

**APPENDIX 2C**  
**MITIGATION PLAN LONG CANYON MINE**

# **MITIGATION PLAN LONG CANYON PROJECT**

## **Bureau of Land Management**

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December 2014

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- Appendix A Bird and Bat Conservation Strategy
- Appendix B Long Canyon Mine Mule Deer Monitoring Plan
- Appendix C Programmatic Agreement

## LIST OF ACRONYMS & ABBREVIATIONS

<b>AUM</b>	Animal Unit Month
<b>BBCS</b>	Bird and Bat Conservation Strategy
<b>BLM</b>	Bureau of Land Management
<b>EIS</b>	Environmental Impact Statement
<b>EPM</b>	Environmental Protection Measure
<b>HSLP</b>	Health, Safety, and Loss Prevention
<b>MOA</b>	Memorandum of Agreement
<b>MOU</b>	Memorandum of Understanding
<b>MSHA</b>	Mine Safety and Health Administration
<b>NAC</b>	Nevada Administrative Code
<b>NDEP</b>	Nevada Division of Environmental Protection
<b>NDOW</b>	Nevada Department of Wildlife
<b>NEPA</b>	National Environmental Policy Act of 1969
<b>Newmont</b>	Newmont Mining Corporation
<b>NRHP</b>	National Register of Historic Places
<b>PGH</b>	Preliminary General Habitat
<b>PMU</b>	Population Management Unit
<b>PPH</b>	Preliminary Priority Habitat
<b>SHPO</b>	State Historic Preservation Office
<b>SPCC</b>	Spill Prevention, Control, and Countermeasure
<b>TSF</b>	Tailings Storage Facility
<b>USDOT</b>	United States Department of Transportation
<b>VRM</b>	Visual Resource Management
<b>WRSF</b>	Waste Rock Storage Facility

# MITIGATION PLAN LONG CANYON PROJECT

## 1.0 INTRODUCTION

This Mitigation Plan includes mitigation by resource as described in the Environmental Impact Statement (EIS) prepared for the Long Canyon Project. Specific impacts to the affected resources are described in Chapter 4 of the Final EIS and discussed in Section 2 of this document.

The mitigation measures specified in this Mitigation Plan are designed to reduce impacts to the resources, which may occur from the project. The North Facilities alternative has been determined the agency preferred alternative; therefore, this Mitigation Plan has been developed using this alternative. The Bureau of Land Management (BLM) approach to mitigation is to first avoid and then minimize the impacts on public lands from proposed activities. Minimization is achieved through design features, best management practices, and Environmental Protection Measures (EPMs), which are part of the proposed project. Not all impacts associated with the North Facilities alternative can be eliminated by these design features, best management practices, and EPMs. For those impacts that cannot be avoided or minimized, the implementation of measures to mitigate the impacts is discussed below.

## **2.0 RESOURCES ANALYZED AND POTENTIAL IMPACTS**

Resources where it was determined that implementation of the project would have a significant impact are included in this Mitigation Plan. Table 1 presents the resources analyzed in the EIS, the EPMs presented to protect these resources, the impacts, if any, determined after implementation of EPMs and if mitigation is recommended. Table 2 lists other general EPMs designed into the project. If impacts were avoided through project design or EPMs or no mitigation was recommended in the EIS, mitigation is not presented in this document. Resources recommended for mitigation include wildlife and cultural resources.

**Table 1 Environmental Protection Measures and Project Impacts by Resources**

Applicant Committed EPM	Potential Impact After EPM	Mitigation Required
<b>Water Resources (Surface Water)</b>		
Remove vegetation only from those areas to be directly affected by project operations and only from areas directly ahead of operations.	Increase in sedimentation from ground disturbance.	No
Schedule soil removal activities for dry months when possible to reduce the potential for erosion and soil losses.	Effects of water use on Johnson Springs. Wellhead Analytic Element Model results show that the influence of the proposed water supply well at or near BSR-2 would be less than 2.5 feet of drawdown on the Johnson Springs system.	No
Design cut-and-fill slopes for access and haul roads to prevent soil erosion. Drainage ditches, with cross drains and/or culverts would be constructed as necessary.		
Route runoff from roads, building sites, and parking lots through sediment traps, settling ponds, berms, wattles, sediment filter fabric, etc. Design of these features would be based on Nevada Division of Environmental Protection (NDEP) requirements and analysis of local hydrologic conditions.		
Avoid off-road vehicle traffic.		
Construct and maintain diversions around disturbed areas to minimize erosion. When appropriate, sediment would be removed from these diversions and deposited in the waste rock storage facility (WRSF).		
Implement reclamation and revegetation as soon as practical for long-term stability and erosion control.	Contamination from chemical spills or leaks. Accidental release of hydrocarbons from mobile sources during construction may occur.	No
Reclaim clay borrow pits as wetlands.		
Maintain a stormwater permit for the Long Canyon project site. Stormwater features and facilities would include diversion ditches, culverts, stormwater basins, sediment ponds, etc.		
Route runoff around the WRSF, ore stockpiles, the tailings storage facility (TSF), the heap leach facility, the mine administration, shop, and mill facility area; and, as practical, the mine pit area.		
Route runoff generated from precipitation on disturbed areas into ditches or through culverts toward stormwater basins, where sediment can collect and water can evaporate or percolate into the ground.		

Applicant Committed EPM	Potential Impact After EPM	Mitigation Required
<b>Water Resources (Groundwater)</b>		
<p>All drill holes would be plugged and abandoned per Nevada Administrative Code (NAC) 534 in order to prevent adverse changes in groundwater quality and quantity, and ensure the safety of people, livestock, and wildlife. According to NAC 534.420, a cement cap would be placed directly on top of settled, set-up, acceptable abandonment material from a depth of at least 20 feet to the surface of the well.</p> <p>In coordination with the Cities' hydrologic consultants and supplementing existing hydrogeologic testing, conduct additional bedrock and alluvial aquifer tests to quantify potential effects of pumping on local and regional aquifers. Newmont Mining Corporation (Newmont) would share local and regional hydrologic information generated associated with the development of the Long Canyon Project to the extent permitted by disclosure laws applicable to publicly-held companies.</p> <p>Newmont has coordinated with the Cities' hydrologic consultants in developing a general hydrologic study of the northern part of the Goshute Valley with a goal of assessing the adequacy of the valley aquifer to supply water to the Cities' Shafter well field and potential effects from continual mine production pumping. Newmont would continue to work with the Cities to expand and refine this study and to develop contingency plans for assuring that adequate water is available to the Cities.</p>	<p>Changes in groundwater quality.</p> <p>Changes in availability of groundwater for other water rights holders. Water use at the proposed rate of 580 to 5,040 acre feet per year depending on the project phase, could potentially cause reduced availability of groundwater in the Goshute Basin through drawdown of the groundwater table.</p>	No
<p>Implementation of the Emergency Response Plan and Spill Prevention, Control, and Countermeasure (SPCC) Plan.</p>	<p>The potential for hazardous or other wastes to spill and subsequently affect groundwater quality.</p>	No
<b>Wetlands/Riparian</b>		
<p>None</p>	<p>Potential impact from the reduction of flow in springs associated with the wetland.</p>	No
<p>None</p>	<p>Additional water discharged into Hardy Creek or adjacent areas as a result of proposed mining and processing activities has the potential to create new wetlands and riparian areas.</p>	No
<b>Geology and Minerals</b>		
<p>None</p>	<p>Ore extraction and waste rock placement. The Proposed Action would remove approximately 489 million tons of material.</p>	No

Applicant Committed EPM	Potential Impact After EPM	Mitigation Required
<b>Paleontological Resources</b>		
None	Loss of paleontology resources. Invertebrate fossils in the geologic units that would be disturbed are likely to be found throughout the outcrop area of these formations in northeast Nevada. No vertebrate or significant invertebrate fossils have been found on site in these geologic units.	No
<b>Soils</b>		
Remove growth medium (soil) from areas that would be affected by project operations and surface facilities.	Loss of productive topsoil in disturbed areas from during reclamation.	No
Salvaged growth medium would either be stockpiled or would be directly reapplied on concurrent reclamation areas. If stockpiled, growth medium would be kept out of drainage areas and seeded to prevent water and wind erosion.	Increased wind and water erosion. Environmental controls including EPMs for erosion and dust control would minimize impacts associated with erosion and off-site deposition.	No
<p>Use salvaged and stockpiled growth medium in final reclamation activities upon permanent closure of the Long Canyon Project.</p> <p>Implement a noxious weed program to prevent noxious weeds from colonizing growth medium stockpiles.</p> <p>Adherence to chemical handling practices would minimize the risk of chemical spills. An SPCC Plan and Emergency Response Plan would be followed for notification and cleanup procedures.</p>	Contamination of soils from spills of chemicals	No
<b>Air Resources</b>		
<p>Identify and control point source and non-point source forms of air emissions for construction, operations, closure, and reclamation. Develop an emissions inventory to quantify pollutants.</p> <p>Design, construct, and operate Long Canyon Project facilities with appropriate air pollution controls to comply with applicable regulations and air quality permits issued by the NDEP, Bureau of Air Pollution Control, and the EPA National Ambient Air Quality Standards.</p> <p>Process carbon at Newmont's Gold Quarry facility near Carlin, Nevada, which utilizes maximum achievable control technology to control mercury emissions, although there are only negligible amounts of mercury present in the Long Canyon Project ore.</p>	Impacts to air quality from dust, vehicle emissions, milling operations. The mining activity would result in a moderate increase in air emissions throughout the life of the project. A modeling analysis has determined that impacts would qualify as a Nevada Class II minor source. Most of the emissions as a result of the Proposed Action would be from fugitive emissions from vehicular travel.	No

Applicant Committed EPM	Potential Impact After EPM	Mitigation Required
<p>Use BMPs to control fugitive dust generation. This would include dust control for site access and haul roads using periodic watering and/or chemical treatment. A water truck would run periodically in the drier months, wetting the roads to minimize dust.</p> <p>Install water sprays and/or baghouse dust collectors at the ore crushing system and at ore reclaim feeders that deliver ore to the grinding circuit.</p> <p>Maintain internal combustion engines (diesel or gasoline powered) for efficient operation and to minimize emissions. Operate any on-site stationary diesel generators under air quality limitations required by NDEP air quality rules and regulations.</p> <p>Provide busing and/or van pooling for Newmont employees working at the Long Canyon Project to minimize traffic and emissions.</p>		
<b>Vegetation Resources</b>		
<p>Minimize removal or disturbance of vegetation by limiting the area of disturbance to the extent practicable to maintain safe and efficient operations.</p> <p>Remove vegetation and soil in a manner that minimizes erosion and sedimentation. Riparian vegetation would be avoided to the extent practicable.</p> <p>Stabilize and seed disturbed areas in accordance with BLM- and NDEP-approved guidelines and standards using certified weed-free materials.</p>	Removal of vegetation from construction and operation.	No
<p>Use certified noxious weed-free seed mixtures as part of interim, concurrent, and final reclamation.</p> <p>Newmont would be responsible for noxious weed control within areas disturbed by project activities. The list of noxious weeds requiring control would be obtained from the BLM and United States Department of Agriculture. Weed control would be accomplished using a number of appropriate tactics, including cultural, mechanical, biological, and chemical controls. Only BLM-approved herbicides would be used on lands administered by the BLM.</p> <p>Prior to commencement of construction activities, all contractor vehicles and equipment arriving from off-site would be pressure washed prior to being allowed on the property. Company vehicles and other vendor or visitor light vehicles that have come from non-established roads would also be pressure washed during construction and active operation prior to being allowed on the property. Washing practices are to include the undercarriage and wheels.</p>	Removal of vegetation may allow non-native species to become established.	No

Applicant Committed EPM	Potential Impact After EPM	Mitigation Required
None	Loss of potential habitat for the barren valley collomia, Deeth buckwheat, and rayless tansy aster.	No
<b>Wildlife Resources</b>		
<p>Enclose sources of noise in the mill circuit within the mill building.</p> <p>Maintain internal combustion engines associated with the Long Canyon Project to minimize noise.</p> <p>Limit blasting to either midday or early afternoon to minimize disruption.</p> <p>Instigate an orientation program for employees and contractors to be educated on the wildlife resources in the area. All personnel would be trained and made aware of wildlife issues.</p> <p>Prohibit hunting or discharge of firearms during construction, development, or mining operations within the fenced Plan boundary of the Long Canyon Project.</p>	<p>Noise disturbance and human activities associated with the Proposed Action may displace foraging and/or nesting golden eagles and other wildlife, including sage-grouse and the pygmy rabbit.</p>	No
<p>Conduct clearance surveys for migratory birds during the appropriate season (March 15 to July 31) before disturbance of new areas. Surveys must occur no more than 14 days prior to initiation of disturbance. If active migratory bird nests are identified, Newmont would coordinate with the BLM and NDOW to develop appropriate protection measures for these sites, which may include avoidance, construction constraints, or buffer establishment. This includes surveys for active raptor nest. If active raptor nests are identified, Newmont would work with the BLM to coordinate protection and avoidance of these nests until the young have fledged.</p>	<p>Slow-moving and/or underground-dwelling animals would likely be lost during construction activities.</p>	No
<p>Pygmy rabbit habitat would be mowed at least 72 hours before any ground-disturbing activity to allow for dispersal.</p>	<p>Loss of pygmy rabbits during construction activities.</p>	No
<p>Minimize disturbance to wildlife habitat by maintaining a compact operation.</p>	<p>Loss of mule deer crucial winter habitat during mining and processing operations.</p>	Yes, Section 3.1.1.
<p>Maintain the 500 foot mule deer migratory corridor between the mine pit and the WRSF.</p> <p>Where feasible, in coordination with grazing practices, Newmont would lay down fencing in mule deer migration corridors during the migration seasons. The appropriate locations and seasons would be coordinated with BLM and Nevada Department of Wildlife (NDOW).</p> <p>Install a wildlife exclusion fence around the TSF and the heap leach facility, but all other fences would meet BLM specification. The mine perimeter fence would be a three-</p>	<p>Habitat fragmentation as a result of the proposed disturbance related to mining and processing activities could impact mule deer, elk, and pronghorn seasonal movement.</p>	Yes, Sections 3.1.1 and 3.1.2.

Applicant Committed EPM	Potential Impact After EPM	Mitigation Required
<p>strand, 38-inch fence with the top and middle barbed. In areas of heavy cattle pressure, the fence would be a four-strand fence with three-barb strands plus a smooth wire bottom strand to facilitate wildlife movement. Reflectors would be installed where appropriate to reduce greater sage-grouse collisions. Newmont would use topographic features and ridgeline as the barrier at upper elevations.</p> <p>There would not be wildlife exclusion fencing around the mine pit post-closure.</p> <p>Clear vegetation only in those areas necessary for project activities.</p> <p>Along the haul road, cuts in berms would be placed along each side of the haul road to allow for mule deer crossing. Berm cuts will be coordinated with BLM, NDOW, and Mine Safety and Health Administration (MSHA) in order to meet the needs of all agencies and may be adjusted based on migration movement.</p> <p>Apply seasonal operational limitations for exploration activities when mule deer are migrating to their wintering grounds or if they are wintering in the Plan boundary during the timeframes established by NDOW. Limitations on the amount of surface disturbing activities, type and scale of exploration, location of disturbance, and timing of disturbance would be developed annually in consultation with the BLM by assessing on-the-ground conditions in the Plan boundary using existing and future deer tracking data (collared studies and survey flights) from NDOW.</p>		
None	Impacts to aquatic species that may reside adjacent to or within the wetland complex is unstudied.	No
None	The North Facility alternative would impact Preliminary Priority Habitat (PPH) and Preliminary General Habitat (PGH) habitat. This would result in a loss of habitat and habitat fragmentation for the greater sage-grouse.	Yes, Section 3.1.2.
Design and construct electric power structures within the Long Canyon Project boundary to deter avian perching, predation, and nesting. Incorporate perching deterrents to reduce electrocution of birds. All electrical structures and facilities constructed under the Proposed Action would be Avian Power Line Interaction Committee compliant for avian safe designs.	Impacts to raptors and migratory birds from potential collisions, electrocution, and loss of habitat.	Yes, Section 3.1.3.
Comply with NDOW Artificial Industrial Pond Permit requirements. Current design for ponds is to utilize ponds as event ponds and not production ponds. Solutions coming from the heap leach and TSF would be directed into process solution tanks. The event ponds would only be used under upset conditions when the tanks cannot contain the	Loss of eagle nest.	Yes, Section 3.1.3.

Applicant Committed EPM	Potential Impact After EPM	Mitigation Required
entire flows.		
Establish a 45-mile per hour speed limit for the main access road (county road). Speed limits within the mine (from the fence line) would be restricted to a 35-mile per hour speed limit. This would reduce the potential for vehicle/wildlife collisions. Any vehicle/wildlife (process solution mortalities, big game, sensitive species, federally-protected species, or other mortalities where appropriate) collisions would be reported to NDOW in compliance with the Artificial Industrial Pond Permit.	Long-term potential for vehicular collisions due to increased vehicular traffic.	No
<b>Range Resources</b>		
None	Suspension of animal unit months (AUMs) during the life of the mine and permanent loss AUMs associated with pit disturbance.	No
<b>Wilderness</b>		
None	There are no federally-designated Wilderness Areas and Wilderness Study Areas within or near the project area. Visibility of the proposed project and detection of sounds generated by its operation would be the only possible effects to other lands with wilderness characteristics. Because the pit cannot be reclaimed, it would be precluded wilderness designation.	No
<b>Cultural Resources</b>		
<p>Prior to disturbing new areas, cultural surveys would be conducted by archaeologists under guidance from the BLM and the State Historic Preservation Officer (SHPO). Newmont would avoid identified cultural resource sites (historic or pre-historic) or, if disturbance is unavoidable, mitigate to meet BLM and SHPO requirements.</p> <p>Inform all employees and contractors about relevant governmental regulations intended to protect cultural and historic resources, including that it is illegal to collect artifacts, or to damage or vandalize archaeological, historical, or paleontological sites or artifacts within them.</p> <p>If previously unidentified cultural resources are discovered or an unanticipated impact situation occurs, all project-related activities within 100 meters of the discovery/impact would cease immediately and Newmont would secure the location to prevent vandalism or other damage, and would notify the BLM authorized officer immediately. Activity at the location would be suspended until after the discovery has been evaluated, any necessary environmental protection measures completed and the BLM authorized officer has issued a written Notice to Proceed.</p>	Historic or prehistoric site disturbance. National Register of Historic Places (NRHP)-eligible cultural resource sites have been identified within the project area.	Yes, discussed in Section 4.1.1.

Applicant Committed EPM	Potential Impact After EPM	Mitigation Required
Newmont, its employees and contractors, would abide by all laws and regulations related to cultural and historical artifacts.		
None	Impacts to the California Trail. The Hastings Cutoff of the California Trail goes through the area. A small portion would be inside the fenced Plan boundary and inaccessible to the public. Visual impacts to the trail, currently Visual Resource Management (VRM) Class III, would be within the range allowed.	Yes, Discussed in Section 4.1.2.
None	There would be no impact on the original Continental Railroad by proposed activities.	No
<b>Native American Religious and Traditional Values</b>		
None	No Native American Site Disturbance	No
<b>Land Use</b>		
<p>Minimize disturbance by maintaining as compact an operation as practicable.</p> <p>Install and/or maintain fences around portions of the Plan boundary and cattle guards on access roads to preclude livestock access to the site, while allowing wildlife passage.</p> <p>Reclamation would return disturbed sites to a productive condition following operations.</p>	Restricted public access for recreation, hunting, and other use during active mining and reclamation.	No
<b>Visual Resources</b>		
<p>The Long Canyon Project would conform to applicable BLM visual management requirements for this area. Newmont would use early planning and design features to minimize contrast with the surrounding landscape to meet the VRM objectives of the area.</p> <p>To the extent practicable, interim and concurrent reclamation practices would be implemented.</p> <p>Existing utility corridors, roads and areas of disturbed land would be utilized wherever possible.</p> <p>Final reclamation would restore disturbed areas to blend with the surrounding landscape.</p> <p>External lighting would be kept to the minimum required for safety and security purposes.</p> <p>Lights would be directed down toward the interior of the project site. All proposed lighting</p>	<p>Conflicts with established BLM VRM objectives. Under the North Facilities Alternative the WRSF, heap leach facility, and a growth medium material stockpile would be located within the Low Visibility Corridor. These components would conflict with the VRM objectives of the corridor.</p> <p>Change in scenic quality of the existing landscape.</p>	<p>No</p> <p>No</p>

Applicant Committed EPM	Potential Impact After EPM	Mitigation Required
<p>shall be located to avoid light pollution onto any adjacent lands as viewed from a distance. All lighting fixtures shall be hooded and shielded, face downward and directed on to the pertinent site only, and away from adjacent parcels or areas.</p> <p>Non-reflective, earth tone paints would be used on mine site buildings and other structures.</p> <p>A lighting plan would be developed indicating the types of lighting and fixtures, the locations of fixtures, lumens of lighting, and the areas illuminated by the lighting plan.</p> <p>Any required Federal Aviation Administration lighting should be consolidated and minimized wherever possible.</p>		
<b>Recreation</b>		
<p>Allow only authorized travel into the Plan boundary to protect public safety. No unauthorized vehicles, personnel, alcohol, illegal drugs, or firearms would be permitted on-site. Roads within the project area would be closed for public safety.</p> <p>Implement plans to control public access into the mine area using fencing, gate locking, security personnel, and/or notice postings to prohibit unauthorized entry. Signs would be posted outside the mine area to redirect public travel as required. The signs would specify that Goshute Valley is accessible from the Shafter exit (i.e., Exit 387) on Interstate 80, and include a map to the exit.</p> <p>Prevent hunting within areas posted or fenced during the mine operation, but hunting would continue on public lands outside of fenced or posted project areas.</p> <p>Inform employees, contractors, and subcontractors that long-term camping (greater than 14 days) is prohibited on federally-administered lands.</p> <p>The mine perimeter fence would be a three strand 38 inch fence with the top and middle barbed. In areas of heavy cattle pressure the fence would be a four strand fence with three-barb strands plus a smooth wire bottom strand to facilitate wildlife movement. Newmont would use topographic features and ridgeline as the barrier at upper elevations.</p> <p>Instigate an orientation program for employees and contractors on the wildlife resource of the area. Make sure personnel are aware that it is prohibited to harass wildlife.</p>	<p>Conflicts with existing federal, state, and local recreation management plans and policies. Proposed Action would not conflict with any known existing federal, state, and local recreation management plans and policies.</p>	No

Applicant Committed EPM	Potential Impact After EPM	Mitigation Required
None	Change in access to existing recreation opportunities or areas. Project area would not be accessible for recreational use for the life of the project.	No
None	Impacts on solitude, hunting and non-motorized use.	No
<b>Socioeconomics</b>		
Implement hiring practices that encourage the use of local contractors and workers to the extent available.	The Proposed Action would bring a county-wide increase of 2.8 percent in employment and 4.3 percent in earnings over the 2011 base. For the local residents, the increased opportunities of high-paying employment would be considered beneficial. Consequently, local businesses may face competition for workers and upward pressure on wages.	No
Maintain a comprehensive program of health and safety training for employees. This program would include environmental considerations.	Population and housing. Population would increase slightly (1.7 percent), and available housing would decrease. Housing costs may increase as a result.	No
	Infrastructure and community services. The Proposed Action is not expected to have an appreciable effect on infrastructure but may slightly increase calls to law enforcement and emergency services.	No
<b>Environmental Justice</b>		
None	No impacts on minority or low-income populations were identified.	No
None	No undue burden to children were identified.	No
<b>Hazardous and Solid Waste</b>		
<p>Collect, treat, and dispose of sanitary waste in accordance with all applicable codes and regulations.</p> <p>During construction, development, and mining activities contain trash and other miscellaneous inert (non-hazardous) garbage in on-site containers, and then haul to an on-site landfill for disposal.</p> <p>Prevent open burning of garbage and refuse at the site.</p>	General	No

Applicant Committed EPM	Potential Impact After EPM	Mitigation Required
<p>Transport hazardous chemicals to the mine site in United States Department of Transportation (USDOT)-certified containers and transporters that would comply with USDOT, Occupational, Safety and Health Administration, and MSHA regulations.</p> <p>Personnel transporting, handling, or using any hazardous chemicals (including sodium cyanide) would be trained to ensure the safe use of such materials.</p>	<p>Accidental spills/releases during transportation to and from the project area. Chemical spills during transportation could occur but the probability of a spill is expected to be very low. The commercial transportation company would be responsible for first response and cleanup. Local and regional law enforcement and fire protection agencies also may be involved to secure the site and protect public safety.</p>	<p>No</p>
<p>Store hazardous chemicals in designated areas with secondary containment for safety and to prevent environmental releases.</p> <p>The heap leach, mill, and TSF would be designed as zero discharge facilities to prevent release of process solutions and wastes to the environment.</p> <p>Store fuel and other petroleum products at the site in above-ground tanks, with secondary containment measures. Newmont would maintain a SPCC Plan for the operation as required by 40 Code of Federal Regulations 112 regulations.</p> <p>Maintain a site-specific Emergency Response Plan to respond to spills and releases at the Long Canyon Mine. The procedures outlined in the Emergency Response Plan would be followed to protect the environment, the health of employees and the general public, and to comply with federal and state regulations.</p> <p>Develop a mine-site petroleum-contaminated soil management plan compliant with NDEP regulations.</p> <p>Store petroleum waste products, spent solvents, maintenance wastes, and hazardous wastes in approved containers separate from other trash products and transport these materials off-site for recycling or disposal in approved waste facilities.</p>	<p>Accidental spills/releases during storage or use on the project site. Some spills of chemicals and fuel could occur during operations. In the event of such a spill, the spill would be handled in accordance with the Spill Contingency Plan/Emergency Response Plan.</p>	<p>No</p>

**Table 2 Health and Safety/Fire Prevention/General Environmental Protection Measures**

Comply with applicable federal and state fire law and regulations. Take all reasonable and practical measures to prevent and suppress fires in the area of operations.
Follow project-specific Site Emergency Response Plan fire procedures. This plan includes procedures for mine structure/surface fires, mobile equipment fires, wildland fires, Liquefied Petroleum Gas/natural gas fires, and explosive fires.
Report all fires to the Health, Safety, and Loss Prevention (HSLP) Manager. The HSLP Manager would report to the BLM and MSHA as appropriate. The insurance company would also be notified. Proper documentation would be kept (i.e., pictures, date, time, circumstances, etc.). Documentation is the responsibility of the area Supervisor and HSLP Manager.
Provide first aid supplies at various locations around the mine site, including the main administrative offices and the mill facility.
Maintain a mine emergency vehicle at the site, which would be parked in the warehouse/shop building, and would be available for mine emergency situations.
Establish a mine rescue team that would include certified Emergency Medical Technicians on-site on any given shift.
Conform to health and safety rules and regulations of MSHA. Such MSHA regulations require worker safety training and the maintenance of a ground control plan for mining operations.
Manage public access on the project site to restrict unauthorized entry and provide for public safety.
Maintain a training room in the administrative office building. Newmont has new miner and refresher training as part of its Nevada operations.
MSHA governs worker health and safety, which includes requiring hearing protection for workers in high noise areas.
Only authorized travel would be allowed into the project area to protect public safety. No unauthorized vehicles or personnel would be permitted on-site. The Long Canyon road would be closed to the public, in compliance with MSHA regulations.
Newmont would implement plans to control public access into the mine area using fencing, gate locking, security personnel, and/or notice postings to prohibit unauthorized entry. Signs would redirect public to available access routes outside the mine area.
Public access to the Goshute Valley south of the project would be via the Shafter exit 387 off Interstate 80 and existing roads.

