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

Environmental Assessment DOI-BLM-NV-E020-2013-0014-EA
DATE: March 2013

Midas Underground Support Facilities
Newmont Mining Corporation

ENVIRONMENTAL ASSESSMENT

March 2013

Tuscarora Field Office
3900 East Idaho Street
Elko, NV 89801
Phone: 775-753-0200
Fax: 775-753-0347

BLM MISSION STATEMENT

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

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LIST OF ACRONYMS & ABBREVIATIONS

ACOE United States Army Corps of Engineers
AMSL Above Mean Sea Level
AO Area of Operations
AQMA Air Quality Management Area
ARPA Archaeological Resources Protection Act of 1979
AUM Animal Unit Month
BAPC Bureau of Air Pollution Control
BLM Bureau of Land Management
BMP Best Management Practice
CAA Clean Air Act
CAAA Clean Air Act Amendments of 1990

CESA	Cumulative Effects Study Area
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CH_4	Methane
CO	Carbon Monoxide
CO_2	Carbon Dioxide
dB	Decibels
dBA	A-Weighted Decibels
dBC	C-Weighted Decibels
°F	Degrees Fahrenheit
EA	Environmental Assessment
ECSGPA	Elko County Sage Grouse Planning Area
EPA	Environmental Protection Agency
EPM	Environmental Protection Measure
ESA	Endangered Species Act
FERC	Federal Energy Regulatory Commission
FLPMA	Federal Land Policy and Management Act of 1976
GHG	Greenhouse Gas
GIS	Geographic Information System
GMU	Geographic Management Unit
HAP	Hazardous Air Pollutant
HFC	Hydrofluorocarbons
HFRA	Healthy Forest Restoration Act of 2003
JBR	JBR Environmental Consultants, Inc.
KOP	Key Observation Point
lbs/yr	Pounds Per Year
µg/m^3	Micrograms Per Cubic Meter
MBTA	Migratory Bird Treaty Act
MOA	Memorandum of Agreement
mph	Miles Per Hour
MSHA	Mine Safety and Health Administration
MJV	Midas Joint Venture
MMC	Meridian Minerals Corporation
N_2O	Nitrous Oxide
NAAQS	National Ambient Air Quality Standards
NAG	Non Acid-Generating
NDEP	Nevada Division of Environmental Protection
NDOW	Nevada Department of Wildlife
NEPA	National Environmental Policy Act of 1969
Newmont	Newmont Mining Corporation
NMCP	Nevada Mercury Control Program
NHPA	National Historic Preservation Act of 1966
NNHP	Nevada Natural Heritage Program
NO_2	Nitrogen Dioxide
NRHP	National Register of Historic Places
NSAAQS	Nevada State Ambient Air Quality Standards
NvMACT	Nevada Maximum Achievable Control Technology

O_3	Ozone
OPTC	Operating Permit to Construct
PFC	Perfluorocarbons
PGH	Preliminary General Habitat
P-III	P-III Associates, Inc.
$PM_{2.5}$	Particulate Matter Smaller Than 2.5 Microns
PM_{10}	Particulate Matter Smaller Than 10 Microns
PMU	Population Management Unit
POO	Plan of Operations
PPH	Preliminary Priority Habitat
ROW	Right-Of-Way
SF_6	Sulfur Hexafluoride
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
TES	Threatened, Endangered, and Sensitive
tpy	Tons Per Year
USFS	Unites States Forest Service
USGS	United States Geological Survey
USFWS	United States Fish and Wildlife Service
VRM	Visual Resource Management
WOUS	Waters of the United States

ENVIRONMENTAL ASSESSMENT
MIDAS UNDERGROUND SUPPORT FACILITIES
NEWMONT MINING CORPORATION

1.0 INTRODUCTION

1.1 SUMMARY AND LOCATION OF THE PROPOSED ACTION

Newmont Mining Corporation (Newmont) is proposing to construct support facilities for its existing operations at the Midas underground mine located near Midas, Nevada. The Proposed Action includes the construction and operation of up to seven ventilation raises along with associated access roads, power lines, and surface exploration. The project is located in the Midas Mining District in portions of Sections 16, 21, 22, 26, 27, and 28, Township 39 North (T39N), Range 46 East (R46E) Mount Diablo Base and Meridian (Figure 1).

Lands associated with the project consist of both private land and public land managed by the Bureau of Land Management (BLM) Elko District Office. This Environmental Assessment (EA) was prepared in accordance with the National Environmental Policy Act of 1969 (NEPA) and the Council on Environmental Quality (CEQ) regulations (40 Code of Federal Regulations [CFR] parts 1500-1509), and guidelines contained in the BLM National Environmental Policy Handbook H-1790-1 (BLM, 2008).

1.2 PURPOSE OF AND NEED FOR THE PROPOSED ACTION

The purpose and need of the Proposed Action is to construct and operate up to seven ventilation raises, access roads, power lines, and 25 acres of surface exploration for the underground mining operation at the Midas Mine. The new raises are needed to provide additional ventilation as the underground Midas Mine expands. New access roads and transmission lines are needed to provide access and power to the new vent raises. Twenty-five acres would be used for future surface exploration projects.

The BLM's purpose and need would be to process, review, and respond to Newmont's Proposed Action under applicable laws and regulations including the Federal Land Management Policy Act of 1976 and the National Environmental Policy Act (signed January 1, 1970. Should the BLM determine the Proposed Action to be appropriate in these circumstances, the BLM must also determine what, if any, stipulations, conditions of approval, and performance bonds should be attached to the decision. Should a decision be authorized, the BLM's purpose and need becomes an obligation to ensure compliance with applicable laws and requirements during construction and operation, avoidance of undue and unnecessary degradation of the public lands during and following the project lifespan, and to ensure adequate reclamation of the public lands for future productivity.

The decision to be made by the BLM's Tuscarora Field Office would be whether or not to authorize the Proposed Action. If a decision is made to authorize the Proposed Action, then the decision would also address what stipulations and conditions of approval should be attached to the authorization, if any.

1.3 RELATIONSHIP TO LAWS, REGULATIONS, AND OTHER PLANS

A portion of Newmont's proposed Midas underground support facilities would be located on public land administered by BLM. Such operations must comply with BLM regulations for mining on public land (43 CFR 3809, Surface Management Regulations); Use and Occupancy under the Mining Laws (43 CFR 3715); the Mining and Mineral Policy Act of 1970; and the Federal Land Policy and Management Act of 1976. These laws recognize the statutory right of mining claim holders to develop federal mineral resources under the General Mining Law of 1872. In combination with other BLM policies (i.e., the Resource Management Plan), they also require BLM to review proposed mining operations to ensure:

- Adequate provisions are included to prevent undue or unnecessary degradation of public land;
- Measures are included to provide reasonable reclamation of disturbed areas; and
- Proposed operations would comply with other applicable federal, state, and local statutes and regulations.

1.3.1 Conformance with BLM Land Use Plan

The Proposed Action is in conformance with the Elko Resource Management Plan (BLM, 1986b), which states that "development of locatable and leasable minerals is necessary to meet National, regional and local demand and to provide increased employment and an expanded tax base for local communities." It is also consistent with the BLM's mission statement regarding multiple use of the public lands. The multiple-use mission of the BLM includes authorizing and managing activities such as mineral development, energy production, utility development, recreation, and grazing, while conserving natural, historical, cultural, and other resources on public lands.

1.3.2 Consistency with Other Statutes, Regulations, Policies and Procedures

This EA has been prepared in compliance with the following statutes and implementing regulations, policies and procedures:

- NEPA, as amended (Public Law [PL] 91-190, 42 U.S.C. 4321 *et seq*;
- BLM NEPA Handbook (H-1790-1);

- The Federal Land Policy and Management Act of 1976 (PL 94 579, 43 U.S.C. Section 1761 *et seq*;
- 43 CFR 3809, Surface Management Regulations;
- Use and Occupancy under the Mining Laws (43 CFR 3715);
- Mining and Mineral Policy Act of 1970; and
- 43 CFR Part 2800, Rights-of-Way, Principles and Procedures; Rights-of-Ways under the Federal Land Policy and Management Act and the Mineral Leasing Act; Final Rule, April 22, 2005.

1.3.3 Authorizing Actions

The BLM is the lead agency for this EA, and the BLM Tuscarora Field Manager is the NEPA responsible official. Implementing the Proposed Action or the alternatives would require authorizing actions from a variety of federal, state, and local agencies with jurisdiction over certain aspects of the project. Table 1 lists the required state and federal permits or approvals and the responsible agencies. Newmont is responsible for applying for and acquiring the permits listed. To implement the Proposed Action, in addition to those listed, permits in place for the existing operation may need modifications.

Table 1 Required Permits and Approvals

Permit / Approval	New	Existing	Granting Agency
43 CFR 3809 Plan of Operations	X		BLM
Reclamation Bond Determination	X		BLM
Section 106 National Historic Preservation Act Programmatic Agreement	X		BLM and Nevada State Historic Preservation Office
Reclamation Permit	X	X	Nevada Division of Environmental Protection (NDEP), Bureau of Mining Regulation and Reclamation

1.4 SCOPE OF THE ENVIRONMENTAL ASSESSMENT

Based on the review of existing baseline data and surveys conducted in preparation of this EA, BLM resource specialists identified the following Supplemental Authorities and other elements of the human environment to be potentially affected by the Proposed Action. The elements are presented in the order in which they will be presented in this document.

- Air Quality
- Soils
- Geology and Minerals
- Water Resources
- Vegetation

- Noxious Weeds and Invasive, Non-Native Species
- Wildlife/Migratory Birds
- Threatened, Endangered, and Sensitive (TES) Species
- Wetlands and Waters of the United States (WOUS)
- Cultural Resources
- Native American Religious Concerns
- Noise
- Visual Resources
- Rangelands and Grazing
- Land Use
- Social or Economic
- Human Health and Safety

Additional information on the screening of elements to determine the final scope of this EA is contained in Section 3.1.

2.0 PROPOSED ACTION AND ALTERNATIVES

2.1 EXISTING MIDAS OPERATIONS

The Newmont Midas Operations (aka Midas Mine) is located in western Elko County, approximately 1.5 miles southeast of the town of Midas, Nevada. The Franco-Nevada Mining Corporation is credited with discovery of the Midas ore body in 1994. Commercial production commenced in 1999 at a rate of 600 tons per day, and has gradually increased to approximately 1,000 tons per day. Newmont acquired the Midas Mine in 2002.

The existing Midas operation consists of an underground mine, waste rock area, crushing plant, conventional mill, refinery, cyanide destruction circuit, tailings impoundment, and two settling ponds. Ancillary facilities include a maintenance shop, warehouse complex, administration and security building, and facilities for distributing diesel fuel, gasoline, and propane. Power to the Midas operation is supplied by a 24.9 kilovolt overhead electrical power line. Emergency generators operate fluid management components of the operation in the event of a power failure. Fresh water for the mining and milling operations is supplied by a well located approximately 1.5 miles south of the mill.

The portal to the underground mine is located to the west of the mill and other processing facilities. The portal provides entry to a system of declines and ramps that access the gold- and silver-bearing vein deposit. Mining levels are developed at 50-foot vertical intervals to access the mineralized vein. The ore is excavated and loaded into underground haul trucks, which transport the ore to a surface transfer stockpile located outside the mine portal. The ore is then trucked from the transfer stockpile to the main ore stockpile area adjacent to the mill. In the mill the ore is crushed, processed, and refined to extract gold and silver. Molten gold/silver ore is poured from the refinery furnace into molds, and the resulting doré is shipped off-site for smelting.

2.2 PROPOSED ACTION

The Proposed Action would include construction of up to seven ventilation raises, associated access roads, power lines, and 25 acres of surface exploration. The proposed ventilation raise sites were selected because of their location in relation to the underground workings of the existing Midas Mine.

The Proposed Action would include the following activities:

- Seven drill pads for construction of the ventilation raises;
- Drilling and boring of the ventilation raises;
- Construction of access roads to the ventilation raises;

- Construction of power lines to provide power to ventilation raises; and
- Twenty-five acres of surface exploration.

The Proposed Action would be located in Sections 16, 21, 22, 26, 27, and 28, T39N, R46E. Figure 1 shows the general location of the proposed project, and Figure 2 shows the planned project facilities.

A summary of surface disturbance anticipated to result from the Proposed Action is presented in Table 2. Areas of proposed disturbance are shown on Figure 2. Total surface disturbance associated with the project would include approximately 27.4 acres (all public) for the ventilation raises and 7.8 acres (6.1 acres public land and 1.7 acres private land) for new and improved access roads; approximately 1.5 miles of a new power lines along the access roads (creating no additional disturbance); and 25 acres (20 acres public land and 5 acres private land) of surface exploration.

Table 2 Surface Disturbance Summary

Facility	Public Proposed Disturbance (acres)	Private Proposed Disturbance (acres)	Total Proposed Disturbance (acres)
Spiral Raise 7	3.5	0	3.5
GP Raise 1	2.8	0	2.8
GP Raise 2	2.8	0	2.8
Spiral 4 South Raise	3.5	0	3.5
Charger Hill Raise	3.4	0	3.4
1-5501 Intake Raise	2.6	0	2.6
Queen Raise	2.7	0	2.7
New Access Roads	3.7	1.2	4.9
Improved Access Roads	2.4	0.5	2.9
Power Line	0	0	0
Surface Exploration	20	5	25
Total	**47.4**	**6.7**	**54.1**

2.2.1 Ventilation Raises

2.2.1.1 Purpose and Design

The Proposed Action consists of construction of up to seven ventilation raises within the Plan of Operations (POO) boundary. The location of the proposed ventilation raises is shown on Figure 2. The purpose of the ventilation raise is to either convey fresh air from the surface to the underground mine workings below ground, or to vent exhaust air from the mine to the surface. Depending upon the location and design, a given ventilation raise could also serve as a secondary escapeway from underground in an emergency. This ventilation provides a flow of fresh air to the mine of sufficient volume to dilute and/or remove noxious gases from equipment that runs on

diesel engines, blasting with explosives, and the ore-body itself. The ventilation raises are critical to the health and safety of the miners.

The typical configuration of a ventilation raise is shown on Figure 3. The vent raise consists of a 12-foot diameter shaft lined with steel and concrete. The depth of the vent raise shaft ranges from 290 to 1,200 feet. At the surface, a concrete pad seals the exposed shaft and provides a foundation for a surface duct that contains either intake or exhaust fans. The duct structure is horizontal to the ground surface and consists of an "elbow" connected to the vent raise through the concrete pad, and two arms, each approximately 20 feet tall, 10 feet wide, and 72 feet long. Each arm contains either an exhaust or intake fan. A typical surface duct is shown on Figure 4.

2.2.1.2 Siting and Construction

Each ventilation raise would be constructed on previously undisturbed ground. At each site, a drilling pad approximately 300 feet by 300 feet would be cleared and graded. A surface drill rig would first drill a 12-inch pilot hole for the raise shaft. A raise bore rig would then excavate the remainder of the raise from the bottom of the shaft to the surface. The shaft would be stabilized with structural steel followed by pneumatically applied concrete (shotcrete). A 25-foot by 25-foot pad would be framed and poured with concrete to stabilize the surface around the top of the raise. A six-foot high, vinyl-coated chain link fence topped with an eight-foot horizontal smooth wire, domed pipe caps, and a gate would be installed around the pad to protect the vent raise from livestock, wildlife, or unauthorized human access.

Preparation of the ventilation raises and pads would require a bulldozer to construct a road to each site. Equipment used during construction would include a raise bore machine, generator, an elbow or outlet cone, and a perimeter fence. Required vehicles would include a water truck, fuel truck, crane, forklift, and light vehicles.

2.2.2 Access Roads

Access roads allow light vehicles and construction equipment to access the areas where vent raises and power lines would be constructed. Project access roads would consist of two types: construction of new access roads to connect the ventilation raise sites with existing roads, and improvements to existing roads.

2.2.2.1 New Access Roads

Approximately 8,538 linear feet of new access roads would be constructed. New roads would be constructed with standard equipment and practices at a nominal width of 25 feet. Berms would be constructed for safety and culverts installed where necessary. A total of 4.9 acres would be disturbed as a result of this new construction.

2.2.2.2 Improvements to Existing Access Roads

Approximately 5,053 linear feet of existing access roads would be improved. Existing roads average 13 feet in width would be improved to a nominal width of 25 feet using standard construction equipment and practices. Where necessary, stormwater and erosion controls would be constructed using Best Management Practices (BMPs). BMPs include culverts, swales, sediment basins, silt fencing, riprap, and water bars. A total of 2.9 acres would be disturbed as a result of improvements to existing roads.

2.2.3 Power Lines

The Proposed Action would require installation of approximately 7,920 linear feet of new electrical power line. Up to 75 standard engineered single-pole wooden power poles ranging from 30 to 50 feet in height would be used. Spacing between the poles would average 125 feet, but may vary from 100 feet to 150 feet depending on terrain, wind loading, and location. Avian protection devices and perch deterrents would be installed on all power poles and lines.

2.2.4 Fencing

Approximately 8,400 linear feet of chain link fencing would be installed around the ventilation raise pads and surface ducts. The fence would be a six-foot, vinyl-coated chain link fence with slats in slate green color topped with an eight-foot horizontal smooth wire, and domed pipe caps. Fencing aims to prevent wildlife from entering the ventilation raise areas and prevent perching opportunities.

2.2.5 Surface Exploration

Exploration disturbance would consist of exploration roads and pads. Roads and pads would be constructed using cut-fill methods. Exploration roads would have an average running width of 14 feet on slopes that average 33 percent. Pads would have a working surface of up to 100 feet by 100 feet on slopes that average 33 percent.

The quantity of water used on-site for drilling would be minimal and would be stored in a water truck. Water would be reused during the drilling process. No water would be discharged off-site.

2.2.6 Adopted Environmental Protection Measures

Newmont has incorporated a number of Environmental Protection Measures (EPMs) into the Proposed Action to reduce environmental impacts, ensure protection of resources, and comply with regulatory protective and monitoring requirements of applicable permits and plan approvals. The following sections describe the EPMs incorporated in the Proposed Action, which Newmont has committed to implement.

2.2.6.1 Air Quality

The following EPMs would be implemented to minimize potential impacts to air quality in the project area:

- The control of fugitive dust is specifically addressed in the Fugitive Dust Control Plan, which is incorporated in Newmont's Bureau of Air Pollution Control (BAPC) Class II Surface Disturbance Permit (Newmont, 2009). Newmont would implement an ongoing program to control fugitive dust from disturbed areas using BMPs. It is anticipated that fugitive dust emissions would be controlled primarily on gravel roads with the use of water and/or non-hazardous dust suppressants. Additional BMPs may be used if watering or chemical suppressants are not sufficient for controlling fugitive dust emissions.

- A 25-mile per hour (mph) speed limit would be posted on the access roads leading to the ventilation raise sites to reduce dust emissions.

- Access roads and other traffic areas would be maintained on a regular basis to minimize dust and provide for safe travel conditions.

2.2.6.2 Cultural Resources

The following EPMs would be implemented to minimize potential impacts to cultural and historic resources in the project area:

- Newmont would avoid identified eligible and potentially eligible cultural resource sites that have been identified in surveys of the project area, whenever possible during design, construction, and operation of the project.

- An approved Cultural Resources Mitigation Plan has been developed and would be implemented to meet the requirements of the State Historic Preservation Office (SHPO) and the BLM.

- A buffer of approximately 30 meters would be established during construction, and flagging will be placed around all eligible and potentially eligible cultural resource sites to help provide protection to the sites.

- Erosion control methods, such as silt fencing and directive stormwater control, would be employed to prevent run-off that could affect nearby cultural sites.

- Newmont would limit vehicles, equipment, and construction activities and maintenance activities to previously established roads and currently disturbed areas.

- Any unforeseen discovery of cultural resources, items of cultural patrimony, sacred objects or funerary items requires that all activity in the vicinity of the find ceases, and the field manager of the Tuscarora Field Office, 3900 Idaho Street, Elko, Nevada 89801, be notified immediately by phone (775-753-0200) with written confirmation to follow.

The location of the find should not be publicly disclosed, and any human remains must be secured and preserved in place until a Notice to Proceed is issued by the authorized officer.

- Prior to construction, Newmont would conduct mandatory training of workers regarding the potential to encounter historic or prehistoric sites and objects, the proper procedures in the event that cultural items are encountered, prohibitions on artifact collection, and prohibitions on disclosure of the location of culturally sensitive areas.

2.2.6.3 Human Health and Safety

The following EPMs would be implemented to minimize potential impacts to public health and safety in the project area:

- All construction and operating equipment would be equipped with applicable exhaust spark arresters.

- Fire extinguishers would be available on-site.

- Personnel would be allowed to smoke only in designated areas, and they will be required to follow Newmont policy and applicable BLM regulations regarding smoking.

- The BLM Elko District Office (775-753-0200) be notified of any wildland fire within the proposed POO, even if the available personnel can handle the situation or the fire poses no threat to the surrounding area. Additionally, the Elko Interagency Dispatch Center will be notified (775-748-4000).

- A list of emergency phone numbers would be available on-site.

- All vehicles would carry a conventional fire extinguisher.

- Vehicle catalytic converters (on vehicles that enter and leave the site on a regular basis) would be inspected often and cleaned of all flammable debris.

- All cutting/welding torch use, electric-arc welding, and grinding operations would be conducted in an area free, or mostly free, from vegetation. An ample water supply and shovel will be on hand to extinguish any fires created from sparks. At least one person in addition to the cutter/welder/grinder will be at the work site to promptly detect fires created by sparks pursuant to Newmont's *Hot Work Permit* requirements.

- Personnel would be responsible for being aware of and complying with the requirements of any fire restrictions or closures issued by the BLM, as publicized in the local media or posted in the field or on the Elko District website.

2.2.6.4 Threatened, Endangered, and Sensitive Species

The following EPMs would be implemented to minimize potential impacts to TES species in the project area:

- Predatory bird perching and nesting deterrents would be placed on power poles combined with large (at least 10 inches exposed) galvanized nails through apex into wood.
- Ventilation raises would be fitted with engineered silencers to reduce noise and TES species avoidance of areas near the ventilation raises.
- Domed fence caps would be secured on top of vertical steel pipe fence braces to prevent perching.
- Intake vent raise fans would contain meshed covers to prevent TES species from becoming trapped in ducting.

