

**ENVIRONMENTAL ASSESSMENT
NEWMONT MINING CORPORATION'S MULE CANYON SPRING
MITIGATION PROJECT
LANDER COUNTY, NEVADA**

**ENVIRONMENTAL ASSESSMENT
DOI-BLM-NV-B010-2014-0005-EA**

Prepared for:

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LIST OF ACRONYMS AND ABBREVIATIONS

ARPA	Archaeological Resources Protection Act
BAPC	Bureau of Air Pollution Control
BLM	Bureau of Land Management
BMD	Battle Mountain District
BMPs	Best Management Practices
CESA	Cumulative Effects Study Area
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CFS	cubic feet per second
CWA	Clean Water Act
DOI	Department of the Interior
EIS	Environmental Impact Statement
EA	Environmental Assessment
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Endangered Species Act of 1973, as amended
FLPMA	Federal Land Policy and Management Act of 1976
HFRA	Healthy Forest Restoration Act
IPAC	Information, Planning, and Consultation System
MBTA	Migratory Bird Treaty Act
MCL	Maximum Concentration Level
mg/l	milligram/liter
Mining Law	General Mining Law of 1872, as amended
MLFO	Mount Lewis Field Office
MOU	Memorandum of Understanding
NAAQS	National Ambient Air Quality Standards
NAC	Nevada Administrative Code
NAGPRA	Native American Graves Protection and Repatriation Act
NDEP	Nevada Division of Environmental Protection
NDOA	Nevada Department of Agriculture
NDOW	Nevada Department of Wildlife
NDWR	Nevada Division of Water Resources
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NNHP	Nevada Natural Heritage Program
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
NRS	Nevada Revised Statute
NWI	National Wetland Inventory
OHV	Off Highway Vehicle
PFC	Properly Functioning Condition
RFFAs	Reasonably Foreseeable Future Actions
RMP	Resource Management Plan
ROD	Record of Decision
ROWs	Rights of Ways
SFPGS	Santé Fe Pacific Gold Corporation
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SDWA	Safe Drinking Water Act



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TCPs
USDA
USFWS
USGS

Traditional Cultural Properties
United States Department of Agriculture
United States Fish and Wildlife Service
United States Geological Survey



1.0 INTRODUCTION

Newmont Mining Corporation in cooperation with the Bureau of Land Management (BLM) proposed to conduct three spring rehabilitation projects as mitigation requirements outlined in the Final Mule Canyon Mine Environmental Impact Statement (EIS) and Record of Decision (ROD) issued in 1996. This Environmental Assessment (EA) deals only with the third and final spring mitigation project that is located on BLM-managed land within the Battle Mountain District, Mount Lewis Field Office (MLFO). The proposed spring mitigation project would consist of improving riparian habitat at springs ARG-1 and ARG-2 while providing access to water for livestock. The proposed spring mitigation project would develop spring ARG-1 for livestock water and enclosing spring ARG-2 to mitigate the impacts from increased livestock use of the area. Mitigation activities will involve installation of a spring box and two separate enclosures around each spring located in the NW $\frac{1}{4}$ of the NW $\frac{1}{4}$ of Section 30, Township 32 North, Range 47 East, Mount Diablo Base and Meridian.

1.1 Agency Purpose and Need of the Proposed Action

The purpose of the proposed action is for Newmont Mining Corporation to construct a range improvement project at two identified springs, springs ARG-1 and ARG-2, located within the Argenta Grazing Allotment. The proposed project would meet the mitigation requirements outlined in the Final Mule Canyon Mine EIS (BLM 1996) for spring mitigation requirements as required by the BLM and obligated by Newmont Mining Corporation by providing spring remediation activities. Local ranchers and the BLM have identified a need to improve Julian Tomera Ranches, Inc. water availability for livestock on the Argenta Grazing Allotment at springs ARG-1 and ARG-2. Remediation activities at the springs would restore riparian habitat surrounding the springs while providing water for both livestock and wildlife. Currently the water and riparian habitat associated with the springs is in a degraded state from the trampling of livestock. Section 1.2.2 outlines mitigation activities that Newmont Mining Corporation proposes to implement for spring mitigation activities to fulfil commitments in the Final Mule Canyon Mine EIS.

The BLM will need to decide whether or not to permit the proposed Newmont Mining Corporation's remediation activities which are within the BLMs jurisdiction and under what terms and conditions those mitigation commitments will require (40 CFR 1506.1(a)(2)).