### 3.0 WILDLIFE RESOURCES, INCLUDING SPECIAL STATUS WILDLIFE, AND MIGRATORY BIRDS

#### 3.1 MITIGATION

##### 3.1.1 Mule Deer

In order to minimize the loss of mule deer crucial winter habitat during mining and processing operations and minimize habitat fragmentation for mule deer migratory corridors the following mitigation measures shall be implemented.

##### Mitigation Measure W-1

Newmont would mitigate crucial winter habitat at a 1:1 ratio for permeant habitat lost during construction and operation of the mine. Mitigation under this measure would occur on mule deer habitat that is not also categorized as greater sage-grouse habitat.

Mitigation would include habitat enhancements within the northwest corner of the Plan boundary; however, if exploration/mining activities expand within the mitigated/enhanced habitat, then Newmont would continue to mitigate loss of habitat at the 1:1 ratio. These additional enhancements would occur off-site. Off-site, but regionally important, habitat enhancements could include funding locations in the South Pequop Range/Spruce Mountain for pinyon-juniper thinning, browse species seeding, or other habitat enhancements beneficial to the Area 7 mule deer. A Memorandum of Understanding (MOU) between BLM, NDOW, and Newmont would be established to guide mitigation funding and enhancement projects. Mitigation costs would be \$600 per acre (NDOW, 2010). Table 3 provides the proposed disturbance to public land that would be mitigated under this mitigation measure.

**Table 3 North Facilities Alternative Mule Deer Crucial Winter Habitat Mitigation Acres (Public Acres)**

Mule Deer Crucial Winter Habitat on Public Land	749
Overlap with Greater Sage-grouse Mitigation	-151
<b>Total Mule Deer Crucial Winter Habitat Mitigation Acres</b>	<b>598</b>

##### 3.1.2 Aquatic Species

##### Mitigation Measure W-2

During the operation, Newmont would conduct monitoring of water resources in accordance with the monitoring program developed for the state permits. If there is a significant change noted during this monitoring, Newmont would inform the BLM of the changing conditions and the BLM would then determine if a working group is necessary to develop a management strategy for sensitive species using the wetland and riparian resources.

At the end of the operation, the BLM would look at the conditions and available information on the spring system and determine if it is necessary to develop a working group and management strategy for the system to protect sensitive species using the wetland and riparian resources.

### **3.1.3 Greater Sage-Grouse**

The North Facility alternative would impact mapped greater sage-grouse PPH and PGH habitat. This would result in a loss of habitat and habitat fragmentation for the greater sage-grouse. The BLM is mandated to require impacts be reduced to an acceptable level with on-site mitigation (IM 2012-43). However, where impacts are unavoidable or cannot be reduced through on-site mitigation, off-site mitigation is required (WO-IM-2008-204). In order to reduce impacts to greater sage-grouse habitat, the following mitigation measures shall be implemented. The EIS determined that greater sage-grouse may be impacted from noise, particularly during lekking season. Certain features may also pose a mortality risk to the birds. In order to reduce these impacts to an acceptable level, the following mitigation measures for greater sage-grouse shall be implemented.

#### Mitigation Measure W-3

A seasonal restriction would be in place for exploration drilling. This restriction includes no exploration disturbances within a three-mile radius of the Big Springs lek from March 1 to May 15 from one hour before sunrise to 10 AM.

#### Mitigation Measure W-4

A seasonal restriction for the use of the south borrow pit, access road to the borrow pit, the Cities' water supply area and the access to the Cities' water supply area would be in place. The restriction includes no human or vehicular access from March 1 to May 15 from one hour before sunrise to 10 AM. Emergency access, if necessary, to the Cities' water supply area during these seasonal restrictions would be coordinated with the BLM.

#### Mitigation Measure W-5

Compensation for impacts to greater sage-grouse habitat within the project area would be required by the BLM and NDOW. Funding for habitat improvement on public land would be based on the acres of PGH and PPH habitat impacted on public land by the proposed project. Funding would occur to support off-site habitat improvement projects to improve greater sage-grouse PGH and PPH habitat. Habitat improvement projects would take place within the East Valley Population Management Unit (PMU) or adjacent PMUs. The funding would be no more than 3:1 ratio for PPH and 2:1 PGH at \$600 per

acre (BLM, 2013). Mitigation compensation would be assessed annually based on the disturbance planned for the upcoming year. This would be outlined in a Memorandum of Agreement (MOA) between BLM and Newmont. Table 4 provides the proposed disturbance to public land that would be mitigated under this mitigation measure.

**Table 4 North Facilities Alternative Greater Sage-Grouse Mitigation Acres (Public Acres)**

<b>PPH Habitat</b>	
Mining and Processing Facilities	590
Power Supply Pipeline	66
Cities' Water Supply	11
<b>Total PPH</b>	<b>667</b>
<b>PGH Habitat</b>	
Mining and Processing Facilities	152
Power Supply Pipeline	1
Cities' Water Supply	2
<b>Total PGH</b>	<b>155</b>

Mitigation Measure W-6

Newmont would install flight diverters on fencing near the greater sage-grouse lek and brood rearing habitat to reduce collisions. The placement of the flight diverters would follow the recommendations provided in the current scientific industry standards and coordinated with BLM and NDOW. Additionally, Newmont would fully implement recommendations in their Bird and Bat Conservation Strategy (BBCS).

**3.1.4 Golden Eagles**

Mitigation Measure W-7

Newmont's BBCS was developed in coordination with the BLM and NDOW to avoid or minimize potential impacts to raptors, migratory birds, and bats from mine construction and operations. Newmont would fully implement and adhere to the construction techniques, design standards, and avian injury and mortality reporting set forth in the BBCS. The BBCS is provided as Appendix A of this document.

**3.2 COMPLETION SCHEDULE**

**3.2.1 Mule Deer**

The BLM, in consultation with NDOW, would determine where restoration projects should be completed. The mitigation shall be coordinated and completed according to the MOU/MOA developed between BLM, NDOW, and Newmont.

### **3.2.2 Aquatic Species**

Monitoring of potential impacts to water resources would be completed as outlined in the state permits throughout construction, mining, and project reclamation.

### **3.2.3 Greater Sage-Grouse**

Mitigation measures W-3 and W-4 would be implemented throughout the life of the project. Mitigation measure W-6 will be implemented during the initial construction phase of the project.

For Mitigation W-5, the BLM, in consultation with NDOW, would determine where restoration projects shall be completed. Mitigation shall take place within the East Valley PMU or adjacent PMUs if no acceptable restoration area is available within the East Valley PMU. The mitigation shall be coordinated and completed according to the MOU/MOA developed between BLM, NDOW, and Newmont.

### **3.2.4 Golden Eagle**

This mitigation shall take place as outlined in the BBCS throughout the life of the project (Appendix A).

## **3.3 DETERMINATION OF EFFECTIVENESS OF PROPOSED MITIGATION**

### **3.3.1 Mule Deer**

The effectiveness of the mitigation and EPMs shall be determined by conducting monitoring of the mule deer in the project area. The Long Canyon Mine Mule Deer Monitoring Plan is provided in Appendix B of this document and outlines the monitoring to take place as well as the adaptive management that may be implemented.

### **3.3.2 Aquatic Species**

If the monitoring of water resources determines the formation of a working group is necessary, the management strategy developed for aquatic species by this working group would outline the criteria to determine the success of the management strategy.

### **3.3.3 Greater Sage-Grouse**

The effectiveness of the off-site mitigation shall be determined by the BLM and NDOW for the specific mitigation projects the funding is use for.

### **3.3.4 Golden Eagles**

Effectiveness of mitigation will be determined as outlined in the BBCS and by raptor nest usage surveys.

### **3.4 RESIDUAL IMPACTS FROM MITIGATION**

#### **3.4.1 Mule Deer**

The BLM, in consultation with NDOW, shall determine where mule deer restoration projects would be completed; therefore, site specific analysis cannot currently be prepared. The need for National Environmental Policy Act of 1969 (NEPA) analysis for these restoration projects would be determined by the BLM.

#### **3.4.2 Aquatic Species**

Until a management strategy has been developed, residual impacts from this mitigation cannot be determined. The BLM will determine residual impact if and when a management strategy for aquatic species is necessary.

#### **3.4.3 Greater Sage-Grouse**

The BLM, in consultation with NDOW, shall determine where sage-grouse restoration projects would be completed; therefore, site specific analysis cannot currently be prepared. The need for NEPA analysis for these restoration projects would be determined by the BLM.

#### **3.4.4 Golden Eagles**

No residual impacts are expected from the implementation of mitigation measures.

## **4.0 CULTURAL RESOURCES AND NATIONAL TRAILS**

### **4.1 MITIGATION**

#### Mitigation Measure C-1

A Programmatic Agreement between BLM, Nevada SHPO, and Newmont has been developed for direct impacts to cultural resources, which outlines how NRHP-eligible cultural resources would be managed throughout the life of the project (Appendix C).

#### Mitigation Measure C-2

A Historic Property Treatment Plan has been developed to define how NRHP-eligible cultural resource sites within areas of proposed disturbance would be mitigated. For the natural gas pipeline, a separate Historic Properties Treatment Plan would be developed to mitigate any direct adverse effects on historic properties.

#### Mitigation Measure C-3

The Programmatic Agreement currently in place has been amended to add the indirect effects Area of Potential Effects. An analysis report has been initiated to assess the indirect effects such as noise and visual on cultural resources including the Hastings Cutoff and other historic properties within the APE, which could be affected from the proposed project. The Programmatic Agreement Amendment directs that a Historic Properties Treatment Plan be developed to mitigate the indirect adverse effects on the identified historic properties. All mitigation would be concurred upon with the BLM and Nevada SHPO. Other parties may be included such as National Park Service for the Hastings Cutoff. A draft of the Programmatic Agreement Amendment is available for review as Appendix C of this document.

### **4.2 COMPLETION SCHEDULE**

The Completion of the cultural resources and National Trails mitigation would be required as outlined in the Programmatic Agreement (Appendix C).

### **4.3 DETERMINATION OF EFFECTIVENESS OF PROPOSED MITIGATION**

Effectiveness of mitigation will be determined by the BLM in consultation with SHPO and other consulting parties, as appropriate. Effective mitigation for NRHP-eligible cultural resources will be achieved through completion and approval by BLM and SHPO of the site-specific Treatment Plan and Programmatic Agreement.

### **4.4 RESIDUAL IMPACTS FROM MITIGATION**

Residual impacts from this mitigation will be determined by the BLM and SHPO on the HPTP that has been developed and implemented.

## 5.0 REFERENCES

Bureau of Land Management (BLM). 2013. Memorandum of Understanding Among the U.S. Department of the Interior, Bureau of Land Management, Nevada State Office, The United States Department of Agriculture, United States Forest Service, Humboldt-Toiyabe National Forest, Nevada Department of Conservation and Natural Resources, and Barrick Gold of North America, Newmont Mining Corporation, and Other Companies Regarding the Establishment of a Partnership for the Conservation and Protection of the Greater Sage-Grouse and Greater Sage-Grouse Habitat. August 2013.

Nevada Department of Wildlife (NDOW). 2010. Nevada Energy and Infrastructure Standards to Conserve Greater Sage-Grouse. Governor's Sage-grouse Conservation Team. April 2010.

## **APPENDIX A**

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### **Bird and Bat Conservation Strategy**



# **BIRD & BAT CONSERVATION STRATEGY**

## **LONG CANYON PROJECT**

Prepared by:  
Newmont Mining Corporation  
1655 Mountain City Highway  
Elko, Nevada 89801

**December 2014**

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## 1.0 INTRODUCTION

### 1.1 Statement of Purpose

Bird and Bat Conservation Strategies (BBCSs), formerly known as Avian Protection Plans, are a project-specific document that outlines a program to reduce the potential risks of bat and avian mortality that may result from the construction and/or operation of a project.

The United States (US) Department of Interior, Bureau of Land Management (BLM) Wells Field Office is currently preparing Newmont Mining Corporation's (Newmont) Long Canyon Project (Project) Environmental Impact Statement (EIS) (BLM, 2014). The EIS will provide a specific analysis of the potential Project impacts to birds and bats. Newmont has voluntarily prepared this BBCS to outline project-specific practices and measures for reducing avian and bat impacts that may potentially result from the Project.

### 1.2 Bird and Bat Conservation Strategy Goals

The implementation of this BBCS will contribute to the achievement of the principal goal of reducing impacts to birds and bats and fulfill multiple goals as follows:

- Reduce the potential for avian and bat injury or mortality by implementing best management practices;
- Identify and isolate where avian and bat mortality has occurred or has the potential to occur to minimize future incidents;
- Establish an avian and bat reporting system to document incidents of mortality resulting from all project-related features; and
- Assist Newmont in compliance with state and federal laws regarding avian and bat species to avoid penalties and fines.

### 1.3 Bird and Bat Conservation Strategy Regulatory Requirements

#### 1.3.1 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) of 1918 (16 United States Code [U.S.C.] 703-712) is administered by the US Fish and Wildlife Service (USFWS). The MBTA implements a series of international treaties and provides for migratory bird conservation and

protection in the US. The MBTA (16 U.S.C. 703-712) states “it shall be unlawful, except as permitted by regulations, to pursue, hunt, take, capture or kill any migratory bird, or any nest, egg, or product of any such bird”. A “take” is defined as, “to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect” (16 U.S.C. 703-712). Currently, the MBTA protects approximately 1,026 bird species, including waterfowl, shorebirds, seabirds, wading birds, raptors, and songbirds (USFWS, 2013).

### 1.3.2 Bald and Golden Eagle Protection Act

Under the Bald and Golden Eagle Protection Act (BGEPA) of 1940 (16 U.S.C. 668-668d, 54 Stat. 250), bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*) are provided additional legal protection. The BGEPA makes it unlawful to “import, export, sell, purchase, barter, or take any bald eagle or golden eagle, their parts, products, nests, or eggs” (16 U.S.C. 668-668d, 54 Stat. 250). As used in the BGEPA, “take” includes pursuing, shooting, poisoning, wounding, killing, capturing, trapping, collecting, molesting, or disturbing an eagle, and to “disturb” means to agitate or bother an eagle to a degree that causes, or is likely to cause (1) injury to an eagle; (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior; or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior (16 U.S.C. 668-668d, 54 Stat. 250).

### 1.3.3 Endangered Species Act

The USFWS administers the Endangered Species Act (ESA) of 1973 for terrestrial and freshwater organisms (16 U.S.C. 1531-1544, 87 Stat. 884). Section 7 of the ESA requires USFWS to ensure that any action authorized, funded or carried out by them is not likely to jeopardize the continued existence of listed species or modify their critical habitat. Protection of listed species is also achieved through cooperative agreements with States for the conservation of endangered and threatened species. Section 9 of the ESA makes it unlawful for a person to “take” a listed species. Under the ESA, take is defined as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct” (16 U.S.C. 1531-1544, 87 Stat. 884). The regulatory meaning of the word “harm” has been defined by the Secretary of the Interior as “an act which actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering” (USFWS, 1998). However, under

Sections 7 and 10 of the ESA, permits for incidental take can be obtained from USFWS for take of a threatened or endangered species.

#### 1.3.4 BLM Policy

Following the BLM Manual 6840, BLM has implemented policies for special status species found on BLM-managed lands (BLM, 2008). BLM's list of special status species includes species that are listed or proposed for listing under the ESA and species requiring special management consideration to promote their conservation and reduce the likelihood and need for future listing under the ESA. Additionally, all federal candidate species, proposed species, and delisted species (for five years after delisting) will be protected as BLM sensitive species (BLM, 2008).

#### 1.3.5 State of Nevada Regulations

The State of Nevada has identified wildlife species that are declining in their range throughout Nevada or are otherwise rare and at risk of extinction. Sensitive and protected animal species are protected in Title 45 of Nevada Revised Statutes (NRS) (NRS 501.001 - 503.660). Classification of wildlife species and related regulations are detailed in Chapter 503 of Nevada Administrative Code (NAC).

## 2.0 STUDY AREA

### 2.1 Project Area Description

The Project is located 28 miles southeast of the town of Wells, Nevada and 32 miles northwest of the town of West Wendover, Nevada (Figure 1). Access to the Project is two miles south on Elko County Road 790, which is accessed from Interstate 80 (I-80) at the Oasis/Montello Exit 378. The Project boundary encompasses approximately 24,200 acres on both private Newmont ownership and public lands administered by the BLM, Wells Field Office. The Project is located in all or portions of the following sections: Sections 11 through 15, 17, and 19 through 36 of Township 36 North (T36N), Range 66 East (R66E); Sections 24 and 25 of T36N, R65E; and Sections 1 through 6 and 9 through 16 of T35N, R66E, Mount Diablo Base Line & Meridian.

The Project sits on the east side of the Pequop Range, and is part of the Calcareous Mountains of the Great Basin Floristic Division of the Intermountain Region (Cronquist et al., 1994). The Project area extends from the foothills on the eastern flank of the Pequop Mountains east to the Goshute Valley, which includes the Johnson Springs wetland system (Wetland Complex) and

associated ephemeral stream channel, Hardy Creek. Big Springs, the principal spring in the Wetland Complex, and numerous smaller springs contribute to the outflow which forms Hardy Creek. These natural features are accompanied by artificial hydrological features including a series of excavated ditches, berms, and dams. Slopes range from nearly level along the primary floodplain gradient to vertical along portions of the limestone and quartzite outcrops in the foothills. Elevations range from 5,600 feet to 7,800 feet above mean sea level.

In 2011 and 2012, Great Basin Ecology performed ecological site and rangeland health assessments within the Project area. From these field assessments, ecological sites were categorized into four major vegetation communities. The major vegetation community types in the Project area include sagebrush, woodland, salt desert shrub, and wetland (GBE, 2012). The distribution and composition of these vegetation communities varies throughout the Project area and is influenced by soils, hydrology, and disturbance history. Below, the vegetation communities are described from the biological baseline inventory report (GBE, 2012).

### Sagebrush Community

The sagebrush community can be further divided into the big sagebrush community and the dwarf sagebrush community. The big sagebrush community occurs primarily on the valley floor sites and is intermixed with the salt desert shrub community. The big sagebrush community is dominated by shrubs including Wyoming big sagebrush (*Artemisia tridentata* ssp. *wyomingensis*), basin big sagebrush (*Artemisia tridentata* ssp. *tridentata*), rubber rabbitbrush (*Ericameria nauseosa*), and Douglas rabbitbrush (*Chrysothamnus visidiflorus*). Where soils are moderately sodic, black greasewood (*Sarcobatus vermiculatus*) and fourwing saltbush (*Atriplex canescens*) are also present. Perennial grasses commonly found associated with big sagebrush included Great Basin wildrye (*Leymus cinereus*), bottlebrush squirreltail (*Elymus elymoides*), alkali sacaton (*Sporobolus airoides*), thickspike wheatgrass (*Elymus lanceolatus* var. *lanceolatus*), and Sandberg bluegrass (*Poa secunda*). Cheatgrass (*Bromus tectorum*), a non-native invasive annual grass is also present in some areas. The dwarf sagebrush community consists of black sagebrush (*Artemisia nova*) and low sagebrush (*Artemisia arbuscula*). Black sagebrush is found on calcareous soils with a shallow duripan and low sagebrush is found on claypan soils. The black sage sites also support scattered single-leaf pinyon pine (*Pinus monophylla*) and Utah juniper (*Juniperus osteosperma*). Where deeper soils occur, mountain big sagebrush (*Artemisia tridentata* spp. *vaseyana*) and antelope bitterbrush (*Purshia tridentata*) are common. Common perennial grasses include Indian ricegrass (*Achnatherum hymenoides*), bluebunch wheatgrass (*Pseudoroegneria spicata*), needle-and-thread grass (*Hesperostipa comata*), western needlegrass (*Achnatherum occidentale*), bottlebrush squirreltail, and Sandberg bluegrass. Cheatgrass is also present in this community.

### Salt Desert Shrub Community

The salt desert shrub community is dominated by black greasewood and/or shadscale (*Atriplex confertifolia*) and depending on the ecological site, mixed with Wyoming big sagebrush, basin big sagebrush, rubber rabbitbrush, bud sagebrush (*Picrothamnus desertorum*), or Douglas rabbitbrush. Perennial grasses included Great Basin wildrye, alkali cordgrass (*Spartina gracilis*), alkali sacaton, bottlebrush squirreltail, and Indian ricegrass. Cheatgrass is present at some sites. This community is found mainly at the lowest elevations within the Project area.

