	--	X
Cedar Mountain	--	--	--	X
Monte Cristo	X	X	X	X

Rights-of Way

ROWs within the CESAs include the following: roads and highways; telecommunications; power transmission and distribution facilities; communication sites; and irrigation and water facilities. The exact acreage of surface disturbance associated with these ROWs is not easily quantifiable; 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, as well as increasing soil erosion and surface water run-off. The approximate total acreages of existing and approved ROWs within each CESA are listed in Table 4-3.

Table 4-3 Past, Present and RFFAs within the CESAs

CESA	Types of Activity[1,2]								
	ROW-Communication Sites	ROW-Roads (Including RS 2477)	Mineral Material Sites	Mineral Development Operations	Notices of Intent	Guzzlers	ROW-Power Lines	ROW-Telecommunication Sites	ROW-Water/Irrigation Facilities
Past and Present Actions – Surface Disturbance Acres									
Vegetation	150	4,743	1,622	892	34	0.03[3]	4,944	798	26
Soils, Water, and Visual	0	1,017	488	0	5	0.02[4]	4,284	798	0
Wildlife	130	5,494	1,588	50	31	0.03[3]	4,487	800	18
Wild Horses	262	3,782	684	721	25	0.03[3]	4,256	799	39
Reasonably Foreseeable Future Actions – Surface Disturbance Acres									
Vegetation	0	0	0	540	1	0	0	0	0
Soils, Water, and Visual	0	0	0	0	0	0	0	0	0
Wildlife	0	0	0	1,173	0	0	0	0	0
Wild Horses	0	0	0	1,021	0	0	702	0	0

1 According to LR2000, geothermal and oil and gas leases occur throughout most of the CESAs (except the Soils, Water, and Visual CESA). Furthermore, past wind development and/or solar test site leases have occurred throughout all of the CESAs. However, this table does not include past and present geothermal and oil and gas leases, past wind development, or solar test site leases because LR2000 shows the size of the lease rather than proposed surface disturbance.

2 The LR2000 database was queried on March 4, 2015, for all four CESAs. Any newly approved ROWs, mineral development or exploration activities, or mineral material sites that have been added to the LR2000 database after this date are not included in the analysis.

3 Includes disturbance associated with the Monte Cristo Guzzlers 1-3.

4 Includes disturbance associated with the Monte Cristo Guzzlers 1-2.

Mineral Exploration and Mining

Past and present mineral exploration and mining activities have occurred within the CESAs, which include authorized and closed Notices; authorized and closed plans of operation; and authorized and closed mineral material sites (i.e., sand and gravel operations). Table 4-3 details the results of the LR2000 query, in acres, of the exploration and mining activities within each CESA. The largest mining operations include operations by Grefco Minerals (diatomite mining in Esmeralda County), and operations by Gateway Gold (USA) Corporation (gold mining in the Giroux Valley).

Dispersed Recreation

Historical and present recreational activities that have occurred and are occurring within the CESAs include primarily dispersed recreation activities such as the following: motorcycle and OHV riding, horseback riding, pack trips, mountain bicycling, camping, driving for pleasure, hiking, hunting, rockhounding, photography, rock climbing, nature study, wildlife/wild horse/burro viewing, picnicking, cross country skiing, and four wheel driving.

4.2.1.2 Reasonably Foreseeable Future Actions

Livestock Grazing

Livestock grazing would continue in all four CESAs for the foreseeable future.

Wildland Fires

Wildland fires may potentially occur in any of the four CESAs in the foreseeable future.

Rights-of-Way

Four pending ROW applications for power transmission and distribution facilities occur within the Wild Horse CESA. No pending applications for ROWs occur within any of the other CESAs.

Mineral Exploration and Mining

The Vegetation CESA, the Wildlife CESA, and the Wild Horse CESA have pending plans of operations for mining activities (BLM 2015a). Pending applications include plans of operations by Isabella/Pearl, LLC, Global Silica, Inc., and WK Mining (USA), LTD. There are no pending applications for mineral exploration and development within the Soils, Water, and Visual CESA (BLM 2015a).

Dispersed Recreation

Dispersed recreation would continue in all four CESAs for the foreseeable future.

4.3 EVALUATION OF POTENTIAL CUMULATIVE IMPACTS

4.3.1 Migratory Birds

The CESA for migratory birds is the Wildlife CESA. This CESA encompasses approximately 383,554 acres and is shown on Figure 4-1.

Past and Present Actions: Past and present actions that may have impacted and may be currently impacting migratory birds and their habitat include livestock grazing, mineral exploration and mining operations, mineral material projects, ROW construction and maintenance, guzzlers, and dispersed recreation.

Impacts to migratory birds and their habitat have resulted from these activities and include: 1) indirect impacts from the removal of nesting and foraging habitat associated with vegetation clearing, including the possible introduction of noxious weeds and invasive, non-native species; 2) indirect impacts from human presence and operation of machinery which may result in habitat avoidance and/or flushing/abandonment of nests; 3) direct impacts to viable nests from machinery or impacts to ground nests by machinery; and 4) direct impacts to individuals from vehicle collisions. No specific data for surface disturbance from livestock grazing or dispersed recreation were available. Impacts to migratory birds from livestock grazing include indirect impacts to habitat near streams, springs, or riparian areas within the Wildlife CESA. Impacts to migratory birds and their habitat from recreational activities include impacts to foraging and nesting habitat from off-road vehicles that travel off of established roadways, as well as impacts from human presence. The three guzzlers (Monte Cristo 1, 2, and 3) would have a positive effect by providing water for migratory birds.

Authorized and closed mineral exploration and mining projects and mineral material sites total approximately 1,669 acres in the Wildlife CESA (approximately 0.4 percent of the CESA) of surface disturbance. Approximately 10,929 acres (approximately three percent of the CESA) of ROWs were issued within the Wildlife CESA that had the potential to create surface disturbance and impact migratory bird habitat and vegetation. The Wildlife CESA encompasses portions of the Monte Cristo grazing allotment. Livestock grazing and associated management may have contributed to the established and spread of noxious weeds and invasive, non-native species which may have an indirect effect on migratory birds and their habitat within the CESA. Livestock grazing may also create a reduction in grass understory which may impact nesting success. However, disturbance to migratory birds from past and present actions would have been reduced through reclamation and seeding of disturbed areas and natural recolonization of native species, as well as proper livestock rotation and stocking rates. The past and present actions that are quantifiable have disturbed approximately three percent of the CESA. Portions of the land disturbed by mineral exploration and development operations, and mineral material sites are subject to concurrent reclamation; however, there are limited data on the number of acres

reclaimed for ROW projects. State and federal regulations require reclamation; therefore, it is reasonable to assume that some areas have been reclaimed, become naturally stabilized, or have naturally revegetated over time. There are no specific data to quantify impacts to migratory birds that may have resulted from livestock grazing and dispersed recreation activities within the CESA.

RFFAs: Potential impacts to migratory birds and their habitat from livestock grazing, mineral development operations, and dispersed recreation would be similar to those described for past and present actions. Even though no wildland fires have occurred within the CESA at present, future wildland fires may occur within the CESA which may result in the loss of vegetation and the spread of noxious, invasive and non-native species if revegetation of desirable vegetation is not accomplished after the wildland fire. As stated above, there are no specific data to quantify impacts to migratory birds or their habitat within the CESA as a result of livestock grazing, potential wildland fires, and dispersed recreation. There are approximately 1,173 acres of pending mineral development projects in the CESA not including the proposed Project (approximately 0.3 percent of the CESA), and no pending ROWs. All pending minerals projects are required to incorporate protection measures for migratory birds and therefore, are not expected to directly harm migratory birds, but may result in habitat removal or alteration.

4.3.1.1 Proposed Action

The Proposed Action (approximately 40 acres) would impact approximately 0.01 percent of the CESA. Quantifiable past and present actions and RFFA disturbance in the Wildlife CESA total approximately 13,771 acres, which results in an incremental impact from the Proposed Action of approximately 0.3 percent. Since there are limited quantifiable data for all activities within the CESA, this calculation is a conservative analysis of the potential incremental impact of the Proposed Action. Project-related impacts would be minimized due to implementation of EPMs outlined in Section 2.2.10 and concurrent reclamation. Therefore, based on the above analysis and findings, incremental impacts to migratory birds as a result of the Proposed Action, when combined with the impacts from the past and present actions and RFFAs, are expected to be minor.

4.3.1.2 No Action Alternative

A total of the quantifiable past and present actions and RFFA disturbance within the Wildlife CESA is approximately 13,771 acres, which is an impact to approximately four percent of the CESA. This alternative (approximately five acres) would result in an incremental impact of approximately 0.04 percent. Impacts to migratory birds and their habitat from this alternative, in combination with past and present actions and RFFAs disturbance, would be negligible.

4.3.2 Noxious Weeds, Invasive, Non-native Species

The CESA for noxious weeds, invasive, non-native species is the Vegetation CESA. This CESA encompasses approximately 504,181 acres and is shown on Figure 4-1.

Past and Present Actions: Past and present actions that may have impacted and may currently be impacting noxious weeds, invasive, non-native species includes livestock grazing, ROW construction and maintenance, mineral exploration and development, guzzlers, and dispersed recreation. These actions have disturbed or removed native vegetation and soils, creating opportunities for the spreading and the colonization of noxious weeds and invasive, non-native species. Noxious and invasive, non-native species are more likely to establish in disturbed areas associated with the above mentioned activities; therefore, successful reclamation assists to limit the spread of these species. Recreation activities such as off-highway vehicle use, as wells as roads within the CESA, may increase the likelihood of spreading seeds of noxious and invasive, non-native species. Guzzlers disturb native vegetation and soils during initial construction. However, disturbance from guzzlers is negligible within the CESA (approximately 0.03 acre) and is unlikely to have created any noticeable, long-term impacts to the spread or establishment of noxious, invasive and non-native species. There are no specific data to quantify impacts from noxious weeds, invasive and non-native species that may have resulted from livestock grazing and dispersed recreation activities within the CESA.

Authorized and closed mineral exploration and mining Notices and plans of operation, as well as mineral material sites, total approximately 2,548 acres (approximately one percent of the CESA) of surface disturbance. Approximately 10,661 acres of ROWs (approximately two percent of the CESA) were issued within the Vegetation CESA that had the potential to introduce noxious weeds, invasive and non-native species. The past and present actions that are quantifiable have disturbed approximately three percent of the CESA. Portions of the land disturbed by mineral exploration and development operations, and mineral material sites are subject to concurrent reclamation; however, there are limited data on the number of acres reclaimed for ROW projects. State and federal regulations require reclamation; therefore, it is reasonable to assume that some areas have been reclaimed, become naturally stabilized, or have naturally revegetated over time.

RFFAs: RFFAs within the Vegetation CESA include mineral exploration and development, continued livestock grazing, and dispersed recreation. Potential impacts from noxious weeds, invasive and non-native species as a result of future livestock grazing, dispersed recreation, mineral exploration and development would be similar to those described for past and present actions. Although no wildland fires have occurred within the CESA in the recent past, future wildland fires may occur within the CESA which may result in the loss of vegetation and the spread of noxious, invasive and non-native species if revegetation of desirable vegetation is not accomplished after the wildland fire. As stated above, there are no specific data to quantify

impacts from noxious weeds, invasive and non-native species as a result of future dispersed recreation, livestock grazing, and potential wildland fires. There are approximately 541 acres of disturbance from pending minerals projects in the Vegetation CESA not including the proposed Project (approximately 0.1 percent of the CESA), and no pending ROWs.

4.3.2.1 Proposed Action

The Proposed Action (approximately 40 acres) would impact approximately 0.01 percent of the CESA. Quantifiable past and present actions and RFFA disturbance in the Vegetation CESA is approximately 13,750 acres, which results in an incremental impact from the Proposed Action of approximately 0.3 percent. Since there are limited quantifiable data for all activities within the CESA, this calculation is a conservative analysis of the potential incremental impact of the Proposed Action. Project-related impacts would be minimized due to implementation of the EPMs outlined in Section 2.2.10 and concurrent reclamation. Therefore, based on the above analysis and findings, incremental impacts from noxious weeds, invasive, and non-native species as a result of the Proposed Action, when combined with the impacts from the past and present actions and RFFAs, are expected to be minor.

4.3.2.2 No Action Alternative

A total of the quantifiable past and present actions and RFFA disturbance within the Vegetation CESA is approximately 13,750 acres, which is an impact to approximately three percent of the CESA. This alternative (approximately five acres) would result in an incremental impact of approximately 0.04 percent. Impacts from noxious weeds, invasive, and non-native species from this alternative, in combination with past and present actions and RFFAs disturbance, would be negligible.

4.3.3 Social Values and Economics

The area that may be affected by the proposed activities, in combination with past, present and RFFAs, would be the Town of Tonopah. The Town of Tonopah is an unincorporated town in Nye County, and is the county seat for Nye County. The 2014 fourth quarter estimated population of Nye County was 3,129 (Nye County 2015).

Past and Present Actions: Past and present actions that affect the Tonopah area include grazing and agriculture within Nye County, ROW and infrastructure construction and maintenance, dispersed recreation, mineral exploration and development within Nye County and Esmeralda County, and urban development within Tonopah. Large areas of Nye County, including Tonopah, are withdrawn from multiple use which includes the Tonopah Test Range southeast of Tonopah (Nye County 2011). However, these withdrawn areas would still have economic impacts from employment, expenditures on goods within Tonopah, and the use of public and private services. The Tonopah Solar Reserve project near Tonopah received a final Record of

Decision from the BLM in 2010 and is currently under construction (Nye County 2011). Impacts to social values and economics from past and present activities include increased population, increased demand for public services, increased employment opportunities, increased revenues and expenditures within Tonopah and Nye County including increased taxes, increased sales of goods and food, increased lodging within Tonopah, and revenue from permit and development fees. The extents of these impacts vary with the type of activity and are difficult to quantify; however, the majority of the social and economic impacts from past and present actions do not have any ongoing impacts and are considered to be part of the existing social and economic climate within the CESA.