1.2 Relationship to Planning and Conformance with Plans

This section, discusses whether or not the proposed action is in conformance with the land use plans and other relevant laws, regulations, policies, program guidance, and local permitting requirements that are connected to the proposed action.

1.2.1 Resource Management Plan

Public lands administered by the BLM MLFO are managed in accordance with Shoshone-Eureka Resource Management Plan as amended and Final EIS (BLM 1984) and the Approved Shoshone-Eureka Resource Management Plan Record of Decision (ROD) (BLM 1986), which are in compliance with the Federal Land Policy and Management Act (FLPMA) of 1976, as amended.



1.2.2 Final Mule Canyon Mine Environmental Impact Statement

The Final Mule Canyon Mine EIS (BLM 1996) and Record of Decision (BLM 1996a) identified mitigation measures to protect or enhance surface water and groundwater hydrologic resources from associated Mule Canyon Mine activities. The following mitigation measures are identified in the Mule Canyon Mine FEIS and ROD and are summarized below:

Specific facility design, and operational control and monitoring considerations and practices incorporated as components of the Proposed Action and other action alternatives, would provide for effective mitigation of potential groundwater impacts...

Potential groundwater impacts would be effectively addressed by ongoing compliance with specific regulatory standards for operation, maintenance, monitoring, reporting, and reclamation under the following plans and permits:

- NDEP Water Pollution Control Permit
- SPCC Plan
- NDOW Industrial Artificial Pond Permit

Any loss or reduction of flow rate or volume of appropriated or non-appropriated waters to wildlife or livestock within the project area shall be mitigated by the replacement of the amount of lost flow or volume such that total annual flow results in approximately the original annual flow volume. Mitigation, which may include spring developments; installation of wells, pipelines, pumping systems, and/or guzzlers; and/or other water development systems, shall be accomplished in a timely manner. An annual report, showing base line flow data with flow volume for each year of the mining operation, shall be submitted by [Santé Fe Pacific Gold Corporation] (SFPGC) to the BLM. Mitigation for the loss or reduction in water flow will be completed in consultation with and coordinated between BLM, NDOW, SFPGC, and any affected water-right holder or grazing permittee. A loss or reduction in water availability to wildlife or livestock shall be determined to have occurred with the physical loss of springs or the exclusion of livestock or wildlife from water, or based on comparison of a minimum of three years of flow data with baseline data. Loss of water or reduction in water availability shall be determined by the BLM and NDOW.

Installation, funding, and maintenance of these water developments will be the responsibility of SFPGC or the current Mule Canyon Mine Operator until full closure of the mine. At closure, title to the fully maintained and operational developments will be transferred to the BLM and NDOW, and/or the affected grazing permittee or water-right holder.

This mitigation is in addition to any regulatory requirements of NDEP, NDWR, and NDOW and will not be construed as affecting the authority or regulatory requirements of any agency of the State of Nevada (BLM 1996a).

While these documents do not specifically provide mitigation measures for the identified springs for this project, they do provide the basis for mitigation as identified through NDOW, the BLM, and Newmont Mining Corporation for the proposed project.