### Woodland Community

The woodland community is dominated by single-leaf pinyon pine and Utah juniper. Woodland occurs on rock outcrops and extremely shallow soils, as well as calcareous slopes where pinyon and juniper encroached and replaced the sagebrush community. In the true woodland sites, the understory was lacking shrubs, grasses, and most forbs. Where encroachment is occurring, there is a diverse plant community. Each site varies as to which understory species are present, but overall, this community includes a large number of species. This community is dominant on the western side of the Project Area.

### Wetland Community

The vegetation for the wetland community was grouped into two basic communities: Emergent Marsh and Alkali Wet Meadow. The Emergent Marsh community is comprised of Alkali Emergent Marsh and Freshwater Emergent Marsh. Alkali Emergent Marsh is observed throughout the Wetland Complex in isolated pockets of remnant channels, springs, and ponds. These habitats often integrate with Freshwater Emergent Marsh which supports species indicative of a more consistent freshwater output. Common species observed in both habitats included bulrush (*Scirpus acutus*), cattail (*Typha latifolia*), mare's-tail (*Hippuris vulgaris*), and water hemlock (*Sium suave*). As site conditions become drier, the wetlands transition to Alkali Wet Meadow. Alkali Meadow supports alkaline tolerant perennial grasses, sedges, and forbs. Grass species observed during the survey included fowl bluegrass (*Poa palustris*), foxtail barley (*Hordeum jubatus*), saltgrass (*Distichlis spicata*), Lemmon's alkaligrass (*Puccinella lemmonii*), and scratchgrass (*Muhlenbergia asperifolia*). Common sedges and rushes include clustered field sedge (*Carex praegracilis*) and Baltic rush (*Juncus balticus*). Forbs include seaside arrowgrass (*Triglochin maritima*), willowherb (*Epilobium ciliatum* ssp. *ciliatum*), and rayless alkali daisy (*Aster brachyactis*).

### Other

Disturbed sites are common in the valley, especially in sites converted for agricultural use. These sites are composed of invasive species, typically non-native, that colonize disturbed and bare ground sites. These sites contain species, such as cheatgrass, Russian thistle (*Salsola iberica*), halogeton (*Halogeton glomeratus*), bur buttercup (*Ranunculus testiculatus*), common burdock (*Arctium minus*), tansymustard (*Descurainia pinnata*), tumble mustard (*Sisymbrium altissimum*), and bird's rape mustard (*Brassica rapa*). Several noxious weeds were observed within the Wetland Complex and adjacent site, species include: bull thistle (*Cirsium vulgare*), Canada thistle (*Cirsium arvense*), hairy white-top (*Cardaria pubescens*), hoary cress (*Cardaria draba*), Russian knapweed (*Acroptilon repens*), Scotch thistle (*Onopordum acanthium*), and yellow toadflax (*Linaria vulgaris*).

## 2.2 Description of Project

The Project is an open-pit gold mine that will initially consist of an open pit, heap leach facility (HLF), carbon in column facility, waste rock storage facility (WRSF), truck shop, administration building, and other support facilities. A mill and tailings storage facility (TSF) is anticipated to be constructed in the future. The Project would result in about 3,875 acres of total land surface disturbance of which 1,731 acres are located on public land and 2,144 acres are located on private land.

Operations will consist of drilling and blasting in the open pit to break the rock prior to excavation. Run-of-mine ore will be loaded using hydraulic shovels and loaders into off-highway haul trucks for transport to the HLF located northeast of the open pit, or processed on site once a mill has been permitted and constructed. Waste rock will be loaded and hauled to the WRSF located east-northeast of the open pit. Mining will be conducted 24 hours per day and seven days per week. Upon completion of the mining operations, the facilities would be closed and reclaimed. The projected mining period is 10 years, with associated construction, closure, reclamation and post-closure monitoring periods extending the Project life to approximately 14 years.

The Project includes authorized exploration disturbances and the proposed activities and mine components as detailed below.

- Establish a new Plan of Operations (PoO) permit boundary that incorporates the existing permitted exploration PoO.

- Construct, operate, reclaim, and close the following:
  - One open pit: Long Canyon Pit (will not be reclaimed via backfill);
  - One WRSF;
  - One mill facility;
  - One TSF;
  - Ore, growth medium, and woody debris stockpiles;
  - One HLF and associated processing facilities and pond;
  - Water supply well and delivery/storage system;
  - Haul and secondary roads;
  - Exploration within the PoO; and
  - Other ancillary facilities including: power supply; stormwater controls; reagent, fuel, oils, and explosives storage; buildings including administration, truck shop, wash bay, geology, core shed, security; ready lines and light vehicle parking areas; potable water supply and septic systems; communications towers; Class III waived landfill (within the WRSF); temporary petroleum contaminated soil (PCS) holding pad; permanent PCS disposal area (within the WRSF); helicopter pads; borrow areas; fencing; monitoring wells; yards; and inter-facility disturbance.

The Project involves exploration, construction, operation, and reclamation/closure. Exploration activities are currently ongoing under existing surface exploration plans (BLM, 2011, 2013) and will continue during mine construction and operation. The proposed surface disturbances within the PoO are summarized in Table 1 and shown in Figure 2. Mining activities would be conducted within the facilities shown on Figure 2, while exploration may occur anywhere within the Project boundary.

**Table 1. Summary of Proposed Disturbance within the Project Area**

Disturbance Category	Total Disturbance (acres)		
	Public Land	Private Land	Total
<b>Exploration</b>			
Roads and Pads	113	235	348
Overland Travel	-	21	21
Storage Ponds	-	10	10
Staging Areas	1	8	9
Trenches	1	1	2
<b>Operation</b>			
WRSF	291	691	982
HLF	146	74	220
Haul Roads	19	52	71
Access Roads	31	32	63
Pits	693	43	736
Borrow Sites	25	390	415
TSF	66	153	219
Yards	41	64	105
Mine Office, Shop, & Mill Facilities	2	113	115
Growth Medium Stockpiles	168	1	169
Explosives Storage	-	1	1
Miscellaneous Ancillary	3	13	16
Drainage	-	19	19
County Road 790	5	20	25
Power Supply (Electric only)	11	27	38
Mine Water Supply	6	12	18
<b>GRAND TOTAL</b>	<b>1,622</b>	<b>1,980</b>	<b>3,602</b>

## 2.3 Avian and Bat Protection Measures and Modifications

### 2.3.1 Collision

#### 2.3.1.1 Ancillary Facilities

The larger buildings constructed for the project includes the truck shop, wash bay, core shed and processing buildings. These buildings would have a very low potential for avian and bat collisions.

### 2.3.1.2 Transmission Lines, Power Poles, Communication Towers

Line power to the Big Springs Ranch, located within the Project area, is currently supplied by Wells Rural Electric Company (WREC). Portions of the existing line will be upgraded and additional power lines will be constructed by WREC to supply power to the mine facilities. The power line poles would be constructed using a wooden monopole with a fiberglass cross-arm and avian deterrent construction. Some poles may require the use of guy wires for stability purposes. The guy wires and static line are generally the smallest diameter wires and therefore would be the most likely to be involved with avian collisions. All guy wires that are required for power poles within the Project boundary will be marked to prevent avian and bat collisions.

Two communication towers would be installed and utilized during mining operations. One tower would be located near the pit and the second tower near the processing facilities. Both towers would be of a lattice type construction and would have a total height of up to 80-feet and 190-feet respectively for each. These communication towers are designed to comply with the USFWS communication tower recommendations (USFWS, 2012). The following protection measures will be implemented to avoid or minimize adverse impacts to migratory birds, federally listed or proposed endangered and threatened species, and other wildlife from communication towers and antennae:

- height not more than 199 feet above ground level;
- no lights (aircraft warning lights);
- no guy wires;
- sited away from wetlands and areas with a known high incidence of fog, mist, and low cloud ceilings, and habitats supporting threatened or endangered species;
- down-shield security and maintenance lighting for equipment to keep light within the boundaries of the site.

### 2.3.2 Electrocutation

Transmission lines and poles supplying power to the mine facilities would be constructed in accordance with the avian-safe design criteria recommended by the Avian Power Line Interaction Committee (APLIC). All energized components, such as

transformers, on the transmission lines will meet the avian-safe design criteria and/or have avian protection covers. In addition, to the avian-safe design and protection covers, the cross-arm for all poles will be brace-less and fiberglass. The fiberglass brace-less arms increase loading strength, are non-conducting, increase conductor spacing and prevent nesting. The APLIC avian-safe design standard recommends at least five feet of clearance between phases and any electrical ground. Each phase of the three-phase transmission line for the mine facilities would be spaced approximately five to seven feet from each other, depending on the power pole structure. There would be approximately five feet of clearance from the upper conductor and the single static line at the top of the pole. This configuration should preclude most small birds, bats, and raptors from becoming electrocuted. Appendix A contains the measures that may be used on the power poles to minimize the potential for electrocution of avian species.

### 2.3.3 Process Pond

The Process Pond is rectangular in shape with crest dimensions of 440 ft. x 635 ft. and has an internal berm that divides the pond into two equal cells identified as the North Cell and South Cell. The internal berm is located at a level 10-ft below the pond crest. Each cell has a capacity of 4.9 million gallons (Mgal) to the top of the berm. The maximum operating level of the pond is 17.4 Mgal. The process pond will be double lined with 80-mil HDPE geomembrane with an interlayer of geonet for leak detection.

The current operational design is to utilize the process pond as an events pond and not an operational process pond. A pregnant solution tank located next to the pond would handle normal solution flows coming from the HLF. The events pond will be located downgradient of the pregnant solution tank and would contain any excess water flowing from the HLF. This would be a temporary condition as solution from the pond would be pumped back to the pregnant solution tank. During operations, the events pond would have some solution and/or meteoric water within the pond pump sumps. The dedicated pumps located within the sumps must remain submerged for maintenance and operational reasons. Solution and meteoric water is anticipated to be in the pond approximately 90-days per calendar year. Solution in the pond is anticipated to be below potential lethal concentrations thereby reducing the potential for avian and bat mortalities.

Ore would be placed on the heap leach facility (HLF) as run-of-mine material. A weak sodium cyanide solution will be applied to the surface and side slopes of the stacked ore

using drip tubes, emitters or sprinklers at an average rate of 0.005 gallons per minute per square foot. The ore contains minimal fines material which maximizes infiltration capacities. Should solution ponding occur on the surface of the HLF, remedial efforts would be employed to eliminate the ponding or standing solution. Remedial efforts may include but will not be limited to the following: reduce or stop solution application where ponding occurs, ripping the surface to promote infiltration, and covering ponded areas to preclude avian access to the ponded solution.

### **3.0 SPECIES OF INTEREST**

#### **3.1 Protected Species Criteria**

In this BBCS, the term “protected species” encompasses all avian and bat species that are protected by any one or more of the laws, policies, or regulations described in Section 1.3 of this document. Specifically, this includes:

- All avian and bat species that are listed as threatened or endangered species or are proposed or candidates for listing under the ESA;
- All avian species protected under the MBTA;
- Bald and golden eagles protected under the BGEPA;
- All avian or bat species that the state of Nevada extends protection to through NRS 501.100–503.104, NRS 527.050, and/or NRS 527.60–527.300; and
- All species identified as BLM sensitive species in Nevada.

#### **3.2 Protected Species Occurring Within the Project Area**

According to the Project’s Final EIS (FEIS), a list of potentially occurring protected species was compiled from data from the USFWS, the BLM Sensitive Species list for Nevada; the Nevada State Protected, Threatened, and Sensitive Species lists in NAC 503.030, NAC 503.050, NAC 503.075, and NAC 503.080; and from surveys conducted in and around the Project area (BLM, 2014). Biologists from USFWS, BLM, and NDOW were consulted to provide additional input regarding protected species. According to the FEIS, the protected species listed in Table 2 have been observed in the Project area or have potential to occur (BLM, 2014). Federally listed threatened or endangered species do not occur within the Project area.

**Table 2. BLM Sensitive and State of Nevada Protected Species with Habitat in the Project Area**

<b>Species Common/ Scientific Name</b>	<b>Status</b>	<b>Potential to Occur in Project Area</b>	<b>Documented During Surveys</b>
Pallid Bat <i>Antrozous pallidus</i>	BLM Sensitive Nevada Protected	Could occur; potential roosting and foraging habitat is available.	No
Townsend's Big- Eared Bat <i>Corynorhinus townsendii</i>	BLM Sensitive Nevada Protected	Unlikely to occur; however, foraging habitat occurs.	No
Big Brown Bat <i>Eptesicus fuscus</i>	BLM Sensitive	Known to occur. (Enviroscientists, 2009)	Yes
Spotted Bat <i>Euderma maculatum</i>	BLM Sensitive Nevada Protected	Could occur; potential roosting and foraging habitat.	No
Silver-Haired Bat <i>Lasionycteris noctivagans</i>	BLM Sensitive	Known to occur. (Enviroscientists, 2009)	Yes
Hoary Bat <i>Lasiurus cinereus</i>	BLM Sensitive	Probably occurs; potential roosting and foraging habitat (Enviroscientists, 2009)	Yes
California Myotis <i>Myotis californicus</i>	BLM Sensitive	Could occur; potential foraging habitat occurs.	No
Western Small- Footed Myotis <i>Myotis ciliolabrum</i>	BLM Sensitive	Known to occur. (Enviroscientists, 2009)	Yes
Long-Eared Myotis <i>Myotis evotis</i>	BLM Sensitive	Known to occur. (Enviroscientists, 2009)	Yes
Little Brown Myotis <i>Myotis lucifugus</i>	BLM Sensitive	Known to occur. (Enviroscientists, 2009)	Yes
Fringed Myotis <i>Myotis thysanodes</i>	BLM Sensitive Nevada Protected	Not likely to occur; potential foraging habitat occurs.	No

<b>Species Common/ Scientific Name</b>	<b>Status</b>	<b>Potential to Occur in Project Area</b>	<b>Documented During Surveys</b>
Long-Legged Myotis <i>Myotis volans</i>	BLM Sensitive	Could occur; potential foraging habitat occurs.	No
Yuma Myotis <i>Myotis yumanensis</i>	BLM Sensitive	Unlikely to occur; however, potential foraging habitat occurs.	No
Western Pipistrelle <i>Pipistrellus hesperus</i>	BLM Sensitive	Could occur; potential roosting and foraging habitat.	No
Brazilian Free-Tailed Bat <i>Tadarida brasiliensis</i>	BLM Sensitive Nevada Protected	Known to occur (Enviroscientists, 2009; GBE, 2012)	Yes
Northern Goshawk <i>Accipiter gentilis</i>	BLM Sensitive Nevada Protected	Unlikely to occur; typical nesting habitat (aspen stands) do not occur.	No
Western Burrowing Owl <i>Athene cucularia</i>	BLM Sensitive	Known to occur. (GBE 2012).	Yes
Golden Eagle <i>Aquila chrysaetos</i>	BLM Sensitive, BGEPA,	Known to occur (GBE 2012, 2013).	Yes
Ferruginous Hawk <i>Buteo regalis</i>	BLM Sensitive	Known to occur. (GBE 2012)	Yes
Greater Sage-Grouse <i>Centrocercus urophasianus</i>	ESA Candidate BLM Sensitive	Known to occur; summer and winter habitat occurs in the project area.	Yes
Lewis's woodpecker <i>Melanerpes lewis</i>	BLM Sensitive	Unlikely to occur; suitable forested or riparian woodland habitat does not occur.	No
Peregrine Falcon <i>Falco peregrinus</i>	BLM Sensitive Nevada Protected	Unlikely to occur; suitable nesting habitat is not available; however, potential foraging habitat is available.	No
Pinyon Jay <i>Gymnorhinus cyanocephalus</i>	BLM Sensitive	Known to occur. (Enviroscientists, 2009; GBE, 2012)	Yes
Bald Eagle <i>Haliaeetus leucocephalus</i>	BLM Sensitive Nevada Protected BGEPA	Unlikely to occur; suitable nesting habitat is not present. Potential foraging habitat occurs.	No

<b>Species Common/ Scientific Name</b>	<b>Status</b>	<b>Potential to Occur in Project Area</b>	<b>Documented During Surveys</b>
Black Rosy-Finch <i>Leucosticte atrata</i>	BLM Sensitive	Not likely to occur; however, potential winter habitat is available.	No
Sage thrasher <i>Oreoscoptes montanus</i>	BLM Sensitive Nevada Protected	Known to occur. (GBE, 2012)	Yes
Brewer's sparrow <i>Spizella breweri</i>	BLM Sensitive Nevada Protected	Known to occur; occupied habitat documented during baseline surveys (GBE, 2012).	Yes
Loggerhead Shrike <i>Lanius ludovicianus</i>	BLM Sensitive Nevada Protected	Known to occur. (GBE, 2012)	Yes

### 3.2.1 Bats

In 2007 and 2009, Enviroscientists, Inc. completed a survey in the Project area for bat species. During the field the surveys, AnaBat detectors were set in suitable habitat in the Project area to determine bat use by recording calls. The calls were then analyzed to determine the species recorded. Enviroscientists, Inc. (2007, 2009) identified six bat species in the Project area and two other species that could not be positively identified: little brown myotis (*Myotis lucifugus*), silver-haired bat (*Lasionycteris noctivagans*), long-eared myotis (*Myotis evotis*), Brazilian free-tailed bat (*Tadarida brasiliensis*), western small-footed myotis (*Myotis ciliolabrum*), and big brown bat (*Eptesicus fuscus*) were present. The fringed myotis (*Myotis thysanodes*) and hoary bat (*Lasiurus cinereus*) may also be present.

The entire Project area serves as potential foraging habitat, and limited day roosting may occur for some species of bats that use woodland habitats and small rock outcrops as potential short-term roosting habitat. However, there are no known maternity roosting, hibernacula, or bachelor roosting habitats within the Project area as no caves, adits, or shafts were located.

### 3.2.2 Migratory Birds

Migratory birds have been surveyed in the Project area as part of the baseline field surveys occurring in 2009, 2011, and 2012 (Enviroscientists, 2009; GBE, 2012). Most avian species that occur within the project area are considered protected species under the MBTA, with the exception of birds in the order Galliformes (upland game birds) and exotic species such as rock dove (*Columba livia*), Eurasian-collared dove (*Streptopelia decaocto*), European starling (*Sturnus vulgaris*), and house sparrow (*Passer domesticus*). Some birds such as the golden eagle (*Aquila chrysaetos*) or Brewer's sparrow (*Spizella breweri*) are protected by the MBTA in addition to other listings such as the BGEPA or listing on Nevada BLM Sensitive Species list.

### 3.2.3 Greater Sage-Grouse

The greater sage-grouse (*Centrocercus urophasianus*) is not protected under the MBTA; however, it is listed as a BLM sensitive species and a candidate species for listing under the ESA. Sagebrush habitats within the Project area have the potential to provide habitat for greater sage-grouse. Greater sage-grouse are sagebrush obligates, meaning the species requires sagebrush for some portion or all of its life cycle. The BLM and NDOW greater sage-grouse preliminary habitat map designates portions of the Project area as priority and general habitat. This habitat map was developed through a collaborative effort between the BLM and NDOW for statewide prioritization of greater sage-grouse habitat.

Greater sage-grouse are known to occur in and around the Project area. Two greater sage-grouse leks, considered active by NDOW, have been identified outside of the Project area. These leks are identified as the Big Spring and Little Lake Pass lek. The Big Springs lek is located 400 feet outside the southwestern edge of the Project area. The Little Lake Pass lek is located approximately 4.3 miles south of the Project area. The Big Springs lek was attended by as many as 38 birds as recently as 2007. Four birds were observed on the lek in 2011, only a single bird was observed at the site in 2012, and in 2013 and 2014, no sage-grouse were observed (BLM, 2013; NDOW, 2014). The Little Lake Pass lek was first located in 2006. Twelve birds were observed on the lek in that year. Four birds were recorded at the lek in 2011, five birds were present in 2012, no birds were observed in 2013, and three males and one female were observed at the lek in 2014 (BLM, 2013; NDOW, 2014). In addition to the lek count observations, five birds were noted during the 2013 trapping session and four birds were present in 2014 (BLM, 2013; Roberts, 2014). Further greater sage-grouse analysis can be found in the Project's FEIS and the *Long Canyon Biological Baseline Report* (BLM, 2013; GBE, 2012).

### 3.2.4 Raptors

Surveys for raptors (including golden eagles) were conducted from 2011 through 2013, with flights occurring in 2012 and 2013. In 2011, the baseline raptor survey consisted of ground surveys (pedestrian and call-playback surveys) within the Project. Observations within the Project area included American kestrel (*Falco sparverius*), Cooper's hawk (*Accipiter cooperii*), great horned owl (*Bubo virginianus*), northern harrier (*Circus cyaneus*), red-tailed hawk (*Buteo jamaicensis*), and rough-legged hawk (*Buteo lagopus*). No nests were found during the ground surveys.

The raptor survey area for the 2012 survey included a five-mile buffer around the Project area for golden eagle surveys and other raptors. The 2012 survey identified 17 raptors nests, including three active and two inactive golden eagle nests, two active and one inactive ferruginous hawk (*Buteo regalis*) nests, one common raven (*Corvus corax*) nest, and eight nests for which the species was not determined. In 2012, no active golden eagle or other raptor nests were found within the Project boundary.

In 2013, the USFWS indicated that a 10-mile buffer was required for the Project area with respect to golden eagles (GBE, 2013). The expanded survey area for 2013 was flown twice during the raptor breeding season. The expanded buffer area around the Project area resulted in additional nests being identified. A total of 12 golden eagle nests were located, of which only two were active in the Toano range north of I-80, approximately eight miles from the closest Project facility. No active golden eagle or other raptor nests were found within the Project boundary. A single raven nest was the only active nest discovered within the Project boundary. It is believed that the common raven nest identified in 2013 is the same nest that was described as an unknown species in 2012. Outside of the Project boundary, red-tailed hawk, ferruginous hawk, and common raven nests were identified. Several nests for which the species could not be determined were also located. Nest locations and further details can be found in the *Long Canyon 2012 and 2013 Raptor Surveys Report* and the Project FEIS (BLM, 2013; GBE, 2013).

## 4.0 THREAT ASSESSMENT

### 4.1 Project Components

The following are project components that may pose mortality or injury threats to avian and bat species that use the Project area.

#### 4.1.1 Open Pit

Avian species potentially utilizing the open pit could include raptors and common ravens, which may find the uneven pit walls suitable for nesting. The open pit may also provide perching opportunities for avian species. Since mining activities are continuous (24 hours a day, seven days a week), long-term nesting attempts by raptors or other species are minimized and unlikely to occur. Lighting will be required during nighttime operations. Lights from the portable light plants may attract insects, which may in turn attract bats to the area.

#### 4.1.2 Process Pond

The process events pond is an integral part of the HLF. The current operational design is to utilize the pond as an event pond and not a production pond. Instead of a process pond, a pregnant solution tank would handle normal solution flows. The pregnant solution tank would have an exclusion cover that precludes access to birds and bats. Since solution is enclosed and contained in tanks, the events pond would normally be empty thereby reducing the potential for avian and bat mortalities.

During mining construction and operations, perennial open water and aquatic habitats in the Wetland Complex and Hardy Creek are expected to attract avian species to these areas rather than the process pond. The presence of water in the Wetland Complex would also attract insects, which in turn would attract birds and bats.

#### 4.1.3 Transmission Lines, Power Poles, Communication Towers

Transmission lines and power poles may be utilized as perching, roosting, and nesting structures for many bird species. Perching, roosting, and nesting at heights afford protection from terrestrial predators and may appeal to some avian species. Raptors and common ravens are opportunistic and may use the transmission lines and poles as locations from which to defend territories, as perches to hunt for prey, and/or for use as nesting sites.

#### 4.1.4 Ancillary Facilities

The Project includes ancillary facilities which may provide suitable perching, roosting, and/or nesting substrate to some avian and bat species in the project area. Ancillary facilities that will be constructed include the following:

- Reagent, fuel, oils, and explosives storage;
- Buildings including administration, truck shop, wash bay, geology core shed, security, ready lines and light vehicle parking areas; helicopter pads;
- Potable water supply and septic systems;
- Fire water supply;
- Waste management including a Class III waived landfill;
- Temporary petroleum contaminated soil (PCS) holding pad;
- Permanent PCS disposal area (within the WRSF);
- Borrow areas;
- Ore, growth medium, and woody debris stockpiles;
- Fencing;
- Monitoring wells;
- Yards; and
- Inter-facility disturbance.