RFFAs: Social values and economic impacts would result from the following RFFAs: continued grazing and agriculture in Nye County; continued dispersed recreation; pending mineral exploration and development within Nye County and Esmeralda County; and any future development within Tonopah, including future infrastructure or ROW development.

4.3.3.1 Proposed Action

As outlined in Section 3.2.11, social and economic impacts from the Proposed Action would be short-term and would not create a noticeable increase in demand for additional public or private services (e.g., law enforcement, emergency response, fire protection, health care and social services, water, and solid waste) and would not impact public schools, the permanent housing market, or other services associated with permanent workers. The social and economic impacts resulting from the Proposed Action, when combined with the impacts from the past and present actions and RFFAs, are expected to be short-term and beneficial but are not expected to be significant when compared to the overall economy of the Town of Tonopah.

4.3.3.2 No Action Alternative

Under the No Action Alternative, the Proposed Action would not be approved and previously permitted exploration activities would continue. The cumulative impacts resulting from the No Action Alternative would be less than those associated with the Proposed Action because the authorized operations would result in the need for fewer employees than the Proposed Action which would reduce the overall socioeconomic effects from the activities.

4.3.4 Soils

The CESA for soils is the Soils, Water, and Visual CESA. This CESA encompasses approximately 46,860 acres and is shown on Figure 4-1.

Past and Present Actions: Past and present actions that may have impacted and may currently be impacting soils within the CESA includes livestock grazing, ROW construction and maintenance, mineral exploration, guzzlers, and dispersed recreation. These activities have

resulted in soil compaction due to travel by heavy equipment on unpaved roads, and dispersed recreation. These actions may have directly disturbed or impacted soils, or increased erosion or sedimentation potential. Impacts from these activities include loss of soils productivity due to changes in soil physical properties, soil fertility, and soil movement in response to water and wind erosion, and loss of soil structure due to compaction. Roads within the CESA may have altered water flow on the soil surface. Roads may also create impervious surfaces (depending on the surfacing type of the road) that concentrate runoff and increase the potential for erosion of adjacent surfaces. Guzzlers disturb native soils during initial construction which may result in increased erosion potential. However, disturbance from guzzlers is negligible within the CESA (approximately 0.02 acre) and is unlikely to have created any noticeable, long-term impacts to soils within the CESA. There are no specific data to quantify impacts to soils from livestock grazing and dispersed recreation in the Soil and Water CESA.

Authorized and closed mineral exploration Notices, as well as mineral material sites, total approximately 493 acres (approximately one percent of the CESA) of surface disturbance. Approximately 6,099 acres of ROWs (approximately 13 percent of the CESA) were issued within the Soils, Water, and Visual CESA that had the potential to impact soils. The past and present actions that are quantifiable have disturbed approximately 14 percent of the CESA. Portions of the land disturbed by mineral exploration and development operations, and mineral material sites are subject to concurrent reclamation; however, there are limited data on the number of acres reclaimed for ROW projects. State and federal regulations require reclamation; therefore, it is reasonable to assume that some areas have been reclaimed, become naturally stabilized, or have naturally revegetated over time.

RFFAs: RFFAs within the Soils, Water, and Visual CESA include continued livestock grazing and dispersed recreation. Potential impacts to soils resources as a result of future livestock grazing and dispersed recreation would be similar to those described for past and present actions, largely the potential for increased erosion of soils. Even though no wildland fires have occurred within the CESA at present, future wildland fires may occur within the CESA which may result in the loss of vegetation and increased erosion and sedimentation of soils. There are no pending ROWs or mineral exploration and development applications within the Soils, Water, and Visual CESA. Soil compaction due to travel by heavy equipment on unpaved roads, and dispersed recreation are expected to continue from existing activities. There are no specific data to quantify impacts to soils as a result of continued dispersed recreation and livestock grazing, or potential wildland fires.

4.3.4.1 Proposed Action

The Proposed Action (approximately 40 acres) would impact approximately 0.1 percent of the CESA. Quantifiable past and present actions and RFFA disturbance in the Soils, Water, and

Visual CESA is approximately 6,592 acres, which results in an incremental impact from the Proposed Action of approximately one percent. Since there are limited quantifiable data for all activities within the CESA, this calculation is a conservative analysis of the potential incremental impact of the Proposed Action. Project-related impacts would be minimized due to implementation of the EPMs outlined in Section 2.2.10 and concurrent reclamation. Therefore, based on the above analysis and findings, incremental impacts to soils as a result of the Proposed Action, when combined with the impacts from the past and present actions and RFFAs, are expected to be minor.

4.3.4.2 No Action Alternative

A total of the quantifiable past and present actions and RFFA disturbance within the Soils, Water, and Visual CESA is approximately 6,592 acres, which is an impact to approximately 14 percent of the CESA. This alternative (approximately five acres) would result in an incremental impact of approximately 0.1 percent. Impacts to soils from this alternative, in combination with past and present actions and RFFAs disturbance, would be negligible.

4.3.5 Special Status Plant Species

The CESA for special status plant species is the Vegetation CESA. This CESA encompasses approximately 504,181 acres and is shown on Figure 4-1.

Past and Present Actions: Past and present actions that may have impacted and may currently be impacting special status plant species and their habitat includes livestock grazing, ROW construction and maintenance, mineral exploration and development, guzzlers, and dispersed recreation. These actions have disturbed or removed native vegetation and soils, and potentially altered the structure, composition, and ecology of plant communities within the CESA. Livestock grazing and dispersed recreation may result in trampling of vegetation. ROW construction and maintenance and mineral exploration and development result in the removal and disturbance of vegetation, which may result in the spread or establishment of noxious and invasive, non-native species if reclamation does not occur in a reasonable time-frame after disturbance. Recreation activities such as off-highway vehicle use, as wells as roads within the CESA, may increase the likelihood of spreading seeds of noxious and invasive, non-native species. In addition, areas impacted by roads and off-highway vehicles are often slower to re-establish with native vegetation because soils have been compacted. Guzzlers disturb native vegetation and soils during initial construction. However, disturbance from guzzlers is negligible within the CESA (approximately 0.03 acre) and direct impacts to special status plant species would have been avoided during construction. There are no specific data to quantify impacts to special status plant species or their habitat from livestock grazing or dispersed recreation.

Authorized and closed mineral exploration and mining Notices and plans of operation, as well as mineral material sites, total approximately 2,548 acres (approximately one percent of the CESA) of surface disturbance. Approximately 10,661 acres of ROWs (approximately two percent of the CESA) were issued within the Vegetation CESA that had the potential impact special status plant species habitat (direct impacts to known populations of special status plant species would have been avoided). The past and present actions that are quantifiable have disturbed approximately three percent of the CESA.

RFFAs: RFFAs within the Vegetation CESA include mineral exploration and development, continued livestock grazing, and dispersed recreation. Potential impacts to special status plant species and their habitat as a result of future livestock grazing, dispersed recreation, and mineral exploration and development would be similar to those described for past and present actions. Even though no wildland fires have occurred within the CESA at present, future wildland fires may occur within the CESA which may result in the loss of vegetation and the spread of noxious, invasive and non-native species if revegetation of desirable vegetation is not accomplished after the wildland fire. As stated above, there are no specific data to quantify impacts special status plant species as a result of future dispersed recreation, livestock grazing, and potential wildland fires. There are approximately 541 acres of disturbance from pending minerals exploration and development projects in the Vegetation CESA not including the proposed Project (approximately 0.1 percent of the CESA), and no pending ROWs.

4.3.5.1 Proposed Action

The Proposed Action (approximately 40 acres) would impact approximately 0.01 percent of the CESA. Quantifiable past and present actions and RFFA disturbance in the Vegetation CESA is approximately 13,750 acres, which results in an incremental impact from the Proposed Action of approximately 0.3 percent. Since there are limited quantifiable data for all activities within the CESA, this calculation is a conservative analysis of the potential incremental impact of the Proposed Action. Project-related impacts would be minimized due to implementation of the EPMs outlined in Section 2.2.10, avoidance of known sensitive plant species in the Project Area, and concurrent reclamation. Therefore, based on the above analysis and findings, incremental impacts to special status plant species and their habitat as a result of the Proposed Action, when combined with the impacts from the past and present actions and RFFAs, are expected to be minor.

4.3.5.2 No Action Alternative

A total of the quantifiable past and present actions and RFFA disturbance within the Vegetation CESA is approximately 13,750 acres, which is an impact to approximately three percent of the CESA. This alternative (approximately five acres) would result in an incremental impact of approximately 0.04 percent. Impacts to special status plant species and their habitat from this

alternative, in combination with past and present actions and RFFAs disturbance, would be negligible.

4.3.6 Special Status Wildlife Species

The CESA for special status wildlife species is the Wildlife CESA. This CESA encompasses approximately 383,554 acres and is shown on Figure 4-1.

Past and Present Actions: Past and present actions that may have impacted and may be currently impacting special status wildlife species and their habitat include livestock grazing, mineral exploration and mining operations, mineral material projects, ROW construction and maintenance, guzzlers, and dispersed recreation. These activities have the potential to impact individuals directly from collisions with vehicles along travel routes, or indirectly through impacts to habitat used for forage, cover, reproduction, and brood rearing. The three guzzlers (Monte Cristo 1, 2, and 3) would have a positive effect by providing water for special status wildlife species.

Authorized and closed mineral exploration and mining projects and mineral material sites total approximately 1,669 acres in the Wildlife CESA (approximately 0.4 percent of the CESA) of surface disturbance. Approximately 10,929 acres (approximately three percent of the CESA) of ROWs were issued within the Wildlife CESA that had the potential to create surface disturbance and impact special status wildlife species habitat and vegetation. The Wildlife CESA encompasses portions of the Monte Cristo grazing allotment. Livestock grazing and associated management may have contributed to the established and spread of noxious weeds and invasive, non-native species which may have an indirect effect on special status wildlife species and their habitat within the CESA. Livestock grazing may also create a competition for forage area. However, disturbance to special status wildlife species and their habitat from past and present actions would have been reduced through reclamation and seeding of disturbed areas and natural recolonization of native species, as well as proper livestock rotation and stocking rates. The past and present actions that are quantifiable have disturbed approximately three percent of the CESA. Portions of the land disturbed by mineral exploration and development operations, and mineral material sites are subject to concurrent reclamation; however, there are limited data on the number of acres reclaimed for ROW projects. State and federal regulations require reclamation; therefore, it is reasonable to assume that some areas have been reclaimed, become naturally stabilized, or have naturally revegetated over time. There are no specific data to quantify impacts to special status wildlife species that may have resulted from livestock grazing and dispersed recreation activities within the CESA.

RFFAs: Potential impacts to special status wildlife species and their habitat from livestock grazing, mineral development operations, and dispersed recreation would be similar to those

described for past and present actions. Even though no wildland fires have occurred within the CESA at present, future wildland fires may occur within the CESA which may result in the loss of vegetation and special status wildlife species habitat and the spread of noxious, invasive and non-native species if revegetation of desirable vegetation is not accomplished after the wildland fire. As stated above, there are no specific data to quantify impacts to special status wildlife species or their habitat within the CESA as a result of livestock grazing, potential wildland fires, and dispersed recreation. There are approximately 1,173 acres of pending mineral development projects in the CESA not including the proposed Project (approximately 0.3 percent of the CESA), and no pending ROWs. All pending minerals development projects would incorporate protection measures for special status wildlife species and their habitat; therefore, these pending projects are expected to avoid direct impacts to special status wildlife species and minimize indirect impacts to their habitat.

4.3.6.1 Proposed Action

The Proposed Action (approximately 40 acres of temporary breeding and/or foraging habitat removal) would impact approximately 0.01 percent of the CESA. Quantifiable past and present actions and RFFA disturbance in the Wildlife CESA total approximately 13,771 acres, which results in an incremental impact from the Proposed Action of approximately 0.3 percent. Since there are limited quantifiable data for all activities within the CESA, this calculation is a conservative analysis of the potential incremental impact of the Proposed Action. Project-related impacts would be minimized due to implementation of EPMs outlined in Section 2.2.10 and concurrent reclamation. Therefore, based on the above analysis and findings, incremental impacts to special status species and their habitat as a result of the Proposed Action, when combined with the impacts from the past and present actions and RFFAs, are expected to be minor.

4.3.6.2 No Action Alternative

A total of the quantifiable past and present actions and RFFA disturbance within the Wildlife CESA is approximately 13,771 acres, which is an impact to approximately four percent of the CESA. This alternative (approximately five acres) would result in an incremental impact of approximately 0.04 percent. Under the No Action Alternative, no guzzler would be constructed which may result in access to water for special status wildlife species being limited to existing guzzlers around the Project Area. Impacts to special status wildlife species and their habitat from this alternative, in combination with past and present actions and RFFAs disturbance, would be negligible.

4.3.7 Vegetation

The CESA for vegetation resources is the Vegetation CESA. This CESA encompasses approximately 504,181 acres and is shown on Figure 4-1.

Past and Present Actions: Past and present actions that may have impacted and may currently be impacting vegetation includes livestock grazing, ROW construction and maintenance, mineral exploration and development, guzzlers, and dispersed recreation. These actions have disturbed or removed native vegetation and soils, and potentially altered the structure, composition, and ecology of plant communities within the CESA. Livestock grazing and dispersed recreation may result in trampling of vegetation. ROW construction and maintenance and mineral exploration and development result in the removal and disturbance of vegetation, which may result in the spread or establishment of noxious and invasive, non-native species if reclamation does not occur in a reasonable time-frame after disturbance. Recreation activities such as off-highway vehicle use, as wells as roads within the CESA, may increase the likelihood of spreading seeds of noxious and invasive, non-native species. In addition, areas impacted by roads and off-highway vehicles are often slower to re-establish with native vegetation because soils have been compacted. Guzzlers disturb native vegetation and soils during initial construction. However, disturbance from guzzlers is negligible within the CESA (approximately 0.03 acre) and is unlikely to have created any noticeable, long-term impacts to vegetation resources. There are no specific data to quantify impacts to vegetation from livestock grazing or dispersed recreation.