2.2.6.5 Noxious Weeds and Invasive, Non-Native Species

The following EPMs would be implemented to minimize potential impacts to noxious weeds and invasive, non-native species in the project area:

- Newmont has developed and implements a Noxious Weed Management Plan.
- Vehicle traffic would be restricted to defined roads or overland travel routes to reduce potential mechanical transport of noxious weed seeds.
- When working in areas of established noxious weeds or invasive species populations, equipment would be washed prior to leaving the site to reduce spread of these weed species.
- Disturbed areas would be recontoured and revegetated to prevent erosion and weed growth.
- A certified weed-free seed mix would be used during revegetation of the disturbed areas.
- All straw would be certified noxious weed-free.
- All surface-based heavy equipment and vehicles to be used off established roadways would be washed at an off-site facility prior to entering the project area.

2.2.6.6 Water Resources

The following EPMs would be implemented to minimize potential impacts to water resources in the project area:

- Access across drainages, seeps, and springs would be avoided wherever possible. Culverts would be used if necessary to cross any large drainage(s).

- Silt fences and/or straw waddles would be used in areas requiring sediment control.

- Buffer zones would be established along water bodies to restrict access, thus minimizing potential impacts from erosion or other spills.

2.2.6.7 Noise

The following EPMs would be implemented to minimize potential impacts to noise in the project area:

- New vent raise construction would incorporate engineered designs to attenuate noise pressure.

2.2.6.8 Vegetation and Soils

The following EPMs would be implemented to minimize potential impacts to vegetation and soil resources in the project area:

- To minimize soil erosion, reduce potential for wildfires, and reduce establishment of noxious weeds, Newmont would revegetate disturbed areas with a certified weed-free seed mix.

- To minimize potential for increased wildfire fuels, Newmont would clear excessive or dead vegetative growth around vent raise fencing.

- Salvaged topsoil would be stockpiled for use in reclamation after project completion to minimize annual grass/weed establishment.

- In the event the topsoil stockpile cannot be immediately recontoured, the topsoil would be seeded to prevent annual grass/weed establishment.

- The access road would be ripped and seeded, and "no travel" reclamation signs would be used to discourage vehicular travel to allow vegetative growth.

2.2.6.9 Wildlife

The following EPMs would be implemented to minimize potential impacts to wildlife in the project area:

- To avoid destruction of birds, nests, eggs, or young, Newmont would avoid land clearing of native vegetation during the avian breeding season (March 15 to July 31). If it becomes necessary to clear any area during the breeding season, a qualified biologist would conduct a survey for active nests within areas to be cleared of vegetation. If active nests are located, a protective buffer zone would be established. The size of the buffer

zone would be based on the species identified and be approved by the relevant agency. The buffer zone would remain in place until it is confirmed that the young have fledged.

- Any trash during construction and/or operation and other waste products would be placed in containers with covers to prevent access by wildlife. The waste would be collected by a local sanitation company and properly disposed of at an approved facility.

- A 25-mph speed limit would be posted on the access roads.

- A six-foot high chain link fence with gate would be installed around ventilation raise sites to prevent wildlife entry to these areas.

- Intake vent raise fans would contain approximately two-inch meshed covers to prevent wildlife from becoming trapped in ducting.

- Should vent raise construction occur during avian breeding season, a certified biologist would survey the area for migratory birds, nests, eggs, or young prior to land clearing and construction activities.

- A 40-inch tall, three-strand barbed wire fence with a smooth bottom strand 18 inches off the ground would be installed around reclaimed areas during vegetation establishment.

- Ventilation raises would be fitted with engineered silencers to reduce noise and wildlife avoidance of areas near the ventilation raises.

2.2.7 Reclamation

Newmont's long-term goal for reclamation of the Proposed Action is to return the land to pre-mining use in compliance with the BLM Elko District Resource Management Plan (BLM, 1986b and 1987). Post-mining land use that is consistent with pre-mining uses includes mineral exploration, livestock grazing, and wildlife habitat.

Ventilation Raises

The Proposed Action features seven proposed vertical ventilation raises approximately ten-feet in diameter that are designed for increased ventilation and safety of the underground drift areas. The termination depth of the proposed ventilation raises would vary but should not exceed 1,200 feet below ground surface, intersecting with the underground drifts. During reclamation, the surface ducts would be demolished using standard building demolition techniques. Ventilation raises would be reclaimed by filling the bottom with a 50-foot concrete plug, backfilling the raise with alluvium or waste rock, and plugging the top with a 20-foot concrete plug. The pad would be ripped to loosen any compacted material and the entire reclaimed pad area would then be covered with material from the fill slope. The soil covering the reclaimed pad would be contoured and seeded to blend in with pre-mining topography. The only slopes that would be created would be the fill slope below the pads. These slopes would be recontoured and graded to

3H:1V (Horizontal: Vertical) during reclamation. The final surface of the surrounding pad and covered shaft would be seeded with a certified weed-free seed mix as shown in Table 3.

Table 3 Reclamation Seed Mix

Scientific Name	Common Name	Pounds of Pure Live Seed Per Acre
Grass Species		
Agropyron desertorum	Crested wheatgrass	1.00
Agropyron spicatum (Pseudoroegneria spicata)	Bluebunch wheatgrass	1.50
Elymus cinereus (Leymus cinereus)	Great Basin wildrye	1.50
Poa sandbergii	Sandberg bluegrass	0.50
Bouteloua dactyloides	Buffalo grass	0.50
Alopecurus arundinaceus	Creeping foxtail	0.50
	Subtotal	**5.50**
Brush Species		
Atriplex canescens	Fourwing saltbush	3.00
Artemisia tridentata var. *tridentata, wyomingensis*	Big sagebrush	0.30
Purshia tridentata	Antelope bitterbrush	1.50
Ceratoides lanata	Winterfat	0.20
	Subtotal	**5.00**
Forb Species		
Kochia prostrata	Prostrate summer cypress	0.20
Penstemon palmeri	Palmer penstemon	0.20
Astragalus cicer	Cicer milkvetch	0.50
Linum lewisii	Blue flax	0.25
Medicago sativa	Alfalfa, var. Nomad	0.50
Trifolium hybridum	Alsike clover	0.50
	Subtotal	**2.15**
	TOTAL	**12.65**

Access Roads

The Proposed Action would include construction of new roads, as well as, improvements to existing exploration roads to provide access to the proposed ventilation raises. All roads would be reclaimed at the conclusion of mining and exploration by recontouring the disturbance to near pre-mining topography. Roads would be reclaimed by pulling the fill slope material uphill. Growth medium would not be placed during reclamation, since it would not be removed and stockpiled during road construction. The growth medium would be incorporated into the fill slope material; therefore, when the road is reclaimed the growth medium would be redistributed across the disturbance. The area would then be seeded with the seed mix described in Table 3.

Other Structures

Other structures to be demolished/reclaimed include fences and power lines. Approximately 8,400 linear feet of fencing around the underground openings would require removal. Approximately 7,920 feet of single-pole power lines, including up to 75 wooden power poles, would also require removal during reclamation.

Stormwater Management

BMPs would be used as sediment control measures where necessary. BMPs would be placed in natural drainage areas within the project area. Sediment controls would be temporary and would be monitored until vegetation has stabilized the area. Methods of sediment control would include silt fences, certified weed free straw bales, or certified weed free straw mats.

Monitoring

Reclamation monitoring includes annual monitoring of the vegetation and noxious weeds consistent with the *Nevada Guidelines for Successful Revegetation for the Nevada Division of Environmental Protection, the Bureau of Land Management and the U.S.D.A. Forest Service.* Monitoring would be conducted for three years.

2.3 ALTERNATIVE A: BACKFILL RECLAMATION OF VENT RAISES

Under the Proposed Action, reclamation of the ventilation raises would involve constructing a 1.5-foot thick concrete plug at the top of each vent raise shaft. Under Alternative A, the ventilation raise shafts would be backfilled instead of capped. Each vent raise shaft would require approximately 5,000 tons of waste rock to be backfilled, for a total of approximately 35,000 tons of waste rock.

2.4 ALTERNATIVE B: NO ACTION

Under the No Action Alternative, the Proposed Action would not be implemented. Newmont would be required to find an alternative location or alternative method for providing the ventilation required by the Mine Safety and Health Administration (MSHA) for safety to the underground operation. With this alternative, previously permitted operations in the area would continue to take place including underground mining, and previously permitted exploration activities.

2.5 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER STUDY

2.5.1 Concurrent Reclamation to Narrow Access Road Width

Concurrent reclamation of access roads to reduce the width was considered, but eliminated from further consideration. Following the construction of the ventilation raises, this alternative would have reduced the width of the access roads from 25 feet to 20 to 14 feet, with concurrent reclamation. This alternative is not feasible because the ventilation raise fans would require

periodic maintenance and replacement. Replacement of the fans would require vehicles and machinery that require the road to be 25 feet in width. Because of these factors, this alternative was eliminated from further study.

2.5.2 Use of Centrifugal Fans in Vent Raises

Use of centrifugal fans in the vent raises was considered, but eliminated from further consideration. This alternative would have reduced noise produced by the Proposed Action but was determined to be ineffective at providing the necessary airflow to the underground workings and was determined to be cost prohibitive. This alternative was considered but not selected because the purpose of the vent fans is to provide adequate airflow to the underground workings for human health and safety purposes. Axial fans, which operate at low pressure and high velocity flow, were chosen over centrifugal fans that operate at high pressure. Because of these factors, this alternative was eliminated from further study.

2.5.3 Installation of Underground Power Line Cables

Installation of underground power line cables was considered but eliminated from further consideration. This alternative would have reduced potential impacts to wildlife from collisions and perching but was determined to be cost prohibitive. This alternative would also require the installation of above-ground maintenance boxes which would, in turn, create additional ground disturbance. Because of these factors, this alternative was eliminated from further study.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 INTRODUCTION

This chapter describes the affected environment and predicted environmental consequences of the Proposed Action, Alternative A, and Alternative B (No Action Alternative) as described in Chapter 2. Cumulative effects are discussed in Chapter 4. The baseline information summarized in this chapter was obtained from published and unpublished materials; contacts with local, state, and federal agencies; and field studies conducted in the project area. The affected environment for individual resources was delineated based on the area of potential direct and indirect environmental impacts for the Proposed Action.

The analysis of potential impacts of the Proposed Action includes implementation of appropriate BMPs developed by the BLM and EPMs selected by Newmont (Section 2.2.6). EPMs are design features that are part of the Proposed Action or any action alternative and identified by Newmont in response to potential impacts to individual resources. Newmont has committed to implement those EPMs as part of the Midas Underground Support Facilities project.

NEPA is only one of many laws and regulations for protecting the environment that BLM must consider when reviewing a proposed action and determining the scope of NEPA analyses. Those laws and regulations are referred to by the BLM as "Supplemental Authorities". Guidance on how to use Supplemental Authorities in determining the scope of environmental review is contained in the BLM NEPA Handbook (BLM, 2008) and more recently in guidelines issued by the BLM Nevada State Office (BLM, 2009a). Table 4 lists the Supplemental Authorities recommended for consideration by the BLM Nevada State Office, and the element of the environment associated with each authority.

Table 4 Nevada Supplemental Authorities

Element	Relevant Authority
Air Quality, including Climate Change	The Clean Air Act as amended (42 USC 7401 *et seq*.); Section 176(c) CAA – General Conformity
Areas of Critical Environmental Concern	Federal Land Policy and Management Act of 1976 (42 USC 1701 *et seq*.) (FLPMA)
Cultural Resources	National Historic Preservation Act, as amended (16 USC 470)
Environmental Justice	E.O. 12898 "Federal Actions to Address Environmental Justice in Minority and Low-Income Populations" 2/11/94
Farm Lands (Prime or Unique)	Surface Mining Control and Reclamation Act of 1977 (30 USC 1201 *et seq.*); Farmland Protection Policy Act (7 USC 4202 *et seq.*)
Floodplains	E.O. 11988, as amended, "Floodplain Management" 5/24/77
Forests and Rangelands	Healthy Forests Restoration Act of 2003 (P.L. 108-148)
Human Health and Safety	E.O. 13045 "Protection of Children from Environmental Health Risks and Safety Risks"

Element	Relevant Authority
Migratory Birds	E.O. 13186 "Migratory Birds"; Migratory Bird Treaty Act (16 USC 703-711)
Native American Religious Concerns	American Indian Religious Freedom Act of 1978 (42 USC 1996)
Non-Native Invasive and Noxious Species	E.O. 13112 "Invasive Species" 2/3/99
Threatened and Endangered Species	Endangered Species Act of 1973, as amended (16 USC 1531)
Wastes, Hazardous or Solid	Resource Conservation and Recovery Act of 1976 (42 USC 6901 *et seq*.); Comprehensive Environmental Repose Compensation, and Liability Act of 1980, as amended (42 USC 9615)
Water Quality Surface/Ground	Safe Drinking Water Act, as amended (42 USC 300f *et seq*.); Clean Water Act of 1977 (33 USC 1251 *et seq*.)
Wetlands/Riparian Zones	E.O. 11990 "Protection of Wetlands" 5/24/77
Wild and Scenic Rivers	Wild and Scenic Rivers Act, as amended (16 USC 1271)
Wilderness	Federal Land Policy and Management Act of 1976 (43 USC 1701 *et seq*.); Wilderness Act of 1964 (16 USC 1131 *et seq*.)

Table 5 summarizes the results of the BLM internal scoping process to identify those elements of the environment related to Supplemental Authorities to be analyzed in this EA. For each element, the table indicates whether the resource is "not present" in the project area, "present but not affected" by the Proposed Action or Alternative A, or "present and may be affected" by the Proposed Action or Alternative A. The right column of the table contains brief explanations of the rationale for the determination. Supplemental Authorities determined to be "present/may be affected" must be carried forward for analysis in the document. Those elements that are "not present" in the project area or "present/not affected" by the Proposed Action or Alternative A do not need to be carried forward for analysis or discussed further in the document. The elimination of issues not relevant to the scope of analyses is consistent with CEQ regulations in 40 CFR 1500, and Department of Interior NEPA regulations in 43 CFR 46.

Table 5 Potentially Applicable Supplemental Authority Concerns*

Element/Resource	Not Present	Present/Not Affected	Present/May be Affected	Rationale
Human Concerns				
Air Quality, including Climate Change			X	See Section 3.3.
Cultural Resources			X	See Section 3.4.
Environmental Justice	X			No environmental justice populations in or near the project area.
Human Health and Safety			X	See Section 3.5.
Native American Religious Concerns			X	See Section 3.6.
Wildlife/Animal Concerns				
Migratory Birds			X	See Section 3.7.
TES Species			X	See Section 3.8.
Other Concerns				

Element/Resource	Not Present	Present/Not Affected	Present/May be Affected	Rationale
Areas of Critical Environmental Concern	X			No Areas of Critical Environmental Concern occur in the project area.
Farm Lands (Prime or Unique)	X			No known designated prime or unique farmlands occur in the project area.
Floodplains	X			No floodplains within the project area.
Forests and Rangelands (HFRA)	X			No forest or rangeland HFRAs occur within the project area.
Non-Native Invasive and Noxious Species			X	See Section 3.9.
Wastes, Hazardous or Solid	X			Waste and Hazardous Solid will not be stored on site.
Water Resources			X	See Section 3.10.
Wetlands/Riparian Zones			X	See Section 3.11.
Wild and Scenic Rivers	X			No wild and scenic rivers occur within the project area.
Wilderness, Lands with Wilderness Characteristics	X			No wilderness within the project area (BLM, 2010b). The area was inventoried and a summary of findings was signed on 11/24/09 concluding that: "The area does not have wilderness character." Reasons given were that it did not meet size, naturalness, offer outstanding opportunities for solitude and unconfined type of recreation, or have any supplemental values.

* See Statute: NV-2009-030, BLM Manual, regulation or order that may require an element be addressed in a NV BLM EA or EIS.
HFRA = Healthy Forest Restoration Act of 2003

In addition to the Supplemental Authorities, other elements of the human environment were screened for this EA and are listed in Table 6. Resources that may be affected by the Proposed Action are further described in the EA. Rationales for those elements that would not be affected by the Proposed Action are listed in the right column of the table.

Table 6 Other Potential Land and Resource Management Issues

Other Resources	Not Present	Present/Not Affected	Present/May be Affected	Rationale
Rangelands and Grazing			X	See Section 3.12.
Land Use Authorization			X	See Section 3.13.
Geology and Minerals			X	See Section 3.14.
Noise			X	See Section 3.15.
Paleontological Resources	X			No known paleontological resources in the project area.
Recreation		X		The project area is currently adjacent to an active mining area.

Other Resources	Not Present	Present/Not Affected	Present/May be Affected	Rationale
Social or Economic			X	See Section 3.16.
Soils			X	See Section 3.17.
Vegetation			X	See Section 3.18.
Visual Resources			X	See Section 3.19.
Wild Horses and Burros	X			No Herd Management Areas occur within the project area (BLM, 2005).
Wildlife			X	See Section 3.20.
Energy (gas, oil, wind)	X			Not present

3.2 ANALYSIS OF AFFECTED RESOURCES

As identified in Tables 5 and 6, the resources that are present and have the potential to be affected by the Proposed Action and Alternative A are described and analyzed in the following subsections. The description of existing conditions and analysis of potential impacts are provided within the same subsections.

Potential impacts are described in terms of duration (short-term or long-term) and intensity. Short-term impacts generally last between one and five years, while long-term impacts last beyond five years. The thresholds of change for the intensity of a potential impact are defined as follows:

- No Impact – There is no detectable impact.
- Negligible – The impact is at the lowest level of detection.
- Minor – The impact is slight, but detectable.
- Moderate – The impact is readily apparent.
- Major – The impact is a severe or adverse impact or benefit.

3.3 AIR QUALITY

Federal Clean Air Act

The Federal Clean Air Act (CAA), and the subsequent Clean Air Act Amendments of 1990 (CAAA), require the Environmental Protection Agency (EPA) to identify National Ambient Air Quality Standards (NAAQS) to protect the public health and welfare. The CAA and the CAAA established NAAQS for six pollutants, known as "criteria" pollutants. The criteria pollutants include carbon monoxide (CO), ozone (O_3), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter smaller than 10 microns (PM_{10}), and particulate matter smaller than 2.5 microns ($PM_{2.5}$).

Attainment and Non-Attainment Areas

Pursuant to the CAA, the EPA has developed classifications for distinct geographic regions known as air quality management areas (AQMA). Under these classifications, for each federal

criteria pollutant, each air basin (or portion of an AQMA), is classified as "in attainment" if the AQMA has "attained" compliance with (i.e. not exceeded) the adopted NAAQS for that pollutant; is classified as "non-attainment" if the levels of ambient air pollution exceed the NAAQS for that pollutant; or is classified as "maintenance" if the monitored pollutants have fallen from non-attainment levels to attainment levels. AQMAs for which sufficient ambient monitoring data are not available are designated as "attainment-unclassifiable" until actual monitoring data support formal "attainment" or "non-attainment" classification. According to the EPA 1997 $PM_{2.5}$ Standards, the Midas project is located in an "unclassifiable" area, and thus is considered to be in attainment for all criteria air pollutants (USEPA, 1997).

In addition to the designations relative to attainment of conformance with the NAAQS, the CAA requires the EPA to place each planning area into one of three classes, which are designed to limit the deterioration of air quality when it is "better than" the NAAQS. "Class I" is the most restrictive air quality category and was created by Congress to prevent further deterioration of air quality in National Parks and Wilderness Areas. All remaining areas outside of the designated Class I boundaries were designated Class II planning areas, which allow a relatively greater deterioration of air quality. The proposed Midas project is located in a Class II planning area. Regardless of the planning area class, air quality cannot exceed the NAAQS.

Prevention of Significant Deterioration

Federal regulations also contain standards for the prevention of significant deterioration. Those standards limit the maximum allowable increase in ambient particulate matter in a Class I planning area resulting from a major or minor stationary source to 4 micrograms per cubic meter ($\mu g/m^3$) on an annual basis, and 8 $\mu g/m^3$ over an average 24-hour period. Increases in other criteria pollutants are similarly limited. Specific types of facilities that emit more than 100 tons per year (tpy) of any regulated pollutant, 10 tpy of any single hazardous air pollutant (HAP), or 25 tpy or more of any combination of HAPs are considered a "major stationary source". Major stationary sources are required to notify federal land managers of Class I planning areas within 60 miles (100 kilometers) of the facility (BLM, 2010a). The nearest Class I planning area, Jarbidge Wilderness Area, is located approximately 76 miles northeast of the project area.

Federal Operating (Title V) Permit Program

Under Title V of the CAA, a facility wide permitting program was established for larger sources of pollution. The Title V program requires that "major stationary sources" of air pollutants (defined in previous section) submit a Title V permit application. In Nevada, the Title V program is administered by BAPC. In January 2012, the existing Newmont Midas Operations' Class II Operating Permit was converted to a Title V permit under the federal program (refer to discussion of permits in the following section).

Nevada State Air Quality Program

The CAA delegates primary responsibility for air pollution control to state governments, which in turn often delegate this responsibility to local or regional organizations. In Nevada, the BAPC is the agency delegated the responsibility for implementing a State Implementation Plan (SIP). Included in the SIP are the State of Nevada air quality permit programs. Also part of the SIP is the Nevada State Ambient Air Quality Standards (NSAAQS). The NSAAQS are generally identical to the NAAQS, with the exception of a) an additional standard for carbon monoxide in areas more 5,000 feet above mean sea level [AMSL]; b) recent NAAQS for $PM_{2.5}$ (Nevada has yet to adopt the new standards); c) the revised NAAQS for PM_{10}; d) O_3 (Nevada has yet to adopt the new and revised standards); and e) a violation of a state standard occurs with the first annual exceedance of an ambient standard, compared to the second annual exceedance under federal regulations (BLM, 2009b).