#### 4.2 Causes of Avian and Bat Mortality

Section 2.3 discusses the protection measures and modifications for the proposed project that would occur to reduce the potential for mortalities occurring from collision, electrocution, and exposure to solution in the process pond. This section discusses environmental conditions, species behavior and agility, etc. that can cause avian and bat mortality.

##### 4.2.1 Collision

###### 4.2.1.1 Ancillary Facilities

External lighting associated with some of the ancillary facilities may attract insects which in turn may attract foraging bats and some bird species. The potential for avian and bat species to collide with mine support buildings would be present under these conditions or when they are in flight during adverse environmental conditions such as rain, fog, strong winds, or other periods of low visibility. Avian and bat species are also subject to collision with these structures if distracted while in flight. Potential distractions may

include foraging, territorial chases, escape from predators, nearby human activity, or other such action that results in aggressive and swift flight, or erratic and fear-driven flight. Birds have been known to collide with windows in buildings, which may be due to the reflections of the surrounding landscape in the windows (Klem, 1990).

#### 4.2.1.2 Transmission Lines, Power Poles, Communication Towers

Theoretically, collisions can happen to any species of bird capable of flight. However, species particularly at risk are birds flying at night, birds flying in flocks, large and heavy birds with high wing loading and of low maneuverability, and birds that fly low and fast (APLIC, 1994; Beer and Ogilvie, 1972). Literature indicates that raptors are strong fliers that have the ability to avoid obstacles and are not prone to collisions. The collision risk however increases when engaged in certain activities such as territorial defense and pursuing prey (Harness et al., 2003; APLIC, 2012). These same collision risk factors can also be applied to bat species.

The risk of bird collisions is related to tower height, design, lighting, and location relative to migratory bird concentration areas. Most documented bird kills at communication towers involve tall, lighted structures, and birds migrating at night during inclement weather. During these events, birds attracted by the lights congregate and circle around the tower, with the potential for injuries or mortalities to occur due to collisions with guy wires, other birds, the ground, or from exhaustion. However, occurrences of bird collision mortality at communication towers have also been documented during daytime and fair-weather conditions. The two proposed communication towers in the Project area have not been implicated as a hazard to birds and bats (BLM, 2013). This is largely due to the design of the communication towers which followed the USFWS guidelines to avoid or minimize adverse impacts to migratory birds and bats. Details on the minimization measures are detailed in Section 2.3.1.2.

Avian species have been documented colliding with transmission lines and a number of factors contribute to this risk. APLIC (2012) outlines collision risk factors for avian species and include:

- Exposure to collisions is largely a function of behavior. Specific behaviors (such as flushing, courtship displays, and aerial hunting) may distract birds from the presence of power lines;

- Exposure is increased for birds that make regular and repeated flights between nesting, feeding, and roosting areas in proximity to power lines;
- Susceptibility to collisions is partially a function of wing and body size and vision. Larger, heavy-bodied birds with short wing spans and poorer vision are more susceptible to collisions than smaller, lighter-weight birds with relatively large wing spans, agility, and good vision;
- Environmental conditions (such as inclement weather and darkness) may distract birds from the presence of power lines or obscure their visibility; and
- Engineering aspects, including design and placement, can increase or decrease the exposure for collisions.

#### 4.2.2 Electrocutation

Avian electrocutions can occur when a bird completes an electric circuit by simultaneously contacting two energized parts or an energized part and a grounded part of electrical equipment. Electrocutation in this way can be attributed to two interrelated factors: environmental and engineering factors (APLIC, 2005 and 2012).

Environmental factors are naturally occurring factors that affect avian use of power poles. The behavioral and biological characteristics unique to individual avian species determine in part how that species would utilize power poles and affect their potential to be electrocuted from such use. Behavioral and biological characteristics include the physical size and shape, foraging characteristics, flight pattern, and territorial traits of the species. Environmental factors affecting the behavior of birds include the natural topography of the area, vegetation in the area, available forage and prey in the area, and weather.

Engineering factors include the physical design and construction of the electrical system, including the transmission line spacing, power poles, transformers, and other components of the system. A bird may potentially come into simultaneous contact with two energized conductors or an energized conductor and grounded hardware. If such contact were to occur, an electric circuit would be completed and electrocution would result (APLIC, 2005 and 2012).

#### 4.2.2.2 Bird Nesting

Nests on power transmission structures that pose the greatest risk to birds are those that are built in close proximity to energized conductors and hardware. While a nest that is not in close proximity to energized parts may not be an electrocution risk in and of itself, it would tend to cause the parent bird and possibly nest predator birds to routinely perch on other parts of the power pole or surrounding poles that may be unsafe (APLIC, 2005 and 2012). In the Project area, the species most likely to nest on power poles are common ravens and raptors.

#### 4.2.3 Process Pond

Process ponds in general tend to attract avian and bat species. As mentioned in section 4.1.2, the current operational design is to utilize the pond as an event pond and not a production pond. During operations, the event pond would normally be empty thereby reducing the potential for avian and bat mortalities. If avian or bat species ingest process solution that may occasionally collect in the pond mortalities could occur. The primary contaminant in these ponds that poses a threat to avian and bat species is sodium cyanide. Sodium cyanide has been implicated in the deaths of a large number of avian species in Nevada (Henny et. al., 1994). While ingestion is generally thought to be the primary method of cyanide-related injury and mortality, inhalation and dermal absorption are also possible.

Cyanide toxicity in bats has not been extensively studied. However, bats could potentially ingest solution from the pond and consequently be exposed to elevated concentration of metals. Metal pollution could cause illness or death (O'Shea et al., 2000). Bats that forage on insects above the pond could potentially fall into the pond and drown if no escape route is available or found. Bats and birds that fall into the pond may also be identified as prey by raptors.

During mining construction and operations, perennial open water and aquatic habitats in the Wetland Complex and Hardy Creek are expected to attract avian species to these areas rather than the process pond. The presence of water in the Wetland Complex would also attract insects, which in turn would attract birds and bats.

### 4.3 Effects to Avian & Bat Species

### 4.3.1 Effects from Project Construction

#### 4.3.1.1 Open Pit, Waste Rock Storage, Heap Leach, and Tailings Storage Facilities

Direct impacts could occur as a result of Project construction. The construction would remove approximately 3,602 acres of potential foraging habitat for raptors and bat species and nesting and foraging habitat for migratory birds. The Project however is not expected to restrict bird and bat movement throughout the area, including Goshute Valley. The affected habitats are salt desert shrub, woodland, and sagebrush community, all of which are abundant in the surrounding area.

Most birds are highly mobile and initial construction activities would not likely occur during nesting periods; therefore it is improbable that disturbances associated with project construction would result in bird injury or mortality. Avoidance and minimization measures for avian species during construction are detailed in Appendix B.

Increased noise levels during construction may cause birds to avoid the area temporarily, possibly disrupting normal behavior patterns. Increased noise levels have been shown to adversely affect greater sage-grouse and golden eagles. Lyon and Anderson (2003) showed that increased noise levels near leks that repeatedly disturb birds may lead to males and females abandoning leks. One lek (Big Springs) is located southwest of and outside of the Project area. Noise modeling conducted on this lek indicates there will be no noise impacts during construction and operation (Brennan, J.C. and Associates, 2013).

Suitable nesting and foraging habitat for golden eagles is present within and adjacent to the Project area. However, the golden eagle nests within and adjacent to the Project are inactive and are not expected to be impacted by construction activities (BLM, 2013; GBE, 2013). No golden eagle nests are located within the footprint of any Project facility nor do active nests exist within the Project boundary. The closest inactive raptor nest in relation to the Project is approximately ten feet above the proposed Long Canyon pit. This nest was identified as an inactive golden eagle during the 2013 baseline raptor survey, and it was not active during any of the baseline raptor surveys (BLM, 2013; GBE, 2013). In 2014, the nest was monitored by Newmont and found to be occupied by common ravens. In consultation between Newmont and USFWS, it was agreed that this Project does not need to submit an Eagle Conservation Plan (White, 2014a; White, 2014b). It is the preference of both parties that the inactive nest is not removed.

#### 4.3.1.2 Transmission Lines, Power Poles, Communication Towers

Direct effects to golden eagles and migratory birds from construction activities would be similar to those associated with construction of the open pit, WRSF, HLF, and TSF in that potential foraging habitat would be temporarily lost. Construction of the power lines would disturb approximately 38 acres.

Direct effects to bats from the power line construction activities would be similar to those associated with construction of the open pit, WRSF, HLF, and TSF in that approximately 38 acres of potential foraging habitat would be temporarily lost.

#### 4.3.1.3 Process Pond

Direct effects to birds and bats associated with construction of the process pond would be the same as those associated with construction of the pit, WRSF, HLF, TSF and power lines. There is the potential that some habitats would be temporarily lost. Construction of the pond is not expected to restrict bat migration throughout the area.

#### 4.3.1.4 Ancillary Facilities

Direct effects to birds and bats associated with construction of the ancillary facilities would be the same as those associated with construction of the other components as described above in Section 4.3.1.3. There is the potential that some habitats would be temporarily lost.

### 4.3.2 Effects from Project Operations

#### 4.3.2.1 Open Pit and Waste Rock Storage Facility

A potential effect of the Project operations on raptors, migratory birds, and bats is the death or injury resulting from blasting operations associated with the pit during operations. Blasting is anticipated to occur on a daily basis. Avian species in the vicinity of the blasting area could potentially suffer mortality or injury directly from the blast or from flying rock as a result of the blast. It is expected that impacts would be alleviated somewhat because most migratory bird species would avoid these facilities due to

Project-related disturbances. It is widely accepted that the majority of migratory bird species avoid anthropogenic disturbances (Beale and Monaghan, 2004). The lack of vegetation (habitat), the elevated noise, and continuous activities in the pit and on the WRSF (24 hours per day) would likely discourage avian utilization of the pit and WRSF during operation.

As stated in 4.3.1.1, the presence of mining activities and noise from Project operations at the open pit could impact golden eagles. However, while construction impacts are generally short-term and would end after 18-24 months, the impacts from operations would last for the life of the mine (10 years).

#### 4.3.2.2 Transmission Lines, Power Poles, Communication Towers

Direct effects on migratory birds resulting from project operation of the transmission lines, power poles, and communication towers may include injury or mortality from collisions and/or electrocutions, as discussed in Section 4.2.

Not all direct impacts of the transmission line may be adverse. Research shows that raptors and common ravens may benefit from the presence of transmission lines because they may provide more roosting or nesting opportunities (Steenhof et al., 1993). However, the potential increased populations of raptors, owls, and other avian predators may increase the predation rate on prey species, such as other bird or bat species in the area.

#### 4.3.2.3 Process Pond

Direct effects may include bird or bat injury or mortality during operation because of the presence of occasional solution in the process pond as discussed in Section 4.2.3. Due to the fact that the pond will normally be empty during operations and the presence of water in the Wetland Complex located south of the operations, effects are expected to be minimal.

#### 4.3.2.4 Ancillary Facilities

The primary impact from ancillary facilities during operations would be from an increase of personnel and vehicles in the area. Noise and human disturbance would have a temporary impact on migratory birds and would displace them to areas outside the active mining area. The intensity of these impacts would vary from species to species, but the impacts from operations are anticipated to last the life of the Project (10 years).

## **5.0 NEWMONT POLICY**

Newmont will adopt and implement the avian and bat protection measures as described in this BBCS to reduce the potential for mortality resulting from Project related activities.

### **5.1 Training**

In order to effectively implement the BBCS, Newmont will ensure that all personnel and contractors receive training on the issues and protocols outlined in the BBCS. Wildlife mortality training will occur for all Newmont personnel. This would occur initially for all new personnel hired to work at the site and for existing personnel during Mine Safety and Health Administration annual refresher training. Contractors coming on site to conduct construction activities will also receive training as part of the Project orientation training. This training would ensure that all personnel and contractors have a thorough understanding of the BBCS and their responsibility to avian and bat protection and regulatory compliance. Personnel would be instructed not to rescue or move any injured or dead wildlife species discovered unless it poses a health or safety risk to personnel or operations. Personnel would have access to various forms of communications for properly reporting wildlife injuries or mortalities to appropriate Environmental personnel.

### **5.2 Permit Compliance**

The Project will require an Industrial Artificial Pond Permit (IAPP) to “develop and maintain an artificial body of water containing chemicals directly associated with the processing of ore” (NRS Chapter 502.390).

There may be situations where Newmont finds it necessary to obtain additional federal and state permits regarding avian or bat species as it relates to mortality and to avian nest removal and relocation. Other potential permits could include incidental take permits, collection or salvage permits, and nest removal and relocation permits. In such a situation, Newmont would

work with the federal and state resource agencies listed in Section 8.0, to determine which permits are necessary and to acquire relevant permit applications. Under no circumstances would Newmont perform any activity requiring a permit without first obtaining the proper permit or authorization to do so.

## **6.0 IMPLEMENTATION & MANAGEMENT**

### **6.1 Avian & Bat Reporting System**

#### **6.1.1 Purpose of the Avian and Bat Reporting System**

In order to assess the effectiveness of the BBCS and prioritize avian and bat protection needs, Newmont would report, monitor, and manage all bat and avian injury or mortality in accordance with the methodology below. Appropriate Newmont personnel would be provided with instruction on implementing the methodology and properly reporting bat and avian mortality and avian nesting sites. The reporting of avian and bat mortality would be standard practice by Newmont for the duration of the life of the Project. Reporting of avian nesting sites would also be performed according to the methodology below.

#### **6.1.2 Reporting System Components**

##### **6.1.2.1 Detection**

Avian and bat injury or mortality would be detected through investigation of avian- or bat-caused power outages, through monitoring efforts during operation, and through incidental observations by Newmont personnel or others. To improve the probability that birds or bats that have suffered injury or death do not go undetected, Newmont staff would be directed to remain alert for birds and bats within and near the Project area. The detection of avian nest sites would occur through monitoring efforts during operation and through incidental observations.

##### **6.1.2.2 Response and Documentation**

In the event that an avian or bat injury or mortality is detected through monitoring or incidental observations, Newmont personnel would record the circumstances and

conditions associated with the death or injury. The information recorded would include photographs, the date and time that the bird or bat was detected, the location where the bird or bat was detected, the apparent cause of injury or mortality, and, if possible, the species of the bird or bat. The bird or bat would be properly disposed of or collected (if directed by the appropriate agency). Newmont personnel would be provided with standardized Mortality Report Forms for recording the necessary information when an incident is detected. Example forms are provided in Appendix C. This information is compiled quarterly and submitted to NDOW as required by the Project's IAPP.

Newmont would perform a site assessment in response to any power outage that may occur in order to determine the cause and circumstances resulting in the outage. If it is determined that the power outage is related to avian or bat interaction with the utility system, Newmont would record the pertinent avian or bat information using the standardized Mortality Report Forms (Appendix C). Assuming the bird or bat causing the outage suffers mortality from the incident, the information recorded would include the species, the nearest power pole number if applicable, the specific cause of the fatality if possible, and as much other relevant data as possible. Photographs of the carcass would be taken to accompany the standard reporting form if possible. Bat species rarely cause power outages due to their small size and the spacing of the lines and electrical components.

In the event that an avian nesting site is observed through monitoring or incidental observations within the Project area, Newmont personnel will record the circumstances and conditions associated with the nest site and nest. The recorded information would be used to determine if the nest location presents risk of injury or mortality to the nesting birds, and if the nest presents risk to the functionality of the Project.

#### 6.1.2.3 Remedial Action

While there are no legal provisions for an unauthorized take of protected species, the USFWS recognizes that mortalities to some avian species may occur even after all reasonable measures to avoid a take are implemented. Based upon the information gathered from site investigations and reported on Avian Incident Forms, USFWS, BLM, NDOW, and Newmont would determine whether implementation of remedial protection measures is substantiated. This determination would be dependent on the frequency of incident occurrences at a particular facility, the species that suffered an

injury or mortality, the likely effectiveness of remedial actions, and agency input and guidance. Likewise, these same factors would determine what types of remedial protection measures and practices Newmont would implement if such measures are determined necessary.

### 6.1.3 Reporting

Newmont's environmental personnel would report all protected species mortalities and submit a Quarterly Mortality Report Form (Appendix C) to NDOW every quarter in accordance with NDOW's IAPP. Although this form would be for NDOW submittal, it could be used for other mortality monitoring studies; if required, and would be available to regulatory agencies should data be requested.

Mortality of a bald eagle or golden eagle would be immediately reported to the USFWS, BLM, and NDOW. Although, an eagle mortality is unlikely to result from the Project, especially after implementation of the measures described in this BBCS. It was determined that the need for a direct take permit under the BGEPA is not warranted at this time. However, if in the future, there is the potential to disturb an eagle nest, Newmont will pursue a programmatic agreement with the USFWS. Newmont will continue to engage in eagle consultation with the USFWS.

### 6.1.4 Disposal Procedures

The USFWS issues permits to take, possess, or transport bald and golden eagles under the BGEPA. Newmont personnel are strictly prohibited from handling, transporting, or disposing of a golden or bald eagle carcass without a permit issued under the BGEPA. As a result, in the unlikely event that such mortality does occur, Newmont would contact the USFWS and NDOW immediately to report the incident and arrange for retrieval and receipt of the carcass. The BLM would also be notified of the mortality.

Under the MBTA, it is unlawful to collect, salvage, or otherwise have in possession any raptor or raptor part, including feathers, without a state and federal permit. There may be occasion however, for Newmont or appointed biologists to collect bird carcasses in order to determine the cause of death, for disposal purposes, for temporary collection for onsite inspection, or for extraction from electrical components. If such occasion becomes necessary, Newmont would coordinate with the USFWS, BLM, and NDOW to determine the need for a permit and, if necessary, would apply for permits to allow the

handling of dead and injured birds. Newmont would immediately notify USFWS and NDOW regarding any apparent injury or death occurring to protected species during project activities.

In the event that a protected bat sustains injury or experiences death from interaction with facilities, Newmont or Newmont-appointed biologists may need to handle, transport, or dispose of bat carcasses. If the need for such actions becomes apparent, Newmont would coordinate with the BLM and NDOW to ensure that if any permits are necessary they are obtained and that all activities are in accordance with applicable regulations and laws.

## 6.2 Mortality Reduction Measures

### 6.2.1 Avoidance & Minimization

Newmont has agreed to several measures to avoid and minimize impacts to avian species during Project construction and operation that are discussed in Section 2.3 and Appendix B.

In order to minimize impacts to migratory birds during initial construction activities, pre-construction nesting bird surveys will be conducted during the migratory bird season (March 15 to July 31) by a BLM-approved biologist.

During operations, vehicles would travel on established roads to minimize disturbance of the native habitat in the Project area, which would minimize habitat impacts and eliminate physical harm of avian and bat species during Project activities. Additionally, speed limits have been restricted to 45 miles per hour or lower (depending on road size, location, and condition) to reduce potential avian and bat collisions.

### 6.2.2 Assessment and Implementation Approaches

### 6.2.2.1 Reactive Approach

The reactive approach would include implementation of adaptive management actions after avian or bat mortality has occurred. As incidents occur, Newmont would respond appropriately through documentation via the avian and bat reporting system (Section 6.1). The post-construction monitoring procedures (Section 6.4) would also report and record mortality impacts among avian and bat species interacting with the project facilities. These quarterly reports would be provided to the USFWS, NDOW, and BLM. The reported mortality impacts would be assessed by the three agencies in collaboration with Newmont to determine whether the impact justifies mitigation by implementation of adaptive management actions. This determination would consider several factors, including the avian or bat species impacted, whether that species is listed as threatened or endangered, the effects on the population level of that species, and consideration of previous mortalities resulting to a specific species at the project site. The development of specific adaptive management actions would occur collaboratively among the USFWS, NDOW, BLM, and Newmont, and would be based on scientific data, effective actions implemented at similar projects, new technology developed during the life of the project, and other similar or related information. The success of the techniques shall be determined collaboratively as well.

### 6.2.2.2 Preventative Approach

Preventative measures would include all of the protection measures described in this document that would be incorporated into the Project activities in order to minimize injury and mortality. Preventative measures are used to avert potential bat and avian mortality. In addition, effective preventative measures can help prevent potential regulatory violations. Preventative measures also include mitigation and protection measures implemented to minimize or eliminate the potential for avian injury or mortality resulting from risks associated with the Project. Appendix B contains several of the minimization and avoidance measures that Newmont would implement for pre-construction nesting bird surveys.

## 6.3 Avian Enhancement and Minimization Options

Newmont would continue to protect natural resources and biodiversity, and promote actions that benefit bird and bat populations. By design, Newmont minimized proposed disturbances to a relatively small portion of the Project area; thus, native vegetation would remain undisturbed

in the majority of the Project area and the adjacent landscape. This would maintain nearby nesting and foraging habitat for avian and bat species. Removal of an existing telephone line and poles would eliminate undesirable perching and nesting habitat for raptors and common ravens in preliminary priority greater sage-grouse habitat. In addition to reducing the predation risk on greater sage-grouse and other bird and bat species, the removal of the anthropogenic feature would also reduce the collision risk and electrocution risk on bird and bat species. Concurrent reclamation of the WRSF would also be conducted within the Project area; this would begin re-establishment of the disturbed avian and bat habitat during the life of the Project. At the end of the Project life, there will be enhanced nesting habitat within the pit footprint for numerous avian and bat species. The pit high wall and benches will potentially create nesting or roosting substrate desirable by eagles, falcons, corvids, and bats.

In addition to minimizing disturbances and habitat enhancements, Newmont would install avian perch deterrents or other protective measures, as needed, on Project components such as the power poles, transmission lines, and ancillary facilities. Development of these measures would depend on future observations collected during Project construction and operations. Avian enhancement options would be coordinated with USFWS, BLM, and NDOW.

## 6.4 Project Operations Monitoring Program

### 6.4.1 Goals and Objectives

The primary goal of the Project operations monitoring program is to ensure that the reactive management approach minimizes potential injuries and mortalities to avian and bat species sustained from interactions with the Project components during operations. To facilitate this, the objectives of the Project operations monitoring program are to:

- Identify and document direct impacts to birds and bats in terms of injury and mortality resulting from operation of the Project; and
- Identify and document the success of reactive management actions that have been implemented to minimize avian and bat mortality and, if necessary, identify other actions to implement.

Newmont would consider refinement of monitoring methods and mitigation practices described below and adoption of new survey techniques or protocols as they become available. Refinement of the monitoring program may also occur through consultation with the USFWS, BLM, and/or NDOW.

## 6.4.2 Project Operations Monitoring Components

Monitoring of the project components would focus on the constructed transmission lines, power poles, communication towers, HLF, process pond, and ancillary facilities.

### 6.4.2.1 Methods

#### *Transmission Lines, Power Poles, Communication Towers*

Visual monitoring of the transmission lines and power poles will occur bimonthly for the first two months following construction and semi-annually thereafter concurrent with avian and bat migration periods. Communication towers will be visually monitored quarterly by environmental personnel and incidentally by other Newmont personnel and contractors.

#### *HLF & Process Pond*

Inspection of the process facilities where permitted solutions are located would be conducted on a daily basis. For mortalities, all wildlife species protected under the MBTA, all game animals, game birds, sensitive, and threatened or endangered species would be reported to Newmont environmental personnel within 24 hours. Additionally, as a condition of the IAPP, this information would be reported verbally within 24 hours and quarterly to NDOW via the quarterly mortality report form.

#### *Ancillary Facilities*

Visual inspections of the ancillary facilities that pose hazards to avian and bat species (e.g., administration, truck shop, wash bay, geology core shed, and security buildings) would occur on a daily basis by Newmont personnel and contractors. All other ancillary facilities (e.g., borrow areas, stockpiles, yards) would be inspected on a quarterly basis by Newmont personnel and contractors. Avian or bat mortalities would be reported to Newmont environmental personnel within 24 hours. This information would be reported quarterly to NDOW via the quarterly mortality report form.