Authorized and closed mineral exploration and mining Notices and plans of operation, as well as mineral material sites, total approximately 2,548 acres (approximately one percent of the CESA) of surface disturbance. Approximately 10,661 acres of ROWs (approximately two percent of the CESA) were issued within the Vegetation CESA that had the potential impact vegetation. The past and present actions that are quantifiable have disturbed approximately three percent of the CESA. Portions of the land disturbed by mineral exploration and development operations, and mineral material sites are subject to concurrent reclamation; however, there are limited data on the number of acres reclaimed for ROW projects. State and federal regulations require reclamation; therefore, it is reasonable to assume that some areas have been reclaimed, become naturally stabilized, or have naturally revegetated over time.

RFFAs: RFFAs within the Vegetation CESA include mineral exploration and development, continued livestock grazing and dispersed recreation. Potential impacts to vegetation resources as a result of future livestock grazing, dispersed recreation, mineral exploration and development would be similar to those described for past and present actions. Even though no wildland fires have occurred within the CESA at present, future wildland fires may occur within the CESA which may result in the loss of vegetation and the spread of noxious, invasive and non-native species if revegetation of desirable vegetation is not accomplished after the wildland fire. As stated above, there are no specific data to quantify impacts to vegetation as a result of future dispersed recreation, livestock grazing, and potential wildland fires. There are approximately 541 acres of disturbance from pending minerals projects in the Vegetation CESA not including the proposed Project (approximately 0.1 percent of the CESA), and no pending ROWs.

4.3.7.1 Proposed Action

The Proposed Action (approximately 40 acres) would impact approximately 0.01 percent of the CESA. Quantifiable past and present actions and RFFA disturbance in the Vegetation CESA is approximately 13,750 acres, which results in an incremental impact from the Proposed Action of approximately 0.3 percent. Since there are limited quantifiable data for all activities within the CESA, this calculation is a conservative analysis of the potential incremental impact of the Proposed Action. Project-related impacts would be minimized due to implementation of the EPMs outlined in Section 2.2.10 and concurrent reclamation. Therefore, based on the above analysis and findings, incremental impacts to vegetation resources as a result of the Proposed Action, when combined with the impacts from the past and present actions and RFFAs, are expected to be minor.

4.3.7.2 No Action Alternative

A total of the quantifiable past and present actions and RFFA disturbance within the Vegetation CESA is approximately 13,750 acres, which is an impact to approximately three percent of the CESA. This alternative (approximately five acres) would result in an incremental impact of approximately 0.04 percent. Impacts to vegetation resources from this alternative, in combination with past and present actions and RFFAs disturbance, would be negligible.

4.3.8 Visual Resources

The CESA for visual resources is the Soils, Water, and Visual CESA. This CESA encompasses approximately 46,860 acres and is shown on Figure 4-1.

Past and Present Actions: Past and present actions that may have impacted and may currently be impacting visual resources within the CESA includes livestock grazing, ROW construction and maintenance, mineral exploration, guzzlers, and dispersed recreation. These actions have disturbed or removed vegetation and soils, which may have resulted in visual impacts within the CESA including impacts to the form, line, color and texture of the landscape within the CESA. The drill pads and staging areas from existing and past exploration operations have added regular, rectangular forms with a uniform, horizontal, smooth texture from vegetation removal which would contrast with the undisturbed areas within the CESA which would results in a less uniform, regular texture and form. ROW construction and maintenance have resulted in linear features that contrast with the features of the natural landscape. These linear features often involve vegetation removal which would impact the texture, color and form of the existing landscape by adding areas of bare soil rather than various types of vegetation. Livestock grazing is a common land use in the area and visually is a very small part of the present landscape. Range improvements such as fences and cattle guards may impact the visual texture and form of the landscape by adding features to the landscape that are not normally present in pristine nature. Dispersed recreation such as off-highway vehicle use has resulted in visual impacts resulting

from the roads used for off-highway vehicle use; however, dispersed recreation and livestock grazing are less visually noticeable than other disturbances within the CESA. There are no specific data to quantify impacts to visual resources from livestock grazing and dispersed recreation in the Soil, Water, and Visual CESA. The guzzlers within the CESA have resulted in the inclusion of man-made water development features including metal aprons, water storage tanks and disturbances (including vegetation removal for trenching) associated with burying polyethylene pipe for the transferring of water to the guzzler drinker. Disturbances from the guzzlers have resulted in impacts to the visual form, line, color and texture of the existing landscape. However, disturbances and features associated with guzzlers in the CESA are comparably small to other disturbances within the CESA and are visually a very small part of the existing landscape.

Authorized and closed mineral exploration Notices, as well as mineral material sites, total approximately 493 acres (approximately one percent of the CESA) of surface disturbance. Approximately 6,099 acres of ROWs (approximately 13 percent of the CESA) were issued within the Soils, Water, and Visual CESA that had the potential to impact visual resources. The past and present actions that are quantifiable have disturbed approximately 14 percent of the CESA. Portions of the land disturbed by mineral exploration operations and mineral material sites are subject to concurrent reclamation; however, there are limited data on the number of acres reclaimed for ROW projects. However, state and federal regulations require reclamation for most surface disturbance activities which would reduce the long-term visual impact from past and present disturbances.

RFFAs: RFFAs within the Soils, Water and Visual CESA include continued livestock grazing and dispersed recreation. Potential impacts to visual resources as a result of future livestock grazing and dispersed recreation would be similar to those described for past and present actions, largely resulting from roads used for off-highway vehicle use and range improvements associated with grazing operations. Even though no wildland fires have occurred within the CESA at present, future wildland fires may occur within the CESA which may result in the loss of vegetation which would impact the form, color and texture of the existing landscape. There are no specific data to quantify impacts to visual resources as a result of continued dispersed recreation and livestock grazing, or potential wildland fires. There are no pending ROWs or mineral exploration and development applications within the Soils, Water, and Visual CESA.

4.3.8.1 Proposed Action

The area within the Soils, Water, and Visual CESA is currently designated as a VRM Class IV. The Proposed Action (approximately 40 acres) would impact approximately 0.1 percent of the CESA. Quantifiable past and present actions and RFFA disturbance in the Soils, Water, and Visual CESA is approximately 6,592 acres, which results in an incremental impact from the

Proposed Action of approximately one percent. Since there are limited quantifiable data for all activities within the CESA, this calculation is a conservative analysis of the potential incremental impact of the Proposed Action. Project-related impacts from surface disturbance would be minimized by concurrent reclamation. In addition, the implementation of the night skies EPM outlined in Section 2.2.10 would reduce visual impacts resulting from operations occurring at night. Even after reclamation, the disturbed areas associated with the Proposed Action, as well as past, present and RFFAs, may result in visual contrasts with the existing landscape as the vegetation is re-establishing; however, native vegetation would gradually re-establish within the disturbed areas to minimize visual contrasts. Therefore, based on the above analysis and findings, incremental impacts to visual resources as a result of the Proposed Action, when combined with the impacts from the past and present actions and RFFAs, are expected to be minor.

4.3.8.2 No Action Alternative

A total of the quantifiable past and present actions and RFFA disturbance within the Soils, Water, and Visual CESA is approximately 6,592 acres, which is an impact to approximately 14 percent of the CESA. This alternative (approximately five acres) would result in an incremental impact of approximately 0.1 percent. The No Action Alternative would include visual impacts from previously permitted drill pads, staging areas and drill roads. Impacts to visual resources from this alternative, in combination with past and present actions and RFFAs disturbance, would be negligible.

4.3.9 Surface Water Quality and Quantity

The CESA for surface water resources is the Soils, Water, and Visual CESA. This CESA encompasses approximately 46,860 acres and is shown on Figure 4-1.

Past and Present Actions: Past and present actions that may have impacted and may currently be impacting surface water resources within the CESA includes livestock grazing, ROW construction and maintenance, mineral exploration, guzzlers, and dispersed recreation. These actions have disturbed or removed native vegetation and soils, which may have resulted in increased erosion potential within the CESA, which may impact the quality of surface water resources. Existing exploration operations and livestock grazing operations likely use water (typically ground water, but surface water may also be used) as a part of their operations, either for dust control, exploration drilling operations, or livestock watering. This use of water may impact quantity of surface water within the CESA. General surface disturbance associated with ROW construction and maintenance (including roads), mineral exploration operations, and off-highway vehicle use may cause erosion/sedimentation, and inadvertent spills from process water, drilling fluids, or other hazardous substances which may contaminate surface water within the CESA. However, most projects would require erosion and sediment control measures to reduce

impacts from erosion and sedimentation, as well as spill prevention plans to prevent contamination to surface waters from spills. There are no specific data to quantify impacts to surface water from livestock grazing and dispersed recreation in the Soil and Water CESA.

Authorized and closed mineral exploration Notices, as well as mineral material sites, total approximately 493 acres (approximately one percent of the CESA) of surface disturbance. Approximately 6,099 acres of ROWs (approximately 13 percent of the CESA) were issued within the Soils, Water and Visual CESA that had the potential impact surface water resources. The past and present actions that are quantifiable have disturbed approximately 14 percent of the CESA. However, state and federal regulations require these projects to prepare and incorporate spill prevention plans, storm water management plans, and BMPs to reduce impacts to surface water from storm water runoff and any potential spills. Portions of the land disturbed by mineral exploration operations and mineral material sites are subject to concurrent reclamation; however, there are limited data on the number of acres reclaimed for ROW projects. State and federal regulations require reclamation; therefore, it is reasonable to assume that some areas have been reclaimed, become naturally stabilized, or have naturally revegetated over time which would reduce erosion potential and impacts to surface waters.

RFFAs: RFFAs within the Soils, Water, and Visual CESA include continued livestock grazing and dispersed recreation. Potential impacts to surface water resources as a result of future livestock grazing and dispersed recreation would be similar to those described for past and present actions, largely the potential for increased erosion and sedimentation. Even though no wildland fires have occurred within the CESA at present, future wildland fires may occur within the CESA which may result in the loss of vegetation and increased erosion and sedimentation into nearby surface waters. There are no pending ROWs or mineral exploration and development applications within the Soils, Water, and Visual CESA. There are no specific data to quantify impacts to surface water as a result of continued dispersed recreation and livestock grazing, or potential wildland fires.

4.3.9.1 Proposed Action

The Proposed Action (approximately 40 acres) would impact approximately 0.1 percent of the CESA. Quantifiable past and present actions and RFFA disturbance in the Soils, Water, and Visual CESA is approximately 6,592 acres, which results in an incremental impact from the Proposed Action of approximately one percent. Since there are limited quantifiable data for all activities within the CESA, this calculation is a conservative analysis of the potential incremental impact of the Proposed Action. Project-related impacts from erosion and sedimentation would be minimized due to implementation of the EPMs outlined in Section 2.2.10 and concurrent reclamation. Therefore, based on the above analysis and findings, incremental impacts to surface

water resources as a result of the Proposed Action, when combined with the impacts from the past and present actions and RFFAs, are expected to be minor.

4.3.9.2 No Action Alternative

A total of the quantifiable past and present actions and RFFA disturbance within the Soils, Water, and Visual CESA is approximately 6,592 acres, which is an impact to approximately 14 percent of the CESA. This alternative (approximately five acres) would result in an incremental impact of approximately 0.1 percent. Impacts to surface water resources from this alternative, in combination with past and present actions and RFFAs disturbance, would be negligible.

4.3.10 Wild Horses

The CESA for wild horses is the Wild Horses CESA. This CESA encompasses approximately 477,135 acres and is shown on Figure 4-2.

Past and Present Actions: Past and present actions that may have impacted and may currently be impacting wild horses includes livestock grazing, ROW construction and maintenance, mineral exploration and development, guzzlers, dispersed recreation and wild horse gathers and fertility control treatment. Impacts to wild horses from these activities include loss of forage, human disturbance, and changes to use patterns and distribution within the CESA. The extent of these impacts varies with the type of activity or disturbance. ROW construction and maintenance and mineral exploration and development directly remove vegetation from lands that may be used as cover and forage for wild horse use. In addition, vegetation clearing activities increase the likelihood of spreading noxious and non-native invasive species that may further reduce wild horse forage area. Roads and utility construction may fragment wild horse habitat, and noise and increased human activity has the potential to displace herds to adjacent areas. Roads within the CESA may result in vehicular collisions. There are no specific data to quantify impacts to wild horses from livestock grazing and dispersed recreation.

Authorized and closed mineral exploration and mining Notices and plans of operation, as well as mineral material disposal sites, total approximately 1,430 acres (approximately 0.3 percent of the CESA) of surface disturbance. Approximately 9,138 acres (approximately two percent of the CESA) of ROWs were issued within the Wild Horses CESA that had the potential to introduce vegetation clearing, noise and increased traffic from human disturbance activities. The past and present actions that are quantifiable have disturbed approximately two percent of the CESA. Portions of the land disturbed by mineral exploration and development operations, and mineral material sites are subject to concurrent reclamation; however, there are limited data on the number of acres reclaimed for ROW projects. State and federal regulations require reclamation; therefore, it is reasonable to assume that some areas have been reclaimed, become naturally stabilized, or have naturally revegetated over time which would reduce impacts to wild horse

habitat. These past and present actions have added to the changes in the distribution and use patterns within the CESA, and have potential increased restless behavior and flight response.

RFFAs: RFFAs within the Wild Horses CESA include mineral development, ROW construction and maintenance, continued livestock grazing and dispersed recreation. Potential impacts to wild horses as a result of future livestock grazing, dispersed recreation, mineral development and ROW construction and maintenance would be similar to those described for past and present actions. Even though no wildland fires have occurred within the CESA at present, future wildland fires may occur within the CESA which may result in the loss of vegetation and the spread of noxious, invasive and non-native species which would reduce forage area as well as potentially displace wild horses to adjacent areas. Future wild horse gathers and population growth suppressant treatments (fertility control) may also impact wild horse populations. There are no specific data to quantify impacts to wild horses as a result of dispersed recreation, livestock grazing, or potential wildland fires. There are approximately 1,021 acres of disturbance from pending minerals projects in the Wild Horses CESA not including the proposed Project, and approximately 702 acres of pending ROWs.