In addition to establishing the NSAAQS, the BAPC is responsible for permit and enforcement activities in most counties throughout the State of Nevada. The following air quality permits are administered by the BAPC:

- **Class I** – Typically for facilities that emit more than 100 tpy of any one regulated pollutant, or emit more than 25 tpy total HAP, or emit more than 10 tpy of any one HAP.
- **Class II** – Typically for facilities that emit less than 100 tpy of any one regulated pollutant, and emit less than 25 tpy total HAP, and emit less than 10 tpy of any one HAP.
- **Class III** – Typically for facilities that emit 5 tpy or less in total regulated air pollutants, and emit less than one-half ton of lead per year, and must not have any emission units subject to Federal Emission Standards.
- **Surface Area Disturbance** – Surface Area Disturbance greater than 5 acres.
- **General / Change of Location Approval** – Temporary portable equipment for road and highway construction at a location less than 12 months (NDEP, 2011a).

Newmont's current Midas operations are regulated by a number of BAPC permits. Operations are permitted under Class II Air Quality Operating Permit AP1041-0766.02 (NDEP, 2009a). A Title V application was submitted in January 2012 and the permit approval is currently pending BAPC review. Surface disturbance and fugitive emissions are regulated under three Class II Surface Area Disturbance Permits: AP1041-1444.01 (Borrow Pit) (NDEP, 2009b), AP1041-1454.01 (Exploration) (NDEP, 2009c), and AP1442-2674 (Jakes Creek Gravel Pit) (NDEP, 2009d).

Nevada Mercury Control Program

The Nevada Mercury Control Program (NMCP) is a State regulatory program that requires mercury emissions controls on thermal units located at precious metal mines. The NMCP became effective on May 4, 2006. The program achieves mercury reduction via add-on control technologies. Currently, the NMCP regulations focus on the potential for mercury emissions from thermal processing units only. At the core of the NMCP is the standard of Nevada Maximum Achievable Control Technology (NvMACT). Under the NvMACT standard, owners or operators of a new or modified thermal unit that emits mercury must apply for, and obtain, a Mercury Operating Permit to Construct (OPTC) (NDEP, 2011b). Under the program, three types of permits can be issued:

- **De Minimis Designations** – Units that receive a *de minimis* designation are not required to add control technology for the reduction of mercury emissions. The *de minimis* emissions level is 5 pounds per year per (lbs/yr) facility, and a facility may select the units of its choice, whose total combined emissions are less than or equal to 5 lbs/yr. At its existing Midas facility, Newmont is operating under Tier-3 Non-Permit De Minimis Equipment List, AP1041-2253 for a number of units (NDEP, 2009e).

- **Phase 1 Permits** – The purpose of Phase 1 is to issue permits that require the continued proper operation of existing mercury controls and to implement work practice standards on units without controls in order to minimize emissions until the appropriate technologies under the NvMACT standards are determined. Phase 1 permits do not have emissions limits. At its existing Midas facility, Newmont is operating under Mercury OPTC: Phase 1, AP1041-2253 for a number of units (NDEP, 2009f).

- **Phase 2 Permits** – Phase 2 permits specify the NvMACT control technology and set mercury emissions limits for thermal units. The NvMACT determination is made individually for each unit. The permit includes work practice standards, and requirements for monitoring, record keeping, reporting and testing. At its existing Midas facility, Newmont is operating under Mercury OPTC: Phase 2, AP1041-2253 (NDEP, 2009g).

Climate Change

In response to a Supreme Court decision interpreting the CAA, the EPA has published an advance notice of proposed rulemaking seeking public comment on whether GHG emissions should be regulated under the CAA, and if so, by what methods. Congress is also debating legislation that would impose regulatory controls or incentives for reducing GHG emissions.

In 2007, the Nevada Legislature passed a statute requiring that a statewide GHG emissions inventory be prepared and issued by NDEP at least every four years beginning in 2008 (EPA, 2012). The emissions inventory must include the origins, types and amounts of GHG released throughout the State, and all supporting analyses and documentation. The Nevada Statewide Greenhouse Gas Emissions Inventory and Projections (1990-2020) presents a comprehensive

inventory of all GHG emissions associated with activities in Nevada. It includes all six internationally recognized GHGs covered by the United States and other national inventories: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). Historic GHG emissions from 1990 to 2006 are reported by economic sector. Projections of future GHG emissions are made based on quantitative assessments of expected trends in the various sectors (NDEP, 2008).

3.3.1 Affected Environment

Weather and Meteorology

The Midas project area, located approximately 48 miles northwest of Carlin, Nevada, is subject to large daily temperature fluctuations, low relative humidity, and limited cloud cover. Wind data collected at Newmont's North Area Meteorological Station indicate the most common wind direction is from the southwest and is influenced by diurnal flow resulting from daily heating and cooling of hills and drainage areas. Average wind speed for the period 1995 to 2007 is 5.8 mph (Newmont, 2008).

Mean monthly temperatures recorded at the North Area Meteorological Station for the period 1992 to 2007 vary from 29 degrees Fahrenheit (°F) to 31°F in December and January, to 73°F to 75°F in July and August. Monthly mean minimum and maximum daily temperatures within a month typically vary by approximately 20°F (Newmont, 2008). Average annual precipitation for the period of 1992 to 2007 was 12.12 inches. Data collected at the North Area Meteorological Station indicate the heaviest precipitation occurs as snow from November through January, and as rain in May and June. Summer precipitation occurs mostly as scattered showers and thunderstorms that contribute little to overall precipitation (Newmont, 2008).

Gaseous and Particulate Emissions

According to the EPA 1997 $PM_{2.5}$ Standards, the project area is located in an "unclassifiable" area, and thus is considered to be in attainment for all criteria air pollutants (USEPA, 1997). In the project area, NDEP has monitored only for PM_{10}. Between 1998 and 2009, monitoring was conducted at the following locations: Grammar School #2 and State Offices Building in Elko, and Battle Mountain Police & Fire Station and Battle Mountain High School in Battle Mountain. PM_{10} measurements are typically influenced by local conditions. In general, 24-hour concentrations of PM_{10} in Elko have remained below the standard. Because short-term averages are largely influenced by localized, short-term events, annual mean concentrations provide a good indicator of ambient PM_{10} trends. These indicate a flat to decreasing trend (NDEP, 2011d).

Existing gaseous and particulate emissions in the project area are from a number of sources at the existing Midas operations. Emission sources identified in the existing Class II Air Quality Operating Permit include the transfer of ore and waste into hoppers, crushing and screening of

ore, crushing and transfer of construction material, fine ore storage bins, ore discharge stockpiles, refinery furnaces, mercury retorts, and ore crusher diesel engine. The majority of regulated emissions are PM_{10}. Other emissions covered by the existing Operating Permit include sulfur dioxide, nitrogen oxides, carbon monoxide, and volatile organic chemicals.

Sources of fugitive dust include traffic on unpaved roads, and blowing dust from bare ground and existing mining operations. On a daily basis, an average of two buses and 10 light vehicles commute to the mine, with the majority of commuter travel on unpaved roads. During daily operation of the existing Midas mining facilities, approximately 12 vehicles/machines are operating at any given time. All of these activities are subject to the conditions of the existing NDEP Class II Surface Area Disturbance Permits. Specific measures for the control of fugitive dust are contained in the Newmont Midas Operations Gravel Pit dust control plan (Newmont, 2009).

Mercury Emissions

Mercury is a naturally occurring element in many soils, rocks, marine and geothermal water sources, plants and animals. In the atmosphere, it is present as gaseous elemental mercury, reactive gaseous mercury, or particulate mercury. Mercury emissions to the atmosphere come from both natural background and man-made sources. Emissions typically follow a sequence from the emission source to transport, deposition, exposure, and potential human risks. From a single source such as a power plant or mine, a portion of emissions is deposited locally near the source, while the remaining portion is dispersed regionally or globally. Concentrations of mercury in the air are usually low and of little direct concern. However, atmospheric mercury falls to earth through rain or snow and enters lakes, rivers, and estuaries. Once there, it can transform into its most toxic form (methylmercury) and accumulate in fish and animal tissues. Mercury accumulates most efficiently in aquatic species.

Sources of mercury emissions at the existing Midas mining operations include refinery furnaces and mercury retorts. These existing units are subject to controls under the existing NDEP Phase 1 and Phase 2 Mercury OPTC. Pursuant to NMCP regulations, facilities must submit an annual report on mercury emissions to the NDEP. Mercury emissions are calculated for every thermal unit, which is not *de minimis*, using the most recent NDEP-approved emission tests. The 2010 Annual Emission Report indicates that the units at the Midas facility were well under the maximum emission limits established by the Phase 2 permit (NDEP, 2011c).

Climate Change

Ongoing scientific research has identified the potential impacts of man-made GHG emissions on global climate. Through complex interactions on a regional and global scale, these GHG emissions cause a net warming effect of the atmosphere, primarily by decreasing the amount of

heat energy radiated by the earth back into space. Although GHG levels have varied for millennia, recent industrialization and burning of fossil carbon sources have caused CO_2 concentrations to increase dramatically, and are likely to contribute to overall global climatic changes. The Intergovernmental Panel on Climate Change recently concluded that "warming of the climate system is unequivocal" and "most of the observed increase in globally average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic GHG concentrations" (IPCC, 2007). Modeling efforts predicting the impacts from human-caused climate change show the average temperature in the southwest United States is expected to rise from 1°F to 2°F by 2020 and from 4°F to 10°F by the end of the century (Karl, 2009).

3.3.2 Environmental Consequences

3.3.2.1 Proposed Action

Gaseous and Particulate Emissions

Construction and operation of new access roads, installation of a new power line, and drilling to install the ventilation raises and surface exploration would produce criteria pollutant emissions, most notably in the form of particulate matter. Particulate emissions would be caused by drilling, excavating, loading, hauling, and dumping of soil and rock. Diesel engine exhaust would generate gaseous air pollutants including CO, NO_2, SO_2, and hydrocarbons would be emitted from vehicle engines. The primary source of those emissions would be diesel engines used to power construction equipment, trucks and other vehicles.

Sources of fugitive dust would include equipment and vehicle traffic on unpaved roads, and blowing dust from rock and soil disturbed during construction of roads, drilling pads, power line, and other project-related construction activities. All of these activities are subject to the conditions of the existing NDEP Class II Surface Area Disturbance Permits. Specific measures for the control of fugitive dust are contained in the Newmont Midas Operations Gravel Pit dust control plan, which is referenced in the permits (Newmont, 2009).

Criteria pollutant and fugitive dust emissions are expected to be short-term (for the duration of construction) and negligible to minor with implementation of the EPMs under the Proposed Action. Operation of the ventilation raises would be in compliance with existing and approved permits.

Mercury Emissions

The Proposed Action would result in the construction of access roads and drilling pads, installation of power lines, drilling and boring of the ventilation raises, surface exploration drilling, and construction and operation of the surface fan ducts. Neither project construction nor operation of the ventilation raises would result in mercury emissions.

Climate Change

GHG emissions associated with the Proposed Action would be associated primarily with the consumption of energy for construction and operation of the seven ventilation raises. Activities that would contribute to GHG emissions would include:

- Fuel consumption (vehicles, equipment and machinery); and
- Electricity consumption (14 exhaust/intake fans with a combined power consumption of 6,720 volts, or 5,320 amperes).

GHGs include CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6. Current annual emissions of GHGs in the United States are approximately 8,000 million tons (USEPA, 2008). Existing models for predicting climate change are global in nature and, therefore, not at an appropriate scale to estimate potential climate change impacts from a project the size of the Proposed Action. Although the Proposed Action would contribute to an increase in GHGs in the atmosphere, those emissions would be extremely small relative to state, national, and global GHG emissions, and cannot be reliably estimated. Thus, impacts to GHGs are expected to be negligible.

3.3.2.2 Alternative A: Backfill Reclamation of Vent Raises

Under Alternative A, approximately 35,000 tons of non acid-generating (NAG) waste rock and soil would be used to fill the seven ventilation raises as part of the project reclamation. The process would include loading of dump trucks at the existing waste rock storage area, transport of waste rock and soil to each ventilation raise, and dumping of the material into the vent raise shaft. Assuming the use of a dump truck with a capacity of 20 tons, the process of backfilling the ventilation raise shafts would require 1,750 round trips from the waste rock storage area to the seven sites. This alternative method of reclaiming the ventilation raise shafts would result in substantially greater amounts of fugitive dust and road maintenance when compared to the concrete capping method to be used for the Proposed Action. In addition, the dump truck trips would result in greater amounts of exhaust particulate matter, and gaseous emissions of CO, NO_2, SO_2, and hydrocarbons. Even with these temporary increases in particulate and gaseous emissions; however, the impacts of this alternative to air quality is expected to be minor. All other impacts of Alternative A would be similar to those of the Proposed Action.

3.3.2.3 Alternative B: No Action

Under the No Action Alternative, the Proposed Action would not be implemented. Therefore, the No Action Alternative would have no further impacts to air quality other than potential impacts from previously authorized actions in the area.

3.4 CULTURAL RESOURCES

The National Historic Preservation act of 1966 (NHPA) and the Archaeological Resources Protection of 1979 (ARPA) are the primary laws regulating preservation of cultural resources.

Federal regulations obligate federal agencies to protect and manage cultural resource properties and prohibit the destruction of significant cultural sites and historic properties without first mitigating the adverse effect to the site. The BLM used the Protocol Agreement with the Nevada SHPO to accomplish compliance under Section 106 of the NHPA.

The NHPA sets forth procedures for considering effects to historic properties and supports and encourages the preservation of prehistoric and historic resources. It directs federal agencies to consider the impacts of their actions on historic properties. Section 106 of the NHPA, as amended, requires federal agencies to take into account any action that may adversely affect any structure or object that is, or can be, included in the National Register of Historic Places (NRHP). These regulations, codified in 36 CFR 800, provide criteria to determine if a site is eligible. Beyond that, the regulations define how those properties or sites are to be dealt with by federal agencies or other involved parties. These regulations apply to all federal undertakings and all cultural (archaeological, cultural, and historic) resources.

The ARPA sets a broad policy that archaeological resources are important to the nation, as well as locally and regionally, and should be protected. The purpose of the ARPA is to secure the protection of archaeological resources and sites that are on public lands and Native American lands. The law applies to any agency that receives information that a federally assisted activity could cause irreparable harm to prehistoric, historic, or archaeological data and provides criminal penalties for prohibited activities.

3.4.1 Affected Environment

In the spring and summer of 2010, P-III Associates, Inc. (P-III) conducted cultural resource investigations of the 2,584-acre Area of Operations (AO) for Newmont in the Gold Circle Mining District near Midas, Elko County, Nevada, which included the area being considered for this project. These investigations involved a Class III cultural resources inventory of approximately 257 previously un-inventoried acres of private land and public land administered by the BLM Tuscarora Field Office, and reassessment of previously recorded sites and localities in the AO. As part of this project, P-III recorded geographic information system (GIS) data and updated site condition assessments for 26 previously recorded sites and 43 previously recorded localities, many with multiple components. This project was conducted on behalf of Newmont for mineral exploration activities and active mining and mineral processing.

The project involved several phases. First, the investigations were initiated with a review of the cultural resource inventory and site records to identify all known previously recorded sites in the AO. The second phase consisted of additional field inventory to record any newly discovered sites and to visit each previously recorded site or locality to gather current information about the status, geographic location, and impacts to the site. Third, the field data was processed and

collated with earlier inventory reports and site forms in the laboratory to produce this comprehensive report on the cultural resources within the AO.

An integral part of these cultural resource investigations was re-evaluating all previously recorded sites and localities for NRHP eligibility in light of current historic contexts. In order for a site or locality to be eligible for the NRHP, it must not only be significant under one or more criteria, but it must also have integrity and the ability to convey its significance, as formally defined by the National Park Service.

The Class III inventory of 257 acres within the AO resulted in the identification and documentation of 17 newly recorded sites and 4 isolated finds. Six of the newly recorded sites are recommended as being eligible for inclusion in the NRHP (CrNv-12-16075, CrNv-12-16076, CrNv-12-16078, CrNv-12-16083, CrNv-12-16084, and CrNv-12-16085).

Five previously recorded localities in site 26EK6473 (26EK6473-39, 26EK6473-50, 26EK6473-54, 26EK6473-77, and 26EK6473-84) and five other previously recorded sites (CrNV-12-9217, CrNV-12-9219, CrNV-12-9230, 26EK6494, and 26EK6580) have been disturbed and there is no remaining evidence of the previously recorded sites. Locality 26EK6473-73, which consisted of two hand-dug prospect trenches, and their associated waste rock piles, was not relocated.

The remaining 37 localities of site 26EK6473 and the 21 previously recorded sites in the AO were relocated, their boundaries and the locations of all features recorded, and the site forms updated (P-III, 2010).

3.4.2 Environmental Consequences

3.4.2.1 Proposed Action

ARPA (43 CFR 7) and the Native American Graves Protection and Repatriation Act (43 CFR 10) both provide protection for historic properties, cultural resources, and Native American funerary items and/or physical remains located on federal land. In addition, ARPA provides for the assessment of criminal and/or civil penalties for damaging cultural resources, and possession without an appropriate permit if the artifacts were obtained on federally-managed lands. Any unplanned discovery of cultural resources, items of cultural patrimony, sacred objects or funerary items requires that all activity in the vicinity of the find ceases, and an authorized BLM representative be notified by phone and written confirmation to follow. The location of the find should not be publically disclosed, and any human remains must be secured and preserved in place until a Notice-to-Proceed is issued by the authorized officer.

In its report on the resource investigation, P-III recommended the BLM provide Newmont with site location data once a Programmatic Agreement between the BLM and Newmont is in place.

This is to ensure that future mining-related activities at the Midas Mine can be adjusted to avoid impacts to these sites. To help Newmont avoid any violations of the ARPA, it also recommended that BLM provide Newmont with maps of any non-eligible sites that the BLM considers important, so that mining operations can be redesigned to avoid these sites as well. The Midas MOU was signed in March 2012 and allows for phased treatment of all historic properties.

The report also recommended all NRHP-eligible sites, including those previously determined eligible by the BLM, be avoided during any subsequent project-related activities. If impacts to the eligible sites cannot be avoided, an appropriate mitigation strategy should be developed and implemented, in consultation with the BLM. However, the final determination of the effects and impacts to the sites and localities identified in the report should be made by the BLM in consultation with the Nevada SHPO (P-III, 2010).

Based upon the findings and results of the cultural resource surveys, as well as the Programmatic Agreement for the area, no direct impacts to cultural resources are anticipated to occur from implementation of the Proposed Action. Over time, all archeological sites are subject to degradation from both natural and human processes.

Known impacts to cultural resources include vandalism, development, and livestock/wildlife trampling. Vandalism includes unauthorized artifact collection, excavation, and salvage of historic structures/features. Impacts from livestock and wildlife use have been severe in some areas of heavy use. Potential disturbance by project-related activities to any sites determined to be eligible for listing on the NRHP would be avoided through mine planning. Therefore, with the implementation of the Proposed Action, including EPMs discussed in Section 2.2.6.2, no impacts to cultural resources are expected.

3.4.2.2 Alternative A: Backfill Reclamation of Ventilation Raises

Impacts of Alternative A on cultural resources would be the same as those for the Proposed Action as outlined in the previous section.

3.4.2.3 Alternative B: No Action

Because the Proposed Action would not be implemented, there would be no further impacts to cultural resources associated with the No Action Alternative other than potential impacts for action that have already been permitted in the area.

3.5 HUMAN HEALTH AND SAFETY

3.5.1 Affected Environment

Mining ventilation is a particular safety concern for many mining operations. Poor ventilation of mines may cause exposure to harmful gases, heat, and dust. These can cause harmful physiological effects or death. The concentration of equipment exhaust and other airborne contaminants underground can generally be controlled by dilution (ventilation), or isolation (seals and stoppings). A ventilation system is installed to force a stream of air through the working areas of the mine. Air circulation necessary for the effective ventilation of a mine is generated by one or more large mine fans, usually located above ground. Air flows in one direction only, making circuits through the mine so that each main work area constantly receives a supply of fresh air (NIOSH, 2011).

Miners utilize powerful equipment to break through hard layers of rock. This equipment, combined with the closed workspace in which miners work, can cause hearing loss. For example, a roof bolter can reach sound power levels of up to 115 dBA (adjusted units of noise measurement called "A-weighted decibels" [dBA]). Combined with the reverberant effects of underground mines, a miner without proper hearing protection is at risk for hearing loss. Sources of above-ground noise are the surface ducts for the existing ventilation raises. Sound levels from the 350 horsepower fans at 10 feet from the ducts have been measured at 100 dBA.

Finally, the activities associated with the construction of ventilation raises and associated access roads involve the use of a variety of heavy equipment and vehicles. Drilling and boring of the ventilation raises requires specialized equipment such as drilling rigs, and raise climbers or borers. This equipment requires extensive training and work practices to ensure safe operation.

3.5.2 Environmental Consequences

3.5.2.1 Proposed Action

Construction of the proposed ventilation raises and related access roads are common practices associated with the ongoing operation of Newmont's Midas mining facilities. Also standard practice is the implementation of Newmont's existing Safety Plan to ensure worker health and safety. Preparation and implementation of the Safety Plan is required by the United States Department of Labor, MSHA. Key features of the Safety Plan that would be implemented under the Proposed Action are summarized below:

- *Personal Protective Requirements* - This requires the use of protective gear and equipment such as hard hats, steel-toe boots, safety glasses, knee pads, and respirators.
- *Safety Training* - This includes classroom training, workplace training, regular safety meetings, and specialized training, as necessary.

- *Safe Work Practices and Conditions* - This includes regular monitoring and observation of employees to ensure safe work practices; and regularly scheduled emergency preparedness training.

- *Emergency Provisions and Procedures* - Emergency equipment, firefighting, first aid and other equipment is provided pursuant to federal and state regulations. An emergency transportation system is available on a 24-hour basis. All miners are trained in the maintenance, storage, location, and use of all emergency equipment. A Mine Emergency Plan has been prepared jointly by management and employees that contains specific procedures to address fire, explosion, rescue, and personal injury.

- *Accidents* - The safety plan includes specific procedures for reporting both injury and non-injury accidents, reporting close-calls, conducting investigations, identifying deficiencies, and ensuring prevention and preparedness.

With implementation of a safety plan under the Proposed Action, impacts to human health and safety are expected to be negligible and short-term.

3.5.2.2 Alternative A: Backfill Reclamation of Ventilation Raises

Impacts of Alternative A to human health and safety would be the same as those for the Proposed Action as outlined in the previous section.