## 6.4.3 Adaptive Management

Over the course of operation and maintenance of the Project, Newmont's environmental personnel would gather, review, and report the monitoring data from site investigations and any mortality reports resulting from structures that are observed creating avian mortality issues. The information received from the monitoring data would be used to prioritize, in collaboration with the agencies, future changes in

monitoring and addressing potentially problematic areas and/or structures. Newmont understands that ensuring the protection of avian species along this Project from year-to-year would be a dynamic process that may require different techniques and approaches to reduce avian mortality. Close coordination with the agencies would be important in managing and adapting this plan to future conditions.

## **7.0 QUALITY CONTROL**

Periodically, Newmont will assess various parameters and protection measures as described in the current BBCS to ensure that it is as efficient and effective as possible. Parameters that Newmont will assess include:

- Avian and bat protection devices to identify products preferred for avian and bat protection as well as ease of application and durability;
- Mortality reporting procedures to ensure that discoveries of avian and bat mortalities are properly documented;
- Response to avian and bat mortalities to ensure that appropriate actions are taken in a timely manner;
- Compliance with company procedures to ensure that personnel are consistently following company methods for avian- and bat-safe construction, mortality reporting, nest management, etc.; and
- Public and agency opinions on system reliability and avian protection.

These parameters would be assessed during each annual review of the BBCS if necessary or if appropriate for that period. Additional parameters other than those listed above may be assessed during review of the BBCS if determined necessary by Newmont. Although it is only practical to periodically revise or update the BBCS, the quality control component would be an ongoing process. Daily observations, internal operating procedures, personnel input, and new technologies would be applied to assessments during the periodic reviews of the BBCS. As Newmont discovers action items or other issues that need to be addressed through the quality control procedures, they would apply the appropriate adaptive management to adjust this BBCS. These adjustments and revisions would strengthen the BBCS and the measures

contained therein. Revisions and updates to the BBCS would be made in consultation with the USFWS, BLM, and NDOW.

## 8.0 KEY RESOURCES

Newmont would consult with the following key resources as needed:

- *United States Fish and Wildlife Service*  
Division of Migratory Birds: <http://www.fws.gov/migratorybirds/ContactUs.htm>.  
Contacts: <http://www.fws.gov/migratorybirds/ContactUs.html>
  
- *Nevada Department of Wildlife*  
Eastern Region, Elko: (775) 777-2300  
Quarterly Wildlife Mortality Reporting Form:  
[http://www.ndow.org/uploadedFiles/ndoworg/Content/public\\_documents/Forms\\_and\\_Resources/Special\\_Permits/Blankmortform.pdf](http://www.ndow.org/uploadedFiles/ndoworg/Content/public_documents/Forms_and_Resources/Special_Permits/Blankmortform.pdf)
  
- *Bureau of Land Management*  
Elko District Office, Wells Field Office
  
- Great Basin Bird Observatory  
[http://www.gbbo.org/about\\_contact.html](http://www.gbbo.org/about_contact.html)
  
- Western Bat Working Group  
<http://www.wbwg.org/>
  
- Avian Power Line Interaction Committee  
<http://www.aplic.org/mission.php>

These resources would be utilized as necessary and would further ensure that Newmont has a successful and effective BBCS. Resources other than those listed may also be consulted, including consultants, company specialists, and other facilities and entities with proven effective avian and bat protection programs.

## 9.0 Literature Cited

Avian Power Line Interaction Committee (APLIC). 1994. Mitigating Bird Collisions with Power

- Lines: The state of the art in 1994. Edison Electric Institute. Washington, D.C
- Avian Power Line Interaction Committee (APLIC). 2012. Appendix A: Reducing Avian Collisions with Power Lines: The State of the Art in 2012. Edison Electric Institute and APLIC. Washington, D.C.
- Avian Power Line Interaction Committee (APLIC) & United States Fish and Wildlife Service (USFWS). 2005. Avian protection plan (APP) guidelines, A joint document prepared by The Edison Electric Institute's Avian Power Line Interaction Committee (APLIC) and U.S. Fish and Wildlife Service (USFWS), April 2005. Available from <http://www.aplic.org/resources.html>
- Beale, C. M., and P. Monaghan. 2004. Behavioural responses to human disturbance: A matter of choice? *Animal Behaviour* 68:1065–1069.
- Beer, J., and M. A. Ogilvie. 1972. Mortality. *The Swans by Peter Scott and the Wildfowl Trust*. London: Michael Joseph, 126-142 pp.
- Brennan, J.C. and Associates. 2013. Environmental Noise Assessment Long Canyon Mine Project. Prepared for Great Basin Ecology. July 11, 2013.
- Bureau of Land Management (BLM). 2008. Manual 6840, Special status species management. Washington, D.C.: Bureau of Land Management.
- Bureau of Land Management (BLM). 2011. Expanded Long Canyon Exploration Project, Elko County, Nevada, Environmental Assessment [EA#: DOI-BLM-NV-N030-2011-0001]. United States Department of the Interior, Bureau of Land Management, Elko District, Wells Field Office: Elko, Nevada. June 2011.
- Bureau of Land Management (BLM). 2013. BSR North Exploration Project, Elko County, Nevada, Notice [NVN-091514]. United States Department of the Interior, Bureau of Land Management, Elko District, Wells Field Office: Elko, Nevada. September 2013.
- Bureau of Land Management (BLM). 2014. Draft Environmental Impact Statement for the Long Canyon Project. United States Department of the Interior, Bureau of Land Management Wells Field Office. Elko, Nevada.
- Cronquist, A., A. H. Holmgren, N. H. Holmgren, and J. L. Reveal, and P.K. Holmgren. 1994. *Intermountain Flora: Vascular Plants of the Intermountain West*, Volumes 1. U.S.A. Volumes 1, 2, 4-6. New York Botanical Garden, Bronx, NY.

- Enviroscientists, Inc. 2007. Memo Summarizing the Results for the Long Canyon Project Bat Survey. Submitted to Nycole Burton, Elko BLM. October 15, 2007.
- Enviroscientists, Inc. 2009. Memo Summarizing the Results for the Long Canyon Biological Survey. Submitted to Nycole Burton, Elko BLM. October 7, 2009.
- Great Basin Ecology, Inc. (GBE). 2012. Long Canyon Biological Baseline Inventory. Prepared for Newmont USA Limited, Long Canyon Project. February 2012.
- Great Basin Ecology, Inc. (GBE). 2013. Long Canyon 2012 and 2013 Raptor Surveys. July 2013.
- Harness, R., S. Milodragovich, and J. Schomburg. 2003. Raptors and power line Collisions. *Colorado Birds* 37: 118-122
- Henny, C. J., Hallock R.J., and E.F. Hill. 1994. Cyanide and migratory birds at gold mines in Nevada, USA. *Ecotoxicology* 3:45–58.
- Klem Jr., D. 1990b. Collisions between birds and windows: mortality and prevention. *Journal of Field Ornithology* 61:120–128.
- Lyon A.G., and S.H. Anderson. 2003. Potential gas development impacts on sage-grouse nest initiation and movement. *Wildlife Society Bulletin* 31:486–491.
- Nevada Department of Wildlife. 2014. Personal communication with Kristi Schaff, Stantec and John Stefka, Newmont Mining Corporation. September and November, 2014.
- O’Shea, T.J., A. L. Everette, and L.E. Ellison. 2000. Cyclodiene insecticide, DDE, DDT, arsenic and mercury contamination of big brown bat (*Eptesicus fuscus*) foraging at Colorado Superfund site. *Archives of Environmental Contamination and Toxicology*: in press.
- Pagel, J.E., D.E. Whittington, and G.T. Allen. 2010. Interim golden eagle inventory and monitoring protocols; and other recommendations. Arlington, VA: Division of Migratory Birds, United States Fish and Wildlife Service.
- Roberts, S. 2014. Nevada Department of Wildlife Game Biologist. Personal communication with John Stefka, Newmont Mining Corporation, Senior Environmental Coordinator, North America Regional Office. April, 2014.
- Steenhof, K., M. Kochert, and J. A. Roppe. 1993. Nesting by Raptors and Common Ravens on Electrical Transmission Line Towers. *The Journal of Wildlife Management* 57:271-281.

United States Fish and Wildlife Service (USFWS). 1998. Endangered Species Act Section 7 Consultation Handbook. Available online at:

<http://www.fws.gov/endangered/esa-library/index.html#consultations>

U.S. Fish and Wildlife Service (USFWS). 2012. Recommendations to Avoid Adverse Impacts to Migratory Birds, Federally Listed Species, and Other Wildlife From Communication Towers and Antennae, Division of Migratory Bird management, Service Guidelines.

<http://migratorybirds.fws.gov/issues/towers/comtow.html>

United States Fish and Wildlife Service (USFWS). 2013. U.S. Fish and Wildlife Service, Federal Register Notice, Revised List of Migratory Birds. Accessed July 16, 2014 online at:

<http://www.fws.gov/migratorybirds/regulationspolicies/mbta/MBTA%20List%20of%20Brds%20Final%20Rule.pdf>

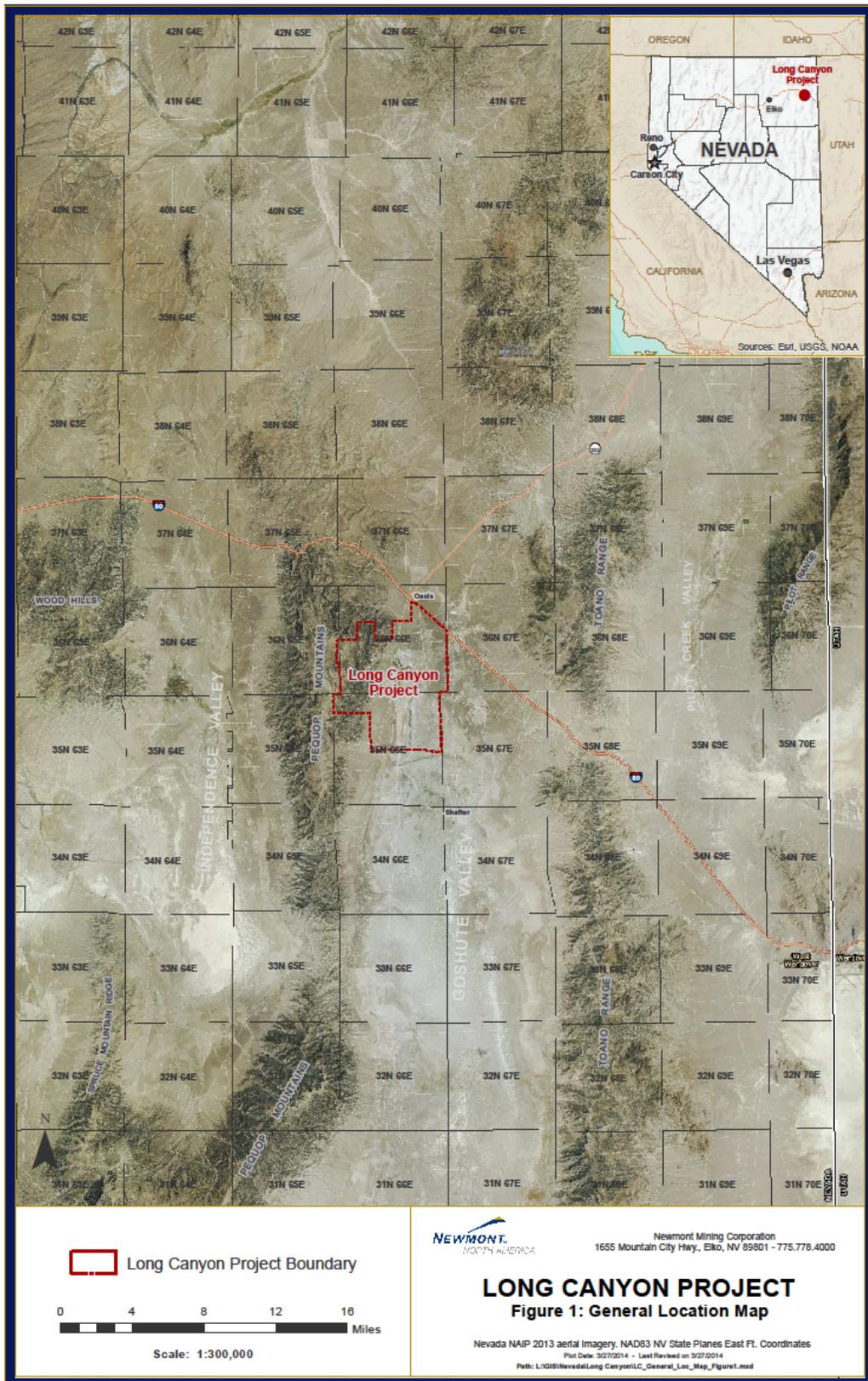
White, J. 2014a. Newmont Mining Corporation. Personal communication with Amedee Bricky and Chris Nicolai, United States Fish and Wildlife Service. February 3, 2014.

White, J. 2014b. Newmont Mining Corporation. Personal communication with Chris Nicolai, United States Fish and Wildlife Service. October 28, 2014.

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# FIGURES

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## **APPENDIX A**

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### **APLIC Guidance on Power Line Construction**

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## **CONSTRUCTION DESIGN STANDARDS**

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In certain habitats that have power equipment and the potential for avian interactions, the design and installation of new facilities, as well as the operation and maintenance of existing facilities should be bird friendly. Inclusions of accepted construction standards for both new and retrofit techniques are highly recommended for inclusion in an APP. Companies can either rely upon construction design standards found in APLIC's *Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 1996* and *Mitigating Bird Collisions with Power Lines: The State of the Art in 1994*, or the most current editions of these documents, or may choose to develop their own internal construction standards that meet or exceed these guidelines. These standards should be used in areas where new construction should be avian-safe, as well as where existing infrastructure needs to be retrofitted. An APP bird policy may require that all new or rebuilt lines in identified avian use or problem areas be built to current safe standards. Implementing avian-safe construction standards in such areas will reduce future legal and public relations problems and enhance service reliability.

### **New Construction**

Distribution, transmission and substation construction standards must meet National Electric Safety Code (NESC) requirements and should provide general information on specialized construction designs for avian use areas. Avian-safe construction, designed to prevent electrocutions, must provide conductor separation of 60 inches between energized conductors and grounded hardware, or must cover energized parts and hardware if such spacing is not possible. Some common examples of avian- safe construction and retrofit techniques to reduce electrocution risks are presented in this section. Additional information can be found in *Suggested Practices for Raptor Protection on Power Lines*.

### **Modification of Existing Facilities**

Modification of existing facilities is necessary when dead and/or injured protected birds are found, where high-risk lines are identified, or concerns of legal compliance are at issue. A "problem pole" is one where there has been a documented avian collision, electrocution, problem nest material or where there is a high risk of an avian mortality. The need for this remedial action may result when "problem poles" are identified through bird mortality records or field surveys, or when the company is notified by agency representatives or concerned customers. System reliability concerns due to bird interactions may also result in requests from field operations staff. Retrofitting to prevent electrocutions could include: 1) covering jumper wires, conductors and equipment; 2) discouraging perching in unsafe areas; 3) reframing; or 4) replacing a structure.

The objectives of remedial action are to:

1. Prevent or reduce avian mortality and outages related to bird electrocutions, collisions, or nests;
2. Provide 60-inch minimum horizontal separation between energized conductors and/or energized conductors and grounded hardware;

3. Insulate hardware or conductors against simultaneous contact if adequate spacing is not possible;
4. Discourage birds from perching in unsafe locations;
5. Provide safe alternative locations for perching or nesting; or
6. Increase the visibility of conductors or shield wires to prevent avian collisions.

### **Site-Specific Plans**

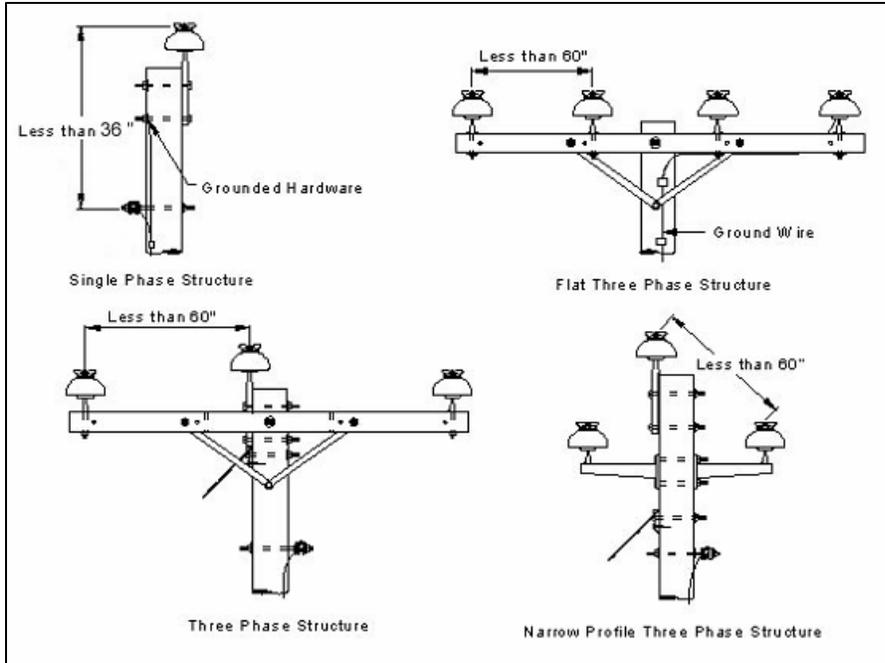
The factors that create a hazard for birds near power lines are complex and often site-specific. Therefore, the most efficient solution for correcting a problem line is a site-specific plan that satisfies unique local conditions (*i.e.*, topography, avian populations, prey populations, land use practices, line configuration, adjacent wetlands, historical bird use areas, etc.). The plan is comprised of recommendations for the most appropriate remedial action to the poles or lines causing the problem, and should include a timetable for job completion. When a problem area or line is identified, a site meeting may be conducted with engineering and operations personnel to provide guidance on line modifications, and with company biologists or consultants to provide input on biological aspects of the affected species. The timeframe for action will be based on agency requests, public relations, budget, logistical and manpower constraints, as well as biological considerations that affect species vulnerability. The application of remedial measures to a few "problem poles" or spans can reduce problems over a wide area.

### **Electrocutions: Avian-Risk Designs**

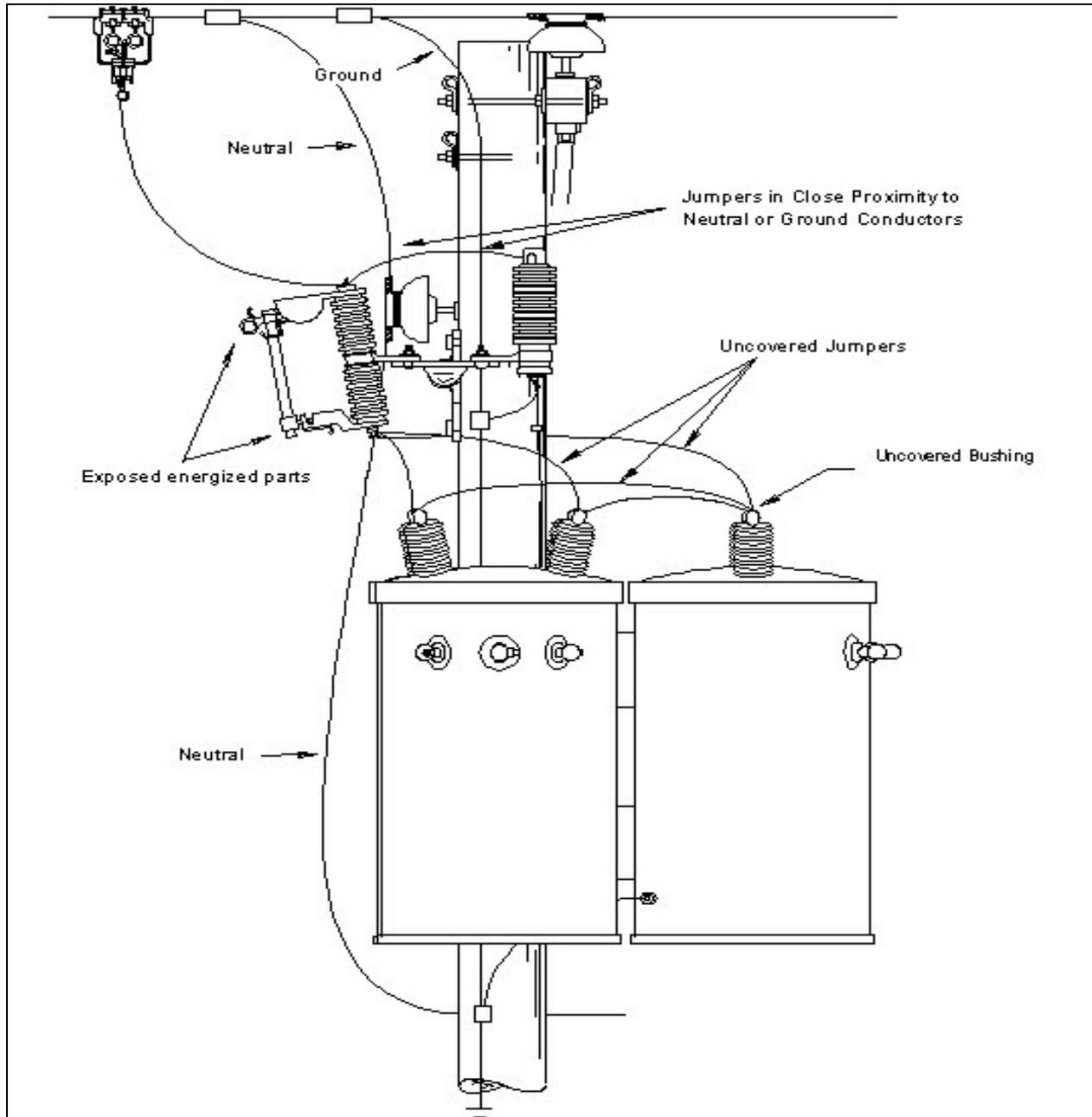
This section provides information about designs which have historically caused avian electrocution problems. These designs should be avoided in known raptor or other protected bird use areas and rural sites.

Most lines that electrocute raptors or other large birds are primary distribution lines. Problems occur most often when:

1. The distance between conductors is less than the wingspan or height of a landing or perching bird (see Figure 1).
2. Hardware or equipment cases are grounded and are in close proximity to energized conductors, energized parts, or jumper wires (see Figure 2).