4.3.10.1 Proposed Action

The impacts considered for cumulative analysis were those that result in increased fragmentation of wild horse habitat, and cumulative increases in vegetation and soil disturbances, which result in incremental losses in availability of quality habitat used for wild horses.

When considered with other ongoing and future exploration within the Pilot HMA, the usable habitat may be reduced, and wild horses, at least temporarily, may avoid areas due to human disturbance, particularly in the heavily used areas.

Over time, the areas of disturbance would cumulatively increase, and impact the quality and quantity of habitat available to wild horses, as well as increase risks for erosion and noxious weed invasion. Each activity may result in incremental restrictions to free roaming behavior and over time may influence utilization patterns, genetic interchange, and use of water sources.

The Proposed Action (approximately 40 acres) would impact soils and vegetation within approximately 0.01 percent of the CESA. Quantifiable past and present actions and RFFA disturbance (to vegetation and soils) in the Wild Horses CESA is approximately 12,291 acres, which results in an incremental impact from the Proposed Action of approximately 0.3 percent.

The 618-acre Project Area in which the disturbance would occur equates to approximately 0.1 percent of the HMA. Since there are limited quantifiable data for all activities within the CESA, this calculation is a conservative analysis of the potential incremental impact of the

Proposed Action. However, disturbance to wild horses due to increased human presence, vehicles, noise, may extend beyond the Project Area over the anticipated 10-year Project life, and contribute to cumulative impacts by adding to the changes in distribution and use patterns, and increasing restless behavior and flight response.

Project-related impacts would be localized and minimized due to implementation of the EPMs outlined in Section 2.2.10 and concurrent reclamation, as well as the incremental approach of Project disturbance and minimal amount of equipment and workers within the Project Area at any one time over the anticipated ten-year Project life. Therefore, based on the above analysis and findings, incremental impacts to wild horses as a result of the Proposed Action, when combined with the impacts from the past and present actions and RFFAs, are expected to be minor.

4.3.10.2 No Action Alternative

A total of the quantifiable past and present actions and RFFA disturbance within the Wild Horses CESA is approximately 12,291 acres, which is an impact to approximately three percent of the CESA. This alternative (approximately five acres) would result in an incremental impact of approximately 0.04 percent. Impacts to wild horses from this alternative, in combination with past and present actions and RFFAs disturbance, would be negligible.

4.3.11 Wildlife

The CESA for wildlife is the Wildlife CESA. This CESA encompasses approximately 383,554 acres and is shown on Figure 4-1.

Past and Present Actions: Past and present actions that may have impacted and may be currently impacting wildlife species and their habitat include livestock grazing, mineral exploration and mining operations, mineral material projects, ROW construction and maintenance, guzzlers, and dispersed recreation. These activities have the potential to impact individuals directly from collisions with vehicles along travel routes, or indirectly through impacts to habitat used for forage, cover, reproduction, and brood rearing. The three guzzlers (Monte Cristo 1, 2, and 3) would have a positive effect by providing water for wildlife species including big game.

Authorized and closed mineral exploration and mining projects and mineral material sites total approximately 1,669 acres in the Wildlife CESA (approximately 0.4 percent of the CESA) of surface disturbance. Approximately 10,929 acres (approximately three percent of the CESA) of ROWs were issued within the Wildlife CESA that had the potential to create surface disturbance and impact wildlife habitat and vegetation. The Wildlife CESA encompasses portions of the Monte Cristo grazing allotment. Livestock grazing and associated management may have contributed to the established and spread of noxious weeds and invasive, non-native species

which may have an indirect effect on wildlife and their habitat within the CESA. Livestock grazing may also create a competition for forage area. However, disturbance to wildlife and their habitat from past and present actions would have been reduced through reclamation and seeding of disturbed areas and natural recolonization of native species, as well as proper livestock rotation and stocking rates. The past and present actions that are quantifiable have disturbed approximately three percent of the CESA. Portions of the land disturbed by mineral exploration and development operations, and mineral material sites are subject to concurrent reclamation; however, there are limited data on the number of acres reclaimed for ROW projects. State and federal regulations require reclamation; therefore, it is reasonable to assume that some areas have been reclaimed, become naturally stabilized, or have naturally revegetated over time. There are no specific data to quantify impacts to wildlife that may have resulted from livestock grazing and dispersed recreation activities within the CESA.

RFFAs: Potential impacts to wildlife and their habitat from livestock grazing, wildland fire, mineral development operations, and dispersed recreation would be similar to those described for past and present actions. Even though no wildland fires have occurred within the CESA at present, future wildland fires may occur within the CESA which may result in the loss of vegetation and wildlife habitat and the spread of noxious, invasive and non-native species if revegetation of desirable vegetation is not accomplished after the wildland fire. As stated above, there are no specific data to quantify impacts to wildlife or their habitat within the CESA as a result of livestock grazing, potential wildland fires, and dispersed recreation. There are approximately 1,173 acres of pending mineral development projects in the CESA not including the proposed Project (approximately 0.3 percent of the CESA), and no pending ROWs.

4.3.11.1 Proposed Action

The Proposed Action (approximately 40 acres of temporary breeding and/or foraging habitat removal) would impact approximately 0.01 percent of the CESA. Quantifiable past and present actions and RFFA disturbance in the Wildlife CESA total approximately 13,771 acres, which results in an incremental impact from the Proposed Action of approximately 0.3 percent. Since there are limited quantifiable data for all activities within the CESA, this calculation is a conservative analysis of the potential incremental impact of the Proposed Action. Project-related impacts would be minimized due to implementation of EPMs outlined in Section 2.2.10 and concurrent reclamation. Therefore, based on the above analysis and findings, incremental impacts to wildlife and their habitat as a result of the Proposed Action, when combined with the impacts from the past and present actions and RFFAs, are expected to be minor.

4.3.11.2 No Action Alternative

A total of the quantifiable past and present actions and RFFA disturbance within the Wildlife CESA is approximately 13,771 acres, which is an impact to approximately four percent of the

CESA. This alternative (approximately five acres) would result in an incremental impact of approximately 0.04 percent. Impacts to wildlife and their habitat from this alternative, in combination with past and present actions and RFFAs disturbance, would be negligible.

5.0 CONSULTATION AND COORDINATION

This EA was prepared at the direction of the BLM, Tonopah Field Office, Battle Mountain District, Nevada, by Stantec, under a contract with Cordex. The following is a list of persons, groups, and agencies consulted, as well as a list of individual responsible for the preparation of this EA

5.1 PERSONS, GROUPS AND AGENCIES CONSULTED

Federal Agencies

United States Fish and Wildlife Service

State Agencies

Nevada Division of Environmental Protection

Nevada Natural Heritage Program

Nevada Department of Wildlife

Tribes

Timbisha Shoshone Tribe

Yomba Shoshone Tribe

Fallon Paiute-Shoshone Tribe

5.2 LIST OF PREPARERS AND REVIEWERS

Table 5-1 List of BLM Preparers/Reviewers and Technical Specialists

BLM (Battle Mountain District Office)	
Core Team Members	**Responsibility**
Tim Coward	Field Manger
Chris Worthington	Lead Planning and Environmental Coordinator
William Coyle	Assistant Field Manager (Non-Renewable), Geology/Minerals
Nazila Hummer	Geologist
Austin Brewer	Wild Horses and Burros
Daltrey Balmer	Range, Soils and Noxious Weeds
Deborah (Deej) Brown	Range
Wendy Seley	Realty
David Price	Wildlife
Ben Cramer	Recreation and Visual
Alden Shallcross	Hydrology
Juan Martinez	Native American Coordinator
John Kinsner	Cultural

Table 5-2 Project Operator

Cordex Exploration Company, LLC	
Bruce Delaney	Managing Member
Andy Wallace	Managing Member

Table 5-3 Third Party Contractor

Stantec Consulting Services, Inc.	
Michele Lefebvre, PhD	Project Manager
Steve Morton, AICP	Assistant Project Manager
Aaron Hoberg	Air Quality
Jason Trook	GIS Specialist
Kim Carter	NEPA Document Preparation Assistance

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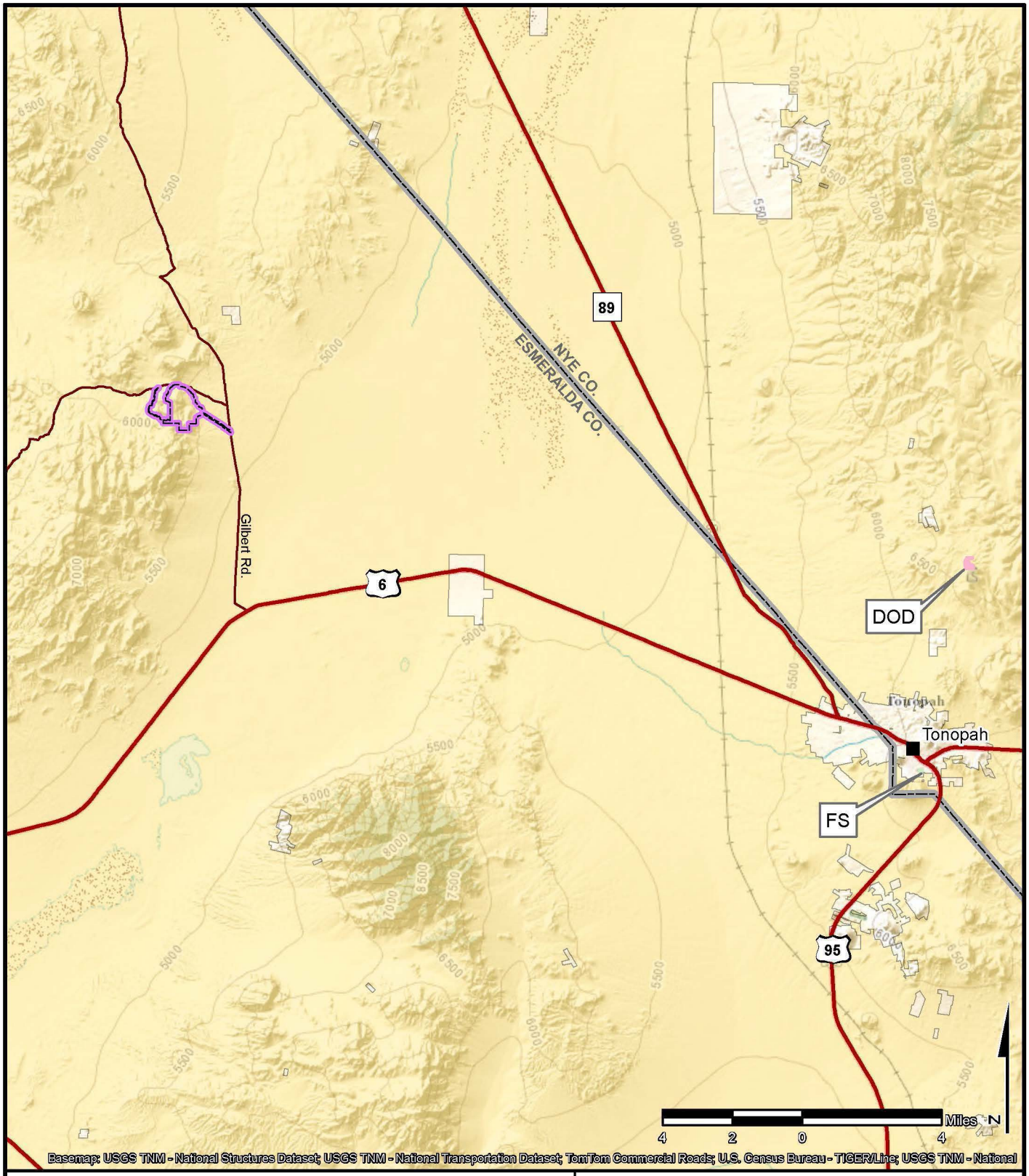
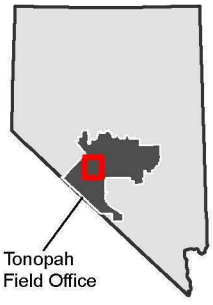
FIGURES





Project Boundary

Bureau of Land Management (BLM)

Department of Defense (DOD)

Forest Service (FS)