3.5.2.3 Alternative B: No Action

Because the Proposed Action would not be implemented, there would be no further impacts to human health and safety associated with the No Action Alternative other than potential impacts from previously authorized actions in the area. Under the No Action Alternative, additional vent raises would not be installed and human health and safety would be at risk. There would be a continued risk of exposure to harmful gases, heat, and dust, all of which can lead to physiological harm and death.

3.6 NATIVE AMERICAN TRADITIONAL VALUES

3.6.1 Affected Environment

In accordance with the NHPA (P.L. 89-665), NEPA (P.L. 91-190), FLMPA (P.L. 94-578), the American Indian Religious Freedom Act (P.L. 95-341), the Native American Graves Protection and Repatriation Act (P.L. 101-106), and Executive Order 13007, the BLM must provide affected tribes an opportunity to comment and consult on the Proposed Action. The BLM must attempt to identify locations having traditional, cultural, or spiritual importance and limit, reduce, or possibly eliminate any negative impacts to identified traditional, cultural, spiritual sites, activities, and resources.

Tribes with known interests within the Elko BLM administrative area and project area are: the Te-Moak Tribe of Western Shoshone (Elko, South Fork, Wells, and Battle Mountain bands),

Shoshone-Paiutes Tribe of Duck Valley of Idaho and Nevada, Duckwater Shoshone Tribe, Ely Shoshone Tribe, Yomba Shoshone, Confederated Tribes of the Goshute and various other groups, community members, and individuals. Cultural, traditional, and spiritual sites and activities of importance to tribes include: existing antelope traps; certain mountain tops used for prayer; medicinal and edible plant gathering locations; prehistoric and historic village sites and gravesites; sites associated with creation stories; hot and cold springs; material used for basketry and cradle board making; locations of stone tools such as point and grinding stones; chert and obsidian quarries; hunting sites; sweat lodge locations; locations of pine nut ceremonies, traditional gathering, and camping; rocks used for offerings and medicine gathering; tribally identified Traditional Cultural Properties; rock shelters; "rock art" locations; and water sources in general, which are considered the "life blood of the Earth and all who dwell upon it."

Initial BLM contact with interested Tribes related to this project has occurred and comments were received from the Duckwater Shoshone Tribe regarding proposed project updates and meetings between the BLM and participating tribes.

During meetings and other exchanges with the Western Shoshone, the BLM has been told that while tribal members do not like archaeological excavation (data recovery), they prefer excavation to the loss and damage of the sites due to mining or exploration without the opportunity to learn about the sites. The BLM has stressed to tribal members that archaeological treatment does not preclude other treatments to deal with nonarchaeological aspects or concerns for cultural resources.

3.6.2 Environmental Consequences

3.6.2.1 Proposed Action

Since implementation of the Proposed Action is not expected to adversely affect any identified NRHP-eligible sites within the project area, no Native American traditional values are anticipated. The Memorandum of Agreement (MOA) between Newmont, BLM, and SHPO contained in, provides for a treatment plan, conducted by a cultural resources management firm, to recover archaeological data from any historic property that would be adversely impacted from the previous Newmont projects in the area.

Vehicles, equipment, and personnel used for construction activities associated with the Proposed Action could impact cultural resource sites and/or on cultural or religious activities. Construction personnel working in close proximity to cultural sites could inadvertently destroy artifacts or site features and newly created access routes could be used by members of the public to access formerly inaccessible locations, making the sites susceptible to unauthorized collection, vandalism, and compaction/erosion related to recreational activities. If sites are currently used by

Tribes for cultural or religious activities implementation of the Proposed Action could have a detrimental effect due to noise and visual intrusions.

Although the possibility of disturbing Native American gravesites within the project area is extremely low, inadvertent discovery procedures are noted in Section 2.2.6.7. The Native American Graves Protection and Repatriation Act, section (3)(d)(1), states that the discovering individual must notify the land manager in writing of such a discovery. If the discovery occurs in connection with an authorized use, the activity that caused the discovery must cease and the materials protected until an authorized officer can respond to the situation.

This analysis will be updated if any new information results from continuing communication and coordination with local Native American tribes for the project. With the consultation completed to date, no impacts are expected to Native American traditional values concerns from the implementation of the Proposed Action.

3.6.2.2 Alternative A: Backfill Reclamation of Ventilation Raises

Impacts of Alternative A on Native American traditional values would be the same as those for the Proposed Action as outlined in the previous section.

3.6.2.3 Alternative B: No Action

Because the Proposed Action would not be implemented, there would be no further impacts to Native American traditional values associated with the No Action Alternative other than potential impacts from previously authorized actions in the area.

3.7 Migratory Birds

3.7.1 Affected Environment

Most birds are protected by the Migratory Bird Treaty Act (MBTA) and Executive Order 13186. The habitat within the project area is dominated by sagebrush and montane shrub with intermittent patches of grassland. Migratory bird species occur on the sagebrush habitat type on a seasonal or yearlong basis. Through consultation with the Nevada Department of Wildlife (NDOW), the following species were identified as having habitat or being observed in the project area: Cooper's hawks (*Accipiter cooperii*), American kestrels (*Falco sparverius*), and spotted towhees (*Pipilo maculatus*). The 1999 Nevada Partners in Flight Bird Conservation Plan identifies bird species associated with this habitat type in the project area are outlined in Table 7.

Table 7 Nevada Partners in Flight – Migratory Bird List for Sagebrush Habitat

Scientific Name	Common Name
Obligates[1]	
Centrocercus urophasianus	Sage Grouse
Other[2]	
Leucosticte atrata	Black Rosy Finch
Buteo regalis	Ferruginous Hawk
Empidonax wrightii	Gray Flycatcher
Lanius ludovicianus	Loggerhead Shrike
Pooecetes gramineus	Vesper Sparrow
Falco mexicanus	Prairie Falcon
Amphispiza belli	Sage Sparrow
Oreoscoptes montanus	Sage Thrasher
Buteo swainsoni	Swainson's Hawk
Athene cunicularia	Burrowing Owl
Stellula calliope	Calliope Hummingbird
Other Associated Species	
Spizella breweri	Brewer's Sparrow
Sturnella neglecta	Western Meadowlark
Amphispiza bilineata	Black-throated Sparrow
Pipilo chlorurus	Green-tailed Towhee
Euphagus cyanocephalus	Brewer's Blackbird
Eremophila alpestris	Horned Lark
Chondestes grammacus	Lark Sparrow

[1] Obligates are species that are found only in the habitat type described in the section. [Habitat needed during life cycle even though a significant portion of their life cycle is supported by other habitat types].
[2] Species that can be found in the habitat type described in the Nevada Partners in Flight Bird Conservation Plan.

3.7.2 Environmental Consequences

3.7.2.1 Proposed Action

The Proposed Action would comply with the MBTA, with incidental take of birds or nests avoided by conducting construction outside the period when most migratory birds would be nesting or through conducting nesting surveys prior to construction activity. A qualified biologist would survey the area prior to entry if construction was required at any time during the primary nesting season. The impacts to migratory birds with the implementation of the Proposed Action with the EPMs discussed in Section 2.2.6.8, is expected to be negligible and short-term.

3.7.2.2 Alternative A: Backfill Reclamation of Ventilation Raises

Impacts of Alternative A on migratory birds would be the same as those for the Proposed Action as outlined in the previous section.

3.7.2.3 Alternative B: No Action

Because the Proposed Action would not be implemented, there would be no further impacts to migratory birds associated with the No Action Alternative other than potential impacts from previously authorized actions in the area.

3.8 THREATENED, ENDANGERED, AND SENSITIVE SPECIES

BLM policy (516 DM 6840) defines special status species to include:

- Federally Threatened or Endangered Species: Any species that the United States Fish and Wildlife Service (USFWS) has listed as an endangered or threatened species under the Endangered Species Act of 1973 (ESA) throughout all or a significant portion of its range.

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

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

- BLM Sensitive Species: Species 1) that are currently under status review by the USFWS, 2) whose numbers are declining so rapidly that Federal listing may become necessary; 3) with typically small and widely dispersed populations; or 4) that inhabit ecological refugia or other specialized or unique habitats.

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

Actions that may affect species that are federally listed, or are proposed for listing, as threatened or endangered are subject to consultation or conference under Section 7 of the ESA. Nevada BLM policy is to provide State of Nevada Listed Species and Nevada BLM Sensitive Species with the same level of protection as is provided for candidate species in BLM Manual 6840.06C. Nevada protected animals that meet BLM's 6840 policy definition are those species of animals occurring on BLM-managed lands in Nevada that are:

1) "Protected" under authority of Nevada Administrative Codes 501.100 – 503.104.

2) Have been determined to meet BLM's policy definition of "listing by a State in a category implying potential endangerment or extinction."

3) Are not already included as a federally listed, proposed, or candidate species.

The Nevada Natural Heritage Program (NNHP), NDOW, and the USFWS were consulted regarding the presence of threatened, endangered, and sensitive species (TES) or special status

species and species of concern within the project area. The following TES species are discussed because they have been observed in the project area or habitat characteristics indicate they may be present in the project area.

3.8.1 Affected Environment

3.8.1.1 Plant Species

A baseline survey for TES plant species was conducted within the project area on June 14 and 17, 2011 and covered approximately 2,600 acres (four square miles). No TES plant species were identified as occurring within the project area during consultation with the agencies. TES plant species identified in literature searches with the potential to occur or potential habitat within or near the project area include windloving buckwheat (*Eriogonum anemophilum*) and Osgood Mountain milkvetch (*Astragalus yoder-williamsii*).

These species are listed on the NNHP Elko county rare species list and could have potential habitat in the project area (NNHP, 2011), but are not currently listed as threatened or endangered by USFWS.

Federal land management agencies have management policies to assure that rare plant and animal Species of Concern do not become listed as threatened or endangered. The United States Forest Service (USFS) and the BLM have a sensitive species listing program that includes rare species identified by the USFWS and the NNHP.

Descriptions of TES plant species identified as having potential habitat within the project area and that were surveyed for are described below.

<u>Osgood Mountain milkvetch</u>

Status: USFS Humboldt-Toiyabe National Forest Sensitive Species
BLM Special Status Species
NNHP Sensitive

Osgood Mountain milkvetch can be found in dry, open areas with gentle slopes between 5,660 feet AMSL and 7,300 feet AMSL. When Osgood Mountain milkvetch occurs in sagebrush steppe communities, it occurs with rubber rabbitbrush (*Ericameria nauseosus*), Sandberg bluegrass (*Poa secunda*), bluebunch wheatgrass (*Agropyron spicatum*), needlegrass (*Stipa* sp.), and sagebrush (*Artemisia* sp). Osgood Mountain milkvetch is a small, long-lived perennial herb that blooms in dense clusters of small white flowers in spring and summer. The leafless flower stalks raise 7 centimeters high (NNHP, 2011).

Windloving buckwheat

Status: USFS none
BLM Special Status Species
NNHP Sensitive

Windloving buckwheat is known to occur in Churchill, Humboldt, Lander, Pershing, and Washoe counties. This species occurs at elevations up to approximately 9,840 feet AMSL on dry exposed, barren slopes, undisturbed gravelly, limestone or volcanic ridges and knolls, and on outcrops of shallow rocky soils over bedrock. This species typically occurs with low sagebrush (*Artemisia arbuscula*), green rabbitbrush (*Ericameria teretifolia*), Sandberg's bluegrass, bottlebrush squirreltail, and other species. This species also occurs at elevations as low as 4,750 feet AMSL on dry undisturbed knolls and slopes of light colored volcanic tuff weathered to form stiff clay soils on all aspects. At these lower elevations, it occurs with gray horsebrush (*Tetradymia canescens*), rubber rabbitbrush (*Ericameria nauseosus*), green rabbitbrush, shadscale (*Atriplex confertifolia*), Great Basin wildrye, and Calycose milkvetch (*Astragalus calycosus*). It flowers from late spring to summer and is normally surveyed for from June through July (NNHP, 2011). It is a low perennial herb with leafless flowering stalks rising 6.5 centimeters above clumps of white-hairy leaves. Stalks bear a terminal, globular cluster of white flowers.

3.8.1.2 Wildlife Species

Bat Species

A number of BLM sensitive wildlife species occur or may occur in the project area including several bat species. Consultation received from NDOW indicates the varied and rocky terrain in the project area may provide habitat for several bat species, including Townsend's big-eared bat (*Corynorhinus townsendii*), pallid bat (*Antrozous pallidus*), western small-footed myotis (*Myotis ciliolabrum*), little brown myotis (*Myotis lucifugus*), and Yuma myotis (*Myotis yumanensis*). All bat species occurring in the state of Nevada are considered BLM sensitive species. The sensitive species designation is normally used for species that occur on lands administered by the BLM, giving the BLM capability to significantly affect the conservation status of the species through management. Bats in Nevada are known to inhabit or occupy abandoned mines, structures, caves, cliffs, springs, riparian, aspen, pinyon-juniper, and desert shrub habitats (NDOW, 2011). Bat species identified through agency consultation are listed and described below.

Townsend's big-eared bat

Status: USFS Sensitive
BLM Sensitive
NNHP Sensitive

The Townsend's big-eared bat is generally a cave dweller. This species often roosts in abandoned mine shafts and adits. This species is generally found in desert scrub and pinyon-

juniper habitats (Jameson and Peeters, 1988). The species hibernates in cold (but above freezing), well ventilated places in caves, mine adits, and similar locations (Pierson et al., 1991; Kunz and Martin, 1982). The Revised Nevada Bat Conservation Plan indicates that Townsend's big-eared bat occurrence in Nevada is highly correlated with available cave and abandoned underground mine sites, and that the species is at high risk in Nevada (Bradley et al., 2006).

NNHP and NDOW identified the Townsend's big-eared bat as At Risk taxa near and within the project area. Primary threats consist of disturbance and destruction of roost sites. Its habit of roosting on open surfaces makes it readily detectable and therefore highly susceptible to disturbance at roost sites. Roost disturbances include recreational caving, closure of mines for reclamation, renewed mining, surveys during hibernation and maternity seasons, water impoundments, loss of building roosts, and bridge replacement (NDOW, 2010c).

Pallid bat

Status: USFS Sensitive
BLM Sensitive
NNHP Watch list

The pallid bat inhabits low desert shrubland, juniper woodlands, and grasslands. It most commonly occurs in low, dry regions with rock outcrops, usually near water, and roosts in rock crevices, buildings, rock piles, tree cavities, shallow caves, and abandoned mines (NatureServe, 2011). Their primary food sources are arthropods such as crickets, grasshoppers, beetles, scorpions, and spiders.

Western small-footed myotis

Status: USFS none
BLM Sensitive
NNHP Sensitive

The western small-footed myotis inhabits desert habitats and utilizes rock crevices, caves, buildings, and abandoned mine workings for roosting, maternity and hibernation. Its primary food source is small insects found along cliffs and rocky slopes (NatureServe, 2011).

Little brown myotis

Status: USFS none
BLM Sensitive
NNHP Sensitive

The little brown myotis is also commonly called the little brown bat and is among the most widespread and common bats of temperate North America. Common roosting sites for this bat include tree cavities, caves, mines, and buildings. They are also known to utilize caves and abandoned mines for hibernation (WBWG, 2005).

Yuma myotis

Status: USFS None
BLM Sensitive
NNHP Watch List

The Yuma myotis inhabits riparian areas, scrublands, deserts, and forests and is commonly found roosting in bridges, buildings, cliff crevices, saves, mines, and trees. Their primary diet is emergent aquatic insects such as caddis flies, midges, and small moths and beetles (WBWG, 2005).

Other Mammal Species

Pygmy rabbits (*Brachylagus idahoensis*) were identified as potentially occurring in the project area. The nearest documented occurrence is approximately eight miles east of the project area in Willow Creek.

Pygmy rabbit

Status: USFS none
BLM Sensitive
NNHP Sensitive

The pygmy rabbit occurs throughout much of the Great Basin, and has a potential to occur within the project area. The pygmy rabbit is found in dense sagebrush or mixed sagebrush habitats in areas with deep soils suitable for burrowing. In addition to direct sighting, indirect evidence of pygmy rabbits includes the presence of trail systems established in understory vegetation, often leading to burrows under sagebrush or rabbitbrush, and groups of small, dark pellets (UDWR, 2003). Unburned areas containing sagebrush habitat were surveyed for evidence of pygmy rabbits, but no pygmy rabbits or sign of pygmy rabbits were observed during the surveys. Because pygmy rabbits were not observed during baseline surveys does not necessarily mean they are not present within the project area.

Bird Species

Sensitive bird species identified through agency consultation that may occur in the area include the greater sage grouse, golden eagle, northern goshawk, ferruginous hawk, burrowing owls, Cooper's hawks, American kestrels, and spotted towhees.

Greater sage grouse

Status: USFWS Candidate
USFS Sensitive
BLM Sensitive/Candidate
NNHP Sensitive

The greater sage grouse was designated a candidate species by the USFWS as of March 5, 2010. Candidate species are those species, which are determined to be eligible for listing as a threatened or endangered species, but due to other species having a higher priority for listing, the species is listed as a candidate species.

On March 5, 2010, the USFWS announced Proposed Rules in the Federal Register (2010 Federal Register) for the notice of 12-month findings for petitions to list the greater sage grouse as a threatened or endangered species. The Fact Sheet for this finding iterated the following, *"After thoroughly analyzing the best scientific and commercial information available, the Fish and Wildlife Service has concluded that the greater sage grouse warrants protection under the Endangered Species Act. However, the Service has determined that proposing the species for protection is precluded by the need to take action on other species facing more immediate and severe extinction threats. As a result, the greater sage grouse will be added to the list of species that are candidates for Endangered Species Act protection. The Service will review the status of the greater sage grouse annually, as we do all candidate species, to determine whether it warrants more immediate attention."* The Proposed Rules were formally announced in the Federal Register on March 23, 2010 under the following reference: 13910 Federal Register / Vol. 75, No. 55 / Tuesday, March 23, 2010 / Proposed Rules.

The project area is within the Tuscarora Sage Grouse Population Management Unit (PMU). The Tuscarora PMU is being considered under the Governor's Nevada Sage Grouse Conservation Strategy by the Northeastern Nevada Stewardship Group as part of greater sage grouse conservation planning efforts underway for the Elko District. The Tuscarora PMU was designated as the PMU under the Elko Strategy with the "highest risk". This can be interpreted, in effect, that risks to populations and habitat warranted the top priority for conservation measures to improve population levels and habitat conditions. Greater sage grouse have been observed by State and BLM biologists in the area during the summer, spring, fall and winter. Relative to the Proposed Action, the Risk Factor Assessment for this PMU indicates the following:

- Habitat Quantity: Loss of large tracts of habitat to mining – mitigate, rehabilitate disturbance;
- Changing Land Uses: Mining – Mitigate losses of public land lost;
- Disturbance: Vehicular access overabundant throughout all seasonal use areas;
- Mining and Exploration Activity – Restrict season of use in critical habitat; and
- Rehabilitate abandoned roadways – render unusable.

NDOW and USFWS have determined that greater sage grouse are present in the project area (NDOW, 2010b). Based upon the 2011 surveys, two active sage grouse leks (breeding display sites) are known to occur within 2.5 to 3.0 miles of planned disturbance areas of the Proposed Action on intact low sagebrush areas. An additional two leks of unknown status are present within the same range of the project area (NDOW, 2010). The lek areas form core areas for associated nesting, brood-rearing and fall-winter habitat areas (Figure 5). Otherwise, there could be sage grouse movements into the area from other areas relatively far away as individual or groups of grouse seek seasonal use areas. The project area was searched for birds, pellet groups, and bird tracks. Approximately 13 greater sage grouse were observed on a lek near the town of Midas during an aerial survey on May 5, 2011.

Seasonal use could occur, and increase, as nesting, early brood-rearing, summer, and fall/winter habitat are available throughout the area. Greater sage grouse can also be expected to occur within the project area year round. Wildfires occurring from 1984 to 2011 that have negatively impacted tens of thousands of acres of sage grouse habitat on the Snowstorm and Tuscarora ranges and adjoining areas and may cause sage grouse to seek areas with intact sagebrush. A high percentage of these same burn areas have been seeded with native shrub, grass and forb species as part of wildlife habitat rehabilitation efforts with additional efforts actively ongoing. Preliminary priority habitat (PPH) and preliminary general habitat (PGH) data and maps have been developed through collaborative effort between the BLM and the NDOW. The map uses the best available data to create a statewide prioritization of greater sage-grouse habitat.

The habitat determination of PPH is defined as having the highest conservation value to maintaining sustainable greater sage-grouse populations. These areas include breeding, brood rearing, and winter concentration areas. The habitat determination of PGH is defined as occupied seasonal or year-round habitat that includes areas of higher quality habitat that may lack a key component such as vegetative structure or herbaceous understory, which prevent it from meeting PPH. Approximately 82 percent of the proposed project area is designated as PPH and approximately two percent of the project area is designated at PGH (Figure 6).

In response to concerns by resource agencies, Newmont funded noise studies to assess potential noise impacts to greater sage grouse leks and habitat located in proximity to the Proposed Action. Results of these studies are presented in Section 3.15.2.

Golden eagle

Status: USFS None
BLM Sensitive
NNHP Watch list

The golden eagle nests on cliffs and in large trees (occasionally on power poles). They typically hunt over prairie and open woodlands. Nest locations are selected for their south or east aspect and proximity to sagebrush/grassland hunting areas (Montana, 2011). Common in much of the West, the golden eagle preys mainly on jackrabbits and large rodents, but will also feed on carrion. While golden eagles are partially migratory, they remain resident to much of their southern range (Udvardy, 1994).

NDOW has documented this species within the same area (Section 22) as the Proposed Action as well as approximately two miles to the south. One active golden eagle nest was found during the aerial survey and its activity was verified during the ground visit. In addition, the three inactive golden eagle nests were visited to verify their status. The cliff areas on the Snowstorm Range to the north and the "Dinosaur Hills" rock escarpment to the south provide nesting habitat where foraging for primarily small mammals could occur within the project area. Black-tailed jackrabbits provide the primary forage base. Golden eagles are protected under the Bald and Golden Eagle Protection Act and the MBTA.