**Figure 1 Typical Avian-Risk Structures**



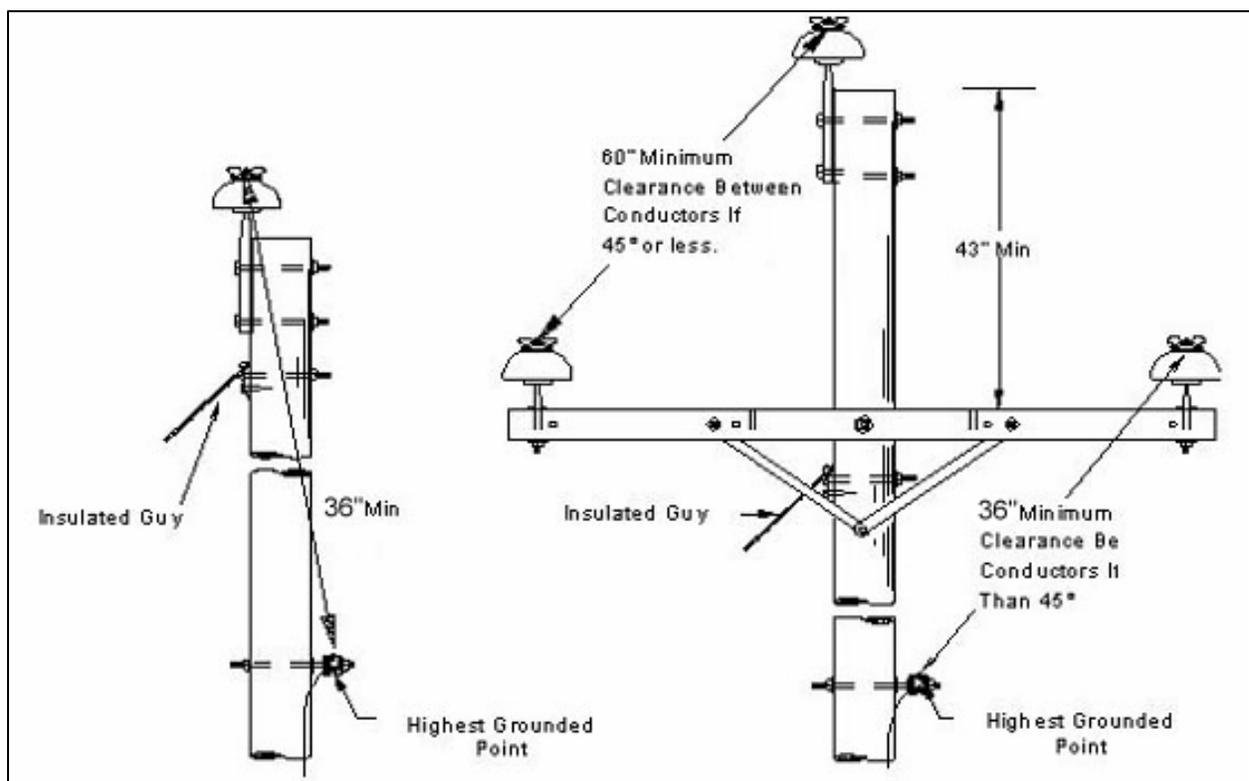
**Figure 2 Typical Avian-Risk Equipment Structure**

### Minimizing Electrocutions: Avian-Safe Designs and Modifications

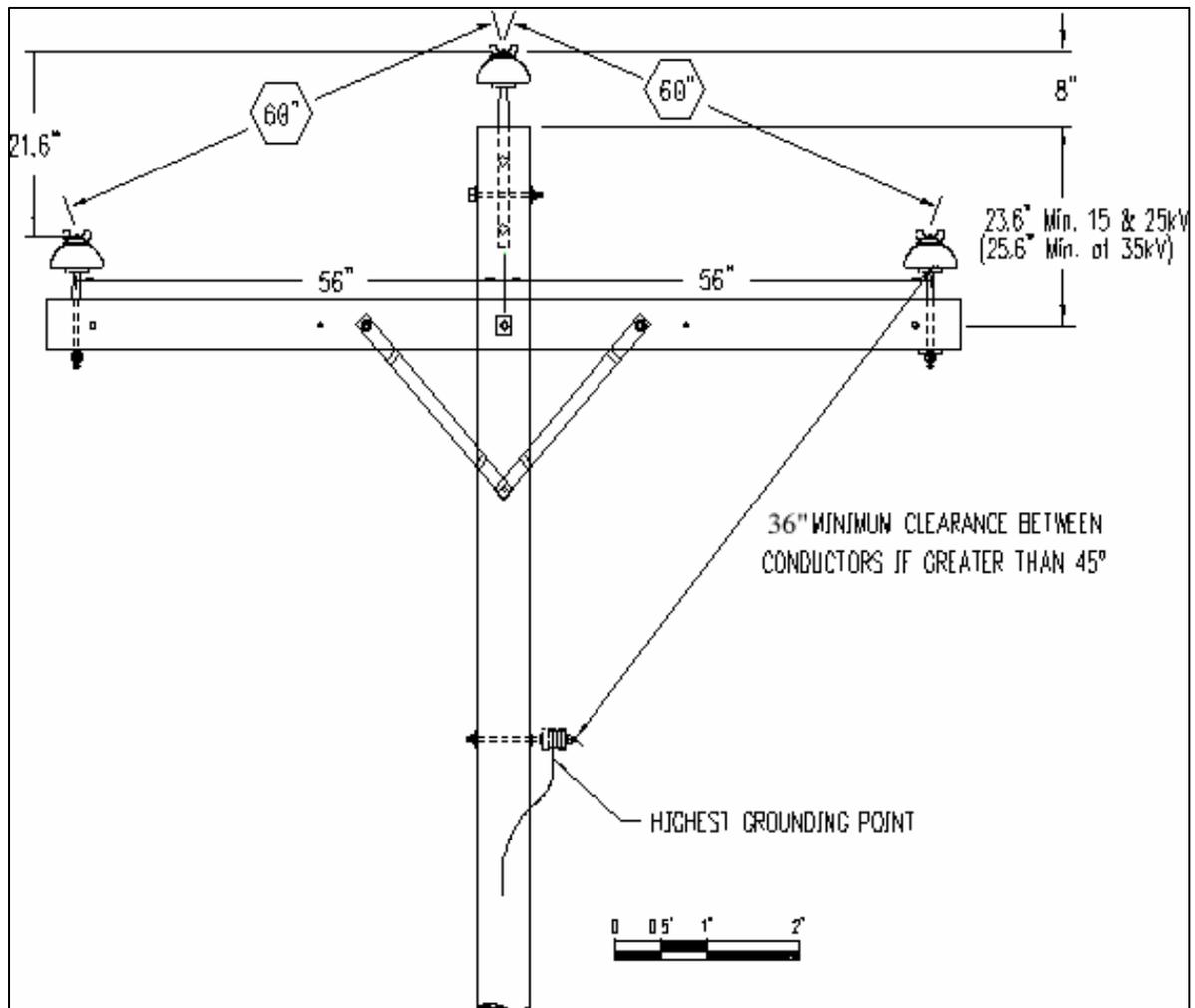
This section provides information on designs and criteria for constructing new lines or rebuilding existing lines to avian-safe standards.

#### Proper Design of New Facilities

The following dimensions for primary structures are intended for use in areas with populations of raptors or other large birds or in rural sites (areas outside city limits or beyond incorporated areas with commercial or residential development). Nonetheless, avian-safe construction should be considered to improve system reliability and avian protection whenever it does not conflict with other considerations. When a new line or extension is designed, avian-safe standards for construction of the distribution system should be followed (see Figures 3 and 4 for typical safe designs).



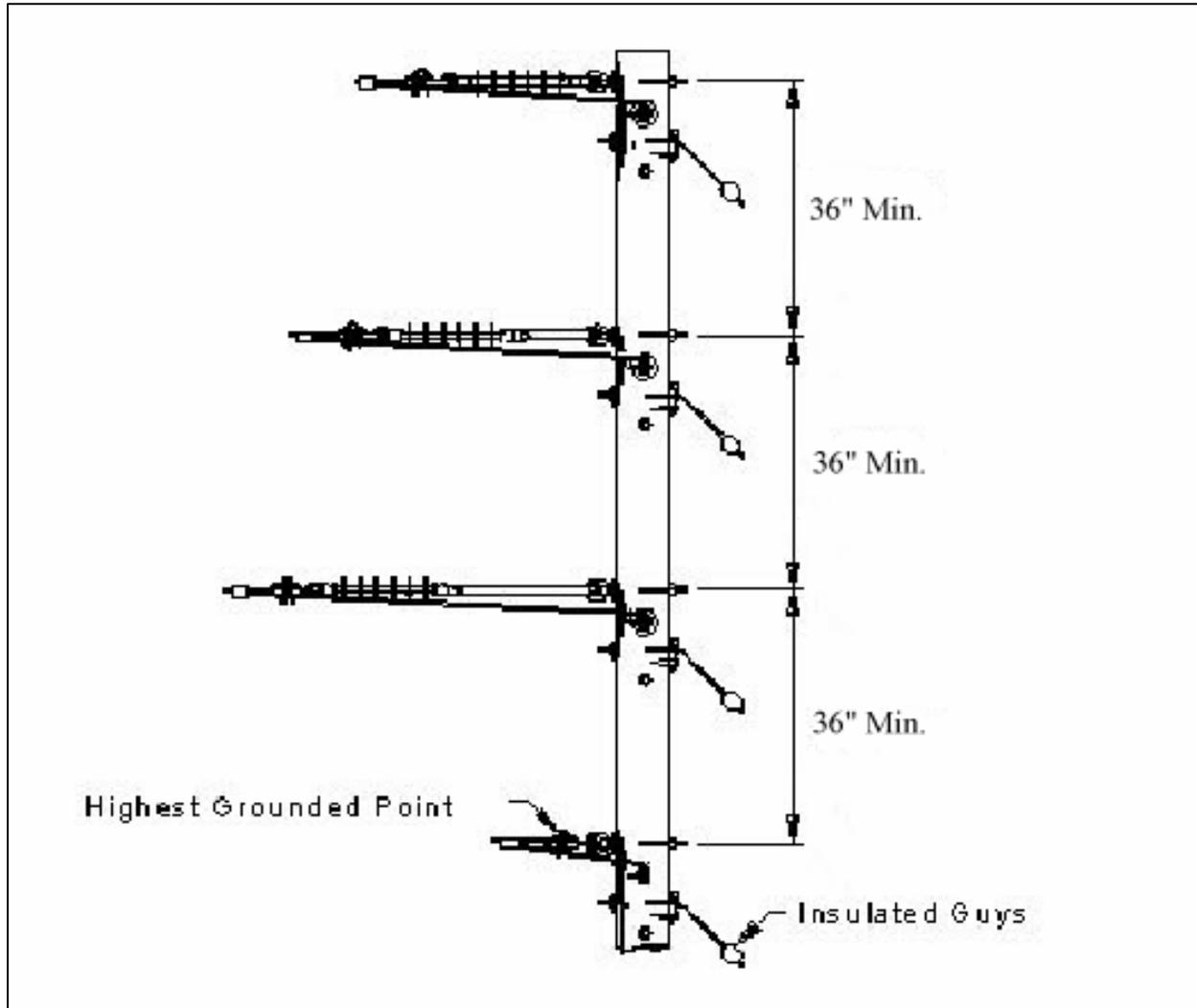
**Figure 3** Typical avian safe structures: single phase (left), three-phase with lowered 8-foot crossarm (right).



**Figure 4 Typical Three-Phase Avian-Safe Structure with 10-foot Crossarm.**

On single phase structures, a minimum vertical separation of 36 inches from phase to ground is needed to safely accommodate eagles and most wading birds (Figure 3). On three phase structures, a vertical clearance of at least 43 inches between un-insulated conductors, ground wires and grounded hardware on poles with 8-foot crossarms will provide the 60-inch required clearance (Figure 3). Separation can be accomplished by lowering crossarms and neutral attachments, or if vertical space is not available, an 8-foot crossarm can be replaced with a 10-foot arm (see Figure 4). If there is not enough pole height to drop the crossarm, a 10-foot crossarm can be the economical choice. Structural strength of the longer arm must be considered if the arm is replaced. Also, narrow rights-of-way may dictate the horizontal width of a crossarm, possibly requiring more pole height to achieve avian-safe spacing. Regardless of the configuration, hardware should not be grounded above the neutral position.

An alternate method for ensuring separation of energized conductors is to use vertical construction (see Figure 5). This is not the preferred method of separation, since considerable pole height is required to attain adequate clearance, making this an expensive solution. However, it may be useful in some situations, such as turning corners, where normal separation methods are not possible.



**Figure 5** Typical Avian-Safe Three-Phase Vertical Corner Configuration

### **Modification of Existing Structures**

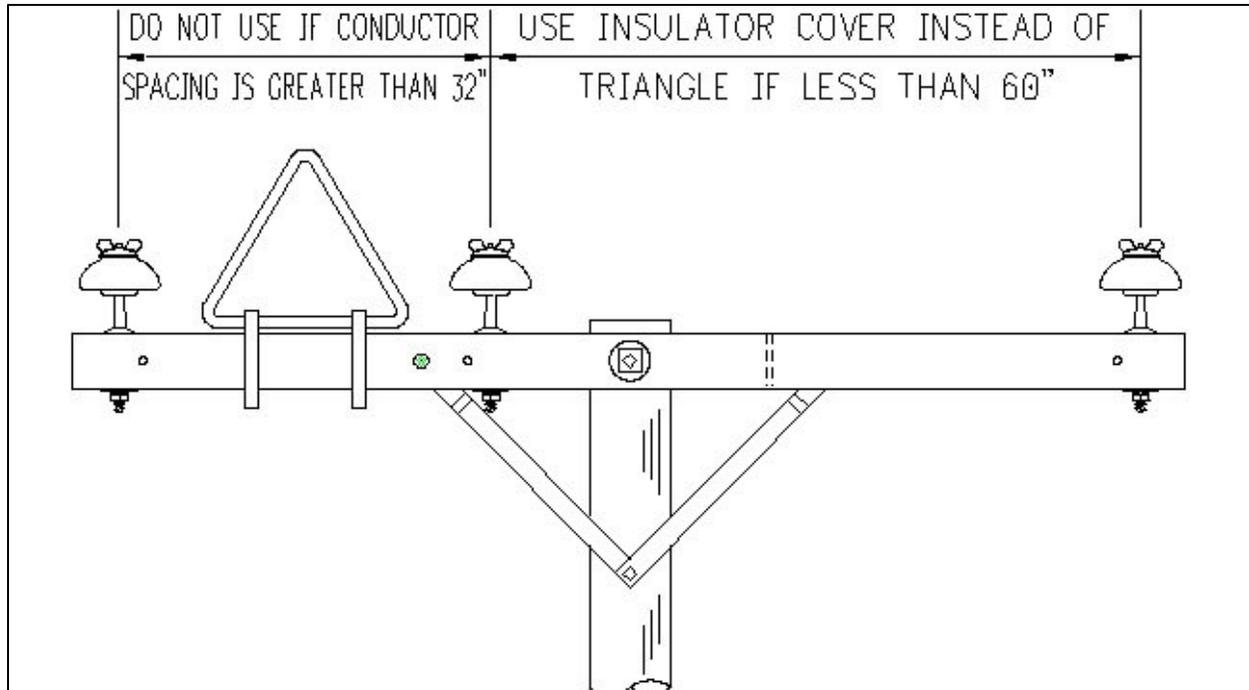
On existing structures where raptors or other large birds have been electrocuted or injured, the preferred remedial measure is to provide 60–inch separation between energized conductors. Reframing using a 10–foot crossarm which allows 60–inch separation between conductors may be a suitable alternative to pole replacement.

However, pole replacement utilizing a safe design may be required on poles where bird mortalities have been documented and other safe modifications are not feasible due to pole height or condition.

Other remedial options include covering conductors and equipment or installing bird perch guards (triangles) or triangles with perches. These options do not offer total protection for birds, but may greatly reduce the chance of avian electrocutions. These options should be used when separation of the conductors is not possible, or where equipment is on the pole.

#### *Perches and Guards*

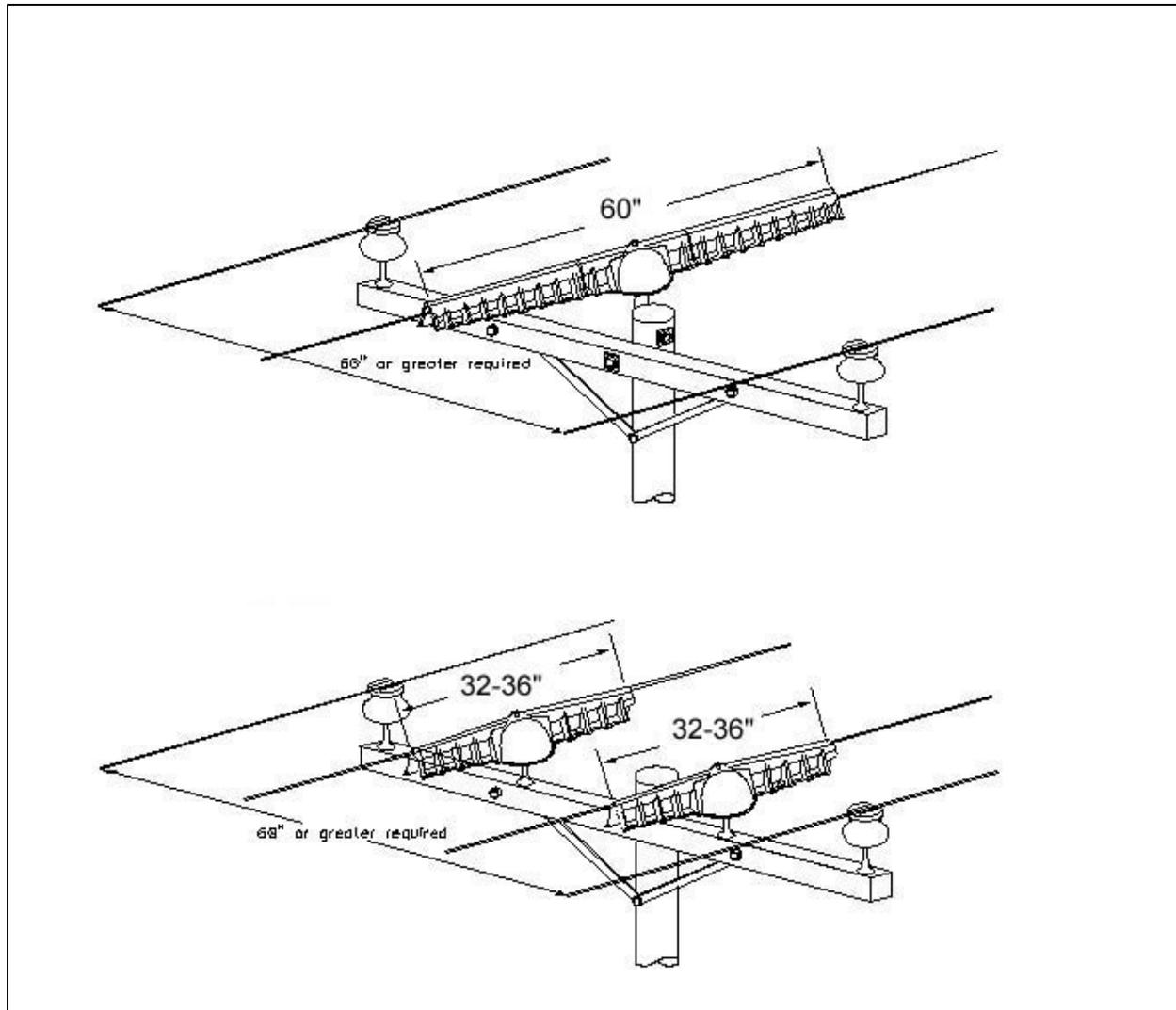
If conductor separation cannot be achieved and covering or reframing is impractical, perch guards (triangles) with optional perches may be used for large perching bird protection (Figure 6). Since raptors will often perch on the highest vantage point, the installation of perch guards between closely-spaced conductors and the placement of perches above existing arms and conductors may keep a bird from contacting energized parts or wires. Perches may not be effective when used without perch guards. Perches and guards, when properly installed, are not an absolute solution, but they do reduce the risk to birds. Ideally, when a perch guard is installed, an alternative, safe perch site should be provided. The open part of the crossarm, as shown in Figure 8, could serve as such a site. Perch guards are generally 18 to 22 inches wide and should not be used when conductor spacing is greater than 32 inches. When spacing is between 32 and 60 inches, use an insulator cover (see Figure 7) instead of a triangle or perch. Protective equipment should not be installed when conductors are more than 60 inches apart.



**Figure 6 Properly Installed Perch Guard**

#### *Covering Conductors*

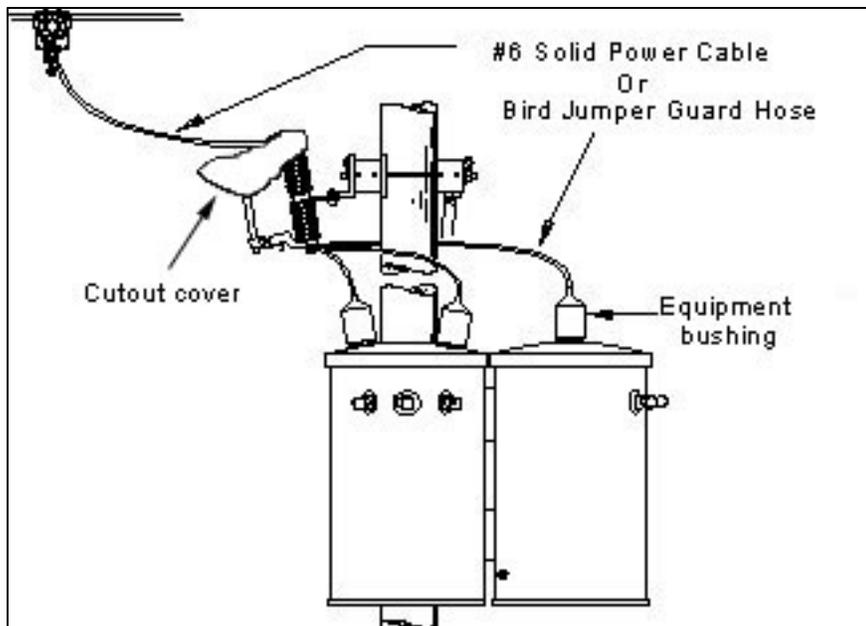
Where adequate separation of conductors, or conductors and grounded parts, cannot be achieved, covering conductors may be the only solution short of reframing or replacing structures. Covering material should be used to cover both the conductor and the insulator. On three phase structures, the cover should extend a minimum of three feet from the pole top pin insulator (see Figure 7). Occasionally, on double circuits or distribution underbuild, a smaller (32 to 36- inch) one-piece cover may be used in areas where eagles or other large birds are absent. There are many manufactures of insulator covers. Insulator covers are similar to the temporary cover-ups used to protect crews working on energized lines. **However, the products should not be used for human protection or considered as insulation.**



**Figure 7 Conductor and Insulator Covers**

#### *Covering Equipment Parts*

If transformers, cutouts or other energized or grounded equipment are present on the structure, jumpers, cutouts and bushings should be covered to decrease the chance of a bird electrocution (Figure 8). For jumper wires, use a bird jumper wire guard, cover-up hose or insulated power cable. For cutouts, various covers are available to fit different sizes and styles of cutouts. For bushings, use a bushing guard that provides the protection needed. (*Note - Your APP should include specifications on materials your utility will accept*).



**Figure 8**      **Hose and Bushing Caps**

### **Collisions: Bird Protection**

The proximity of a line to high bird-use areas, vegetation that may attract the birds, and topographical features that affect local and migratory movements should be considered when determining the extent of necessary remedial action or when siting a new line. Avoiding construction of new lines in areas of high bird use may be the best way to prevent or minimize collision issues.

On existing lines, the risk of collision may be reduced or eliminated by burying or relocating the line, reconfiguring the line, removing the overhead ground wire, or marking the line to increase visibility. Because in most instances remediation of only a few spans will eliminate the problem, burying, relocating or reconfiguring the line are not cost-effective solutions. Removal of the overhead ground wire may not be feasible due to operational or safety concerns. However, research indicates that marking the shield wire (transmission lines) or conductors (distribution lines) to increase visibility significantly reduces the incidence of avian collisions.

Marker balls, swinging markers, bird flight diverters, or other similar devices are commercially available products designed to increase the visibility of overhead wires to birds. Examples of one type of swinging marker and a bird flight diverter are shown in Figure 9. While some older clamping devices could damage lines, some of the newer devices have been designed to prevent damage to lines.



**Figure 9      Swinging Marker Device (left) and Bird Flight Diverter (right)**

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## **APPENDIX B**

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### **Avoidance and Minimization Measures: Pre-Construction Nesting Bird Surveys**

## **Pre-Construction Nesting Bird Surveys**

The migratory bird nesting season is March 15<sup>th</sup> to July 31<sup>st</sup>. Pre-construction nesting bird surveys will be conducted during the migratory bird season by a BLM-approved biological monitor with the following guidelines:

- For all non-raptor bird species, pedestrian surveys will cover all potential nesting habitat in and within 100 feet of the area to be disturbed.
- Because there are no standardized disturbance buffers for active bird nests, if active nests are detected, a no-disturbance buffer zone (as determined by BLM) will be established and the nests will be monitored until they are determined to be inactive. Monitoring details will be determined by the BLM, and nest locations will be mapped and submitted to the BLM as needed.
- Active bird nests will not be moved during the breeding season unless the holder is expressly permitted to do so by the USFWS, BLM, and NDOW.
- All active nests and disturbance or harm to active nests will be reported within 24 hours to the BLM upon detection. The biological monitor will halt work if it is determined that active nests are being disturbed by construction activities, until further direction or approval to work is obtained from the appropriate agencies.