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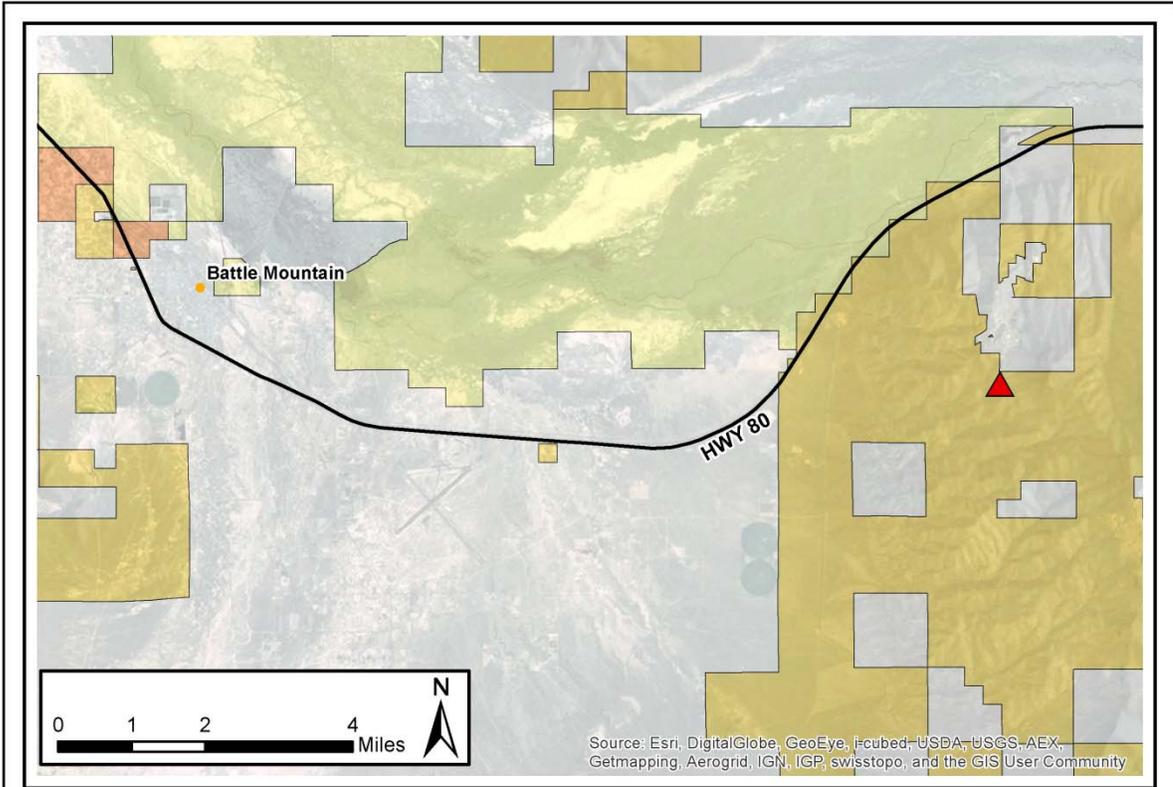
1.3 Background and Other Information

Mule Canyon provides habitat for many wildlife species as well as domesticated livestock that graze the area. The primary rehabilitation spring (AGR-1) will be used to provide water for animals that utilize the area. Another small spring (ARG-2) exists within approximately 200 feet of spring ARG-1, and will be fenced off to reduce degradation of the spring from domesticated animals. The project location and pictures of the springs are provided in Figure 1, and Images 1 and 2, respectively.

In 1999, approximately 17,890 acres of the allotment was burned in the Mule Fire. Following the fire, the area was aerially seeded with forage kochia (*Kochia prostrate*) and crested wheatgrass (*Agropyron cristatum*). Crested wheatgrass is still present at the site.



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● City	Land Ownership
▲ Project Site	■ Bureau of Indian Affairs
— Major Road	■ Bureau of Land Management
	■ Bureau of Reclamation
	□ Private

Figure 1. General Location, Project Area, and Land Status



Image 1: The current condition of spring ARG-1 facing west (photo taken 05/20/2013)



Image 2: The current condition of spring ARG-2 facing southwest (photo taken 05/20/2013)





2.0 PROPOSED ACTION AND ALTERNATIVES

The Proposed Action aims to improve water access to livestock at an existing spring (ARG-1) and to fence off springs ARG-1 and ARG-2 to improve the health of riparian habitat surrounding the springs. Both springs will be fenced with “Jack Rail” fencing to keep livestock away from the springs, while providing wildlife access. The fenced area would protect the riparian habitat by excluding livestock access to the springs which would reduce soil compaction, erosion, and sedimentation from livestock. The proposed exclusionary fencing will be placed approximately 15 feet beyond the current riparian extent and approximately 30 feet down slope which would allow for future expansion of the riparian area as the soils rehydrate and the riparian vegetation returns. The fenced areas would be approximately 0.082 acre around Spring ARG-1 and approximately 0.055 acre around spring ARG-2.

To provide water access to livestock, Spring ARG-1 will require the installation of a new spring box, a tire tank, and underground pipes (Figure 2). The spring box, tire tank, and pipes would be constructed to BLM approved specifications. The depth and size of the spring box will be determined by site conditions during installation. The water source will need to be developed by diverting the water to a tire trough (with a float valve shut off system). The trough would be approximately 8-12 feet in diameter and placed far enough away from the spring so that livestock would not be crowding the fence surrounding the springs. The trough would require the installation of up to 200 feet pipe and would be located northwest of Spring ARG-1 on the upland bench area away from the draws to reduce erosion potential from runoff around the trough (Figure 2). An additional 50 feet of overflow pipe would be installed to the west of the trough, as backup to the float valve, for overflow of excess water. Additionally, a wildlife ladder will be installed in the trough an escape route for small mammals and birds. BLM standards specifications for trough construction, spring development, revegetation procedures, washing of construction vehicles, and standard Best Management Practices (BMP) would be used for the completion of the Proposed Action. The use of the area by livestock and water used would be consistent with Julian Tomera Ranches, Inc’s water right issued by the State of Nevada and grazing permit issued by the BLM as discussed in Sections 3.6 and 3.8, respectively.