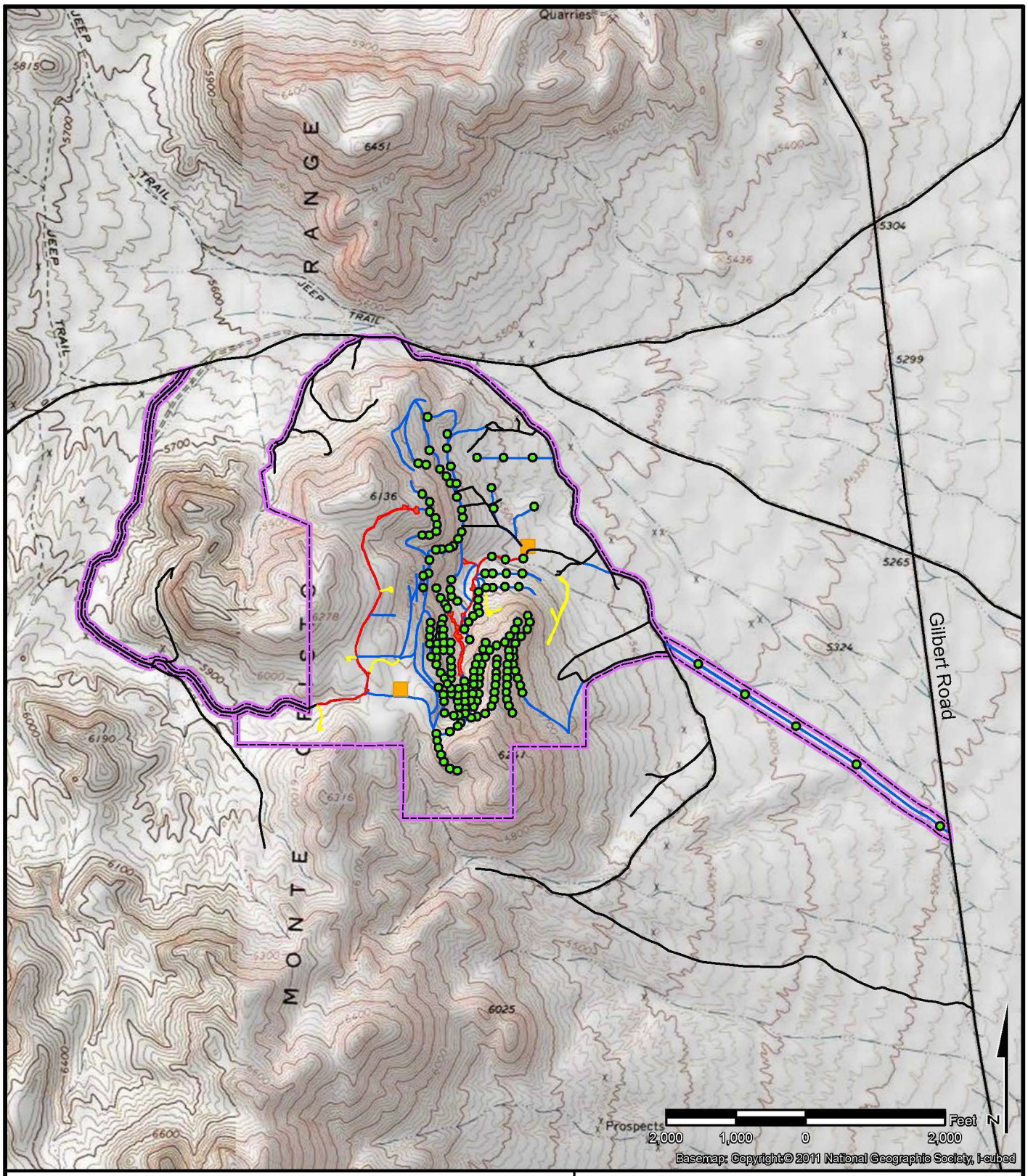
Private

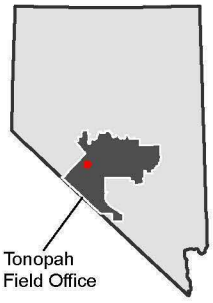
CORDEX EXPLORATION COMPANY
EASTSIDE EXPLORATION PROJECT

FIGURE 1-1
PROJECT AREA, ACCESS, AND LAND STATUS

NO WARRANTY IS MADE BY THE BUREAU OF LAND MANAGEMENT AS TO THE ACCURACY, RELIABILITY, OR COMPLETENESS OF THESE DATA FOR INDIVIDUAL USE OR AGGREGATE USE WITH OTHER DATA.

DATE DRAWN	3/6/2015	SCALE	1 in = 4 miles





Project Boundary
Proposed Drill Sites
Existing Roads
Proposed Staging
Proposed Roads
Existing Disturbance
Reclaimed Disturbance

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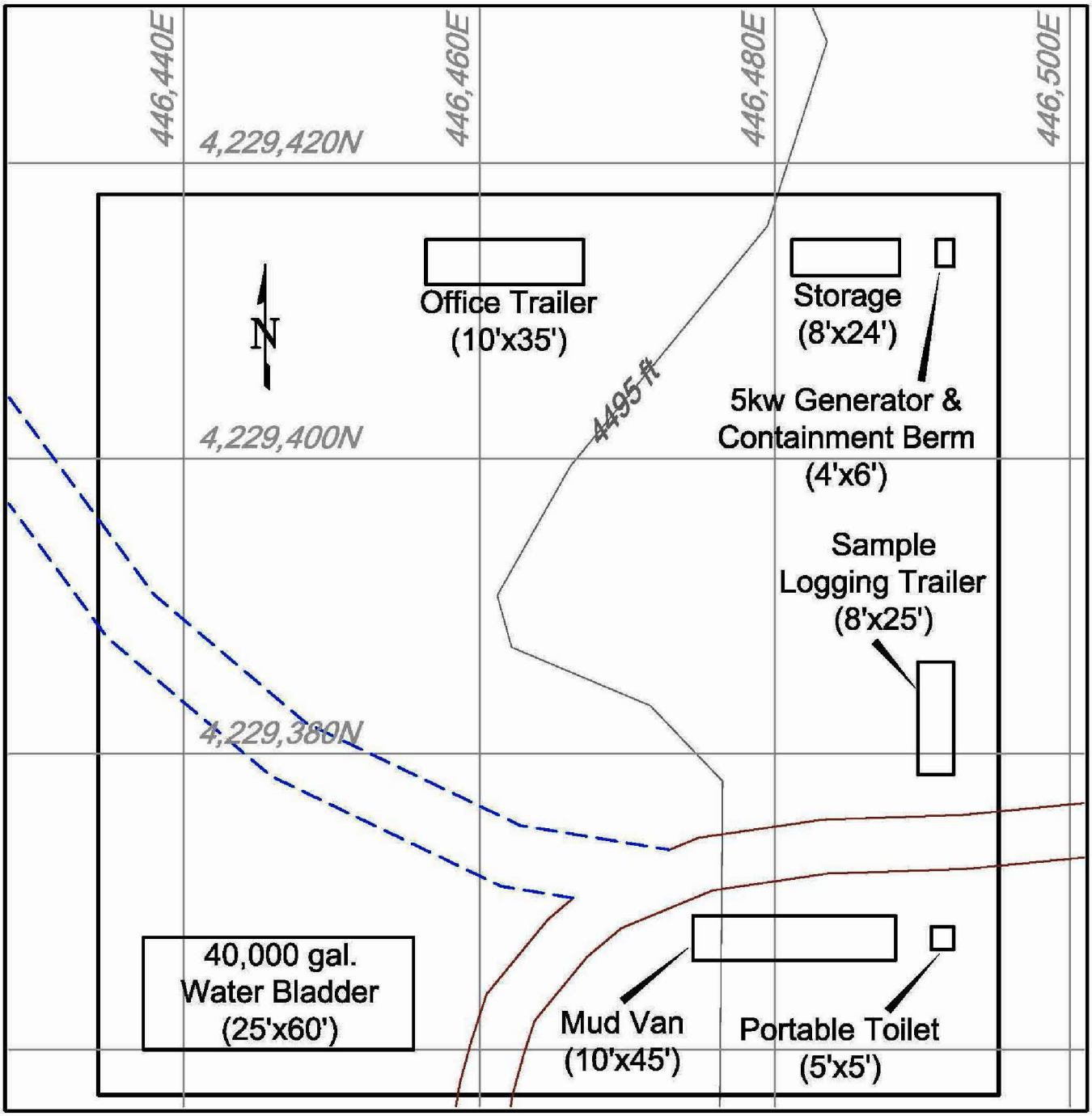
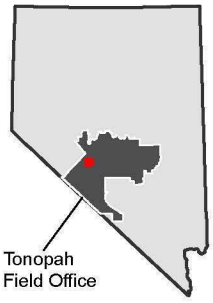
FIGURE 1-2
EXISTING AND PROPOSED
SURFACE DISTURBANCE

NO WARRANTY IS MADE BY THE BUREAU OF LAND MANAGEMENT AS TO THE ACCURACY, RELIABILITY, OR COMPLETENESS OF THESE DATA FOR INDIVIDUAL USE OR AGGREGATE USE WITH OTHER DATA.

DATE DRAWN	3/6/2015	SCALE	1 in = 2,000 feet





North Staging Area
200' x 200'
0.91 acres

Existing Road

Proposed Road

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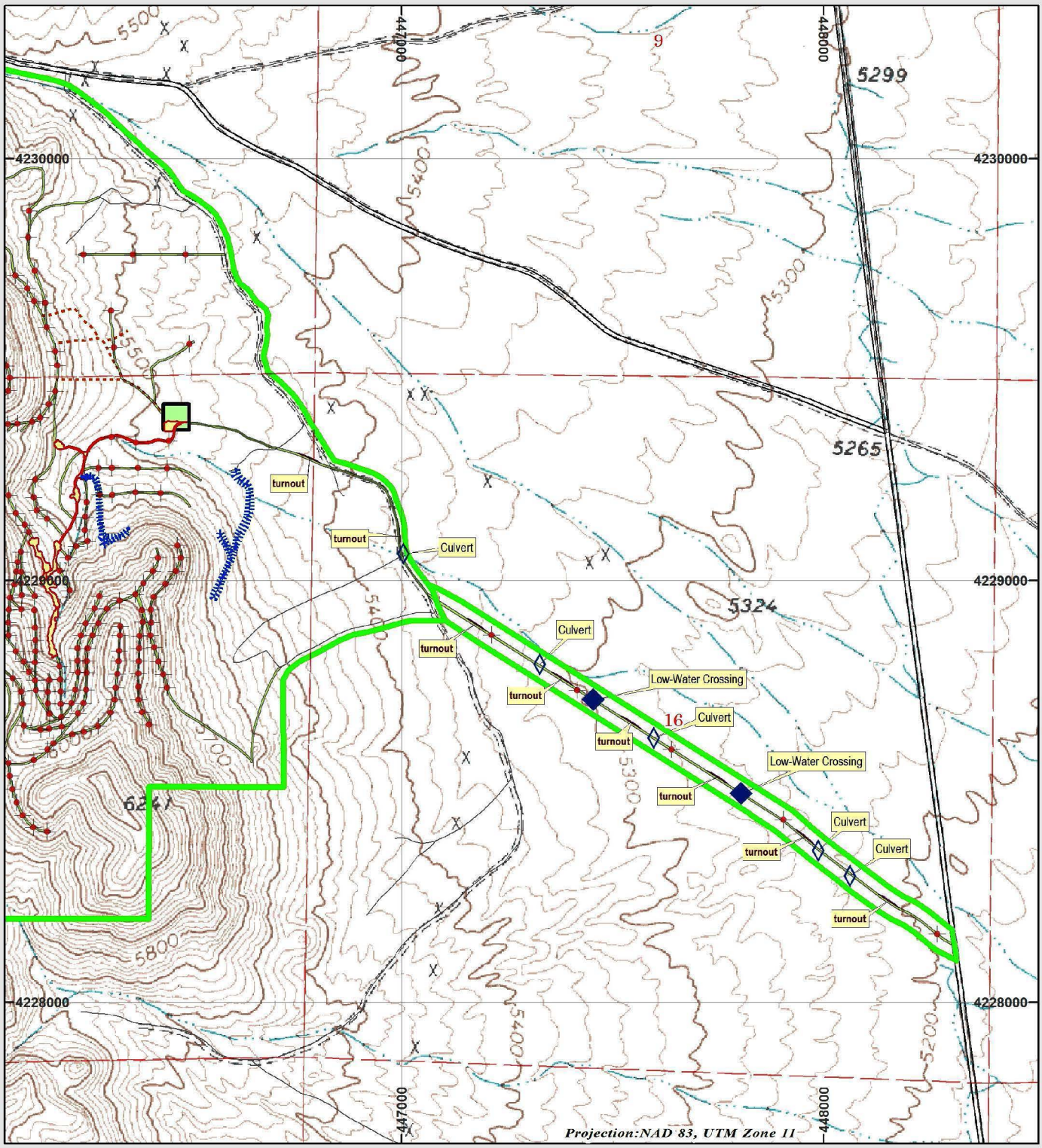
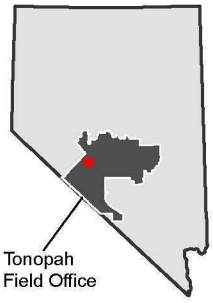
EASTSIDE EXPLORATION PROJECT

FIGURE 2-1
SCHEMATIC DIAGRAM
OF THE NORTH STAGING AREA

NO WARRANTY IS MADE BY THE BUREAU OF LAND MANAGEMENT AS TO THE ACCURACY, RELIABILITY, OR COMPLETENESS OF THESE DATA FOR INDIVIDUAL USE OR AGGREGATE USE WITH OTHER DATA.

DATE DRAWN	3/6/2015	SCALE	NOT TO SCALE





Map Key

- Project Boundary
- Claim Outline
- County Maintained Road
- Other Unpaved Road
- Reclamation by Previous Operator
- Cordex -Authorized Surface Disturbance NVN-88808
- Cordex-Reclaimed
- Proposed Drill Site
- Proposed Staging Areas
- Proposed Roads
- Culvert
- Low-Water Crossing
- Turnout

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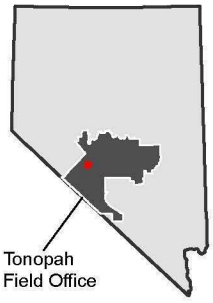
FIGURE 2-2
MAIN ACCESS ROAD CONSTRUCTION

NO WARRANTY IS MADE BY THE BUREAU OF LAND MANAGEMENT AS TO THE ACCURACY, RELIABILITY, OR COMPLETENESS OF THESE DATA FOR INDIVIDUAL USE OR AGGREGATE USE WITH OTHER DATA.