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## **APPENDIX C**

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### **Mortality Report Forms**

**NEVADA DEPARTMENT OF WILDLIFE**       **HABITAT BUREAU**

***Industrial Artificial Pond Permit · Quarterly Wildlife Mortality Report Form***

Project Title: \_\_\_\_\_ Permit #: \_\_\_\_\_

Address: \_\_\_\_\_ County: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Mine ID # \_\_\_\_\_ Report Year: \_\_\_\_\_ Quarter: Jan – Mar  Apr – Jun  Jul – Sep  Oct – Dec

Wildlife Mortality Identification

 (I) <b>Raptors</b>	 (III) <b>Upland Game</b>	 (V) <b>Shorebirds</b>
 (II) <b>Songbirds</b>	 (IV) <b>Waterfowl</b>	 (VI) <b>Mammals</b>

*Please list number and species under each category (DO NOT leave blank)*

**Example:**

RAPTOR (I) ..... 0  
 SONGBIRD (II) ..... 1 sparrow, 2 wren  
 UPLAND GAME (III) ..... 1 quail  
 WATERFOWL (IV) ..... 3 mallard, 1 bufflehead, 4 gadwall  
 SHOREBIRD (V) ..... 0  
 MAMMAL (VI) ..... 4 mice, 2 skunk, 1 ground squirrel  
 OTHER ..... 2 lizards, 1 rattlesnake

***Mortalities Associated with Permitted Pond Solutions or Structures***

Number and Species Identification    **(DO NOT leave blank)**

RAPTOR (I) ..... \_\_\_\_\_  
 SONGBIRD (II) ..... \_\_\_\_\_  
 UPLAND GAME (III) ..... \_\_\_\_\_  
 WATERFOWL (IV) ..... \_\_\_\_\_  
 SHOREBIRD (V) ..... \_\_\_\_\_  
 MAMMAL (VI) ..... \_\_\_\_\_  
 OTHER ..... \_\_\_\_\_

*(Report Mortalities NOT Associated with Permitted Pond Solutions or Structures on Back of Form)*

REPORTER: \_\_\_\_\_ DATE: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

CITY: \_\_\_\_\_ STATE: \_\_\_\_\_ ZIP: \_\_\_\_\_ PHONE: \_\_\_\_\_





NEVADA DEPARTMENT OF WILDLIFE  
Artificial Industrial Pond  
Wildlife Mortality Report

Facility Permitted: \_\_\_\_\_ Person Taking Report: \_\_\_\_\_

Reporting Person: \_\_\_\_\_ Date: \_\_\_\_\_

Phone: ( ) \_\_\_\_\_ Fax: ( ) \_\_\_\_\_ E-Mail: \_\_\_\_\_ Time: \_\_\_\_\_

Mortality  
Species: \_\_\_\_\_ Number: \_\_\_\_\_ Date of Discovery: \_\_\_\_\_

Location of find on facility site: \_\_\_\_\_

Person who found the mortality: \_\_\_\_\_  
*If different from reporting person*

Permitted Structure Involved: Yes \_\_\_\_\_ No \_\_\_\_\_ Permitted Solutions Involved: Yes \_\_\_\_\_ No \_\_\_\_\_

Disposition by Department of Wildlife:

Dispose of On Site \_\_\_\_\_ Hold for NDOW and Date of Pick Up \_\_\_\_\_

Other \_\_\_\_\_  
*Specify*

Disposition Authorized by: \_\_\_\_\_

Circumstances and Information: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Investigation by: \_\_\_\_\_

Date Investigated: \_\_\_\_\_

## **APPENDIX B**

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# **Long Canyon Mine Mule Deer Monitoring Plan**

Draft Long Canyon Mine  
Mule Deer Monitoring Plan

Bureau of Land Management,  
Nevada Department of Wildlife,  
And  
Newmont Mining Corporation

December 2014

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## LIST OF ACRONYMS & ABBREVIATIONS

<b>BLM</b>	Bureau of Land Management
<b>EPM</b>	Environmental Protection Measure
<b>FEIS</b>	Final Environmental Impact Statement
<b>GPS</b>	Global Position System
<b>MSHA</b>	Mine Safety and Health Administration
<b>NDOW</b>	Nevada Department of Wildlife
<b>Newmont</b>	Newmont Mining Corporation
<b>ROD</b>	Record of Decision
<b>TSF</b>	Tailings Storage Facility
<b>WRSF</b>	Waste Rock Storage Facility

## 1.0 INTRODUCTION AND PROJECT OVERVIEW

The Bureau of Land Management (BLM) Wells Field Office has prepared a Final Environmental Impact Statement (FEIS) for the Long Canyon Mine. The FEIS analyzed the Plan of Operations (Plan) submitted by Newmont Mining Corporation (Newmont) for the Long Canyon Mine including two alternatives. Newmont's plan proposes an open pit gold mine and processing facilities. Construction would take approximately 18 months with mining to continue an additional eight to 14 years. Reclamation would continue for several years after mining is completed. The FEIS found that potential impacts to mule deer could occur as a result of project construction and operations. Because of these potential impacts (Section 1.3), this mule deer monitoring plan has been developed.

This plan is intended as a guidance document for: future monitoring to determine if impacts to mule deer occur during mining operations; to layout measures that may be implemented to minimize potential impacts through reactive management actions, and an adaptive management vehicle to facilitate future actions as the needs arise (reactive/adaptive management). This document should be considered a working document, where the cooperators may agree to modifications, additions, or exclusions of any aspect of this document, with the exception of the intent of the goals and objectives outlined below. Any modifications to this document would be made through the wildlife working group developed to oversee this plan.

This monitoring plan includes the following components:

- Goals and objectives of the plan;
- A description of the types of monitoring, locations, and procedures;
- A monitoring schedule, including the timing and frequency of monitoring;
- Specific response triggers to indicate thresholds requiring adaptive management action;
- A list of potential reactive/adaptive management actions for impacts to mule deer;
- Documentation and reporting requirements;
- Formation of a wildlife working group to continue implementation of this plan; and
- Roles and responsibilities.

This mule deer monitoring plan has been developed:

- To be consistent with existing agreements or permit requirements;
- Collaboratively between BLM, Nevada Department of Wildlife (NDOW), and Newmont, and agreed upon through the development of a memorandum of agreement between all parties;
- To be completed prior to project construction; and
- To provide mechanisms to fulfill the goals and objectives of the plan through the formation of a project specific wildlife working group.

### **1.1 LONG CANYON MINE ENVIRONMENTAL IMPACT STATEMENT**

The proposed project would be located on the east side of the Pequop Mountain range, about 30 miles east of Wells, Nevada and 32 miles west of West Wendover, Nevada on Interstate 80. The proposed operation would consist of one open pit, a heap leach pad, a waste rock storage facility (WRSF), a tailings storage facility (TSF), water supply wells, milling facilities, mine haul roads, and other ancillary facilities. A natural gas pipeline would be constructed north of the mine site for a self-generated power source at the project site. Two water supply wells would also be constructed south of the project area in order to provide drinking-quality water to the communities of West Wendover, Nevada and Wendover, Utah while the mine is in operation.

The BLM chose the North Facilities Alternative as its preferred alternative because it generally reduces impacts to the environment. The majority of the background discussion and analysis presented in this document are derived from the FEIS. The reader is referred to the FEIS for more details on the descriptions of the affected environment and the environmental effects of the project. The associated disturbance for the proposed operations is 4,194 acres, of which 1,874 acres are public land, including 480 acres of split estate lands, and would encompass the existing 115 acres of disturbance from exploration activities.

### **1.2 AREA 7 MULE DEER HERD**

Mule deer occur throughout the Plan boundary utilizing a variety of habitats. The eastern side of the Pequop Mountains is identified as a major migration corridor and NDOW has mapped habitats and range utilized by mule deer. The deer herd within the area of the project belongs to a herd known by NDOW as Management Area 7 (Area 7 mule deer herd). The project vicinity is within mapped winter range, with crucial winter range making up the bulk of the habitat potentially impacted from the project. As defined by NDOW, winter range is the part of the overall range where the majority of the deer

are located during the typical winter season (generally January through April) influenced by snow depth and forage availability. Winter range is not necessarily exclusive of other seasonal ranges. Crucial winter range is winter range that is vital or crucial to the continued existence of the population (Lesmeister, 2014). The Plan boundary encompasses approximately 7,130 acres of crucial winter range. Figure 3.8-3 of the FEIS depicts NDOW-mapped seasonal mule deer range within the Plan boundary.

The following summary of the Area 7 mule deer herd is provided by NDOW game biologists. NDOW estimates the current population for the Area 7 mule deer herd at 13,000 deer. Approximately 50% of this population migrates annually from their summer ranges in the Jarbidge Mountains to their winter ranges in the Pequop Mountains and Toano Range. This portion of the herd is one of the most migratory deer herds in the state, with some deer traveling more than 100 miles to winter range. To facilitate this migration, wildlife crossings have been constructed on Highway 93 to aid in deer safely crossing the roadway during their migration. Once the deer cross Highway 93, the migration splits with a small portion migrating east to the Toano Range (north of Interstate 80) while the remainder stay in the Pequop Mountains. The deer that migrate south across Interstate 80 at Pequop Summit utilize the Pequop Mountains, while a smaller portion may cross Goshute Valley over to the Toano Range once south of the interstate. Snow conditions determine how far south the deer move in both mountain ranges. Deer travel up Sixmile Canyon and out Long Canyon while heading south or around the east bench of the Pequop Mountains. When spring conditions allow, the deer then head back north to their summer ranges. Deer tend to return north using the east or west benches of the Pequop Mountains; however, if snow conditions allow, the deer will utilize Long Canyon. These movements have been documented from marking studies conducted in the late 1950s and from 2009 to present (Huebner, 2014). Figure 3.8-2 of the FEIS depicts the migratory corridor surrounding the Plan boundary.

### **1.3 PROJECT ENVIRONMENTAL PROTECTION MEASURES AND APPLICANT COMMITTED ACTIONS**

As part of the Plan for the Long Canyon Mine, Newmont has committed to several environmental protection measures (EPMs) to reduce potential impacts to mule deer. The FEIS outlines the following actions and EPMs:

- Where feasible, in coordination with grazing practices, Newmont would lay down fencing in mule deer migration corridors during the migration seasons. The appropriate locations and seasons would be coordinated with BLM and NDOW.
- Comply with NDOW Industrial Artificial Pond Permit (IAPP) requirements and report any process solution wildlife mortalities to NDOW. Current design for

ponds is to utilize them as event ponds and not production ponds. Solutions coming from the heap leach and TSF would be directed into process solution tanks. The event ponds would only be used under upset conditions when the tanks cannot contain the entire flows.

- Establish a 45-mile per hour speed limit for the main access road (county road). Speed limits within the mine (within the fence line) would be restricted to a 35-mile per hour speed limit. This would reduce the potential for vehicle/wildlife collisions. Any vehicle/wildlife collisions would be reported to NDOW in compliance with the Industrial Artificial Pond Permit (as well as process solution mortalities, big game, special status species, federally-protected species, or other mortalities where appropriate).
- Prohibit hunting or discharge of firearms during construction, development, or mining operations within the fenced Plan boundary of the Long Canyon Mine.
- Along the haul road, gaps in safety berms would be placed along each side of the haul road to allow for mule deer crossing. Berm gaps would be coordinated with BLM, NDOW, and Mine Safety and Health Administration (MSHA) in order to meet the needs of all agencies and may be adjusted based on migration movement.
- Install a wildlife exclusion fence around the TSF and the heap leach facility, but all other fences would meet BLM specification. The mine perimeter fence would be a three-strand, 38-inch high fence with the top and middle barbed. In areas of heavy cattle pressure, the fence would be a four-strand fence with three-barb strands plus a smooth wire bottom strand to facilitate wildlife movement. Newmont would use topographic features and ridgeline as the barrier at upper elevations.
- Apply seasonal operational limitations for exploration activities when mule deer are migrating to their wintering grounds or if they are wintering in the Plan boundary during the timeframes established by NDOW. Limitations on the amount of surface disturbing activities, type and scale of exploration, location of disturbance, and timing of disturbance would be developed annually in consultation with the BLM and NDOW by assessing on-the-ground conditions in the Plan boundary using existing and future deer tracking data (i.e., collared studies and survey flights) from NDOW.
- Concurrently reclaim habitat along the edges of the WRSF, particularly along the western side of the WRSF in a manner that could, in time, provide habitat during operations for migrating mule deer.

#### **1.4 POTENTIAL PROJECT IMPACTS**

Even with the implementation of the EPMs, potential impacts to the Area 7 mule deer herd could still occur as a result of project implementation. The North Facilities

Alternative positions mine features so that there is an approximate 2,200-foot wide corridor between the west side of the WRSF and eastside of the open pit, although the haul road would cross perpendicular to this corridor. This corridor would likely be the location of the deer migration along the east bench of the Pequop Mountains during mining operations. In years of considerable snowfall, the presence and operations of mine activity could be an additive stressor to wintering and migrating mule deer. Aside from habitat loss, which is mitigated for, three main impacts to the wintering mule deer include anthropogenic disturbance, potential barriers to migration, and potentially increased mortality associated with energy expenditures and vehicle/wildlife collisions. Additionally, snow is well documented to hinder the movement of animals and restrict the ability to forage, particularly for large game species. Snow depth is the critical weather factor affecting winter mortality among deer and often acts as a movement trigger during fall migration. Some studies suggest a preference for mule deer to select habitat that has less snow but still has palatable browse; these sites were documented having less than 18 inches of snow (Gilbert et al., 1970). Potential impacts as identified in the Long Canyon Mine FEIS include the following:

- Noise and human activity would be expected to cause deer to avoid areas of active disturbance.
- Mine facilities could be a barrier to migration, which would be dependent on a variety of factors, including noise, traffic, and mine features on the landscape.
- If activities at the mine force deer to move through a narrower corridor along the ridgeline above the mine pit, the deer may be more susceptible to predation, they would likely expend more energy, and/or they may not move to crucial winter range.
- The mule deer may change their traditional migratory patterns in years with heavy snow accumulations because the snow-free habitat may not be accessible to these deer, increasing their risk of starvation.
- A deer leaving summer range late during a high snow year may expend considerable resources (e.g., body fat reserves) to reach winter range, they may not have access to stopover sites, and they may arrive to the winter range in poor body condition. The mine facilities may pose a last hurdle, potentially preventing access to winter browse and increasing risk of starvation or predation of individuals.

In addition to the EPMs, the BLM also requires compensatory mitigation for permanent disturbance within NDOW-designated mule deer crucial winter range. Compensatory mitigation includes mitigation for direct habitat removal of crucial winter range at a 1:1 ratio for permanent habitat lost from construction and operation of the mine that is not

also categorized as greater sage-grouse habitat (BLM, 2014; Mitigation Measure W-1). Mitigation would include habitat enhancements within the northwest corner of the Plan boundary; however, if exploration/mining activities expand within the mitigated/enhanced habitat, then Newmont would continue to mitigate loss of habitat at the 1:1 ratio. These additional enhancements would occur off-site. Off-site, but regionally important, habitat enhancements could include funding locations in the South Pequop Range/Spruce Mountain for pinyon-juniper thinning, browse species seeding, or other habitat enhancements beneficial to the Area 7 mule deer herd. A Memorandum of Understanding between BLM, NDOW, and Newmont would be established to guide mitigation funding and enhancement projects. Mitigation costs would be \$600 per acre (BLM, 2014).

## **2.0 GOALS AND OBJECTIVES**

The goal of this mule deer monitoring plan is to identify and minimize potential mining related impacts to the Area 7 mule deer herd. The objectives of the monitoring and reactive/adaptive management strategy are to:

1. Determine mule deer use and movement within the project area;
2. Determine whether mining operations cause disturbance to mule deer utilizing the migration corridor (i.e., in years of heavy/deep snow);
3. Based on results from Objective 2, identify whether reactive/adaptive management actions may be required to reduce impacts to wintering mule deer; and
4. Based on the results of Objective 3, implement site-specific reactive/adaptive management actions that would minimize or avoid any additional impacts.

### **3.0 MONITORING PROCEDURES, IMPLEMENTATION, AND TIMING**

Monitoring would, at a minimum, be conducted seasonally during the time mule deer winter within the project area (October 15 – April 1) through the life of the project (14 years). Monitoring would commence the first season the deer are present during mine construction startup. Newmont would be responsible for on-site monitoring; all other monitoring could be conducted by NDOW, an approved third party, and/or BLM/NDOW-approved biologists familiar with mule deer movement patterns and life history requirements. Written summaries of monitoring methods and results of the monitoring would be provided to all parties after each monitoring season. This information would be provided by NDOW or third party BLM/NDOW-approved biologist(s) for most monitoring and by Newmont for weather station and snowfall data. The following presents the procedures, timing, and reporting for monitoring activities.

#### **3.1 GLOBAL POSITIONING SYSTEM COLLARS**

NDOW has recommended that 30 active global positioning system (GPS) collars are necessary to understand movement of the Area 7 mule deer herd from summer range to winter range. NDOW, with some financial assistance from Newmont, has collared some deer in the Area 7 mule deer herd since 2008. Currently, (October 2014) NDOW has funded and collared 30 individuals of the Area 7 mule deer herd. These collars are anticipated to be active for two years (until 2016) barring individual deer mortality or collar failure. It is anticipated that the collaring effort would continue until 2021. NDOW or an approved third party contractor would be responsible for all aspects of GPS collaring including data analysis and reporting.

##### **3.1.1 GPS Collar Monitoring Procedures**

GPS collar data would be used to understand impacts of mining operations on crucial winter range and corridor use for mule deer. Key information gathered or extrapolated via data analysis during monitoring would include, but is not limited to:

- Continue to build on existing data of deer use of the project area, through pre-construction and operations;
- Determine duration of deer occupancy of the project area during the winter season;
- Determine if and what mine facilities or actions create barriers to deer migration;
- Determine if mine operations pose an increased risk of mortality for mule deer; and

- Determine if mule deer change migratory behavior and routes as a result of the Long Canyon Mine project.

It is anticipated that NDOW would have additional requirements for collars, GPS data, methods of analysis and other reporting requirements, which are not critical to this monitoring plan (e.g., application of kernel density/statistical models) because they would be implemented by an approved third party contractor. Any additional requirements would be presented to the Wildlife Working Group.

### **3.1.2 GPS Collar Implementation Schedule, Timing, and Frequency**

The collaring effort would be on-going and funding would continue for five years until 2021. The overall collaring effort would be analyzed at least one year prior (2020) to determine if the objectives of this plan have been met through the collaring study.

If the GPS collar program is discontinued for reasons determined by the Wildlife Working Group, Newmont would work with the BLM and NDOW to implement an analogous monitoring program (e.g., utilizing game cameras) within the migration corridor until objectives of the plan are attained.

### **3.1.3 GPS Collar Reporting Requirements**

NDOW or an approved third party GPS collar contractor would provide raw GPS data to BLM and Newmont (or whomever is designated by the Wildlife Working Group), at the end of each migration season or during each season depending on needs. Written summaries, including maps, would be submitted to the Wildlife Working Group members after each migration event (fall and spring) by January 15th and May 15th of each year. The annual monitoring report would be provided by an approved third party contractor and would include analysis of the data with an emphasis on mule deer utilization of the project area as outlined under information in Section 3.1.1. Additionally, the report would include tiering from past GPS collar data (if available), address or attempt to address the key information presented under all monitoring methods, address the goals and objectives of this plan, and focus on the monitoring completed. This report would be due June 1, annually. Table 6-1 of this document outlines the roles, responsibilities and timeline for GPS monitoring.

## **3.2 SNOWFALL MONITORING**

Snowfall monitoring is intended to identify the potential issues associated with significant amounts of snow, which may affect mule deer movement through the Long Canyon Mine site. Snowfall monitoring would occur in order to determine if and when visual monitoring of deer should be implemented. Visual monitoring is required if the snowfall threshold is met (Section 3.2.1); however, aerial surveys and real-time GPS

monitoring would be implemented at the discretion of NDOW or as defined by the Wildlife Working Group.

### **3.2.1 Snowfall Monitoring Procedures**

Snowfall monitoring would be conducted by designated Newmont employee(s). Snowfall monitoring would take place at the mine's current weather station, which is located near Big Springs Ranch at an elevation of approximately 5,700 feet. When the depth of snow is nearing the snowfall threshold (greater than 10 inches accumulated over a five-day period), measurements of snow depth using a yardstick would be photographed with a date/timestamp. However, Newmont would provide snow depth data to NDOW and BLM when snow accumulations of greater than seven inches occur during a 24-hour period. This ensures that monitoring is occurring and Newmont is ready to respond to potential triggers (e.g., initiate visual monitoring because the snow threshold has been met). If the snowfall threshold has been reached and visual monitoring has been triggered, the following monitoring would be implemented.

#### **3.2.1.1 Visual Monitoring**

Once the snowfall threshold has been reached, visual monitoring of deer would be conducted in the mine area by BLM and NDOW approved observers (those familiar with mule deer life history requirements and behavior). The location of the observations would be determined at the time of reaching the snowfall threshold. Observations should be made where the deer are attempting to navigate the mine site, or where they are clustered. Visual monitoring would indicate if and when reactive/adaptive management actions would be identified/implemented. Key information collected during visual monitoring of deer would include, but is not limited to:

- Physical condition of the deer;
- If deer are able to move through the project area without energetic consequences (e.g., struggling, changing course, stuck in a bottle neck);
- If deer are moving through mine facilities such as along roads and haul roads; and
- If deer can access suitable winter browsing habitat.

A datasheet or field form would be developed by NDOW and/or the BLM and approved by the Wildlife Working Group prior to implementation. The datasheet would include parameters outlined above but may also include other information such as temperature, wind, snow depth at observation point, and depth of snow in particular locales such as drifts or wind scour areas.

Section 4.0, Reactive/Adaptive Management, describes the thresholds and triggers in greater detail. Visual monitoring would also continue through adaptive management as this allows for determining if reactive/adaptive management actions address the issues associated with deer migration.

### **3.2.1.2 Aerial Surveys**

NDOW currently conducts winter/spring surveys via helicopter for most mule deer herds. This data helps NDOW determine usage of winter habitat as well as the number of deer occupying the winter range. Helicopter surveys following significant snowfall events can determine if the deer are having difficulty accessing crucial winter range. Aerial surveys would include locating deer or deer tracks within and around the Plan boundary immediately following critical events such as extended or severe weather to ensure that mule deer are in good physical condition and able to move through the mine area without significant effort (e.g., energetic costs). The aerial surveys would be conducted by NDOW at their discretion. NDOW would communicate with Newmont prior to flights near the active mine to avoid flying during blasting.

### **3.2.1.3 Real-Time GPS Monitoring**

Real-time monitoring of GPS collar data would help determine timing, movement, or patterns of movement by mule deer during or after significant snowfall events. Parameters indicating difficulty of deer moving through the mine site would be similar to those presented above. Monitoring would be performed by NDOW, BLM, or an approved third party, as determined by the Wildlife Working Group.

## **3.2.2 Snowfall Monitoring Implementation Schedule, Timing, and Frequency**

Snowfall monitoring would be initiated the first year of construction and continue for the operational life of the mine. Annual monitoring of weather and snowfall would occur beginning November 15 until April 1. If the snowfall threshold is met, visual monitoring would be triggered. Aerial and real-time GPS monitoring would be implemented at the discretion of NDOW or as defined by the Wildlife Working Group. Table 6-1 of this document outlines the roles, responsibilities and timing for snowfall monitoring.

### **3.2.2.1 Visual Monitoring**

Visual monitoring would be primarily observational and would continue for the life of the operational mine, once the snowfall threshold has been met as described above. Visual monitoring would be conducted daily at a minimum, to determine the condition of deer and their movement through the mine site. Observations should be conducted either in the early morning hours and/or during late afternoon/twilight hours when deer are

active. Visual monitoring would also continue through reactive/adaptive management and would continue until deer are safely moving to suitable winter range. Coordination between Newmont, NDOW, and the BLM would determine post-snow event cessation of visual monitoring.

#### **3.2.2.2 Aerial Monitoring**

NDOW would implement helicopter observations at their discretion during significant snowfall events and this would continue for the life of the mine.