Prairie falcon

NDOW has reported this species in the Midas area and four active nests were discovered during the aerial survey conducted by JBR Environmental Consultants, Inc. (JBR) described in Section 3.20.1. An active nest was also reported by a consultant within the Dinosaur Hills to the south as part of the Ruby Pipeline Project wildlife survey in 2009. The Snowstorm Range also provides potential nesting areas (primarily cliff areas) where foraging for primarily small mammals could occur within the project area. Black-tailed jackrabbits provide a forage base.

Northern goshawk

Status: USFS Sensitive
BLM Sensitive
NNHP Sensitive

The northern goshawks nest in mature, old growth forests. They hunt in open areas and under tree canopy. Major prey items include hares and other avian species. The species is thought to migrate over a broad area, and will typically follow prey availability throughout the year (Montana, 2011).

Ferruginous hawk

Status: USFS None
BLM Sensitive
NNHP Sensitive

Ferruginous hawks typically nest on cliffs, power poles, and in solitary trees. Ferruginous hawks prey heavily on ground squirrels. Because their principal prey (ground squirrels) enters

aestivation by late July or early August, ferruginous hawks typically fledge young and leave the area by early August (Montana, 2011).

Burrowing owl

Status: USFS None
BLM Sensitive
NNHP Watch-list

The burrowing owl is a small (9 to 10 inches) ground-dwelling owl with long legs, white chin stripe, round head, and stubby tail (NatureServe, 2011). It nests in burrows often that have been abandoned by other burrowing mammals, and usually in open areas with good surrounding visibility. It occupies northern Nevada in the spring and summer months and winters in the southwestern states (Udvardy, 1994).

Short-Eared Owl

Status: Nevada Sensitive

The project area provides potential nesting and foraging habitat for this ground-nesting species. During baseline surveys conducted by JBR, a short-eared owl flushed from a rock near a mineshaft during the aerial survey.

Long-eared owl

Status: Nevada Sensitive

The project area provides potential foraging areas for this species that has been observed to nest in willow stands. An active nest was reported by a consultant within the Dinosaur Hills about 2.5 miles south as part of the Ruby Pipeline Project wildlife survey in 2009.

Cooper's hawk

Status: USFS None
BLM None
NNHP None

Habitat for Cooper's hawk includes dense deciduous and conifer forests, often in draws or riparian areas. Cooper's hawk most frequently hunt small to medium-sized birds in these areas or in adjacent open areas (Montana, 2011). Historically a very common raptor; this crow-sized hawk is decreasing in numbers despite their rapid maturing and breeding capabilities.

American kestrel

Status: USFS None
BLM None
NNHP None

The American kestrel is the most abundant falcon in North America. It can be found nesting in trees, banks, cliffs, and buildings. American kestrels are often observed on power lines and fence posts looking for prey. The American kestrel's primary found source is large insects, but they are occasionally observed feeding on birds, rodents, and snakes (Montana, 2011).

Spotted towhee

Status: USFS none
BLM none
NNHP none

The spotted towhee is found in open shrubland with thick understory. They feed primarily on insects such as beetles, ladybugs, crickets and grasshoppers. They also feed on berries, thistle, and wheat. Females build their nests on the ground or low in shrubs.

Fish Species

Sensitive fish species identified through agency consultation that may occur in the general project area include the Lahontan cutthroat trout (*Oncorhynchus clarki henshawi*).

Lahontan cutthroat trout

Status: USFWS Listed Threatened
USFS Threatened Species
BLM Special Status Species
NNHP At-Risk

Lahontan cutthroat trout are found in clear cold-water lakes and rivers. This trout species requires cool flowing water with plenty of vegetation cover and stable stream banks. The Lahontan cutthroat trout is native to Nevada, eastern California, and southern Oregon. Populations of Lahontan cutthroat trout have become isolated due to habitat fragmentation throughout the fish's native range and, as a result, metapopulations have formed and the species to decline (USFWS, 2011a). A metapopulations consists of spatially separated populations of the same species. The project area is located within a potential metapopulation for Lahontan cutthroat trout, and the area may be necessary for the species' recovery (USFWS Consultation Letter) (USFWS, 2010). The USFWS, NDOW, and NNHP identified Lahontan cutthroat trout as potentially having habitat within or near the project area. Potential habitat within the project area is limited to Midas and Squaw Creek; however, the NDOW Lahontan Cutthroat Trout Species Management Plan (NDOW, 2004) for the Upper Humboldt River Drainage Basin does not identify either of these drainages as having Lahontan cutthroat trout. The Humboldt Geographic Management Unit (GMU) Team has been formed to facilitate the restoration and recovery of Lahontan cutthroat trout populations in and around the project area. Currently, the Humboldt GMU Team is evaluating areas that could support Lahontan cutthroat trout.

Amphibian Species

The only sensitive amphibian species identified as having potential to occur within or near the project area is the Columbia spotted frog (*Rana luteiventris*).

Columbia spotted frog (Great Basin population)

Status: USFS Candidate
BLM Species of Concern
NNHP At-Risk

The Columbia spotted frog is most commonly found near permanent water along marshy edges of ponds or lakes, in algae-grown overflow pools of streams, and near springs with emergent vegetation. The spotted frog may move considerable distances from water after breeding, often frequenting mixed conifer and subalpine forests, grasslands, and shrublands of sagebrush and rabbitbrush. It is thought that spotted frogs hibernate in holes near springs or other areas where water is unfrozen and constantly renewed (USFWS, 2011b). The USFWS identified the Columbia spotted frog as having potential to occur within the project area. The Columbia spotted frog is a protected species under the Nevada State law, and occurs in three locations in Nevada, one of them being Elko County in the Jarbidge-Independence Ranges. Columbia spotted frogs are found in ephemeral or permanent systems, and prefer shallow, lentic water (USFWS, 2011). Potential habitat within the project area is limited to riparian areas. The only riparian area potentially affected within the project area is Midas Creek.

3.8.2 Environmental Consequences

3.8.2.1 Proposed Action

Implementation of the Proposed Action would result in the disturbance of approximately 54 acres of undisturbed vegetative cover. Based upon specific species surveys, it is not anticipated that TES plant species or habitat for these species would be disturbed or impacted by implementing the Proposed Action. The successful initial post-construction reclamation and final reclamation including seeding of perennial native vegetative species would offset long-term habitat loss associated with the Proposed Action.

In addition, the approximately 1.5 miles of aboveground transmission lines and poles may pose a flight collision hazard for TES bird species as they fly through suitable habitat or if they are attracted to the site for perching. The wires pose as a low-risk flight collision hazard for birds that fly relatively slow and indirect, particularly, during periods of low light/no light, inclement weather, or periods of reduced visibility including fog, or a combination, thereof. It poses as a moderate-risk flight collision hazard for birds that fly relatively fast and direct, particularly, under the same conditions or as they pursue prey species.

The noise that is produced by each new ventilation raise may have negative impacts on the greater sage grouse, as this TES species is particularly susceptible to noise impacts. The negative impacts of noise on sage grouse populations and sage grouse habitat have been well-documented with research on these impacts and methods to mitigate the ongoing effects. Vocalization is critical for communication on the lek sites to attract female grouse (this vocalization could be heard by, at least, humans for over a mile away). Vocal communication is also critical between hens and chicks and between flock-mates, and when sound is most effective in predator detection. Noise from the ventilation raise fans has the potential to disrupt lek activity by making it difficult for female birds to hear the males. This information is discussed further in Section 3.15.

Implementation of the Proposed Action would have minor impacts to greater sage grouse seasonal use areas by disturbing approximately 54 acres of lekking, nesting/early-brood-rearing (upland areas), late-brood-rearing, and fall/winter habitat. Approximately 54 acres of existing PPH sage grouse habitat will be disturbed for the duration of the Proposed Action. Abundant and undisturbed habitat occurs adjacent to the project area. The areas west (Midas Creek) and east of the project area (Frasier Creek) provide adequate nesting habitat for the greater sage grouse. Potentially suitable habitat for a variety of TES wildlife species is found within the project area, this includes mainly foraging habitat. During construction activities, TES species using the project area would tend to displace and avoid the project area due to noise and human activities. Based upon the relatively small proposed disturbance and the amount of adjacent, undisturbed suitable habitat, the implementation of the Proposed Action, including the EPMs discussed in Section 2.2.6.4, is expected to be minor and short-term.

3.8.2.2 Alternative A: Backfill Reclamation of Ventilation Raises

Impacts of Alternative A on TES species would be the same as those for the Proposed Action as outlined in the previous section.

3.8.2.3 Alternative B: No Action

Because the Proposed Action would not be implemented, there would be no further impacts to TES species associated with the No Action Alternative other than potential impacts from previously authorized actions in the area.

3.9 NON-NATIVE INVASIVE AND NOXIOUS SPECIES

3.9.1 Affected Environment

The BLM defines an invasive weed as, "a non-native plant that disrupts or has the potential to disrupt or alter the natural ecosystem function, composition and diversity of the site it occupies. Its presence deteriorates the ecological health of the site, replaces desirable vegetation, and it may interfere with management objectives for that site. It is an invasive species that requires a

concerted effort (manpower and resources) to eradicate from its current location, if it can be removed at all" (BLM National List of Invasive Weed Species of Concern).

Non-native invasive and noxious plant species may spread from infested areas by people, equipment, livestock, wildlife, and winds. They often exhibit aggressive growth and have the potential to seriously degrade the economic and ecological values of natural resources. Under Executive Order 13112, it is the policy of the land management agencies to prevent introduction of non-native invasive and noxious species and to control their spread (NISC, 2010). Nevada Revised Statute 555.005 defines noxious weeds as plants which are likely to be "detrimental or destructive and difficult to control or eradicate." The state of Nevada classifies noxious weeds into three categories as defined below.

Category A: weeds not found or are limited in distribution throughout the state; actively excluded from the state and actively eradicated wherever found; actively eradicated from nursery stock dealer premises; and control is required by the state in all infestations (NDOA, 2011).

Category B: weeds established in scattered populations in some counties of the state; actively excluded where possible; actively eradicated from nursery stock dealer premises; and control is required by the state in areas where populations are not well established or previously unknown to occur (NDOA, 2011).

Category C: weeds currently established and widespread in many counties of the state with abatement at the discretion of the state quarantine officer (NDOA, 2011).

Noxious weed species observed within the project area include hoary cress, musk thistle, Scotch thistle, and black henbane and locations are shown on Figure 7. Occurrences less than one-quarter acre in size are shown as point locations, and infestations of more than one-quarter acre in size are shown to their delineated extent.

Noxious weed species in the state of Nevada that are considered detrimental to the environment have been placed on a special list in the Nevada Administrative Code and have been divided into three categories dependant on their ability to spread and identify state control requirements. Black henbane is classified by the State of Nevada as a Category A noxious weed, or a weed that is found on a limited basis throughout the state and actively eradicated. Musk thistle and Scotch thistle are classified as Category B noxious weeds, or weeds that have established themselves in scattered populations and require control. Hoary cress is classified as a Category C noxious weed, or weeds that are currently established and widespread in many counties of the state and require management.

Cheatgrass, a non-native invasive, was common throughout the project area. Cheatgrass dominates the understory of drier hillsides, but is found throughout all vegetation communities. Past and present disturbance in the study area, such as wildland fire, fire suppression, domestic cattle grazing, historic mining, and mineral exploration have likely led to non-native invasive and noxious species introduction, spreading, and establishment.

3.9.2 Environmental Consequences

3.9.2.1 Proposed Action

The Proposed Action has the potential to create conditions favorable for the establishment of non-native invasive and noxious species through soil disturbance and vehicular traffic associated with implementing the Proposed Action. With the implementation of the EPMs discussed in Section 2.2.6.5, the potential for non-native invasive and noxious species establishment would be negligible. The use of approved seed mixes with only certified weed-free seed, combined with the implementation of prompt and appropriate revegetation techniques would reduce the potential for non-native invasive and noxious species establishment. After construction of the intake raises and support facilities, the disturbed areas would be revegetated with the reclamation seed mix in Table 3.

Cheatgrass that is present throughout the project area may spread further under the Proposed Action. With proper reclamation and implementation of BMPs, the establishment and spread of non-native invasive and noxious species would be minimized. Adverse impacts to vegetation resources from the further spread of cheatgrass in the project area, if it occurred, would be moderate and long-term.

3.9.2.2 Alternative A: Backfill Reclamation of Ventilation Raises

Impacts of Alternative A related to non-native invasive and noxious species would be the same as those for the Proposed Action as outlined in the previous section.

3.9.2.3 Alternative B: No Action

Because the Proposed Action would not be implemented, there would be no additional impacts related to non-native invasive and noxious species associated with the No Action Alternative other than potential impacts from previously authorized actions in the area.

3.10 WATER RESOURCES

3.10.1 Affected Environment

The project area is located within the Willow Creek Valley sub-basin of the Humboldt River Basin. The Willow Creek Valley sub-basin includes the South Fork of the Little Humboldt River, Midas Creek (southwest of the project area), and Squaw Creek (east of the project area). Midas Creek and Squaw Creek have been identified as perennial streams in the project area. Several

ephemeral channels have been identified, and may be active depending on the level of spring system recharge. In addition, a number of springs have been identified in the area. The most recent survey of jurisdictional wetlands and WOUS in the project area was conducted in 1997 (BLM, 1998). Wetlands were observed in the project area, and are discussed in more detail in Section 3.11. During a baseline survey conducted by JBR on November 2, 2010, flowing water was observed in perennial drainages Midas Creek and Squaw Creek. There was no water flowing in the other ephemeral streams (JBR, 2011b).

Based on measurements of static water level elevations in monitoring wells, the direction of groundwater flow in the project area is generally south/southeast. The depth to groundwater varies from 6 feet to 149 feet. The municipal drinking water supply for the town of Midas is a groundwater well located in STR 17-39-46. The elevation of the wellhead is 5,860 feet and the depth to water is approximately 120 feet. Production of the well has been erratic, with production capability decreasing during the dry season. The municipal water supply system consists of a storage tank at the wellhead and pipeline extending south through Midas Canyon from the tank to the town (BLM, 1998).

3.10.2 Environmental Consequences

3.10.2.1 Proposed Action

Surface disturbance activities associated with the implementation of the Proposed Action would result in a short-term potential for an increase in stormwater runoff and sediments. New roads may alter the pattern of historical surface water flows in some areas. If culverts are installed, they could potentially restrict flow and result in localized flooding, especially during high runoff events. The increase in velocities through culverts could cause erosion and channeling on the downstream side of the culverts. With implementation of BMPs and other EPMs recommended in Section 2.2.6.6, impacts to surface water would be minimized. Impacts to surface water are expected to be minor and short-term, and no impacts to groundwater are expected.

3.10.2.2 Alternative A: Backfill Reclamation of Ventilation Raises

Under Alternative A, approximately 35,000 tons of waste rock and soil would be used to fill the seven ventilation raises as part of project reclamation. The process would include loading of dump trucks at the existing waste rock storage area, transport of waste rock and soil to each ventilation raise, and dumping of the material into the vent raise shaft. The increased movement of dump trucks from the waste rock storage area to the seven sites would result in a temporary increase in the wear and tear to access roads from these heavily-loaded trucks, and the resulting increase in the potential for erosion and sedimentation associated with periodic stormwater runoff. However, with successful reclamation and implementation measures required under Newmont's existing Stormwater General Permit, impacts to surface water under this alternative

are expected to be minimal. Potential impacts to groundwater would be the same as described under the Proposed Action.

3.10.2.3 Alternative B: No Action

Because the Proposed Action would not be implemented, there would be no further impacts to water resources under the No Action Alternative other than potential impacts from previously authorized actions in the area.

3.11 WETLANDS AND RIPARIAN ZONES

3.11.1 Affected Environment

Jurisdictional wetlands and WOUS surveys in the project area were conducted in 1997 for the Midas Joint Venture Project's proposed expansion of surface mineral exploration in an area that includes the current Midas/Newmont mining operations. Additional WOUS surveys were completed during the summer of 2011. Figure 7 shows riparian areas identified by JBR in its 2011 baseline survey of vegetation and wildlife in the project area (JBR, 2011b). Those areas include a portion of the mainstream of Midas Creek. Midas Creek and Squaw Creek are likely WOUS; although concurrence from the United States Army Corps of Engineers (ACOE) has not been received.

3.11.2 Environmental Consequences

3.11.2.1 Proposed Action

The implementation of the Proposed Action could potentially impact WOUS when drainages are crossed, but wetlands would be avoided in order to avoid impacts. Any roads crossing WOUS would be required to obtain appropriate ACOE permits. Construction of pads for the ventilation raises and exploration, as well as new and improved roads in upland areas could affect riparian and wetland areas through erosion and sedimentation. With implementation of the EPMs discussed in Section 2.2.6.6, impacts to wetlands and other riparian areas are expected to be negligible and short-term.

3.11.2.2 Alternative A: Backfill Reclamation of Ventilation Raises

Impacts of Alternative A to wetlands and WOUS would be the same as those for the Proposed Action as outlined in the previous section.

3.11.2.3 Alternative B: No Action

Because the Proposed Action would not be implemented, there would be no further impacts to wetlands and WOUS associated with the No Action Alternative other than potential impacts from previously authorized actions in the area.

3.12 RANGELANDS AND GRAZING

3.12.1 Affected Environment

The Proposed Action lies entirely within the Midas Allotment. This allotment is 4,417 inventoried public acres and currently 711 active animal unit months (AUMs) are permitted for the allotment (BLM, 1985). The season of use of the Midas Allotment is 130 cattle from May 10 to October 9, and four cattle from March 1 to February 28 (BLM, 2010b). The Midas Allotment is managed by the BLM Tuscarora Field Office. The BLM has determined the management of this grazing allotment through a planning process referred to as Selective Management Categorization. The process assigns extent and priorities for activity planning within an allotment including range improvement facilities, which would be required to accomplish management objectives. The Midas Allotment has been classified by the BLM as a "Maintain" (M) allotment where the objective is to maintain the current satisfactory condition (BLM, 1987).

3.12.2 Environmental Consequences

3.12.2.1 Proposed Action

The Proposed Action would involve surface disturbance of up to 54 acres. The primary impact to range resources would be the removal of vegetation available as forage in this area. There would be a loss of approximately 4 AUMs. Range improvements would not be affected. The loss of these AUMs would be temporary until the reclamation has been completed. Impacts to rangeland and grazing are expected to be minor and short-term.

3.12.2.2 Alternative A: Backfill Reclamation of Ventilation Raises

Impacts of Alternative A to rangelands and grazing would be the same as those for the Proposed Action as outlined in the previous section.

3.12.2.3 Alternative B: No Action

Because the Proposed Action would not be implemented, there would be no further impacts to rangelands and grazing associated with the No Action Alternative other than potential impacts from previously authorized actions in the area.

3.13 LAND USE AUTHORIZATIONS

3.13.1 Affected Environment

Primary access to the project area from Golconda, Nevada is gained by traveling northeast on State Route 789 approximately 16 miles, turning right onto the Midas Road (State Route 18A), traveling approximately 31 miles and turning left onto the mine access road. The mine is approximately three miles from the intersection of the Midas Road (Figure 1) and the mine access road. The major land uses in the area include livestock grazing, wildlife habitat, mining, and dispersed recreation such as off-highway vehicle use.

The project area is located in Elko County and consists of 47 acres of public lands administered by the BLM and 7 acres of private land. Newmont holds two permitted and two pending rights-of-way (ROWs) within the project area. Case ID Number NVN 083284 is a permitted overhead transmission line and poles on 1.51 acres in the center of the project area, and is scheduled to expire on August 28, 2027. Case ID Number NVN 06110 is a permitted ROW and allows for roads on 19.051 acres on and around the proposed Queen Raise, and is scheduled to expire on April 23, 2027. Case ID Number NVN 088898 is a pending ROW for roads on 0.332 acres, and Case ID Number NVN 087953 is a pending ROW, which would allow for transmission lines on 0.23 acres. Both pending ROWs are near the proposed Queen Raise (BLM, 2010b).

There are no utility corridors within the project area. There are no BLM Wilderness Study Areas within the project area (BLM, 2010b). The project area is not within a designated Christmas Tree Harvest Area or Fuel & Posts Harvest Area. There are also no designated pine nut harvest areas within the project area (BLM, 1987).

3.13.2 Environmental Consequences

3.13.2.1 Proposed Action

After successful reclamation of the 54 acres of disturbance, the area would remain available for other uses; therefore, impacts from the implementation of the Proposed Action would be negligible and short-term.

3.13.2.2 Alternative A: Backfill Reclamation of Ventilation Raises

Impacts of Alternative A to land use would be the same as those for the Proposed Action as outlined in the previous section.

3.13.2.3 Alternative B: No Action

Because the Proposed Action would not be implemented, there would be no further impacts to land use associated with the No Action Alternative other than potential impacts from previously authorized actions in the area.

3.14 GEOLOGY AND MINERALS

3.14.1 Affected Environment

The Midas Mining District, formerly known as the Gold Circle Mining District, lies in the hilly country along the southeast slope of the Owyhee Bluffs, between the bluffs and Squaw Valley. The area gradually increases in elevation from south to north, merging with the bluffs to the north and northeast. In the immediate vicinity of Midas, the bluffs are sharply separated from the hilly country, and swing to the west, south of the town, away from the hill (Rott, 1931).

The Midas Mine Operations exploits the largest known gold deposit along the middle Miocene northern Nevada rift. Known worldwide, the Midas Mine contains ore grades greater than 100 ounces per ton. The principal veins of gold lie in a zone from one to one and one-half miles wide and approximately three miles long, extending in a general northwest-southeast direction.

The Midas deposit is characterized by a deeply eroded section of Miocene volcanic rocks along the eastern margin of the northern Nevada rift, a lineament that extends from east-central Nevada to southern Oregon that formed during Basin and Range extension. Formation of the deposit and other low-sulfidation epithermal systems is associated with bimodal, basalt-rhyolite activity along rift. The deposit formed during a middle Miocene pulse of bimodal basalt-rhyolite magmatism that was widespread throughout the northern Great Basin (Leavitt, 2004).

The deposit consists of a complex of steeply dipping, quartz-adularia-calcite-precious metals veins hosted by volcanic rocks. Exploration in the Midas area has shown that Miocene tuffs, flows, and volcaniclastic rocks extend to a depth of at least 1.5 kilometers beneath the present surface. Ore is confined to steeply dipping, banded quartz veins filling north-northwest-striking faults in felsic units (Leavitt, 2004).