The structures and springs in the project area were buffered by 15 ft in order to estimate the potential ground disturbance of the Proposed Action, in addition a 2,500 sq/ft temporary construction lay down area is proposed outside of the fenced-off area for construction equipment. Access to the springs during construction would be through local access roads; however, approximately 0.1 mile of overland vehicle travel would be required to access springs ARG-1 and ARG-2. The total disturbance area for the Proposed Action, including the springs, fenced areas, and temporary lay down area is approximately 0.45 acre.

2.1 Alternatives to the Proposed Action

The National Environmental Policy Act (NEPA) requires the consideration of alternatives other than the Proposed Action. Specifically, it states that agencies must “study, develop, and describe appropriate alternatives to recommend courses of action in any proposal that involves unresolved conflicts concerning alternative uses of available resources” (42 USC 4332). The alternatives should address the issue(s) the Proposed Action attempts to achieve, but using other methods and should consider technical and economic factors.



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2.1.1 Alternative 1

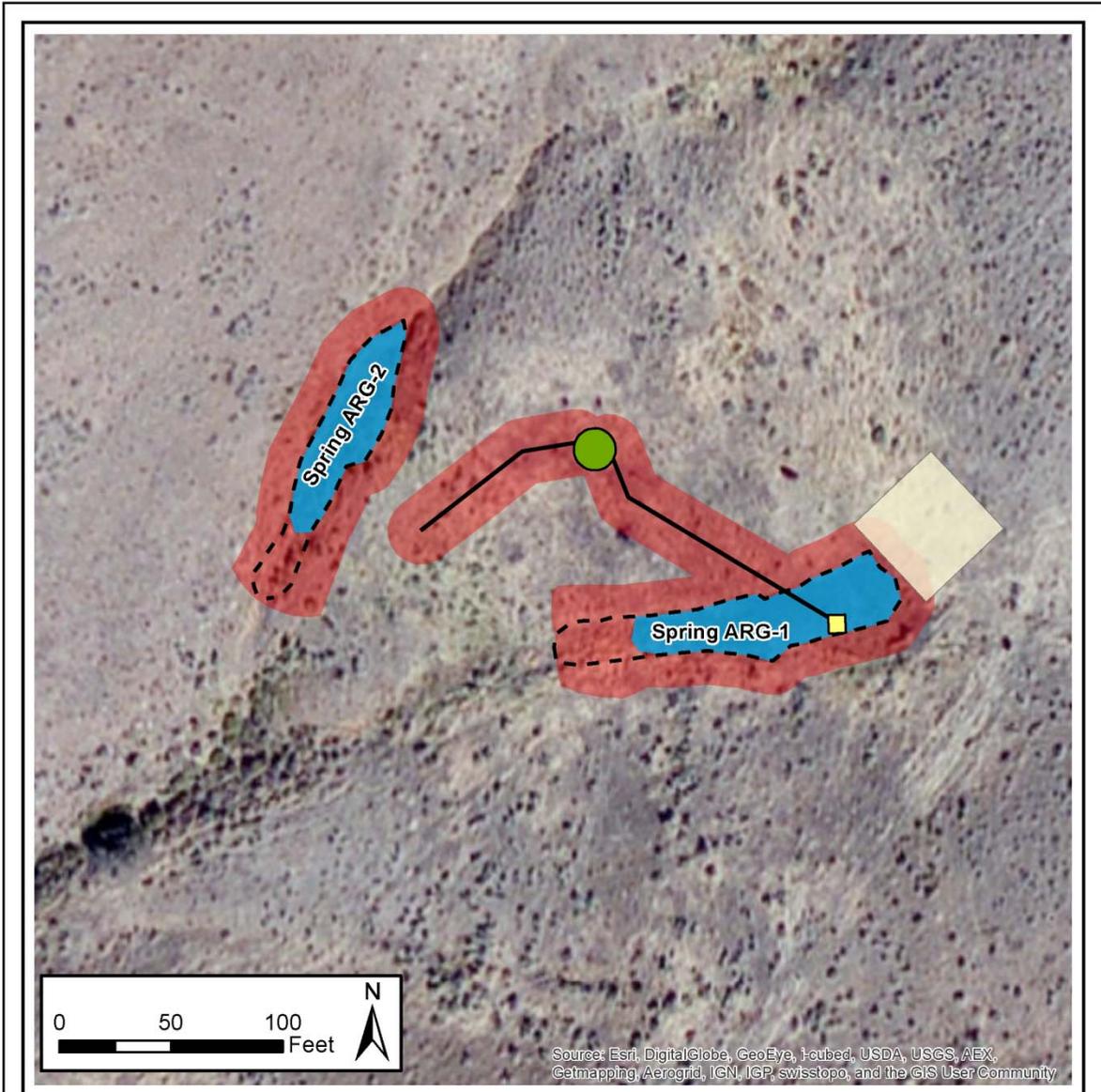
This Alternative is similar to the Proposed Action, but includes the installation of a second water tire trough adjacent to the first water trough. This alternative will increase the total footprint of the project by adding an additional structure (including piping and float valve shut-off) to the project area, which is estimated to increase the disturbance by approximately 20 square feet. The purpose of increasing storage capacity of water at the site is intended to keep up with livestock demand during times of high use, and to increase livestock use at a location where the spring sources are protected, while potentially reducing livestock usage at other unprotected spring sites in the Mule Canyon use area within the Argenta Grazing Allotment. Water use associated with the Julian Tomera Ranches, Inc. water right is discussed further in Section 3.6.