DATE DRAWN	3/6/2015	SCALE	NOT TO SCALE



Project Boundary

Soils

MUSYM: MUNAME

- 110: Blacktop-Rock outcrop-Pintwater association
- 190: Terlco-Wardenot association
- 193: Terlco-Pintwater-Wardenot association
- 400: Annaw-Wardenot-Ardivey

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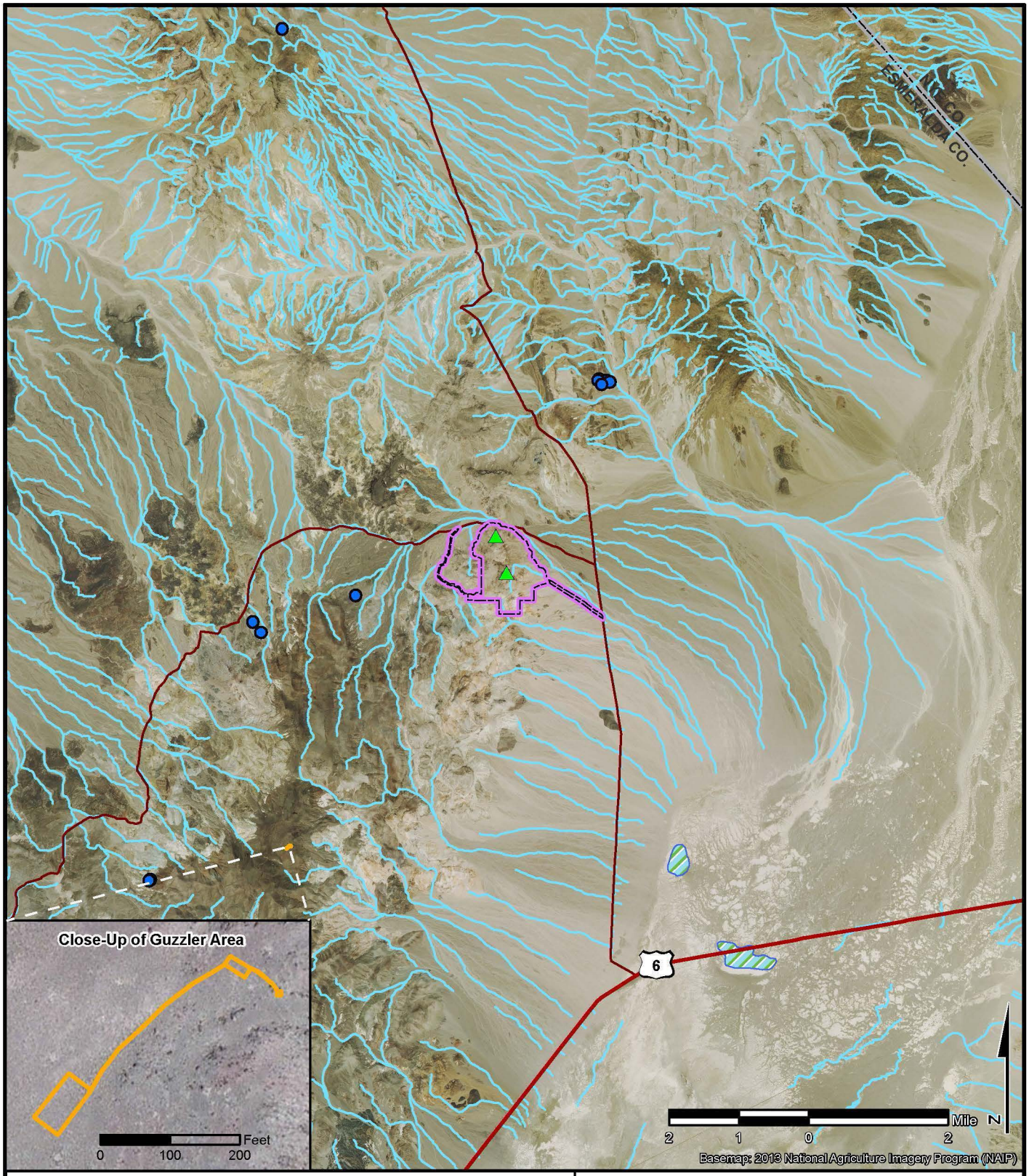
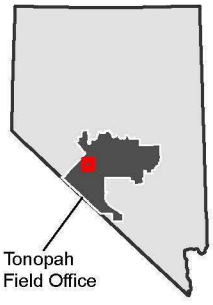
FIGURE 3-1
SOIL CLASSIFICATIONS
PROJECT AREA

NO WARRANTY IS MADE BY THE BUREAU OF LAND MANAGEMENT AS TO THE ACCURACY, RELIABILITY, OR COMPLETENESS OF THESE DATA FOR INDIVIDUAL USE OR AGGREGATE USE WITH OTHER DATA.

DATE DRAWN	3/6/2015	SCALE	1 in = 2,000 feet





Project Boundary

Guzzler

Anabats

Springs

Intermittent Streams

Wetlands

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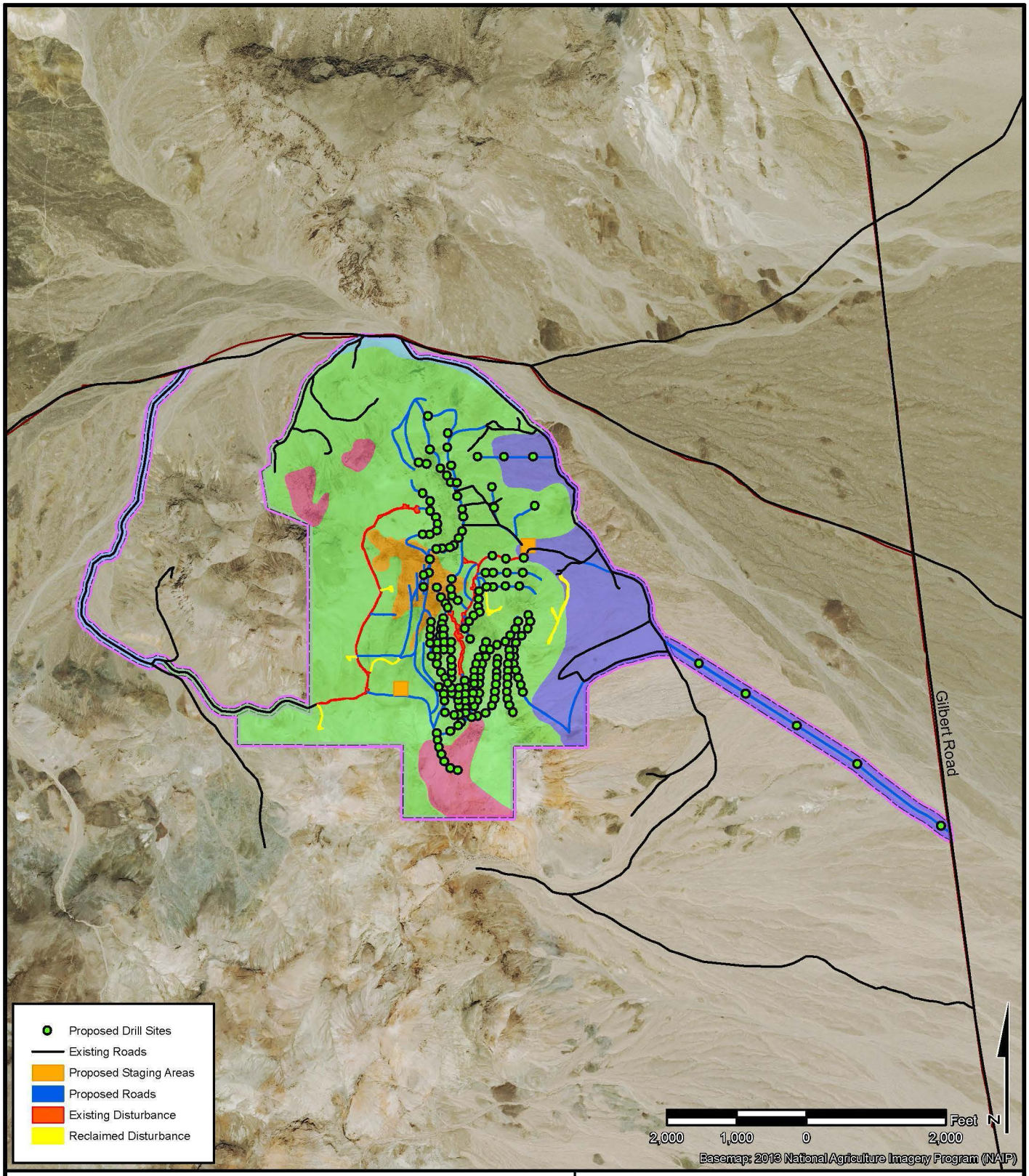
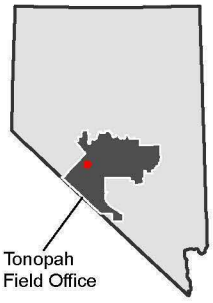
FIGURE 3-2
WILDLIFE AND HYDROLOGY

NO WARRANTY IS MADE BY THE BUREAU OF LAND MANAGEMENT AS TO THE ACCURACY, RELIABILITY, OR COMPLETENESS OF THESE DATA FOR INDIVIDUAL USE OR AGGREGATE USE WITH OTHER DATA.

DATE DRAWN	3/30/2015	SCALE	1 in = 2 miles





Project Boundary

Ecological Site Description

- 029XY014NV Shallow Calcareous Slope 8-12%
- 029XY033NV Loamy Slope 3-5%
- 029XY036NV Cobbly Loam 5-8%
- 029XY039NV Coarse Gravelly Loam 3-5%
- Rock Outcrop

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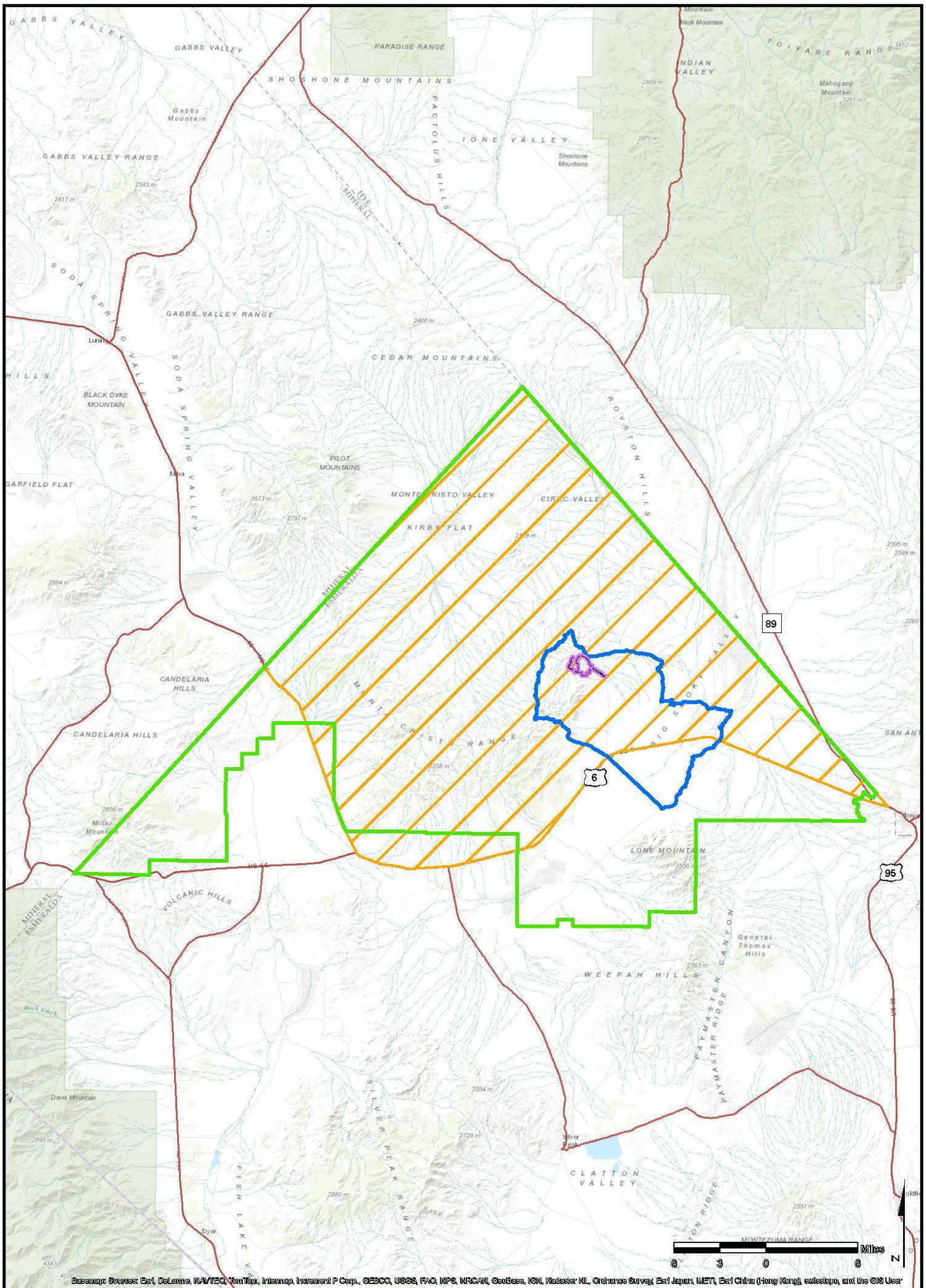
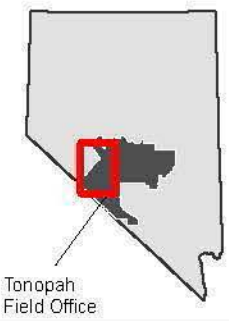
FIGURE 3-3
ECOLOGICAL SITE DESCRIPTIONS
PROJECT AREA

NO WARRANTY IS MADE BY THE BUREAU OF LAND MANAGEMENT AS TO THE ACCURACY, RELIABILITY, OR COMPLETENESS OF THESE DATA FOR INDIVIDUAL USE OR AGGREGATE USE WITH OTHER DATA.