#### **3.2.2.3 Real-Time GPS Monitoring**

Implementation of real-time GPS monitoring would be at the discretion of NDOW or BLM, and would be conducted by NDOW, BLM, or an approved third party. Monitoring would occur during seasonal events such as snow events or other weather events as long as GPS collars are active.

### **3.2.3 Snowfall Monitoring Reporting Requirements**

Newmont would report the findings of the snowfall monitoring to BLM and NDOW including procedures and data tables (from weather station) in letter format on May 1, annually. NDOW may provide the third party contractor with this data to include in the annual report of GPS collar monitoring. Newmont's readiness data (e.g., accumulations of greater than seven inches during a 24-hour period) would be transmitted via e-mail to the members of the Wildlife Working Group in 24-hour intervals during significant snow events. The transmittal would include snow depth, photographs, and raw data from the weather station or other information requested via the Wildlife Working Group.

#### **3.2.3.1 Visual Monitoring**

Visual monitoring reporting would use a project-specific datasheet. Reporting would be completed by Newmont (agency-approved) observers and submitted via e-mail to the BLM and NDOW with datasheets attached within 24 hours or less of the monitoring event. However, if observations indicate a number of deer are exhibiting difficulty based on the parameters that would trigger reactive/adaptive management (Section 4.1); Newmont would contact NDOW and BLM as soon as possible.

#### **3.2.3.2 Aerial Monitoring**

If aerial monitoring is performed due to a significant weather event, NDOW would report their findings to BLM and Newmont within 24 hours of observations. Information may be conveyed verbally in cases of emergency or in a written format, such as e-mail.

### **3.2.3.2 Real-Time GPS Monitoring**

If real-time GPS collar monitoring occurs and the observations indicate the deer are not negotiating the mine site, the monitor (third party, NDOW, or BLM) would inform other parties via e-mail or verbally within 24 hours of the observations.

## **4.0 REACTIVE/ADAPTIVE MANAGEMENT**

### **4.1 THRESHOLDS AND TRIGGERS FOR REACTIVE/ADAPTIVE MANAGEMENT**

The threshold and triggers for implementing reactive/adaptive management would be met if cumulative snow depth measured at the weather station is greater than 10 inches for a period of five days OR a combination of visual observations and other monitoring observations (e.g., real-time GPS collar data) indicate 30 percent or greater of deer attempting to navigate through the project area are unable to successfully complete their attempted travel through the area within a five-day period.

Other reactive/adaptive management actions may be initiated in the future through discussions within the Wildlife Working Group. Thresholds and triggers would be defined at that time.

### **4.2 REACTIVE/ADAPTIVE MANAGEMENT ACTIONS**

If either reactive/adaptive management trigger is met, Newmont would notify BLM and NDOW as soon as possible. In coordination with NDOW and BLM, Newmont would implement the reactive/adaptive management actions as appropriate depending on the condition and severity of the snowfall event. The suggested actions may change over time and would be dependent on understanding how the deer utilize the active mine site.

Reactive/adaptive management actions could include, but are not limited to, one or more of the following:

- Creation of a travel path suitable for mule deer by compacting the snow with a track vehicle (i.e., snowcat, lighter weight track-mounted vehicle), plowing existing roads that are not essential to mine operations, or other actions that may allow easier passage for mule deer.
- Creation of temporary berm-cuts, openings, or gaps as allowable by MSHA to facilitate ease of mule deer movement across haul roads and the above travel paths. Locations of such openings would likely vary from year to year depending on conditions and mule deer use (e.g., snow depth, mine activities).
- Limit non-essential vehicular traffic and personnel within corridors identified by NDOW during extended crepuscular hours (5 AM to 8 AM and 3 PM to 6 PM) when deer are most active.

If these reactive/adaptive management actions are not effective in protecting mule deer from the potential hazards of the mine during a snowfall threshold event, Newmont

would work collaboratively with BLM and NDOW to develop other adaptive management actions based on the conditions present at the time of the event to mutually develop a solution.

## 5.0 WILDLIFE WORKING GROUP

A Wildlife Working Group would be established after signing of the Record of Decision (ROD). The Wildlife Working Group would be comprised of three personnel from each of the collaborators: BLM, NDOW, and Newmont. The group would consist of technical specialists (at least one) per organization, as well as management and project leads. The Wildlife Working Group would have a designated coordinator, either the BLM project biologist or project lead. Either may fulfill the coordinator obligations interchangeably. The minimum obligations of the coordinator include scheduling meetings, preparing and distributing meeting minutes, tracking deliverables, and following-up on action items. The group would convene at a minimum of two times per year, in April and January on the 15th or suitable day. A sub-group, which could consist of technical specialists and project leads, may meet more frequently to discuss issues and resolutions, preferably prior to each biannual meeting. The Wildlife Working Group would be able to modify this plan during the course of the Long Canyon Mine project but could only do so by consensus.

The Wildlife Working Group would:

- Keep this mule deer monitoring plan on track;
- Define roles and responsibilities of the group;
- Resolve issues and further refine actions outlined in this plan;
- Assess if each of the monitoring goals and objectives are being analyzed;
- Secure funding for mule deer collaring effort;
- Assess if objectives have been met; and
- Modify this mule deer monitoring plan through the Adaptive Management process and data collected, if necessary.

## 6.0 MONITORING RESPONSIBILITIES AND DELIVERABLES

**Table 6.1 Monitoring Responsibilities and Deliverables**

Monitoring Tool	Trigger Tool	Start Date	Duration	Reporting Deliverable	Due Date	Responsible Party	Threshold/Trigger	Monitoring Goal/Objective Met
GPS Collars	-	Initiated by NDOW until 2016; Collaborative effort to begin 2016.	5 years (until 2021), re-evaluated in year 2020	Monitoring Report	June 1 annually	NDOW or third-party contractor	-	1
				Raw GPS data	At the end of each migration season			
				Summaries of mule deer movement	January 15 and May 15 annually			
Snowfall Monitoring	-	November 15 - April 15 starting the first year of project construction.	Life of the project	Letter Report	May 1 annually	Newmont	Newmont would begin to provide snow depth when snow accumulations of greater than seven inches occur during a 24-hour period and would continue should when the cumulative snow depth measured at the weather station is greater than 10 inches for five consecutive days.	2, 3, 4
				Seasonal snow and weather data	Within 24 hours when snow accumulations of 10 inches over five-day period occur.			
	Visual Monitoring	November 15 the first year of project construction when cumulative depth of snow is 10 inches over a five day period.	Life of the project	Datasheet via Email	Within 24 hours of observations of snow threshold. ASAP when observations show deer are exhibiting difficulty.	Newmont employee(s) approved by BLM and NDOW	If visual observations indicate 30 percent or greater of deer attempting to navigate through the project area are unable to successfully complete attempted	2, 3, 4

Monitoring Tool	Trigger Tool	Start Date	Duration	Reporting Deliverable	Due Date	Responsible Party	Threshold/Trigger	Monitoring Goal/Objective Met
							travel within a five day period.	
	<b>Aerial Monitoring</b>	<b>November 15</b> the first year of project construction; Following critical weather events as determined by NDOW	Life of the project	Email or verbal communication	Within <b>24 hours</b> of observations.	NDOW	If aerial observations indicate 30 percent or greater of deer attempting to navigate through the project area are unable to successfully complete attempted travel within a five day period.	2, 3, 4
	<b>Real-time GPS Monitoring</b>	<b>November 15</b> the first year of project construction; during significant seasonal weather events as long as collars are active.	Life of the project	Email or verbal communication	Within <b>24 hours</b> of observations.	NDOW; BLM; third-party contractor approved by BLM and NDOW; Newmont	If real-time GPS data indicate 30 percent or greater of deer attempting to navigate through the project area are unable to successfully complete attempted travel within a five-day period.	2, 3, 4
<b>Wildlife Working Group</b>	-	After the ROD is signed.	Until monitoring goals and objectives are met or life of the project	Bi-annual meetings	<b>15<sup>th</sup> of January and June</b> , annually.	BLM; NDOW; Newmont	As determined necessary by the Wildlife Working Group, A sub-group of specialist will be established and meet as needed throughout the year.	Will make sure 1, 2, 3, and 4 are met.

## 7.0 REFERENCES

- Bureau of Land Management (BLM). 2014. Final Environmental Impact Statement for the Long Canyon Mine. Case File NVN-91032. Elko District Office, Nevada.
- Cox, M., D. W. Lutz, T. Wasley, M. Fleming, B. B. Compton, T. Keegan, D. Stroud, S. Kilpatrick, K. Gray, J. Carlson, L. Carpenter, K. Urquhart, B. Johnson, and C. McLaughlin. 2009. Habitat Guidelines for Mule Deer: Intermountain West Ecoregion. Mule Deer Working Group, Western Association of Fish and Wildlife Agencies.
- Gilbert, P. F., O.C. Wallmo, R. B. Gill. 1970. Effect of Snow Depth on Mule Deer in Middle Park, Colorado. *The Journal of Wildlife Management*, Vol. 34, No. 1 (Jan., 1970), pp. 15-23.
- Huebner, K. 2014. Area 7 Mule Deer Herd Summary. Text provided for the Long Canyon Mule Deer Monitoring Plan. October 13, 2014 by Nevada Department of Wildlife Game Biologist, Kari Huebner.
- Huebner, K. 2013. Nevada Department of Wildlife Game Biologist. Personal communication with Wendy Broadhead, JBR Environmental Consultants, Inc. Senior Ecologist, Reno, Nevada Office. July 23, 2013.
- Lendrum, P. E., C. R. Anderson, R. A. Long, J. G. Kie, and R. T. Bower. 2012. Habitat Selection by Mule Deer During Migration: Effects of Landscape Structure and Natural-gas Development. *Ecosphere* 3(9):82. September 2012. Article 82.
- Lesmeister, L. 2014. Mining Biologist with Nevada Department of Wildlife. Personal communication with Whitney Wirthlin, Bureau of Land Management, Geologist, Nevada State Office. February 21, 2014.
- Merrill, E. H., T. P. Hemker, K. P. Woodruff, and L. Kuck. 1994. Impacts of Mining Facilities on Fall Migration of Mule Deer. *Wildlife Society Bulletin*. 22:68-73, 1994.
- Monteith, K. L., V. C. Bleich, T. R. Stephenson, B. M. Pierce, M. M. Conner, R. W. Klaver, and R. T. Bowyer. 2011. Timing of seasonal migration in mule deer: effects of climate, plant phenology, and life-history characteristics. *Ecosphere* 2:1-33 pp.
- Parker, K. L., C. T. Robbins, and T. A. Hanley. 1984. Energy expenditures for locomotion by mule deer and elk. *Journal of Wildlife Management* 48:474-488 pp.
- Sawyer, H., M. J. Kauffman, and R. M. Nielson. 2009. Influence of Well Pad Activity on Winter Habitat Selection Patterns of Mule Deer. *Journal of Wildlife Management* 73:1052-1061 pp.

## **APPENDIX C**

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# **Programmatic Agreement**

**AMENDMENT ONE**

**PROGRAMMATIC AGREEMENT  
AMONG  
THE DEPARTMENT OF THE INTERIOR,  
BUREAU OF LAND MANAGEMENT, WELLS FIELD OFFICE, NEVADA  
AND  
THE NEVADA STATE HISTORIC PRESERVATION OFFICER  
REGARDING THE LONG CANYON PROJECT,  
ELKO COUNTY, NEVADA**

**WHEREAS**, the Bureau of Land Management (BLM) Wells Field Office is amending the Area of Potential Effect (APE) under Stipulations Section II. for possible direct effects to eligible historic properties. Newmont Mining Corporation (Newmont) proposes to construct a spur natural gas pipeline from the newly constructed Ruby Natural Gas Pipeline 42.3 miles to the north, as well as associated wells and supporting facilities construction (Section II B.). The proposed pipeline corridor will cross both publicly and privately owned lands along State Route 233 (SR 233), County Road 765 (CR 765), and County Road 790 (CR 790); and

**WHEREAS**, The BLM in consultation with SHPO, will identify the APE (see Attachment 1) and that area will be included as an addition to the existing APE for the original 2013 Programmatic Agreement (PA) which will encompass all direct, indirect, and cumulative effects from the natural gas pipeline and associated facilities. If any indirect or direct adverse effects are identified on historic properties from this pipeline project, a Historic Properties Treatment Plan (HPTP) will be needed to mitigate any adverse effects after the Record of Decision (ROD) for the Final Environmental Impact Statement (FEIS) has been signed and prior to construction; and

**WHEREAS**, The BLM in consultation with SHPO, has identified the indirect effects APE (see Attachment 2) for the Long Canyon Mine Project (Section II C.); and the BLM is expecting adverse indirect effects to historic properties; and

**WHEREAS**, The BLM in consultation with SHPO will determine the indirect effects on the identified historic properties within the indirect effects APE. The BLM will ensure that Newmont is responsible for completing a report on the indirect effects based on a Class I Inventory Research. A HPTP will be developed to mitigate the indirect effects on historic

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**1** Amendment One to the PROGRAMMATIC AGREEMENT AMONG THE DEPARTMENT OF THE INTERIOR, BUREAU OF LAND MANAGEMENT, WELLS FIELD OFFICE, NEVADA AND THE NEVADA STATE HISTORIC PRESERVATION OFFICER REGARDING THE LONG CANYON PROJECT, ELKO COUNTY, NEVADA

properties within the indirect effects APE from the Long Canyon Project within one (1) year of the signing of the ROD for the FEIS for the project; and

**WHEREAS**, The BLM has invited the following tribes to be Concurring Parties on this Amendment One to the PA: The Confederated Tribes of the Goshute Indian Reservation (CTGR), the Duckwater Shoshone Tribe , the Wells Band Council, Shoshone-Paiute Tribes of the Duck Valley Indian Reservation, the Elko Band Council, and the Te-Moak Tribe of the Western Shoshone Indians of Nevada ; and

**WHEREAS**, The BLM has invited the National Park Service (NPS) National Trails Intermountain Region to be a Concurring Party on this Amendment One to the PA; and

**WHEREAS**, The BLM has invited the following organizations to be Concurring Parties on this Amendment One to the PA: Oregon-California Trails Association (OCTA), Trails West, and the Nevada Northern Railway Museum; and

**NOW THEREFORE**, Amendment One to the PA will be effective on the date of the last Signatory Party's signature below and a copy is filed with the ACHP.

## STIPULATIONS

### II. AREA OF POTENTIAL EFFECT

**B.** The APE for the pipeline entails approximately 1,663 acres and is approximately 42.3 miles in length (Attachment 1). The proposed pipeline will tie into the existing Ruby Pipeline and extend southward on Elko County Road (CR) 765 to the town of Montello, Nevada, along State Route (SR) 233 to Interstate 80 at the Oasis Exit 378, and then southward along Elko CR 790 for approximately 4 miles.

The legal descriptions for the APE includes Section 21 in T35N, R66E; the southern end of the pipeline corridor is in the SE ¼ and SW ¼ of Section 10 in T36N, R66E. Moving northward the pipeline crosses:

T36N, R66E, Sections 2 and 3;

T37N, R66E, Sections 25, 35, and 36;

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**2** Amendment One to the PROGRAMMATIC AGREEMENT AMONG THE DEPARTMENT OF THE INTERIOR, BUREAU OF LAND MANAGEMENT, WELLS FIELD OFFICE, NEVADA AND THE NEVADA STATE HISTORIC PRESERVATION OFFICER REGARDING THE LONG CANYON PROJECT, ELKO COUNTY, NEVADA

T36N, R67E, Sections 1, 2, 9, 10, 11, 16, 17, 19, 20, and 30;  
T38N, R67E, Section 36;  
T38N, R68E, Sections 2, 10, 11, 15, 21, 22, 28, 29, 31, and 32;  
T39N, R68E, Sections 25 and 36;  
T39N, R69E, Sections 5, 8, 17, 18, and 19;  
T40N, R69E, Sections 5, 8, 17, 20, 29, and 32; and  
T41N, R69E, Sections 7, 18, 19, 29, 30, and 32.

The north end of the pipeline corridor lies in the SW ¼ and SE ¼ of Section 6 in T41N, R69E.

C. Indirect Effects APE extends out from a central locality of the proposed open pit mine for the Long Canyon Project in a radius of 12 miles; the western boundary is the summit of the Pepuops Mountain Range, then fanning out to the north, east, and south (see Attachment 2). The area of the indirect effects APE encompasses approximately 183,503 acres. The legal locations are:

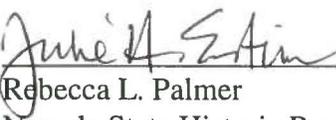
T38N R66E, Sections 25, 26, 34-36;  
T38N R67E, Sections 30-33;  
T37N R65E, Sections 23-27, 34-36;  
T37N R66E, Sections 1-4, 9-17, 19-36;  
T37N R67E, Sections 3-11, 13-36;  
T37N R68E, Sections 19, 30-32;  
T36N R65E, Sections 1, 2, 11-14, 23-26, 35, 36;  
T36N R66E;  
T36N R67E;  
T36N R68E, Sections 5-8, 17-21, 28-33;  
T35N R65E, Sections 1, 11-14, 24, 25, 36;  
T35N R66E;  
T35N R67E;  
T35N R68E, Section 4-9, 17-20, 30, 31;  
T34N R65E, Sections 1, 2, 11-14, 23, 24;  
T34N R66E, Sections 1-24; and  
T34N R67E, Sections 2-11, 16-19.

**SIGNATORIES:**

**Bureau of Land Management Elko District**

  
\_\_\_\_\_ Date 11/19/14  
Bryan K. Fuell  
Wells Field Office Manager

**Nevada State Historic Preservation Office**

For  D-SHPO Date 11/21/14  
Rebecca L. Palmer  
Nevada State Historic Preservation Officer

**CONCURRING PARTIES:**

**Newmont Mining Corporation**

  
\_\_\_\_\_ Date 12/2/14  
Daniel Anderson  
Regional Manager, Environmental Affairs

4

Amendment One to the PROGRAMMATIC AGREEMENT AMONG THE  
DEPARTMENT OF THE INTERIOR, BUREAU OF LAND MANAGEMENT, WELLS  
FIELD OFFICE, NEVADA AND  
THE NEVADA STATE HISTORIC PRESERVATION OFFICER REGARDING THE LONG  
CANYON PROJECT, ELKO COUNTY, NEVADA

**National Park Service- Western Region**

\_\_\_\_\_ Date  
Aaron Mahr, Superintendent

**Confederated Tribes of the Goshute Reservation**

\_\_\_\_\_ Date  
Madeline Greymountain, Chairperson

**Wells Band Council**

\_\_\_\_\_ Date  
Michelle Cure, Chairperson

**Trails West, Inc.**

\_\_\_\_\_ Date  
Ed Otto, President

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Oregon and California Trails Association (OCTA)

Elko District Office

*Jere L. Krakow* Date *12/2/14*  
~~Duane Hes, President~~ *Jere L. Krakow, OCTA*  
*National Preservation Officer*

**Nevada Northern Railway Museum**

\_\_\_\_\_ Date  
Mark Bassett, Executive Director

**Duckwater Shoshone Tribe**

\_\_\_\_\_ Date  
Virginia Sanchez, Chairperson

**Shoshone-Paiute Tribes of the Duck Valley Indian Reservation**

\_\_\_\_\_ Date  
Lindsey W. Manning- Chairman

**Elko Band Council**

\_\_\_\_\_ Date  
Gerald Temoke, Chairman

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**6** Amendment One to the PROGRAMMATIC AGREEMENT AMONG THE DEPARTMENT OF THE INTERIOR, BUREAU OF LAND MANAGEMENT, WELLS FIELD OFFICE, NEVADA AND THE NEVADA STATE HISTORIC PRESERVATION OFFICER REGARDING THE LONG CANYON PROJECT, ELKO COUNTY, NEVADA

**Te-Moak Tribe of the Western Shoshone Tribe**

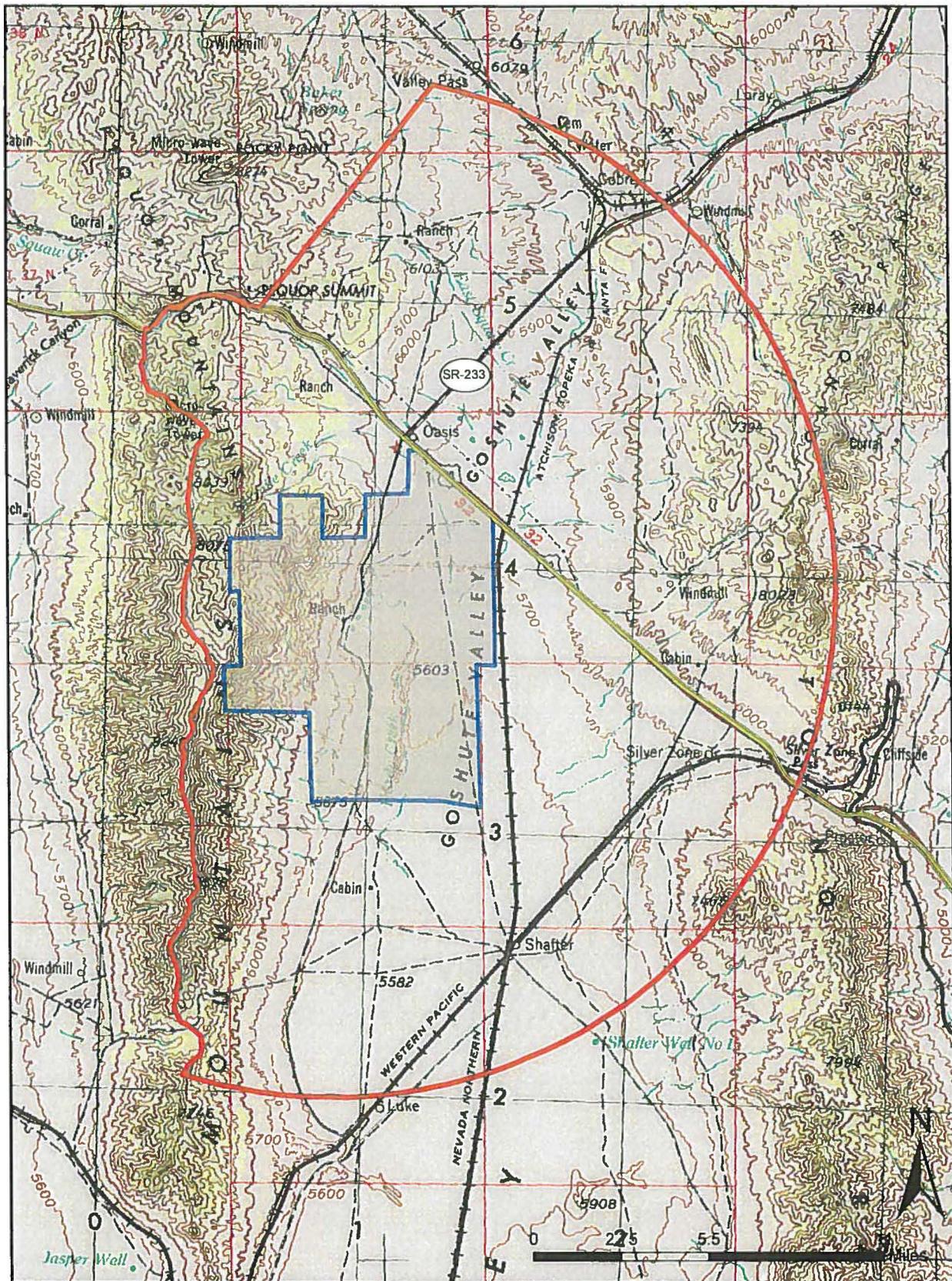
\_\_\_\_\_ Date  
Davis Gonzalez, Chairman

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7 | Amendment One to the PROGRAMMATIC AGREEMENT AMONG THE  
DEPARTMENT OF THE INTERIOR, BUREAU OF LAND MANAGEMENT, WELLS  
FIELD OFFICE, NEVADA AND  
THE NEVADA STATE HISTORIC PRESERVATION OFFICER REGARDING THE LONG  
CANYON PROJECT, ELKO COUNTY, NEVADA



# Attachment 2: Long Canyon Mine Indirect Effects APE



Long Canyon Mine  
Indirect Effects APE Boundary



Long Canyon Mine Plan Boundary

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