2.1.2 No Action Alternative

Under the No Action Alternative, the spring improvement project would not commence. The two springs identified in the Proposed Action would remain in their current condition. In addition Newmont Mining Corporation would not be entitled to use this project for compliance with the mitigation activities identified in the Final Mule Canyon Mine Environmental Impact Statement (EIS) and Record of Decision (ROD).

2.2 Alternatives Proposed but not Considered

There are no other alternative that were proposed and considered for detailed analysis.



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- Spring Box
 - Trough
 - Underground Pipe
 - Proposed Fence Line
 - Spring
 - Staging Area
 - Potential Disturbance Area (15ft)

Figure 2. Proposed and Existing Surface Disturbance



3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This section identifies the existing environmental conditions and potential impacts to environment from the Proposed Action, Alternative 1, and the No Action Alternative. The BLM must address certain environmental factors that are specified in statute, regulation, or by executive order (BLM 2008). Environmental elements and rationale for analyzing the potential impacts or eliminating the element from further analysis are provided in Table 3.1. Elements deemed to not be present or present but not impacted from the project are not carried forward in the EA for further analysis, but are listed in Table 3.1.

Table 3.1: Supplemental Authorities

Supplemental Authority Element	Not Present	Present/ Not Affected	Present/ Potentially Affected	Rationale/Reference Section
Air Quality		X		This element is present within the Area of Proposed Activities or vicinity and is not affected in the long term, so it is not analyzed further in the EA.
Areas of Critical Environmental Concern	X			This element is not present within the Area of Proposed Activities or vicinity and is not analyzed in the EA.
Cultural Resources	X			2013 Class III Inventory resulted in a Negative finding for presence of CR on the surface.
Environmental Justice	X			The Proposed Action or alternatives would not disproportionately impact any low income or minority populations as described in Environmental Justice Executive Order 12898.
Farmlands (Prime or Unique)	X			This element is not present within the Area of Proposed Activities or vicinity and is not analyzed in the EA.
Floodplains	X			This element is not present within the Area of Proposed Activities or vicinity and is not analyzed in the EA.
Forest and Rangelands (Healthy Forest Restoration Act [HFRA] projects only)	X			This element is not present within the Area of Proposed Activities or vicinity and is not analyzed in the EA.
Human Health and Safety (herbicide projects)	X			The Project is not proposing to use herbicides; therefore, EO 13045 does not apply.



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Supplemental Authority Element	Not Present	Present/ Not Affected	Present/ Potentially Affected	Rationale/Reference Section
Migratory Birds			X	Migratory birds are located within the Area of Proposed Activities and potential effects are discussed in Section 3.2.
Native American Religious Concerns			X	Section 3.3 discusses Native American Religious Concerns.
Noxious Weeds, Invasive, and Non-native Species			X	Noxious weeds are located within the Area of Proposed Activities and potential effects are discussed in Section 3.4.
Paleontological Resources	X			There is a low probability of encountering paleontological resources due to the project lying within a volcanic geomorphic environment. Therefore, this resource is not analyzed further in the EA. If they are discovered during project construction, appropriate protection measures would be followed.
Threatened, Endangered, Special Status Species			X	T&E and or special status species may be present in the project area. Impacts to Special Status Species are discussed in Section 3.5.
Wastes, Hazardous or Solid	X			This element is not present within the Area of Proposed Activities or vicinity and is not analyzed in the EA.
Water Resources/Quality –			X	The project is expected to have some impacts to water resources and water quality in the area, and is discussed in Section 3.6.
Wetlands and Riparian Zones			X	Wetlands and riparian zones exist near the Area of Proposed activities and are discussed in Section 3.7.
Wild and Scenic Rivers	X			There are no wild and scenic rivers within or near the Area of Proposed Activities. This resource is not analyzed in the EA.
Wilderness	X			There are no wilderness areas within or near the Area of Proposed Activities. This resource is not analyzed in the EA.