DATE DRAWN	3/30/2015	SCALE	1 in = 2,000 feet



Basemap Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, and the GIS User



Project Boundary

Vegetation CESA

Soils, Water and Visual CESA

Wildlife CESA

CORDEX EXPLORATION COMPANY
EASTSIDE EXPLORATION PROJECT

FIGURE 4-1
CUMULATIVE EFFECTS STUDY AREAS (CESA)
VEGETATION, SOILS, WATER, VISUAL,
AND WILDLIFE

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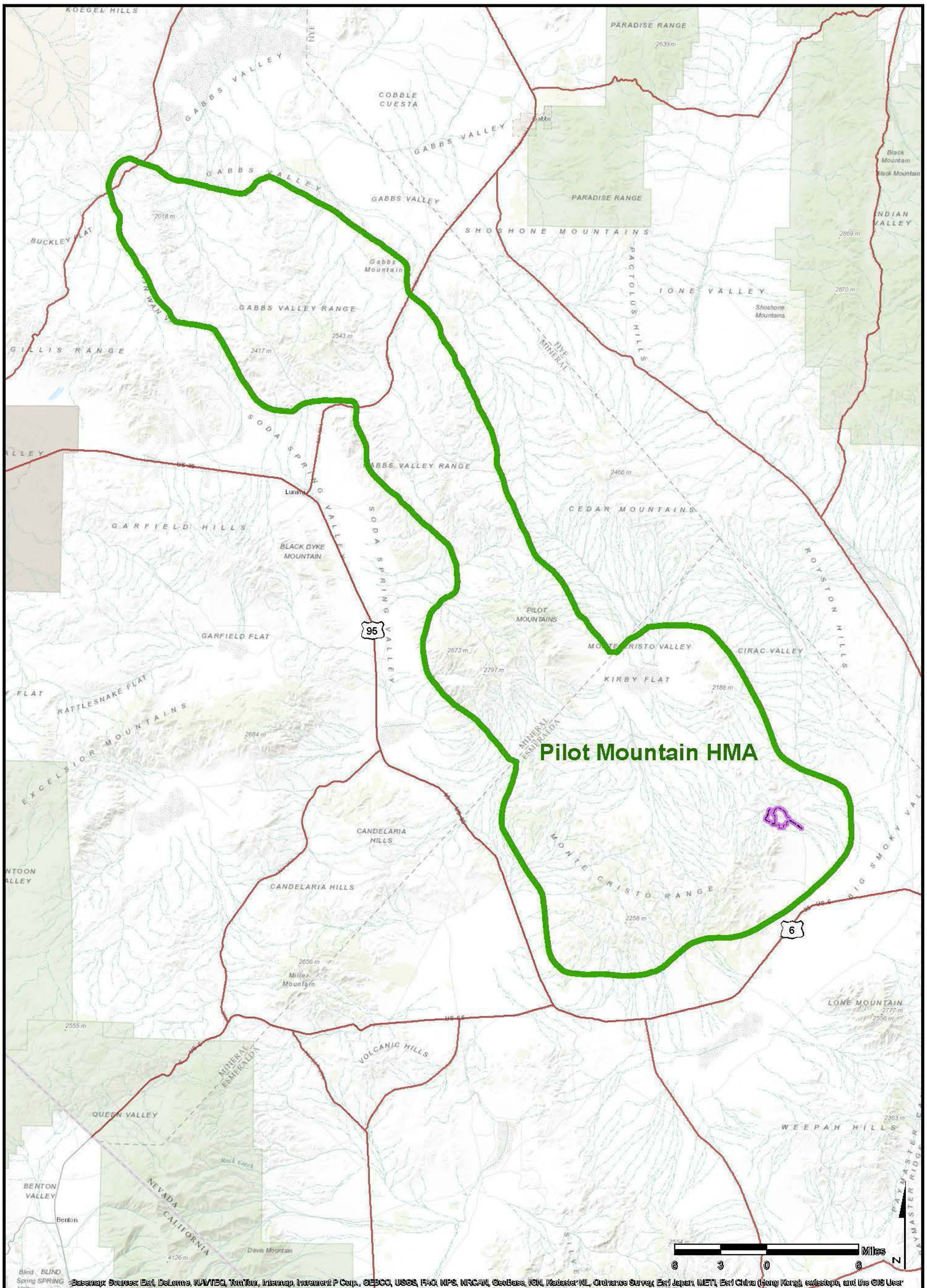
DATE DRAWN	3/30/2015	SCALE	1 in = 6 miles



Basemap Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, and the GIS User

Project Boundary

Wild Horses CESA

CORDEX EXPLORATION COMPANY
EASTSIDE EXPLORATION PROJECT

FIGURE 4-2
CUMULATIVE EFFECTS STUDY AREA (CESA)
WILD HORSES

NO WARRANTY IS MADE BY THE BUREAU OF LAND MANAGEMENT AS TO THE ACCURACY, RELIABILITY, OR COMPLETENESS OF THESE DATA FOR INDIVIDUAL USE OR AGGREGATE USE WITH OTHER DATA.

DATE DRAWN	3/30/2015	SCALE	1 in = 319 miles

Appendix A
Response to Comments

The EA was made available for a 30-day public comment period ending on May 7, 2015. Notifications of the availability of the EA were sent to persons and agencies on the Project mailing list and the EA was posted on the Battle Mountain District ePlanning webpage. Additionally, the BLM issued a press release on April 7, 2015 providing a link to the EA and instructions on how to comment. Approximately 1,820 comment emails (approximately 1,813 form emails that were identical) were received from the public or other federal, state, or local agencies, and approximately 7 individual comment letters submitted. Substantive comments were evaluated and considered by the BLM during the decision making process. Minor corrections or updates to the EA were made as a result of the substantive comment review. The BLM reviewed and considered these comments and determined that they did not identify or present any significant new information nor changed circumstances that would warrant additional NEPA analysis. The majority of the commenters expressed concerns with regard to impacts to wild horse and burros, water usage, and potential ground and surface water contamination associated with exploration.

Public comments and responses to public comments are included in this appendix. While each comment letter is not included in its entirety, individual substantive or actionable comments that were identified in each letter, email, or other comment received, have been included in the following list. The comments and responses are organized under a heading containing the name of the commenter.

American Wild Horse Preservation Campaign (AWHPC and Grace Kuhn)

AWHPC Comment #1: The proposed action – which includes more than one hundred drill sites – will cause destruction of the sensitive desert landscape and the increase pollution of the air, aquifers and surface and subsurface areas. This proposal will further harm wildlife, including federally-protected wild horses, and will have a negative impact to the human environment. The creation/maintenance of roads and increased heavy equipment traffic in this area will further harm this landscape.

AWHPC Response #1: Impacts to the landscape including water resources and wildlife are discussed in Section 3.0 of the EA (see sections addressing wildlife, noxious weeds, non-native, and invasive species, migratory birds, water, forest and woodland resources, soils, special status species, vegetation, wild horses and burros, and wildlife). Section 3 describes the existing conditions and trends of issue-related elements of the environment that may be affected by implementing the Project or alternative and identifies and describes the known and predicted effects that are related to those issues.

AWHPC Comment #2: Drilling unearths lead and mercury naturally or can produce it as a byproduct. Data shows that metal mining is the single largest source of toxic chemical releases into the environment. According to the EPA's Toxics Release Inventory, mines are a leading source of toxic mercury air pollution in the U.S. Mercury is a naturally occurring element in some gold ore, which is primarily released into the air during the ore-heating stage of gold extraction. The Proposed Action includes the use of "up to 15,000 gallons of

water would be used daily during active drilling periods" and the anticipated use of "approximately 500,000 gallons of water" during the life of the project in this high desert country will consume limited water purchased from "a local water hauling contractor that would be purchased from the Tonopah Public Water System." It is unknown where the Tonopah Public Water System is obtaining its water or what impact that water extraction may have on permanent or seasonal springs in the area and how those water sources may be linked to underground aquifers or in other ways contribute to the health of the ecosystem and habitat. The EA does identify where the Tonopah Public Water System obtains its water.

AWHPC Response #2: The proposed action is for exploration activities and is not a mine development proposal. Any subsequent mine development that may arise as a result of the proposed exploration activities is purely speculative. As outlined in the EA in Section 2.2.10 (Applicant Committed Environmental Protection Measures (EPMs)), Cordex would follow the EPMs to prevent unnecessary or undue degradation during construction, operation, and reclamation of the Project. Additionally, Cordex would follow the drill plugging procedures outlined in Section 2.2.9.2. Because no shallow water has been encountered on previous exploration operations within the Project Area, it is not anticipated that the proposed Project would result in any reduction to surface water or groundwater within or adjacent to the Project Area as a result of aquifer drainage. The Proposed Action is also not expected to impact ground water quality because the drill holes would be abandoned in accordance with NRS 534, NAC 534.4369 and NAC 534.4371. No drill holes would be left open at the end of the Project. In addition, only water or nontoxic fluids would be used during drilling.

The Project would use approximately 0.07 percent of the permitted water withdrawals in the 137A Big Smokey Valley – Tonopah Flat Hydrographic Basin; therefore, the impacts from the Project on ground water quantity would be negligible. The town of Tonopah municipal water supply is allocated through the State Engineer, and it is the discretion of the municipality of Tonopah how their water is to be allocated and used. The impacts of using Tonopah's water supply for the project are outside of the scope of this analysis.

AWHPC Comment #3: The EA fails to adequately consider impacts to wild horses.

AWHPC Response #3: The impacts to wild horses resulting from the temporary and long-term loss of habitat is assessed in Sections 3.2.18 and 4.3.10 of the EA. After consideration of the environmental affects the BLM has determined that the Project with the design features identified in the EA is not a major federal action and will not significantly affect the quality of the human environment, individually or cumulatively with other actions in the general area. No environmental effects meet the definition of significance in context or intensity as described in 40 CFR 1508.27.

As the analysis on Section 3.19.2 of the EA indicates, there is little to no use of the proposed Project Area by wild horse and burros due to the extremely steep slopes and lack of available water that characterize the area. Based on the lack of use, the existing level of disturbance and activity at the site, and the size of the Pilot Mountain HMA in relation to the proposed disturbance, potential impacts to wild horses and burros as a result of the Project are considered to be low. The BLM routinely conducts population assessment and monitoring flights to monitor population fluctuations and the movement of wild horse and burros. These flights, in conjunction

with ground- based assessments of wild horse and burro use, formed the basis for the impact analysis presented in Section 3.

Pursuant to the NEPA and the Council on Environmental Quality regulations on implementing NEPA, the EA identifies, describes, and evaluates resource protection measures that would mitigate the possible impacts of the proposed Project. The short and long-term impacts as disclosed in the EA are not considered to be significant to the human environment. The short-term impacts from implementation of the Project are local; they are not regional or national in nature. The long-term impacts resulting from the Project would be mitigated by concurrent reclamation during the life of the Project and meeting all reclamation requirements prior to closure of the Project.

NEPA requires that the effects analysis must demonstrate that the BLM took a "hard look" at the impacts of the Project and that the level of detail must be sufficient to support a reasoned conclusion by comparing the amount and degree of impact caused by the proposed action and alternatives. The EA acknowledged that wild horse and burros are a resource that has the potential to be affected by the Project. As indicated in Table 3-1 of the EA, wild horse and burros are identified as a resource that is present and may be affected by the Project and on this basis was brought forward for analysis. The direct and indirect impacts to wild horse and burros are presented in page 68 (Section 3.2.19) and cumulative impacts are presented on page 99 (Section 4.3.10). However, NEPA requires not that an agency engage in the most exhaustive environmental analysis theoretically possible, but that it take a 'hard look' at relevant factors. The EA meets this standard by taking a hard look at environmental impacts including cumulative.

AWHPC Comment #4: NEPA requires BLM to analyze cumulative impacts.

AWHPC Response #4: A cumulative impact is defined as "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.

Chapter 4 of the EA contains a comprehensive analysis of the cumulative impacts of the proposed project (pgs. 78 to 102). The analysis goes well beyond listing the past, present and future activities. BLM followed three steps in considering cumulative effects. First, BLM identified, described, and mapped the Cumulative Effects Study Areas for each resource. Second, BLM defined timeframes, scenarios, and acreage estimates for the cumulative impact analysis. The EA identified past and present disturbances and activities within each study area, including commercial/public and mining operations. Impacts from those activities are reflected in the current condition. The EA also described future scenarios within each study area by identifying reasonably foreseeable actions from among the following categories: grazing and agriculture; utilities and infrastructure activities; and reseeding activities; wild horse gathers; other wild horse management activities; habitat stabilization and rehabilitation activities; noxious weed and invasive, nonnative species control activities; recreation; land development activities; mining and exploration operations identified in notices and plans of operation; and hazardous/solid waste and hazardous materials activities.. Third, BLM identified and quantified where possible the location of possible specific impacts from the Project and judged the significance of these contributions to the overall impacts.

Janet Lynch (Lynch) Comment #1: The EA must fully disclose and analyze ALL environmental impacts of the proposed action --including but not limited to:

• the amount of water to be utilized on a daily and annual basis,

• the estimated increase in traffic (detailed description of types of trucks and expected frequency of utilization, etc.) in the area.

Lynch Response #1: Please refer to Section 3.2.5 (Land Use, Reality and Access) and Section 3.2.17 (Water Quantity and Quality) of the EA which describe water use and traffic impacts.

Kathleen Gregg (KG)

KG Comment #1: I thank you for the opportunity to share with you my ideas about the future of public land proposed disturbance described in the Cordex mine expansion environmental assessment (EA) DOI-BLM-B020-2015-0029-EA. As listed in the EA, sections 4.3.10 and 3.2.18, if the mine continues to operate and adds further expansion, all wildlife including the wild horses and burros…."

KG Response #1: The response is in reference to these "expansion" citations from the commenter. The EA analyzes the environmental impacts for a proposed exploration project and not a mine expansion proposal. The BLM has attempted to address comments relevant to the proposed exploration action.

KG Comment #2: Before this EA or FONSI is signed or agreed upon, there must first be a complete evaluation (validated by independent scientifically proven information) of the following specific points:

1. Analysis of all water uses
2. Account for all existing water uses including those for existing users, springs, rivers, creeks
3. Risks to agricultural irrigation water and recreational water and wildlife water
4. Cumulative impacts analysis of water uses
5. Impacts on local communities
6. The effects of a degraded environment and/or altered regional identity on public property values and quality of life for the visiting public
7. Compute the true cost (including financing costs) to the public for the project
8. The effects of diesel heavy mining equipment on air quality and human health
9. Taxpayer investments in infrastructures that ultimately benefit private corporations
10. Impacts on ALL wildlife
11. Increased air pollution that would negatively affect the general area in the vicinity of the project
12. Increased air pollution that would negatively affect the general area in the vicinity of the project noise (horns, rumbling, etc.) due to the mining equipment and operation
13. What are the short and long term and cumulative impacts on the ground and sub-surface water quantity and quality?
14. What amount of water that will be used?