The project area is located in a region characterized by active and potentially active faults and a relatively high level of historic seismicity. For the purposes of this evaluation, an active fault is one that shows evidence of displacement in the last 10,000 years, and a potentially active fault is one that shows evidence of surface displacement during the last 1.6 million years. Historically, surface displacement along faults occurred in Nevada during major earthquakes in 1869, 1903, 1915, 1932, and three events in 1954. All of these events occurred along a north-trending zone called the Nevada Seismic Belt, located over 40 miles southwest of the project area. United States Geological Survey (USGS) data indicate that potentially active faults are present in the project area, and active faults or historic faulting has occurred (BLM, 2008b).

The project area is located in a region that has experienced moderate seismic activity in historic time. The closest known historic surface fault displacement to the project area was in 1915, approximately 60 miles to the southwest. Earthquake records from 1977 to present indicate that 15 earthquakes have been recorded within an approximate 60-mile radius of the project area. These earthquakes registered magnitudes of 3.0 to 4.6. The project area occurs in an area that is not likely to experience strong ground motions in the event of a large magnitude earthquake (BLM, 2008b).

3.14.2 Environmental Consequences

3.14.2.1 Proposed Action

Impacts to the geology and minerals in the project area would result from the removal of rock after drilling to install the ventilation raises. This material would be placed underground with waste rock generated from the existing mining operation. The removal and relocation of this material would be permanent. The area surrounding the project area would remain open and available for continued mineral exploration and development.

There are several potentially active faults in the general project area that could cause ground motion in the event of an earthquake. USGS ground motion hazard maps indicate that there is a low probability that ground motion presents a hazard in this area. There are no identified geologic conditions or hazards that would be exacerbated by project activities under the Proposed Action (BLM, 2008b). The underground support facilities would be constructed to conform to regulatory standards to minimize instability. Impacts to geology and minerals from the implementation of the Proposed Action are not expected.

3.14.2.2 Alternative A: Backfill Reclamation of Ventilation Raises

As with the Proposed Action, there are no identified geologic conditions or hazards that would be exacerbated by project activities under this alternative.

3.14.2.3 Alternative B: No Action

Because the Proposed Action would not be implemented, there would be no further impacts to geologic conditions under the No Action Alternative other than potential impacts from previously authorized actions in the area.

3.15 NOISE

3.15.1 Affected Environment

Noise is measured in decibels (dB), which are units that measure the apparent loudness of sound. Because the human ear is more sensitive to some sound frequencies than others, sound measured by a noise meter is typically adjusted so that it approximates sounds heard by the human ear. These adjusted units of noise measurement are called “A-weighted decibels” (dBA). Because noise levels in the environment fluctuate with time, a time-averaged noise level in dBA is often used to characterize the noise environment at a given location, referred to as Leq - equivalent continuous noise level. Examples of common noise levels include 30 to 35 dBA (whispered conversations at 6 feet), 40 to 50 dBA (rural to suburban residential areas during daytime), 60 dBA (normal conversation at 3 feet), and 70 dBA (a vacuum cleaner at 10 feet) (Harris and Dines, 1997). "C-weighted decibels" (dBC) are a standard weighed of audible frequencies most commonly used for very high sounds and peak sound pressure levels. Noise levels diminish (attenuate) with distance from the source of the sound. The rate at which sound attenuates with

distance is affected by topography, vegetation, wind direction, air turbulence, humidity and temperature.

Sources of ambient (existing) noise in the project area are typical of those in rural, agricultural areas of northern Nevada, in combination with operations in support of underground mining at the existing Midas facilities. Existing sources of ambient noise in the project area include fans at the three existing ventilation raises; activities at the Midas crushing plant, mill, and refinery; occasional mineral exploration activities; and the operation of mining excavation equipment and vehicles. Other ambient noise sources in the area include wind, ranch vehicles, livestock, mineral exploration, and recreational uses such as all-terrain vehicles.

The primary objective of the noise analysis was to assess noise impacts to the greater sage grouse. Habitat for greater sage grouse is present throughout the project area and greater sage grouse are present in the area. Two active greater sage grouse leks are located within two miles of the project area. The noise assessment criteria established by BLM and Newmont included a 24-hour survey of ambient noise at greater sage grouse lek sites, Midas Creek and Frazier 13 NE and also a nearby spring located between the two leks. Ambient noise surveys were conducted at the Midas Creek lek on October 21 and the Frazier 13 NE lek and the spring on October 28, 2011. A 24-hour ambient noise survey was also conducted in Midas to determine current ambient noise levels in the town. An ambient noise survey was conducted in a central residential location on October 21, 2011. Weather during the October 21 survey was mostly calm and cool with gentle winds coming from the west. Temperature during the October 28 recordings was cold (below freezing) with gusty winds coming from the north.

3.15.2 Environmental Consequences

3.15.2.1 Proposed Action

Following the temporary noise impacts from construction activities associated with implementation of the Proposed Action, operation of the ventilation raises would result in an increase in noise levels in the immediate project area. Noise would be generated primarily by the ventilation fans located in the surface ducts at the top of each ventilation raise. Each fan can generate up to 100 dBA at a distance of one meter from the fan opening. Spendrup Fan Co., the vent raise manufacturer, produces square-split silencers that can be used on the vent raises to reduce noise levels. The nearest residential receptor (town of Midas) is approximately 0.85 miles west of the proposed ventilation raises.

Three-dimensional noise models were created based on layout drawings, dimensions, sound power emission levels from manufactures specification, and sound data collected in the field.

The noise level predictions are based on algorithms and procedures in ISO 9613-2 [1] and ISO 9613-1[2]. Atmospheric conditions under which the model was run were based on anticipated temperatures during the spring, which is when sage grouse lek activity is at its peak.

Noise levels were modeled based on ambient sound measurements collected at the Midas Lek, Frazier Creek lek, a nearby meadow, and the town of Midas. Noise contours were developed for an area four miles (west/east) by three miles (north/south), and include predicted noise models for existing and proposed vent raises with and without split square silencers. The predicted noise levels for the four sites are summarized in Table 8.

Table 8 Summary of Baseline and Predicted Noise

Recording Location	Distance from Proposed Vent Raises* (feet)	Baseline Noise Level**		Predicted Noise Level from Vent Raises without Silencers		Predicted Noise Level from Vent Raises with Square-Split Silencers		Overall Change in Baseline Noise versus Predicted Noise without Silencers		Overall Change in Baseline Noise versus Predicted Noise with Square-Split Silencers on Proposed Vent Raises		Overall Change in Baseline Noise versus Predicted Noise with Square-Split Silencers on Proposed and Existing Vent Raises	
		dBA	dBC	dBA	dBC	dBA	dBC	dBA	dBC	dBA	dBC	dBA	dBC
Meadow	1,345	30.0	55.0	60.0	75.0	40.0	65.0	30.0	20.0	10.0	10.0	10.0	10.0
Midas Town	5,378	25.0	50.0	30.0	55.0	25.0	50.0	5.0	5.0	0.0	0.0	0.0	0.0
Midas Lek	11,421	25.0	45.0	27.0	50.0	25.0	47.0	2.0	5.0	0.0	2.0	0.0	0.0
Frazier Creek Lek	14,638	25.0	45.0	30.0	53.0	25.0	45.0	5.0	8.0	0.0	0.0	0.0	0.0

*Distance from nearest proposed vent raise.
**25 dBA is the minimum threshold for recorded values in the data range.
(Navcon, 2012)

The predicted noise level resulting from vent raises would increase dBA levels from 2 to 30 dBA and from 5 to 20 dBC over the baseline levels. The increase in noise levels would be the most perceptible at the Meadow site. Modeled C-weighted results represent a worst-case scenario, since low frequency sounds travel farther and thus higher levels would be realized further from the proposed vent raises. Noise model data shows square-split silencers installed on existing and proposed vent raises would greatly reduce potential noise impacts to all of the recording locations (receptor sites). Noise contour models for dBA and dBC baseline noise, predicted noise from vent raises, and predicted noise from vent raises with split square silencers are shown on Figures 8 through 15 (Navcon, 2012).

[1] ISO 9613-2 (1996) "Acoustics -- Attenuation of sound during propagation outdoors -- Part 2: General method of calculation" Describes a method for calculating the attenuation of sound during propagation outdoors in order to predict the levels of environmental noise at a distance from a variety of sources. The method predicts the equivalent continuous A-weighted sound pressure level under meteorological conditions.

[2] ISO 9613-1 (1993) "Acoustics -- Attenuation of sound during propagation outdoors -- Part 1: Calculation of the absorption of sound by the atmosphere" Describes the analytical method of calculating the attenuation of sound as a result of atmospheric absorption for a variety of meteorological conditions."

The EPMs summarized in Section 2.2.6 and noise mitigation measures are intended to manage noise levels over time so that noise levels will be minimized. Impacts to the Meadow site from the Proposed Action may include overall wildlife avoidance of the area.

3.15.2.2 Alternative A: Backfill Reclamation of Ventilation Raises

Impacts of Alternative A on noise would be the same as those for the Proposed Action as outlined in the previous section. Trucks backfilling shafts would produce noise during reclamation activities.

3.15.2.3 Alternative B: No Action

Because the Proposed Action would not be implemented, there would be no further impacts to noise associated with the No Action Alternative other than potential impacts from previously authorized actions in the area.

3.16 SOCIAL OR ECONOMIC

3.16.1 Affected Environment

The project site is in Elko County, which ranks as the second largest among Nevada's 17 counties with almost 11 million acres, of which about 61.7 percent is public land administered by the BLM. The closest community to the project is the town of Midas, which is less than 1 mile southwest of the project boundary. The permanent resident population of Midas is 130. The city of Elko is the county seat, and the largest community in the area with a reported population of 16,708 from 2005. The 2009 population of Elko County was 48,818, up 7.8 percent from 2000 (USCB, 2010). The majority of the population in Elko County resides in Elko and Spring Creek. In 2000, Elko County had 32,399 people over the age of 16 eligible for employment. Of those, 21,613 were employed. Table 9 shows Elko County employment by industry for the year 2008. As of February 2011, the Midas Mine had 230 employees.

Table 9 2008 Employment by Industry – Elko County, Nevada

Industry	Employment	Percent
Accommodation and food services	5,890	24.8%
Administrative and waste services	686	2.9%
Arts, entertainment, and recreation	685	2.9%
Construction	1,503	6.3%
Finance and insurance	582	2.4%
Government	3,923	16.6%
Information	236	1.0%
Management of companies and enterprises	56	0.3%
Manufacturing	311	1.3%
Mining	2,362	9.9%
Other services, except public administration	1,399	5.6%

Industry	Employment	Percent
Professional and technical services	746	3.1%
Real estate and rental and leasing	800	3.4%
Retail trade	2,945	12.4%
Transportation and warehousing	701	2.9%
Utilities	116	0.6%
Wholesale trade	839	3.6%
TOTAL	**23,780**	**100.00%**

Source: ZoomProspector.com

3.16.2 Environmental Consequences

3.16.2.1 Proposed Action

With implementation of the Propose Action there would be a temporary increase in high skill construction jobs during construction of the facility. Construction activities would involve from 4 to 10 contract workers for a period of four months. Newmont anticipates that no more than two ventilation raises would be installed each year. Construction and operation of the completed project facilities is not expected to result in a significant change to socioeconomic conditions in the area. The Proposed Action would continue to employ the existing staff another five years. Additional drilling contractors would be employed during exploration drilling activities. Impacts from the implementation of the Proposed Action are expected to be negligible and short-term.

3.16.2.2 Alternative A: Backfill Reclamation of Ventilation Raises

Impacts of Alternative A to socioeconomic conditions would be the same as those for the Proposed Action as outlined in the previous section.

3.16.2.3 Alternative B: No Action

Because the Proposed Action would not be implemented, there would be no further impacts to socioeconomic conditions associated with the No Action Alternative other than potential impacts from previously authorized actions in the area.

3.17 SOILS

3.17.1 Affected Environment

The Soil Survey of Northwest Elko County Area, Nevada Parts of Elko and Eureka Counties identifies four soil associations within the project boundary (NRCS, 1997). These are the Alayan, steep-Bregar-Alyan association, Bregar, moderately steep-Bregar-Carstump association, Fulstone-Fulstone, cobbly loam-Wieland association, and Hunnton, moderately steep-Hunnton-Fulstone association (NRCS, 1997). A summary of the soil components that comprise these associations is presented in the following sections.

Alayan, steep-Bregar-Alyan

- *Alayan, steep Soil* - This soil type is gravelly, found on mountainous, concave backslopes from 6,000 feet AMSL to 7,500 feet AMSL. These soils have a moderate shrink-swell potential and a K-value of 0.2. The K-value rates the soils susceptibility to sheet and rill erosion and ranges from 0002 to 0.69, with the higher number indicating the greater susceptibility the soil has to water. Dominant vegetation of this soil includes bluebunch wheatgrass, bottlebrush squirreltail, cheatgrass, and mountain big sagebrush.

- *Bregar Soil* - This soil type is a gravelly loam found on mountainous, convex backslopes between 6,000 feet AMSL and 7,550 feet AMSL.. These soils have a low shrink-swell potential and a K-value of 0.17. Dominant vegetation of this soil includes bluegrass and low sagebrush.

- *Alyan Soil* - This soil type is a gravelly loam found on mountainous, concave backslopes between 6,000 feet AMSL and 7,500 feet AMSL. These soils have a moderate shrink-swell potential and a K-value of 0.2. Dominant vegetation of this soil type includes bluebunch wheatgrass, bottlebrush squirreltail, cheatgrass, and mountain big sagebrush (NRCS, 1997).

Bregar, moderately steep-Bregar-Carstump

- *Bregar, moderately steep Soil* - This soil is gravel loam of about 15 to 30 percent slopes found on a mountainous landscape of convex backslope from 6,000 feet AMSL to 7,500 feet AMSL. These soils have a low shrink-swell potential and a K-value of 0.17. Dominant vegetation of this soil type includes bluegrass and low sagebrush.

- *Bregar Soil* - This soil is a gravely loam found on mountain summits between 6,200 feet AMSL and 7,000 feet AMSL. These soils have a low shrink-swell potential and a K-value of 0.17. Dominant vegetation of this soil includes bluegrass and low sagebrush.

- *Carstump Soil* - This soil type is cobbly loam found on plain backslope between 6,000 feet AMSL and 7,500 feet AMSL. These soils have a low shrink-swell potential and a K-value of 0.17. Dominant vegetation of this soil includes big sagebrush, bluegrass, bottlebrush squirreltail, and cheatgrass (NRCS, 1997).

Fulstone-Fulstone, cobbly loam-Wieland

- *Fulstone Soil* - This soil is a gravelly loam with some clay found on fan remnants and summits between 5,000 feet AMSL and 6,000 feet AMSL. This soil type has moderate shrink-swell potential and a K-value of 0.2. Dominant vegetation of this soil includes bluegrass, bottlebrush squirreltail, and low sagebrush.

- *Fulstone, cobbly loam Soil* - This soil type is cobbly loam found on fan remnants with a convex backslope between 6,000 feet AMSL and 7,500 feet AMSL. These soils have a low shrink-swell potential and a K-value of 0.28. Dominant vegetation of this soil includes bluegrass, bottlebrush squirreltail, and low sagebrush.

- *Wieland Soil* - This soil type is loam found on fan remnants on plain backslopes between 5,000 feet AMSL and 6,000 feet AMSL. These soils have a low shrink-swell potential

and a K-value of 0.49. Dominant vegetation of this soil includes Wyoming big sagebrush, bluegrass, bottlebrush squirreltail, and cheatgrass (NRCS, 1997).

Hunnton, moderately steep-Hunnton-Fulstone

- *Hunnton, moderately steep Soil* - This soil type is a gravely loam found on fan remnants of plain backslopes between 5,500 feet AMSL and 6,000 feet AMSL. These soils have a moderate shrink-swell potential and a K-value of 0.43. Dominant vegetation of this soil includes Wyoming big sagebrush, bluegrass, bottlebrush squirreltail, and cheatgrass.

- *Hunnton Soil* - This soil type is loam found on fan remnants on summit plains 5,500 feet AMSL and 6,000 feet AMSL. These soils have a low shrink-swell potential and a K-value of 0.49. Dominant vegetation of this soil includes Wyoming big sagebrush, bluegrass, bottlebrush squirreltail, and cheatgrass.

- *Fulstone Soil* - This soil type is gravelly loam found on fan remnants with convex backslopes between 5,500 feet AMSL and 6,000 feet AMSL. These soils have a moderate shrink-swell potential and a K-value of 0.20. Dominant vegetation of this soil includes bluegrass, bottlebrush squirreltail, and low sagebrush (NRCS, 1997).

3.17.2 Environmental Consequences

3.17.2.1 Proposed Action

Approximately 54 acres of undisturbed soils would be directly impacted by construction activities associated with implementing the Proposed Action. Project construction would result in the removal, compaction, and mixing with other geologic materials and result in permanent modification of the soil's physical, chemical, and biological characteristics. Physical changes to the soils would take place as soils are mixed and compacted during the drilling of ventilation raises and construction of access roads. Chemical changes to the soil would result from the mixing of soils and other geologic material that are exposed to air and water. These changes may also result in a loss of soil structure, therefore decreasing water-holding capacity and infiltration.

Erosion and runoff control measures, such as silt fences, certified weed free straw bales, and other water control structures would be implemented in areas of surface disturbance to minimize sediment transport to adjacent undisturbed soils. As proposed in the project Reclamation Plan, at the close of operations, disturbed areas would be regraded, recontoured, and seeded with an approved seed mixture to establish a ground cover to reduce erosion. Revegetation of disturbed soils would take place as soon as feasible in order to prevent erosion from wind and water (JBR, 2011a). Successful reclamation of the project would promote stability, thus decreasing erosion. With the implementation of EPMs and successful reclamation, impacts to soil resources are expected to be negligible.

3.17.2.2 Alternative A: Backfill Reclamation of Ventilation Raises

Under Alternative A, approximately 35,000 tons of waste rock and soil would be used to fill the seven ventilation raises as part of project reclamation. The process would include loading of dump trucks at the existing waste rock storage area, transport of waste rock and soil to each ventilation raise, and dumping of the material into the vent raise shaft. The process of backfilling the ventilation raise shafts would require approximately 1,750 dump truck round trips from the waste rock storage area to the seven sites. This would result in a temporary increase in the wear and tear to access roads from these heavily-loaded trucks, and the resulting increase in the potential for erosion and sedimentation associated with periodic stormwater runoff. However, with successful reclamation, impacts to soil resources under this alternative are expected to be minimal. All other impacts to soils of Alternative A would be similar to those of the Proposed Action.

3.17.2.3 Alternative B: No Action

Under the No Action Alternative, the Proposed Action would not be implemented. Therefore, the No Action Alternative would have no further impacts to soils other than potential impacts from previously authorized actions in the area.

3.18 VEGETATION

3.18.1 Affected Environment

Existing data sources were researched and data was reviewed to preliminarily determine the plant community types that occur within the project area. Data sources included the BLM GIS database, the NNHP database, the United States Department of Agriculture Plants database, and the Natural Resources Conservation Service Nevada Ecological Site Descriptions. National Agricultural Imagery Project aerial photographs taken in 2006 and 2010 were reviewed to preliminarily delineate plant communities and plan baseline fieldwork within the project area. The number of acres of each plant community type was field-verified and digitized.

The location of an individual vegetation community depends on several factors including elevation, soil type and depth, slope, aspect, and precipitation. NDOWs Wildlife Action Plan characterized Nevada's vegetative land cover into eight broad ecological system groups and linked those with key habitat types, which are further refined into ecological systems characterized by plant communities or associations that support various wildlife species (WAPT, 2006). The vegetation communities present in the project area are shown on Figure 7 and summarized in Table 10.

Table 10 Ecological Systems in the Project Area

Ecological System Group	Key Habitat	Ecological System
Basins and Desert Scrub	Intermountain (cold desert) scrub	Inter-Mountain Basins Greasewood Flat
Riparian and Wetlands	Desert playas and ephemeral pools	Inter-Mountain Basins Playa
	Intermountain rivers and streams	Great Basin Foothill and Lower Montane Riparian Woodland and Shrubland
Sagebrush Semidesert	Sagebrush	Great Basin Xeric Mixed Sagebrush Shrubland
		Inter-Mountain Basin Big Sagebrush Shrubland
		Inter-Mountain Basin Big Sagebrush Steppe
		Inter-Mountain Basins Montane Sagebrush Steppe
Sand Dunes and Badlands	Cliffs and Canyon	Inter-Mountain Basins cliff and Canyon
Montane to Alpine	Grasslands and meadows	Inter-Mountain Semi Desert Grassland
Other	Barren landscapes	Barren Lands, non-specific
	Invasive grasslands and forblands	Invasive Annual Grassland

Big Sagebrush Steppe Community

Big sagebrush steppe community occupies approximately 32 percent of the project area. It occurs on flats and areas with shallow slopes containing deeper soils usually adjacent to drainages and on slopes with northern aspects at elevations ranging from 5,400 to 6,000 feet AMSL. The overstory is dominated by Wyoming big sagebrush (*Artemisia tridentata* sp. *wyomingensis*), basin big sagebrush (*Artemisia tridentata* sp. *tridentata*), serviceberry (*Amelanchier* ssp.), and rabbitbrush (*Ericameria* ssp.). Dominant understory species include lupine (*Lupinus* ssp.), Sandberg's bluegrass (*Poa secunda*), and wheatgrass (*Agropyron* ssp.). The big sagebrush steppe community is found throughout the project area.

Low Sagebrush Shrubland Community

Low sagebrush shrubland community occupies approximately 49 percent of the project area. It grows in areas containing shallow soils, such as ridgelines and rocky outcrops, at elevations ranging from 5,400 to 6,300 feet AMSL. The dominant overstory species include low sagebrush, black sagebrush (*Artemisia nova*), and Great Basin wildrye (*Leymus cinereus*). The understory is composed of grasses and forbs including phlox (*Phlox* spp.), Sandberg's bluegrass, and bottlebrush squirreltail (*Elymus elymoides*). Low sagebrush shrubland community dominates ridgelines and lower elevations throughout the project area.