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In addition to the elements listed under supplemental authorities, the BLM considers additional resources and uses that occur on public lands and the issues that would result from the implementation of the Proposed Action. These additional resources considered for this EA are listed in Table 3.2.

Table 3.2: Additional Resources Considered in the Analysis

Other Resources or Uses	Not Present	Present/ Not Affected	Present/ Potentially Affected	Rationale/Reference Section
Geology and Mineral Resources	X			Geological and mineral resources will not be affected therefore, this resource is not analyzed in the EA.
Rangeland Management/Livestock Grazing			X	Livestock and grazing activities occur in the Area of Proposed activities and are discussed in Section 3.8.
Recreation			X	The Proposed Action and Alternative Action do not pose direct impacts to recreation, but may impact wildlife use and therefore recreation. Impacts to recreation are discussed in Section 3.9.
Social and Economic Values			X	Impacts to social and economic values are discussed in Section 3.10.
Soils			X	The Proposed Action and Alternative Action would temporarily impact soils. These impacts are discussed in Section 3.11.
Vegetation			X	The Proposed Action and Alternative Action would impact vegetation is discussed in Section 3.12.
Visual Resources	X			The project area is located in a VRM Class IV area and due to the small size of the project this resource is not analyzed further in the EA.



Other Resources or Uses	Not Present	Present/ Not Affected	Present/ Potentially Affected	Rationale/Reference Section
Wild Horses and Burros	X			The presence of wild horses or burros has not been observed within the area. Therefore, this resource is not analyzed further in the EA.
Wildlife			X	The Proposed Action and Alternative Action would impact wildlife and is discussed in Section 3.13.

3.1 Cultural Resources

3.1.1 Affected Environment

The National Historic Preservation Act of 1966, as amended (NHPA), and the Archaeological Resources Protection Act (ARPA) are the primary laws regulating preservation of cultural resources. Federal regulations obligate federal agencies to protect and manage cultural resource properties and prohibit the destruction of significant cultural sites and historic properties without first mitigating the adverse effect to the site (36 CFR 800). These regulations apply to all federal undertakings and all cultural (archaeological, cultural, and historic) resources. The Nevada BLM uses the Protocol Agreement with the Nevada SHPO to accomplish compliance under Section 106 of the NHPA.

The ARPA provides for the protection of archaeological resources through civil and criminal penalties for damage. The purpose of the ARPA is to secure the protection of archaeological resources and sites that are on public lands and Native American lands. The law applies to any agency that receives information that a federally assisted activity could cause irreparable harm to prehistoric, historic, or archaeological data and provides criminal penalties for prohibited activities.

A Class III Cultural resources inventory (BLM 6-3080) was conducted by the BLM, Battle Mountain District on August 7, 2013 (BLM 2013). No cultural resources were observed on the ground surface within the project area.

3.1.2 Environmental Consequences

The Proposed Action

The Proposed Action would likely result in ground disturbing activities during the installation of the trough, pipes, and spring box. While no cultural resources were observed during the 2013 Class III inventory, the presence of archaeological resources noted in past inventories and the likelihood that the spring was a potential focal point for prehistoric activities over long periods of time, as such, there is a possibility of buried cultural resources within the project area. To account for this potential, a BLM qualified archaeologist should be present to monitor ground disturbing activities during construction of the proposed project. In the event that cultural



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resources are encountered in a subsurface context, ground disturbing work will stop immediately and the BLM will be notified.

Alternative 1

Alternative 1 would have similar impacts to the Proposed Action. The installation of one additional water trough would introduce an additional permanent structure, and the vegetation underneath the structure would then permanently be removed. Similar measures are recommended and a BLM qualified archaeologist should be present to monitor ground disturbing activities. In the event that cultural resources are encountered in a subsurface context, ground disturbing work will stop immediately and the BLM will be notified.