15. **Where will the water come from?**
16. **Where and how will water disposal be handled after use?**
17. **How will contaminated water be recycled after use?**
18. **What are the negative impacts to groundwater supplies?**
19. **What are the short and long term impacts on aquifers?**
20. **From which aquifers will water be taken?**

KG Response #2: Please refer to AWHPC Responses # 1-4. Impacts to resources affected (which include those listed in the comment) are described in Section 3 and 4 of the EA.

KG Comment #3: To comply with NEPA, federal agencies must take a "hard look" at the environmental consequences of proposed actions. The NEPA process requires that all available and relevant and significant scientific material be available to the public and the decision makers and considered during the evaluation process. Ignoring relevant scientific data by the BLM constitutes a violation of the NEPA policy and thus without providing it to the public and decision makers, the EA will be an act of fraud against the people of the United States.

KG Response #3: Please refer to AWHPC Response #3.

Nevada State Division of Forestry (NDF)

NDF Comment#1: The Environmental Assessment fails to include State of Nevada Endangered Plant species in the description of what the BLM considers "Special Status Species". See pgs 49-50 of document. State of Nevada Endangered Plants species, as identified per NRS 527.270, are protected from removal or destruction on any land in the state except under a special permit issued by the state forester.

NDF Response #1: The organization tasked with maintaining the list of "State of Nevada Endangered Plants Species" - as identified per NRS 527.270 - is Nevada Natural Heritage Program (NNHP). NNHP's mission statement: "Our mission is to develop and maintain a cost-effective, central information source and inventory of the locations, biology, and status of all threatened, endangered, rare, and at-risk plants and animals in Nevada."

Bullet 2 on page 50 of the EA states that BLM Special Status Species includes BLM Sensitive Species.

Page 50 of the EA goes on to discuss how NNHP was contacted to obtain a list of threatened, endangered, and sensitive species that have the potential to occur within the project area. In addition, in paragraph 2 of page 50 specifically states that BLM sensitive species are "2) State of Nevada listed species. BLM policy is to provide these species with the same level of protection as is provided to candidate species as described in BLM Manual 6840.06.2C."

Nevada Division of Environmental Protection-Bureau of Water Pollution Control (NDEP-BWPC)

NDEP-BWPC Comment #1: The project may be subject to BWPC permitting. Permits are required for discharges to surface waters and groundwater's of the State (Nevada Administrative Code NAC 445A.228). BWPC permits include, but are not limited to, the following:

- **Stormwater Industrial General Permit**
- **De Minimis Discharge General Permit**
- **Pesticide General Permit**
- **Drainage Well General Permit**
- **Temporary Permit for Discharges to Groundwater's of the State**
- **Working in Waters Permit**
- **Wastewater Discharge Permits**
- **Underground Injection Control Permits**
- **Onsite Sewage Disposal System Permits**
- **Holding Tank Permits**

Additionally, the applicant is responsible for all other permits that may be required, which may include, but not be limited to:

- **Dam Safety Permits - Division of Water Resources**
- **Well Permits - Division of Water Resources**
- **401 Water Quality Certification - NDEP**
- **404 Permits - U.S. Army Corps of Engineers**
- **Air Permits - NDEP**
- **Health Permits - Local Health or State Health Division**
- **Local Permits - Local Government**

NDEP-BWPC Response #1: Cordex is aware of the required NDEP-BWPC and NDWR permits. Many of the listed permits are required for sites and activities occurring within or adjacent to Waters of the U.S (Stormwater Industrial General Permit, De Minimis Discharge General Permit, Pesticide Permit, Working in Waters Permit, 401 Water Quality Certification, and 404 Permits). As explained in Section 3.2.17.1 of the EA, the only surface water features in the project area are ephemeral drainages and a WOUS determination does not apply.A WPCP is required for the extraction of ore or previously processed material for beneficiation at any site. This is an exploration project and there is no mining or processing proposed; therefore, a WPCP would not be required.

The Project does not involve discharges to surface or groundwater. Therefore, permits involving discharges are not applicable to the site (Drainage Well General Permit, Temporary Permit for Discharge to Groundwaters of the State, Wastewater Discharge Permits, and Underground Injection Control Permits).

The proposed project does not involve onsite sewage disposal systems and temporary holding tanks are not used and therefore do not require permitting.

No dams have been authorized for the Project. Dam safety permits are not required.

The site operates under the Surface Area Disturbance (SAD) Permit as described in Section 3.2.1 of the EA.

In addition to the permits addressed above, the project would be authorized under a Plan of Operations, and the site Reclamation Permit.

Nevada Department of Wildlife (NDOW)

NDOW Comment #1: The Department recommends surveys be conducted 7 days prior to disturbance as opposed to 14 days. Likewise, we recommend the surveys remain valid for 7 days as opposed to 14 days. In the span of two weeks, it is conceivable for a nest to become active meaning it contains eggs or birds.

NDOW Response #2: The EA text has been revised to state seven days and states, "Land clearing or other surface disturbance associated with the activities within the Project Area would be conducted outside of the avian breeding season, whenever feasible, to avoid potential destruction of active bird nests or young birds in the area. When surface disturbance must be created during the avian breeding season, (March 1 through July 31), a qualified biologist would survey the area prior to land clearing activities. Pre-disturbance surveys for migratory birds are only valid for seven days. If the disturbance for the specific location does not occur within seven days of the survey, another survey would be needed. However, if the vegetation has been fully cleared from the work area within the seven day clearance survey time frame, no additional clearance survey would be required for the disturbed area because it would no longer consist of potential migratory bird nesting habitat. If active nests are located, or if other evidence of nesting (i.e., mated pairs, territorial defense, carrying nesting material, transporting food) is observed, a protective buffer (the size depending on the habitat requirements of the species and location of the nest) would be delineated after consultation with the BLM resource specialist and the entire area avoided, preventing destruction or disturbance to nests until they are no longer actively breeding or rearing young, or until the young have fledged. The start and end dates of the seasonal restriction may be based on site-specific information, such as elevation and winter weather patterns, which affect breeding chronology."

NDOW Comment#2: The Department recommends no surface disturbing activities within 200 feet of existing adits, shaft openings, caves or rock outcrops. We would like to conduct an internal survey of the adit identified in the EA where 8 BLM sensitive bats species were acoustically detected.

NDOW Response #2: The EA text has been revised to state, "Cordex would not conduct surface disturbing activities within 200 feet of existing adits, shaft openings, or caves to prevent any impacts to bat species potentially residing in or near these structures. If a BLM qualified biologist surveys the site and determines that bats are not residing in or near the structure, the aforementioned exclusion zone would not apply. The NDOW would conduct an internal survey of the existing adit within the Project Area, and the NDOW would assume all financial and legal liability for the survey. The NDOW would coordinate with Cordex prior to conducting the survey to determine the best time to conduct the survey in order to avoid potential conflicts with Cordex's operations on site.

Cordex would avoid direct physical disturbance (e.g., grading or drilling) to rock outcrops that may potentially be used for bat roosting habitat within the Project Area. According to the 2006 Revised Nevada Bat Conservation Plan, rock outcrops that may potentially be used for bat

roosting habitat would be considered rock outcrops measuring six meters (approximately 20 feet) or greater in height (Bradley et al. 2006)."

Nevada State Clearinghouse (NSC) State Land Use Planning Agency

NSC Comment #1: Utilize appropriate lighting:

- **Utilize consistent lighting mitigation measures that follow "Dark Sky" lighting practices.**
- **Effective lighting should have screens that do not allow the bulb to shine up or out. All proposed lighting shall be located to avoid light pollution onto any adjacent lands as viewed from a distance. All lighting fixtures shall be hooded and shielded, face downward, located within soffits and directed on to the pertinent site only, and away from adjacent parcels or areas.**
- **A lighting plan should be submitted indicating the types of lighting and fixtures, the locations of fixtures, lumens of lighting, and the areas illuminated by the lighting plan.**
- **Any required FAA lighting should be consolidated and minimized wherever possible.**

NSC Response #1: As part of the Plan and outlined in Section 2.2.10, Cordex 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. Cordex would utilize lighting designed to reduce the impacts to night skies.

Sherry Oster (SO)

SO Comment # 1: As listed in the EA, sections 4.3.10 and 3.2.18, if the mine continues to operate and adds further expansion, wildlife including the wild horses and burros would be forced to endure the effects of the mine expansion including but not limited to: loss of forage, human disturbance ,changes to use patterns ,removal of vegetation that could be used for cover ,excessive equipment noise, air quality,Likelihood of spreading noxious and non-native invasive species,habitat fragmentation ,displacement of wild animals from their natural habitat,vehicular collisions,possible erosion,increased restless behavior and flight response increased likelihood of range fires caused by mining activities, losses in availability of quality habitat, genetic interchange.

SO Response #1: Please refer to AWHCP Responses 1-4 as well as all other relevant responses provided.

SO Comment #2: Where is the verification that the Timbisha Shoshone Indian Tribe, Yomba Shoshone Tribe and the Fallon Paiute-Shoshone Tribe have no concerns with this

project and that it will not negatively impact their health, their land, their ceremonial/burial grounds or their natural resources, such as WATER?

SO Response #2: In accordance with the NHPA of 1966 (P.L. 89-665), the NEPA, the FLPMA (P.L. 94-579), the American Indian Religious Freedom Act of 1978 (P.L. 95-341), the Native American Graves Repatriation Act (NAGPRA) (P.L. 101-601) and E.O. 13007, the BLM must provide affected Tribes an opportunity to comment and consult on the proposed Project. The BLM must attempt to limit, reduce, or possibly eliminate any negative impacts to Native American traditional/cultural/spiritual sites, activities, and resources. As outlined in the EA (pg. 32) Section 3.2.4, the BLM conducted Native American consultation on March 21, 2014, by sending letters to the Timbisha Shoshone Tribe, Yomba Shoshone Tribe, and Fallon Paiute-Shoshone Tribe. A site visit was conducted on June 11, 2014, with members of the Timbisha Shoshone Tribe. No concerns were identified during the visit. The Yomba Shoshone Tribe and Fallon Paiute Shoshone Tribe had no concerns with the Project. The Tribes have not expressed concerns about the Project at this point in time. If a subsequent development plan or plan amendment is submitted to the BLM as a result of an approval of this specific mineral exploration proposal, the BLM would again initiate consultation with the local Tribes and utilize any data collected during this mineral exploration proposal. At this time, no impacts related to Native American Cultural Concerns have been identified and are not anticipated from the Project. Tribal relations and coordination does not terminate with the land use decision itself, but rather continues to engage Tribes regarding treatments, mitigation, reclamation, and disposition of artifacts and deports. Formal government to government Tribal consultation /communication remains confidential and is not made available to the public as it may contain confidential information.

SO Comment #3: The EA states that the project would have a short term positive effect on local communities and Esmeralda County but it is those very same communities that would be most affected by the NEGATIVE impacts of the project, some or most of which would remain long after the project is completed.

SO Response #3: Please refer to Sections 3.2.11 and 4.3.3 of the EA. Additionally, this comment refers to a mine expansion project which is not part of the proposal.

State Historic Preservation Office (SHPO)

SHPO Comment #1: The APE would likely have been a good deal larger than the "project area," and the statement would seem to suggest that only archaeology sites (vs. historic properties that could include architecture) were sought. Those points aside, given the fact that the undertaking was determined by the BLM to pose no effect, the action did not require consultation with SHPO. For purposes of creating the fullest reckoning, however, it might be helpful for the document's author(s) to more clearly articulate that point in addition to distinguishing which sort of "isolated finds" (e.g., isolated artifacts vs. isolated or unassociated features) were encountered. In addition, as no report title or reference is provided, the explanation as to why the 2009 BLM Protocol (vs. the current version of same) is being cited is unclear. Presumably, the 2009 Protocol is cited because that is the year in which the inventory was conducted. However, that point would be more readily supported by a reference to the inventory by author, title, and/or date.

SHPO Response #1: The direct APE consists of the project area. This is a minerals exploration project rather than mine development. Exploration activities will occur within the APE; disturbed areas will then be rehabilitated. The nature of exploration is such that indirect impacts - audible, visual, and atmospheric - are minimal and temporary. In accordance with the Statewide Protocol (2009) effective when the project was initiated and baseline studies - including cultural - were performed, a Class III cultural resources inventory was performed in all project areas; no historic properties were identified. Eighteen isolated occurrences were identified and recorded, including thirteen claim cairn features. None of the isolated features were determined eligible. It is not common practice to cite cultural report titles in a NEPA document since they're not available to the public without a FOIA request and heavy redaction. In other instances a project area may be covered by many inventories and listing all of them is not practicable.

The text in Section 3.2.2.1 has been revised to state, "The area of potential effect consists of the Project Area, which is approximately 618 acres. This block was subjected to a Class III cultural resources inventory, which was conducted in May of 2014 by GC Environmental, Inc. Although several small lithic scatters, trash scatters and historic road segments were identified and recorded, as were eighteen isolated occurrences including thirteen claim cairn features, no historic properties were identified to be present within the area of potential effect."

SHPO Comment #2: The discussion on pp. 18-19 in the section titled "Cultural and Paleontological Resources" is not entirely accurate/complete in its characterization of the inadvertent discoveries/unanticipated effects scenario. It should more closely follow the description outlined in Part 1, Section VI.B of the BLM Protocol.

SHPO Response #2: The text has been revised to state, "Pursuant to the State Protocol Agreement Section VI.B, any cultural resource discovered by the permit holder, or any person working on their behalf, during the course of activities on federal land would be immediately reported to the BLM Authorized Officer by telephone, with written confirmation."