Riparian/Wetland Communities

Riparian/wetland communities occupy approximately 1 percent of the project area at elevations ranging from 5,400 to 5,900 feet AMSL and are only present in areas containing saturated soils. Dominant riparian species include Woods' rose (*Rosa woodsii*), willow (*Salix* sp.), sedge (*Carex* ssp.), arctic rush (*Juncus arcticus*), Kentucky bluegrass (*Poa pratensis*), Nebraska sedge (*Carex*

nebrascensis), white sage (*Artemisia ludoviciana*), and common yarrow (*Achillea millefolium*). Most riparian and wetland communities in the project area have been impacted by noxious weed encroachment/establishment. Portions of drainages within the project area that do not contain riparian plant species are dominated by noxious weed species such as hoary cress (*Cardaria draba*) and black henbane (*Hyoscyamus niger*). Most seeps and springs, and riparian/wetland areas throughout the project area contain hoary cress to some extent.

Wildfire Rehabilitation Area

The wildfire rehabilitation area occupies approximately 8 percent of the project area. Wildland fire burned approximately 200 acres within and adjacent to the general project area in the 2005 Esmeralda fire. Dominant plant species observed within the wildfire rehabilitation areas during the baseline surveys included big sagebrush, snakeweed (*Gutierrezia sarothrae*), currant (*Ribes* sp.), Woods' rose, fernleaf biscuitroot (*Lomatium dissectum*), arrowleaf balsamroot (*Balsamorhiza sagittata*), mule-ears (Wyethia amplexicaulis), Sandberg's bluegrass, bluebunch wheatgrass (*Agropyron spicatum*), Great Basin wildrye, crested wheatgrass (*Agropyron cristatum*) and large amounts of annual mustards (*Chorispora* ssp.) and cheatgrass (*Bromus tectorum*).

Previously disturbed portions of the general project area include historic mining, active roads, and recent exploration activities. These areas contain either no vegetative growth or reclaimed cover and represent a small portion of the overall project area. These areas account for approximately 10 percent of the project area.

3.18.2 Environmental Consequences

3.18.2.1 Proposed Action

The impacts to vegetation from the implementation of the Proposed Action would be the removal of 54 acres of existing native vegetation. Vegetation to build the ventilation raise pads, new and improved access roads, and power lines would be removed during the life of the project and restored during project reclamation.

EPMs including revegetation of temporarily disturbed areas with a certified weed-free, BLM-approved seed mix as shown in Table 3 would reduce impacts to vegetation resources. At the end of project operations, disturbed areas would be reclaimed through recontouring and revegetation as prescribed in the project Reclamation Plan (JBR, 2011a). With the implementation of the Proposed Action, including the EPMs discussed in Section 2.2.6.8, impacts to vegetation are expected to be minor and short-term.

3.18.2.2 Alternative A: Backfill Reclamation of Ventilation Raises

Impacts to vegetation of Alternative A would be the same as those for the Proposed Action as outlined in the previous section.

3.18.2.3 Alternative B: No Action

Because the Proposed Action would not be implemented, there would be no further impacts to vegetation associated with the No Action Alternative other than potential impacts from previously authorized actions in the area.

3.19 VISUAL RESOURCES

Scenic quality is a measure of the visual appeal of a parcel of land. Section 102(a)(8) of FLPMA placed an emphasis on the protection of the quality of scenic resources on public lands. Section 101(b) of NEPA required that measures be taken to ensure that aesthetically pleasing surroundings be retained for all Americans.

To ensure that these objectives are met, the BLM devised the Visual Resource Management (VRM) System. The VRM system provides a means to identify visual values, establish objectives for managing these values, and provide information to evaluate the visual effects of proposed projects. The inventory of visual values combines evaluations of scenic quality, sensitivity levels, and distance zones to establish visual resource inventory classes, which are "informational in nature and provide the basis for considering visual values in the land use planning process. They do not establish management direction and should not be used as a basis for constraining or limiting surface disturbing activities" (BLM, 1986a).

VRM classes are typically assigned to public land units through the use of the visual resource inventory classes in the BLM's land use planning process. One of four VRM classes is assigned to each unit of public lands. The specific objectives of each VRM class are summarized below.

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.

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 that 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 (BLM, 1986a).

The entire project area is located in BLM VRM Class IV (Figure 16). Approximately 750 feet north of the project boundary is the boundary of lands designated VRM Class III.

3.19.1 Affected Environment

The project area is located on the southeast slope of the Owyhee Bluffs in the northern Great Basin section of the Basin and Range Physiographic Province. The Great Basin is characterized by a pattern of isolated mountain ranges and broad sweeping basins, clear skies, and broad open vistas. Generally, the area is covered with a homogeneous pattern of sagebrush and grasses. Vegetation colors include tawny gray, brown, dark green, gray-green, and green. Soil colors range from beige to a chalky off-white, which when exposed, contrast highly with the surrounding vegetation. Rock colors vary from light to dark brown.

Existing man-made features in the overall project area include both block and linear forms that consist of mining adits, shafts, surface ducts, open pits, waste rock dumps, leach pads, tailings facilities, buildings for mineral processing and refining, power lines, and access roads. The strong angular lines of the open pits, mining shaft, and waste rock dumps create moderate contrasts with the gentle sloping and angular lines of the mountains while the horizontal lines of existing roads and mining activities in the area create weak to moderate contrasts. Moderate color contrasts have resulted from the vegetation removal associated with these activities.

The town of Midas is located approximately one mile to the west of the project area. The town has a few local residents and many historic structures. The signs of historical mining activity can be seen in the area surrounding Midas in the form of old exploration roads, mines, and adits.

3.19.2 Environmental Consequences

3.19.2.1 Proposed Action

Implementing the Proposed Action could result in visual impacts principally affecting the elements of line, texture, and color with installation of the ventilation raises, access roads, and power lines. Horizontal and shallow diagonal lines of access roads would cause moderate line contrasts with the natural landscape. Disturbance of vegetation resulting from construction of ventilation raise pads, access roads, and exploration drilling activities would cause moderate color contrasts.

One proposed ventilation raise, the Spiral 7 Raise, was identified as having the potential of being visible from the town of Midas. In accordance with BLM VRM manual 8431, an inventory was performed for visual resources to analyze potential visual impacts that may result from the proposed action (BLM, 2012). The inventory was performed within the area affected by the project. Key Observation Points (KOP's) were selected within the town of Midas where the most critical viewpoints could occur along commonly traveled routes and likely observation points. Factors taken into consideration when selecting the KOP's included angle of observation, number of viewers, length of time the project is in view, relative project size, season of use, and the light conditions.

The inventory was performed by driving to the proposed location of the Spiral 7 Raise and looking for visible features that could be used to locate the proposed ventilation raise location from the town of Midas. The selected KOP's were then visited and an assessment was performed to determine if the Spiral 7 Raise was visible. As a result of the surrounding topography, it was concluded that the Spiral 7 Raise would not be visible from the town of Midas. Therefore, the BLM Form 8400-4 - Visual Contrast Rating Worksheets were not filled out for the selected KOP's.

The Proposed Action would be consistent with the objectives and standards for VRM Class IV. No long-term visual impacts would occur as a result of the Proposed Action. With successful reclamation of disturbed areas consistent with the measures in Section 2.2.7, visual impacts would be minor and short-term.

3.19.2.2 Alternative A: Backfill Reclamation of Ventilation Raises

Impacts of Alternative A on visual resources would be the same as those for the Proposed Action as outlined in the previous section.

3.19.2.3 Alternative B: No Action

Because the Proposed Action would not be implemented, there would be no further impacts to visual resources associated with the No Action Alternative other than potential impacts from previously authorized actions in the area.

3.20 WILDLIFE

3.20.1 Affected Environment

The NDOWs Wildlife Action Plan characterized Nevada's vegetative land cover into eight broad ecological system groups and linked those with key habitat types, which are further refined into ecological systems characterized by plant communities or associations that support various

wildlife species (WAPT, 2006). Key habitats associated with this project are described in Section 3.18.1.

Intact vegetation communities needed for wildlife forage and cover are present in the project area. At least two water sources associated with springs are present within 0.25 to 0.65 miles of the project area. The area is within an active mining and minerals exploration area. Wildfires from 1984 to 2011 impacted thousands of acres of habitat that surround the project area.

Collectively, more than 250 wildlife species could utilize suitable habitat within and surrounding the project area on a seasonal or year-long basis. This includes game and nongame wildlife species, approximately 100 bird species, 70 mammal species, and several reptile and amphibian species that can be found in sagebrush habitats with many more additional species also found in the vicinity of mountain brush, and riparian and meadow habitats, including areas with willow cover. Nineteen raptor species are present within the Elko District and have the potential to utilize habitats available in the project area.

Big Game

The project area is located within NDOWs Eastern Region, management unit 6 and hunting unit 66 (NDOW, 2010a). There is potential bighorn sheep (*Ovis canadensis*) habitat throughout the project area and approximately one-half mile west of the project area is occupied big horn sheep habitat in the Owyhee Bluffs. Mule deer (*Odocoileus hemionus*) summer range borders the project area on the north, winter range is located within one-mile of the project area, and a mule deer movement corridor is located approximately six miles south of the project area. Pronghorn antelope (*Antilocapra americana*) corridors occur within 12 miles of the project area. Wildlife ranges obtained from NDOW are shown on Figure 17 for mule deer and Figure 18 for pronghorn antelope (NDOW, 2010a).

During wildlife surveys in November 2010 and June 2011, mule deer and evidence of mule deer (scat, prints, etc.) were observed throughout project area in sagebrush and riparian habitats and also in wildfire rehabilitation habitats. Pronghorn antelope and evidence of pronghorn antelope were observed throughout the project area.

Small Game and Non-Game

Other mammals recorded in the general project area include coyote (*Canis latrans*), yellow-bellied marmot (*Marmota flaviventris*), mountain cottontail rabbits (*Sylvilagus nuttallii*), black-tailed jackrabbits (*Lepus californicus*), white-tailed jackrabbit (*Lepus townsendii*), least chipmunks (*Tamias miniuis*), golden-mantled squirrels (*Spermophilus lateralis*), California ground squirrel (*Ammospermophilus beecheyi*), white-tailed antelope squirrel (*Ammospermophilus leucurus*), and sagebrush vole (*Lemmiscus curtatus*). Yellow-bellied

marmot sign was observed in and around rock outcrops throughout the project area. Smaller mammals and their sign were commonly observed in areas adjacent to drainages and disturbed areas. There is a potential for bat species to occur in an around the abandoned mine workings, rocky outcrops, developed and undeveloped springs, and one earthen dam impoundment in the project area (JBR, 2011b).

Game Birds

Besides the greater sage grouse already discussed in Section 3.8.1, chukar (*Alectoris chukar*) and mourning doves (*Zenaida macroura*) were observed at several locations within the project area. Both chukar and mourning doves were observed in the survey area, particularly in big sagebrush, riparian habitats, and adjacent surface water sources. Doves, chukar, and greater sage grouse make use of seeps, springs, ponds and creeks for foraging and brood-rearing, and utilize upland habitats for nesting.

Non-Game Birds

Neotropical migrant birds and resident bird species were active during field surveys. Species observed in big and low sagebrush habitats include the Northern flicker (*Colaptes auratus*), Brewer's sparrow (*Spizella breweri*), house finch (*Passer domesticus*), and western meadowlark (*Sturnella neglecta*). Bullock's oriole (*Icterus bullockii*) and cliff-swallows (*Tachycineta bicolor*) were observed in riparian habitats.

Brown-headed cowbirds (*Molothrus ater*), American robins (*Turdus migratorius*), Brewer's blackbirds (*Euphagus cyanocephalus*), and horned larks (*Eremophila alpestris*) were observed throughout the entire project area. Common raven (*Corvus corax*), American crow (*Corvus brachyrhynchos*), turkey vulture, and black-billed magpie (*Pica pica*) were also observed throughout the area.

Two active Neotropical migrant bird nests were located in June 2011 during the survey. An American robin nest was located in a serviceberry (*Amelanchier alnifolia*) shrub in Section 21 near an unnamed drainage. A loggerhead shrike (*Lanius ludovicianus*) nest was observed in a Russian thistle that had accumulated on a fence line in Section 27.

Raptors

At the request of USFWS, Newmont committed to a survey of golden eagle (*Aquila chrysaetos*) nests in habitats within and adjacent to the project area. In addition to surveying for golden eagles, other raptor nests within and adjacent to the project area were also identified..

In May 2011, JBR conducted a nesting raptor survey of the project area, including those areas within five miles of the project area and proposed access roads. The survey included an initial

aerial (rotor-wing) survey of the five-mile buffer around the project area and a subsequent ground survey to verify the locations and activity of nests found. Ground surveys were also aimed at locating any new nests that were not identified during the initial aerial survey.

JBR contracted with El Aero Flight Services to conduct the aerial survey. The aerial survey was conducted on May 5, 2011. During the aerial survey, El Aero's AG-NAV system was used to navigate and record flight lines flown during the survey. Follow-up ground visits were conducted June 6 through 8, 2011.

JBR identified 62 potential raptor nests within the five-mile buffer during the aerial survey. These nests included one active golden eagle nest, three inactive golden eagle nests, 13 active red-tailed hawk (*Buteo jamaicensis*) nests, one active ferruginous hawk nest, one active great horned owl (*Bubo virginianus*) nest, three active prairie falcon (*Falco mexicanus* nests, and 34 other potential raptor nests of unknown species due to inactivity. Additionally, six active common raven (*Corvus corax*) nests were located during the aerial survey. Golden eagles were also observed in the territories associated with the inactive golden eagle nests found, but no active alternate nests were found, and the subsequent ground visit determined none of the inactive nests had become active at the time of the ground survey.

The follow-up ground visits verified the locations and status of the 62 nests found during the aerial survey and identified five more for a total of 67 nests. The ground surveys identified one additional prairie falcon nest and two additional common raven nests. The ground visits also recorded two additional potential raptor nests that were inactive. One active golden eagle nest was found during the aerial survey and its activity was verified during the ground visit. In addition, the three inactive golden eagle nests were visited to verify their status. The ground surveys also consisted of visiting all identified and potential raptor nests that were not golden eagle.

Raptor species observed in the survey area included red-tailed hawk, Swainson's hawk, and short-eared owl (*Asio flammeus*). Red-tailed hawks were observed on a daily basis. The Swainson's hawk was observed soaring above Squaw Creek. The short-eared owl flushed from a rock near a mineshaft during the aerial survey.

Reptiles

Reptiles noted in the general project area include western fence lizard (*Sceloporus occidentalis*), sagebrush lizard (*Sceloporus graciosus*), gopher or bullsnake (*Pituophis catenifer*), and common gartersnake (*Thamnophis sirtalis*).

Amphibians

Amphibian species noted in the project area include the Pacific chorus frog (*Pseudacris regilla*).

3.20.2 Environmental Consequences

3.20.2.1 Proposed Action

The Proposed Action would result in the disturbance of approximately 54 acres of intact wildlife habitat, including mule deer and pronghorn summer range habitat. The successful initial post-construction reclamation and final reclamation including seeding of perennial native vegetative species would offset long-term habitat loss associated with the Proposed Action.

In addition, wildlife would likely avoid the project area during construction due to increased levels of human presence and noise from heavy equipment. This long-term disturbance would occur for the duration of the Proposed Action and disturbance associated with the installation of vent raises, transmission line, and exploration drilling would be short-term. Impacts from displacement would be minimal and temporary taking place until the completion of construction and reclamation of the disturbed areas. Impacts to wildlife from the implementation of the Proposed Action, including the EPMs discussed in Section 2.2.6.9 are expected to be negligible and short-term.

3.20.2.2 Alternative A: Backfill Reclamation of Ventilation Raises

Impacts of Alternative A on wildlife would be the same as those for the Proposed Action as outlined in the previous section.

3.20.2.3 Alternative B: No Action

Because the Proposed Action would not be implemented, there would be no further impacts to wildlife associated with the No Action Alternative other than potential impacts from previously authorized actions in the area.

4.0 CUMULATIVE EFFECTS

This chapter analyzes the potential cumulative effects of the Proposed Action when combined with past, present, and reasonably foreseeable future projects. Cumulative effects are 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 regardless of what agency (Federal or non-Federal) or person undertakes such other actions." (40 CFR 1508.7) Cumulative effects may result from a number of individual minor direct or indirect effects that collectively may result in cumulative effects that require analysis.

The analysis of potential environmental consequences for the Underground Support Facilities in Chapter 3 was reviewed, together with past, present, and reasonably foreseeable future actions, to determine which resources were appropriate for the assessment of cumulative effects. If it was determined that the project would have no incremental contribution to direct or indirect effects on a resource (Negligible or No Impact), no cumulative effects were analyzed for that resources. The following resources are evaluated in the cumulative effects analysis:

- Cultural Resources
- Threatened, Endangered, and Sensitive Species
- Non-Native Invasive and Noxious Species/Vegetation
- Water Resources
- Wetlands and Riparian Zones
- Rangelands and Grazing
- Noise
- Visual Resources
- Wildlife

4.1 CUMULATIVE EFFECTS STUDY AREAS

The geographic scope of each cumulative effects analysis is defined with the Cumulative Effects Study Area (CESA). CESAs are defined for each resource evaluated, although two or more resources may have the same CESA. Table 11 summarizes the CESAs, the resources included in each, and the figure in which they are shown.

Table 11 CESA Figures in the Transmission Line EA

Resource	CESA Boundary	Figure Number
Non-native invasive and noxious species; Vegetation, Water Resources, Wetlands and Riparian Areas, Visual Resources; Rangeland and Grazing	Watershed Boundary	Figure 19
Wildlife, TES Species	Tuscarora PMU	Figure 20
Cultural Resources	Midas Mining district	Figure 21

Resource	CESA Boundary	Figure Number
Noise	Midas Mining District, Town of Midas, and Surrounding Sage grouse Leks.	Figure 22

4.2 PAST, PRESENT, AND REASONABLY FORESEEABLE FUTURE ACTIONS

The cumulative effects analysis considers past, present, and reasonably foreseeable future actions. Past actions are typically described in general terms without listing or analyzing the effects of individual past actions, unless they bear a relation, or are similar to, the Underground Support Facilities. Present actions are actions that are ongoing at the time of the analysis. Reasonably foreseeable future actions are those for which there are existing decisions, funding, formal proposals, or which are highly probable based on available information. The time frame for the cumulative effects analyses is five years, which is the estimated life of the proposed Underground Support Facilities. Installation of the ventilations raises would extend the mine life by five years. The past, present, and reasonably foreseeable future actions that would contribute to cumulative impacts for these resources are summarized in the following sections:

Mining Exploration and Expansion

The Midas area is located within an active and productive region for gold mining. Mining and mineral exploration has been ongoing there since the discovery of gold in 1907 (Rott, 1931). These actions have been ongoing and intensified on hundreds of acres of public and private lands in the general vicinity of the Midas Mine, with new exploration to the southwest on the Owyhee Bluffs. Gold mines may be open pit or subterranean and may involve (but are not limited to) the following: the removal of vast quantities of earth, the construction of access roads, the construction of ancillary facilities, heap leach pads, waste rock dumps, changes in local water tables, and/or increased vehicular traffic.

The Franco-Nevada Mining Corporation is credited with discovery of the Midas ore body in 1994. Beginning in 1994, the Midas Joint Venture (MJV) conducted exploration drilling at 191 locations on the site under three Notices of Intent and POOs. In 1996, the BLM approved drilling and sampling at 200 exploration holes. An amendment to MJV's POO was approved in 1998, and MJV was granted a ROW for a power line and access roads to the site to support drilling of up to 1,000 exploration holes. Commercial production commenced in 1999 at a rate of 600 tons per day, and gradually increased to approximately 1,000 tons per day. Newmont acquired the Midas Mine in 2002 and amended the Mining Operations Plan for additional development on the project site.

Meridian Minerals Corporation (MMC) proposes to expand mineral exploration activities on 3,098 acres of public land administered by the BLM Tuscarora Field Office. The project site is approximately 10 miles west-southwest of the town of Midas (and the Newmont project site) and

32 miles east-northeast of Golconda. MMC proposes to conduct exploration related activities that would create approximately 120 acres of new surface disturbance. Phase I consists of exploration drilling from 49 drill sites on five acres that would be accessed by approximately 14,925 linear feet (11 acres) of access roads. An additional 105 acres would be devoted to subsequent phases.

The Hollister project is located within the Ivanhoe Mining District, which is located on the Carlin Trend gold belt in northeast Nevada. For many thousands of years, Native Americans recognized the white chert (quartz) outcroppings as a source of raw materials for tool making. Exploration and modern mining activities have been conducted in the Ivanhoe Mining District over the past 100 years, with the majority of activity occurring from 1980 to the present.

The district has been actively explored for mercury, molybdenum, uranium, and gold. Several companies including U.S. Steel Corporation, Touchstone Resources Corporation, Newmont Exploration Ltd., and Great Basin Gold, Inc. have recently been involved with gold exploration.

The largest of the mines in the Ivanhoe Mining District was the Hollister Mine, which operated from 1990 to 1992. The Hollister Mine is also known as the Ivanhoe Mine. Material was mined from two pits, and heap-leaching activities were conducted until 1996 to extract an estimated 116,000 ounces of gold. A total of 268 acres was disturbed by the mining and heap leach activities. Much of the associated surface disturbance has been reclaimed, though reclamation and closure activities continue in the area (BLM, 2004). Great Basin Gold is currently undergoing an underground exploration project at the Hollister project.

Ruby Pipeline

Ruby Pipeline, L.L.C. (Ruby Pipeline) filed an application with the Federal Energy Regulatory Commission (FERC) on January 27, 2009 for a Certificate of Public Convenience and Necessity authorizing the construction and operation of a 42-inch diameter natural gas transmission pipeline from Wyoming to Oregon. The pipeline is 680 miles long and traverses portions of Wyoming, Utah, Nevada, and Oregon. Ruby Pipeline has an initial capacity of up to 1.5 billion cubic feet per day. The project utilizes four compressor stations, one of which (the Wieland Flat Compressor Station) is at the mid-point of the project north of Elko, Nevada (Ruby, 2011). On April 5, 2010, FERC approved Ruby Pipeline's application and certified the project. Construction commenced on July 31, 2010, and was completed on July 28, 2011, when El Paso Corporation placed the pipeline in service (Ruby, 2011).