No Action Alternative

If the No Action Alternative was instituted, the land would remain as is, and would not incur any impacts from the installation of pipes, a spring box, or trough(s). Potential sub-surface archaeological deposits will not be impacted.

3.2 Migratory Birds

3.2.1 Affected Environment

Migratory birds are protected under the Migratory Bird Treaty Act (MBTA) (16 USC 703711). This Act prohibits the take of individuals or parts of individuals, nests, eggs, or offspring. Migratory birds include all native birds to the United States except for game birds. Additionally, Executive Order 13186 requires additional protections for migratory birds by instructing all federal agencies to protect migratory birds through using conservation principles, measures, and practices.

The BLM and United States Fish and Wildlife Service (USFWS) also have a Memorandum of Understanding (MOU) that encourages collaboration between the two agencies and increased conservation of migratory birds. Management practices are outlined to better conserve species of high priority.

Many migratory birds potentially use the project area during different seasons. The Final Mule Mine EIS identified species likely to use the area around the Mule Canyon Mine, which are listed in Table 3.3. The BLM also identified five BLM sensitive species that may occur in the Battle Mountain area, and are also included in Table 3.3. During a site visit conducted on June 20, 2013, biologists noted several species, including: American robin, vesper sparrow, horned lark, western meadowlark, and common raven. Although raptors are likely to live in the area, no raptors or nests were seen during the site visit. The area lacks cliffs or trees for species that nest in such areas, but would provide habitat for ground and shrub-nesting species such as northern harriers, vesper sparrows, sage thrasher, and horned lark.



Table 3.3: Migratory Bird Species That May Use the Area of Proposed Activities

Common Name	Scientific Name
<i>Amphispiza belli</i>	Sage sparrow
<i>Amphispiza bilineata</i>	Black-throated sparrow
<i>Anas platyrhynchos</i>	Mallard
<i>Aquila chrysaetos</i>	Golden eagle
<i>Asio flammeus</i>	Short-eared owl
<i>Asio otus</i>	Long-eared owl
<i>Buteo jamaicensis</i>	Red-tailed hawk
<i>Buteo swainsoni</i>	Swainson's hawk
<i>Charadrius vociferus</i>	Killdeer
<i>Chondestes grammacus</i>	Lark sparrow
<i>Circus cyaneus</i>	Northern harrier
<i>Corvus corax</i>	Common raven
<i>Eremophila alpestris</i>	Horned lark
<i>Euphagus cyanocephalus</i>	Brewer's blackbird
<i>Falco mexicanus</i>	Prairie falcon
<i>Falco sparverius</i>	American Kestrel
<i>Gallinago gallinago</i>	Common snipe
<i>Lanius ludovicianus</i>	Loggerhead shrike
<i>Leucosticte atrata</i>	Black rosy-finch
<i>Molothrus ater</i>	Brown-headed cowbird
<i>Numenius americanus</i>	Long-billed curlew
<i>Oreoscoptes montanus</i>	Sage thrasher
<i>Pica hudsonia</i>	Black-billed magpie
<i>Poecetes gramineus</i>	Vesper sparrow
<i>Recurvirostra americana</i>	American avocet
<i>Spizella breweri</i>	Brewer's sparrow
<i>Sturnella neglecta</i>	Western meadowlark
<i>Turdus migratorius</i>	American robin
<i>Zenaida macroura</i>	Mourning dove
<i>Zonotrichia leucophrys</i>	White-crowned sparrow

Bold – denotes BLM Sensitive Species



3.2.2 Environmental Consequences

The Proposed Action

The Proposed Action would likely cause some disturbance to migratory birds residing in the project area. Installation of the trough, pipes, and spring box and overland travel to and from the site would cause ground disturbance to the vegetation, which may reduce the shrub coverage near the project. The disturbance would mostly be a short-term impact as the only areas that would not be revegetated would be the areas covered with the water trough and spring box. With the installation of the exclusionary fence around springs ARG-1 and ARG-2 the riparian vegetation will increase from the decreased access and trampling of livestock.