Livestock Grazing

The project site lies entirely within the Midas Allotment, consisting of 4,417 acres of public land and with 711 AUMs permitted (BLM, 1998). The Midas Allotment is classified by the BLM as

a "Maintain" (M) allotment, where the objective is to maintain the current satisfactory conditions. The Allotment has a #43 priority in the Resource Area. A Fenced Federal Allotment is located along the entire eastern edge of the Midas Allotment (BLM, 1987).

Adjacent to the Midas Allotment on the south is the Squaw Valley Allotment, which is an improve category with a #13 priority in the Resource Area. The active grazing preference for the Squaw Valley Allotment is 26,796 AUMs. Adjacent to the Midas Allotment on the north is the Little Humboldt Allotment, an "I" category allotment with a #1 priority in the Resource Area. Grazing preferences are 8,279 AUMs for cattle and 242 AUMs for sheep.

Livestock Key Areas have been established by the BLM to provide BLM personnel locations at which to measure forage production and utilization of the allotments. Of the four Livestock Key Areas within the Midas Allotment, three are in the vicinity of the project area (BLM, 1998).

All BLM grazing allotments are periodically evaluated to assess rangeland health and evaluate the trend in rangeland condition and the influence grazing management has on the multiple rangeland resources associated with these allotments. The Midas Allotment permit is pending this process. In addition to analyzing condition and trend of various rangeland attributes, grazing management is assessed to determine whether or not it's achieving the Standards for Rangeland Health (Standards) and conforming to the Guidelines for Livestock Grazing Management (Guidelines) mandated in the 1996 Revised Grazing Regulations. Current livestock grazing and ranching would continue to occur in the reasonably foreseeable future within the CESA. Grazing on public lands would be subject to multiple use management strategies, terms and conditions of permits, and fire closures by BLM.

Land Use/ROW Authorizations

Pending and approved land use and ROW authorizations in the project area are discussed in Section 3.16. BLM Realty will continue to review applications for lands actions including sales, public purposes, exchange actions, energy (electrical and gas lines) ROWs, other lands ROWs. The Nevada Department of Transportation's Annual Work Program for FY 2012-2013 proposes minor shoulder improvement to State Route 789 between Golconda and Midas Road (NDOT, 2011). Elko County has no proposed improvements to the Midas Road in the project area (Elko, 2011). Road maintenance activities on the Midas Road and adjacent roads are conducted on an as-needed basis. This includes surface maintenance and snow removal on the Midas Road and grading on secondary roads. Many of the roads leading from Midas Road are on private land and are maintained by the landowner.

Tuscarora Sagebrush Habitat Restoration Initiative

In the past 28 years, the sagebrush ecosystem within the Tuscarora Sage Grouse PMU has suffered catastrophic impacts from 13 large wildland fires. The loss of hundreds of thousands of acres of sagebrush communities has resulted in a decline of sagebrush species such as sage grouse and pygmy rabbit, and crucial habitat for sagebrush associated species such as mule deer and pronghorn antelope. The goal of the Tuscarora Sagebrush Habitat Restoration Initiative is to restore and maintain ecologically diverse, sustainable, and contiguous sagebrush ecosystems by implementing sound management practices. Approximately 6,739 acres are planned for wildlife habitat restoration work in the Tuscarora Sage Grouse PMU. A combination of mechanical, chemical, and livestock grazing management treatments are proposed to improve overall rangeland health and habitat to benefit the above species and reduce the potential risk of future catastrophic large fires caused by the invasion of cheatgrass in burned areas (BLM, 2009c).

Area 6 Mule Deer Working Group - Habitat Management Plan

The management presents guidance for how proposed undertakings (e.g. mining) can be designed to reduce impacts to mule deer migration corridors and also actions that can be taken to enhance habitat near mining activities. The intent of the plan is to serve as guidance for future proposals located within the Area 6 Mule Deer herd area. Suggestions contained in this plan include the establishment of firebreaks, seeding of fire resistant vegetation, modification of grazing regimes, mowing, disking, and herbicide application. The Proposed Action (i.e., fencing) would not impede mule deer migration through the area but would prevent mule deer from entering vent raise pads.

Wildfire Suppression

The proposed project area has been subject to numerous fires in the past and will almost certainly be subject to fires in the future. Fire suppression activities may include (but are not limited to) construction of firebreaks (using hand tools or heavy machinery), the use of fire retardant (typically applied aerially), cross-country travel (by heavy machinery, trucks, ATV, etc.), and/or back-burning (strategic burning of an area to control the extent and/or intensity of the fire).

Wildfire Rehabilitation

Because fire and fire suppression are reasonably foreseeable future actions within the project area, fire rehabilitation projects are also reasonably foreseeable future actions. Rehabilitation actions typically include, but are not limited to, the following: drill seeding and recontouring fire breaks created with heavy equipment; seeding (aerial and ground) burned areas using rangeland drills, broadcast; preparing the seedbed using disking, herbicides, mowing; enhancing seed-to-ground contact using harrows, drag chains; controlling/preventing the spread of noxious weeds with herbicide application, and/or the installation of temporary protective fences around burned and/or seeded areas.

4.3 CUMULATIVE EFFECTS ANALYSIS

This section and the sections following addresses potential cumulative impacts resulting from the proposed Underground Support Facilities in combination with other past, present, and reasonably foreseeable future actions. Cumulative impacts of Alternative A – Backfill Reclamation of Ventilation Raises are anticipated to be the same as the Proposed Action. There would be no cumulative impacts associated with Alternative B – No Action.

4.3.1 Cultural Resources

The CESA for cultural resources is shown on Figure 21, and includes the Midas Mining District and town of Midas. The proposed Midas Underground Support Facilities project is located in an area of high archaeological site density and could adversely affect historic properties, given the close proximity of the various facilities at the site. Most cultural resources tend to degrade over time due to natural forces but many survive for thousands and even millions of years. Modern human activity tends to exacerbate the damage and as a consequence, cultural resources are disappearing at an ever-increasing rate. Grazing damage is found at virtually all sites and damage by roads fences and agriculture is common. Many of the recorded cultural resources in the CESA exhibit impacts resulting from modern use of the land.

In combination with other past, present, and reasonably foreseeable future actions, the project would likely contribute to an overall decline in cultural resources. EPMs listed in Section 2.2.6 are implemented to minimize impacts to cultural resources. Impacts associated with continued mining, grazing, agricultural activity, and wildland fires are expected to continue. Any of the activities described above could increase the proximity of surface disturbance to cultural sites, which could inadvertently destroy artifacts or site features. Newly created access routes could increase access by the public to formerly inaccessible locations, making sites susceptible to unauthorized collection, vandalism, and compaction/erosion related to recreational activities. Sites currently used by Tribes for cultural or religious activities, could be affected by noise and visual intrusions associated with construction and other surface disturbances.

The Proposed Action would minimize its potential contribution to cumulative effects by implementing the EPMs discussed in Section 2.2.6, in combination with an approved Historic Properties Treatment Plan, and other measures contained in the approved Section 106 MOA with the Nevada SHPO. With these measures in place, the project's incremental contribution is expected to be small, and cumulative effects to cultural resources from past, present, and reasonably foreseeable future actions including the Proposed Action are expected to be minor.

Practices such as the EPMs in Section 2.2.6 and reclamation measures in Section 2.2.7 are implemented for most BLM actions to minimize damage to vegetation and prevent the spread of non-native invasive and weed species in disturbed sites. With these measures in place, the

Proposed Action's incremental contribution is expected to be small, and cumulative effects to vegetation from past, present, and reasonably foreseeable future actions including the Proposed Action are expected to be minor.

4.3.2 Threatened, Endangered, and Sensitive Species

The CESA for TES species is shown on Figure 20. Its boundaries are those of the Tuscarora PMU. The PMU is within the Elko County Sage Grouse Planning Area (ECSGPA) and has been identified as the highest at-risk PMU (ranked #1 of 10 in the ECSGPA). Specific "priority" areas were identified as critical breeding and nesting areas. They include 1) Snowstorm Flat, 2) Headwaters of Milligan Creek, 3) Scrapper Springs, 4) Rock Creek, 5) Willow Creek Reservoir, 6) Big Butte, 7) Willow/Soldier Creek, 8) Six Mile, and 9) Upper Independence Valley. The 2005 spring breeding population in the PMU was estimated between 4,823 and 6,431 sage grouse. Currently, there are 90 leks within the PMU, 28 of which are known to be active (USDOE, 2011).

Wildfires have had, and would continue to have, the greatest impacts to sage grouse habitat. The Dunphy Complex fire in October 2011 burned an estimated 204,500 acres of rangelands in the vicinity of the project area. Much of the burned area was sagebrush habitat. Post-fire rehabilitation activities are planned to help restore lost habitat.

The Proposed Action is expected to directly affect approximately 54 acres of intact sage grouse habitat. Potential direct effects could include injury or mortality during surface-clearing activities. Project-generated noise and human activity may deter some sage grouse from using the area surrounding the project. Increased mortality and injury could result from increased vehicular traffic. Fragmentation of habitat may result from reduced access to seeps, springs, wet meadow, and riparian areas.

Although impacts to sage grouse from the project are possible, the cumulative effects are not likely to substantively and negatively impact sage grouse, primarily because of the extensive effort by the BLM to address the impacts of fire-damaged lands. In addition, Section 2.2.6 contains EPMs to be implemented during operations such as noise reduction structures that would minimize impacts to sage grouse, and the project would utilize these measures to minimize its potential contribution to cumulative effects to special status species. Considering the measures proposed to reduce direct and indirect impacts, the incremental contribution of the Underground Support Facilities to cumulative impacts on TES species would be minimal. This in combination with past present and reasonably foreseeable future actions is expected to have minor impacts on TES species.

4.3.3 Non-Native Invasive and Noxious Species and Vegetation

The CESA for vegetation and non-native invasive and noxious species is shown on Figure 19 and includes the immediate watershed. The Proposed Action, in combination with past, present, and reasonably foreseeable future actions would have numerous potential impacts to vegetation. Typical impacts would include clearing of vegetation for roadways, construction areas, buildings, pipelines, and other utilities. Maintenance around projects would involve mowing, herbicide treatment, and other mechanical or chemical means of removal and control. The risk of fire would result from equipment operation, vehicle traffic, electrical lines, and smoking. Site clearing, grading, constructing access roads, site runoff, and vehicle and human foot traffic can cause soil erosion, resulting in topsoil removal, native vegetation loss, invasive species establishment, stream sedimentation, and flooding (which can affect riparian vegetation and riparian habitats). Herbicide use to control vegetation may have adverse effects on non-target vegetation.

Past, present, and reasonably foreseeable future actions within the CESA also have the potential to create conditions favorable for the establishment/invasion of invasive non-native and noxious species, and other undesirable plants. Future occurrence of an additional large wildland fire poses the greatest risk for invasion of weeds in the area, particularly on private lands where federal agency involvement is limited. Consistent with BLM policy, use of suitable weed-free seed mixes, combined with prompt and appropriate revegetation would reduce the potential for undesired weeds to invade burned or disturbed areas.

4.3.4 Water Resources

The CESA for water resources is shown on Figure 19 and includes the immediate watershed. The project area is located within the Willow Creek hydrographic area, a part of the Battle Mountain Sub-Basin of the Humboldt River Basin. The Willow Creek Unit covers an area of 405 square miles, and drains the western slopes of the Tuscarora Mountains. The principal streams in the project area – Midas Creek, Squaw Creek, and Frazer Creek – are tributary to Rock Creek, which is located south of the project area (NDWR, 1998).

The Proposed Action, in combination with past, present, and reasonably foreseeable future actions could affect water resources in the project area. New roads to serve resource development in the area may alter the pattern of historical surface water flows in some areas. Culverts could restrict flow and result in localized flooding, especially during high runoff events and cause erosion and channeling in downstream areas. The transport of sediment could increase during periods of high flow. The Proposed Action would minimize its potential incremental contribution to cumulative effects to water resources by continuing to implement the BMPs required under Newmont's existing Stormwater General Permit and other EPMs listed in Section 2.2.6, impacts to surface water would be minimized. Cumulative impacts to water resources

from past, present, and reasonably foreseeable future actions including the Proposed Action are expected to be minor.

4.3.5 Wetlands and Riparian Areas

The CESA for wetlands and WOUS is shown on Figure 19. Water diversion for agriculture has been the single greatest contributor to wetland and riparian loss. Livestock grazing can affect water quality in marshes, and cause severe bank erosion along smaller streams. Dewatering associated with modern gold mining operations can impact ground water sources. Non-native invasive plant species, such as Tamarisk, can invade wetlands, reproduce quickly, and choke out shallow wetlands and rivers (Engilis and Reid, 1996). Beyond these are the impacts typical to resource exploration and development such as encroachment by equipment or materials, spills of toxic substances, and disturbance in upland areas that can lead to increased runoff, erosion and sediment transport into wetlands.

In combination with other past, present, and reasonably foreseeable future actions, the Underground Support Facilities would likely contribute to an overall decline in the quality and quantity of wetlands and streams in the region. Wetland and riparian areas will be avoided during construction and operations of the Proposed Action. With implementation of the EPMs and reclamation measures in Sections 2.2.6 and 2.2.7, the project's incremental contribution to cumulative impacts to wetlands and riparian areas are expected to be negligible. In conjunction with other past, present and reasonably foreseeable future actions impacts to wetland and riparian areas in the CESA are expected to be minor.

4.3.6 Rangelands and Grazing

The CESA for rangelands and grazing is shown on Figure 19 and include the immediate watershed. The Proposed Action, in combination with other past, present and reasonably foreseeable actions, could have short-term effects on grazing during construction. Impacts would include loss of forage, reduced forage palatability because of dust on vegetation, and displacement of livestock from construction noise. Additional roads could also impact livestock by opening up areas that were not previously accessible, thereby increasing disturbance or harassment of livestock. Grazing use in portions of the CESA area has also been temporarily affected by recent wildfires followed by possible grazing closures on portions of the allotments that burned. In the long-term, grazing areas temporarily disturbed by construction activities would be reclaimed. Fences would be erected to exclude cattle from vent raise locations.

Section 2.2.6 contains EPMs intended to minimize impacts of the Proposed Action and its potential incremental contribution to cumulative effects to rangeland resources. The cumulative impacts to rangeland and grazing from past, present and reasonably foreseeable future actions including the Proposed Action are expected to be minor.

4.3.7 Noise

The CESA for noise is shown on Figure 22. The noise CESA includes all land within the Midas Mining District, additional Newmont properties outside the district boundaries, the town of Midas, and surrounding areas that include four identified sage grouse leks.

The noise generated by the Proposed Action combined with other past, present, and reasonable foreseeable future actions in the CESA may have negative impacts on wildlife and TES species in the project area as well as sensitive residential receptors in the nearby town of Midas. These impacts would be reduced by the implementation of the EPMs for the Proposed Action discussed in Section 2.2.6. With the implementation of the EPMs for the Proposed Action and similar EMPs for reasonably foreseeable future projects cumulative impacts are expected to be minor.

4.3.8 Visual Resources

The CESA for visual resources is shown on Figure 19 and includes the immediate watershed. The proposed Underground Support Facilities, in combination with past, present, and reasonable foreseeable future actions within the CESA has the potential to result in short- and long-term visual impacts. The Proposed Action would primarily affect the elements of line and color. Interim reclamation and revegetation efforts of the exploration roads and drill sites on public lands may result in short-term visual impacts until vegetation becomes established. The Proposed Action would result in a small incremental increase in disturbance. Since the project area is within a Class IV VRM classification, any cumulative impacts from the project would continue to meet the objectives of the resource area. Reclamation following mine activities would result in a lessening of the visual impact from the mine. Cumulative impacts to visual resources from past, present, and reasonably foreseeable future actions including the Proposed Action are expected to be minor.

4.3.9 Wildlife

The CESA for wildlife is shown on Figure 20 and includes the Tuscarora Sage Grouse PMU. The Underground Support Facilities, in combination with other past, present, and reasonably foreseeable future actions could affect wildlife through the alteration, removal, reduction, or fragmentation of habitat. Equipment used for clearing vegetation, roadways, and vehicles used during operation and reclamation would affect species that are not mobile enough to avoid construction operations. Reptiles, amphibians, and small mammals would be most susceptible.

Noise from mining operations and other uses (vehicles and machinery) can have adverse impacts on wildlife. The most adverse impacts associated with noise could occur if critical lifecycle activities are disrupted (e.g., mating and nesting). Disturbance occurring during mating, nesting, or rearing of young can cause wildlife to abandon mating and nesting activities, and can strand young, leaving them susceptible to predation and starvation. Noise created from the proposed

vent raises may cause wildlife to avoid areas located in proximity to the vent raises for the life of the mine.

Fragmentation could affect wildlife by altering how wildlife species use habitat. Fragmentation from new mine access roads and increased road traffic have the potential to separate wildlife populations into smaller populations, making them more vulnerable to predation, drought, and disease. Animals displaced by fragmentation would occupy nearby habitats, which could lead to an increase in competition for resources, and result in decreased health and potentially death for less fit individuals. Because areas adjacent to disturbance would likely be avoided by wildlife, the amount of habitat actually affected would extend beyond the disturbed areas. Finally, fragmentation and increased road travel can facilitate the spread and introduction of non-native invasive and noxious plant species.

Wildfires have severely impacted a large percentage of wildlife habitat and have the potential to impact remaining wildlife habitat within the CESA. Since 1984, over 580,000 acres (42%) have burned within the Tuscarora PMU. Intensive seeding efforts have been approved or completed on public lands affected by the larger fires in an attempt to rehabilitate wildlife habitat. This includes areas where sage grouse habitat rehabilitation was emphasized. Wildfires are one of the many impacts associated with the decline of the sage grouse.

Section 2.2.6 contains EPMs to minimize impacts to wildlife. With successful reclamation efforts as recommended in Section 2.2.7, impacts to wildlife over the five-year life of the Proposed Action are expected to be temporary. Cumulative impacts to wildlife from past, present, and reasonably foreseeable future actions including the Proposed Action are expected to be minor.

5.0 MITIGATION MEASURES

5.1 MITIGATION

To mitigate for the potential loss of greater sage grouse habitat as a result of new disturbance, overhead power lines and additional noise from the Proposed Action, Newmont would provide on and off-site habitat mitigation in cooperation with BLM and NDOW. On-site, Newmont would retroactively add square-split silencers to the existing ventilation fans at Midas and would install perch deterrents and flight diverters on existing overhead power lines within the Midas PoO. Off-site mitigated areas would be calculated based on a 3:1 ratio for acres located within PPH habitat and impacted from additional surface disturbance, noise, and overhead power lines. PPH habitat potentially impacted by the Proposed Action would be 841.1 acres, therefore, acres mitigated for PPH would be approximately 2,523.3 acres (3:1).

The construction and operation of the proposed vent raises and overhead power lines would potentially create negative impacts to greater sage grouse habitat for the duration of the Proposed Action (five years), and during reclamation of the disturbance. Upon signature of the ROD, Newmont would coordinate with BLM and NDOW to implement habitat restoration in adjacent, approved areas that occur within the Tuscarora PMU, or other nearby PMUs. Habitat restoration areas and efforts would be agreed upon by Newmont, BLM, and NDOW in a mitigation agreement, or Memorandum of Understanding (MOU), and would meet the mitigation obligation of 2,523 acres. Habitat restoration efforts would be implemented upon approval of the MOU, would require measurable results, and would be completed within ten years. Mitigation efforts considered for habitat restoration would be reviewed on an annual basis and would reflect the latest greater sage grouse research, strategies, and conclusions. The MOU would formalize the mitigation efforts identified, proposed, and approved, and the implementation process involved. Additionally, it would describe specific performance measures to ensure the mitigation values agreed upon are realized.

6.0 CONSULTATION AND COORDINATION

This EA was prepared by JBR Environmental Consultants, Inc. under the technical direction of the BLM Tuscarora Field Office, Elko, Nevada. Assistance was provided by BLM resource specialists (meetings and subsequent conversations) and through consultation with other local, state, and federal agency resource personnel; review of company and agency files; field reconnaissance; and review of supporting documentation.

6.1 LIST OF PREPARERS

U.S. Bureau of Land Management

Casey Addy	Range Resources
Victoria Anne	Planning and Environmental Coordinator
Marissa Murphy	Lands and Realty Specialist
John Daniel	Project Lead, Hydrologist
William Fawcett	Archeologist
Deb McFarlane	Assistant Field Manager
Bryan Mulligan	Non-Native Invasive and Noxious Weeds
Zachary Pratt	Visual Resources
Tom Schmidt	Solid Waste and Hazardous Materials
Ken Wilkinson	Wildlife, Migratory Birds

JBR Environmental Consultants, Inc.

Greg Brown	Senior Review
Richard Butler	Senior NEPA Specialist
Dulcy Engelmeier	Administrative Assistant
Diana Gould	Environmental Analyst
Kristi McKinnon	Project Manager
Kendra Olcott	Environmental Specialist

6.2 PERSONS, GROUPS, OR AGENCIES CONSULTED

The following persons, groups, and agencies were contacted during the preparation of this document.

Newmont Mining Corporation

Matt Breitrick	Midas Study Director
Meg Burt	Environmental Coordinator Permitting
Lorence Busker	Environmental Coordinator Permitting
Rodney Glinsmann	Senior Environmental Coordinator
Brant Ivey	Environmental Coordinator

Pete Johnsen	Environmental Permitting Manager
Jerry Pfarr	Director of Environmental Permitting North American Operations

Nevada Department of Wildlife

Alan Jenne	Eastern Region Supervisory Habitat Biologist

Nevada Natural Heritage Program

Eric Miskow	Biologist/Data Manager

U.S. Fish and Wildlife Service

Jenny A. Ericson	Acting State Supervisor

6.3 PUBLIC NOTICE AND AVAILABILITY

The BLM Tuscarora Field Office held an initial internal scoping meeting on May 14, 2010 to determine resources that may be affected by the Proposed Action. A public scoping letter was issued on April 8, 2011. Copies of this EA can be obtained at the BLM Tuscarora Field Office and on the Elko District website at:

http://www.blm.gov/nv/st/en/fo/elko_field_office/blm_information/nepa.html

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