Additionally, the installation of spring facilities and increased water availability would attract more livestock to the area by having a cleaner, easily accessible, and more constant water supply. This increase in livestock would result in increased vegetation trampling and grazing by livestock in the upland areas, however livestock will have a decreased impact on other spring sources within the Argenta grazing allotment. In order to avoid potential impacts to breeding migratory birds (including golden eagles [*Aquila chrysaetos*]), a nest survey would be conducted by a BLM approved biologist prior to any surface disturbance associated with construction activities during the avian breeding season (March 1 through July 31 for raptors, and April 1 through July 31 for other avian species). Pre-disturbance surveys for migratory birds are only valid for 14 days. If the disturbance for the specific location does not occur within 14 days of the survey another survey would be needed. If active nests are located, or if other evidence of nesting (i.e., mated pairs, territorial defence, carrying nesting material, transporting food) is observed, a protective buffer (the size depending on the habitat requirements of the species) would be delineated after consultation with the BLM resource specialist, and the buffer area avoided to prevent destruction or disturbance to nests or birds until they are no longer actively breeding or rearing young. The site characteristics to be used to determine the size of the buffer area are as follows: 1) topographic screening; b) distance from disturbance to nest; c) the size and quality of foraging habitat surrounding the nest; d) sensitivity of the species to nest disturbances; and e) the protection status of the species.

The proposed action will benefit migratory birds and other wildlife by providing an improved water source in the area. Migratory birds and other wildlife would be able to use the trough for water. The increase in riparian habitat surrounding the springs would help to improve diversity and abundance of insects, which would provide an improved habitat for insectivores (e.g. bats and birds). In order to prevent wildlife, including birds, from drowning that may fall in the trough; Newmont Mining Corporation would incorporate wildlife ladders into the plan. Wildlife ladders provide access points for wildlife to exit the water.

Alternative 1

Alternative 1 would have similar impacts to the Proposed Action. There would be some damage to existing vegetation that provides habitat for migratory birds. The installation of one additional water trough would introduce an additional permanent structure, and the vegetation underneath the structure would then permanently be removed. This Alternative would also attract more livestock to the area with more water being available, and could result in additional habitat trampling by livestock than the Proposed Action, but this impact is



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considered to be negligible in overall relation to the surrounding area. This alternative could also result in livestock dispersing to a larger area to drink from the two troughs, therefore reducing the intensity of vegetation trampling to the area around one trough. BMPs to reduce disturbance during construction, include using existing overland travel paths and restricting project activity to dates outside of primary nesting season for raptors and other migratory birds would be followed. The addition of the second trough would make more water available for livestock and migratory birds.

No Action Alternative

If the No Action Alternative was instituted, the land would remain as is, and would not incur any impacts from the installation of pipes, a spring box, or trough(s). There would be no loss of habitat for migratory birds. Livestock will continue to have negative impacts on the vegetation and hydrology of springs ARG-1 and ARG-2. As a result migratory birds would not benefit from the improved riparian vegetation, increased insect abundance, and improved water source.

3.3 Native American Religious Concerns

3.3.1 Affected Environment

In accordance with the NHPA (P.L. 89-665), NEPA (P.L. 91-190), the Federal Land Policy and Management Act (P.L.94-579), the American Indian Religious Freedom Act (P.L. 95-341), the Native American Graves Protection and Repatriation Act (P.L. 101-601), and Executive Order 13007, the BLM must provide affected tribes an opportunity to comment and consult on the proposed project. BLM must attempt to identify locations having traditional/cultural importance and reduce or possibly eliminate any negative impacts to identified traditional, cultural, spiritual sites, activities, and/or resources.

Known locations (to BLM) of cultural/traditional significance within the region are: Whirlwind Valley (approximately 10 miles to the southeast), which once contained a large geyser and hot spring complex; The Mount Tenabo/White Cliffs/Horse Canyon Traditional Cultural Property (approximately 35 miles to the south) in the Cortez Mountains; Stony Point, located approximately eight miles to the northwest in the Sheep Creek Range, was said to have served as a staging and lookout area for Shoshone campaigns against non-native encroachment and travel; the Rock Creek Traditional Cultural Property located approximately 17 miles to the north; and the Tosawihi Quarries Traditional Cultural Property located approximately 35 miles to the northeast.

The following document has also produced descriptions of past traditional/cultural use of locations near the project boundary: *Behind the Argenta Rim: Prehistoric Land Use in Whirlwind Valley and the Northern Shoshone Range* (Robert Elston and Margaret Bullock. 1994).

This report presents evidence that Mule Canyon (located just south of the project location) was used for perhaps 10,000 years. It was contemporaneous with Tosawihi quarry sites, with dates ranging from very late prehistoric to very early proto-historic events. It may have been part of an extensive inter-regional trade network that included obsidian sources from Nevada, Idaho,



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Utah, and eastern California. Archaeological evidence at Mule Canyon shows extensive plant processing based on analysis of residue on groundstone artifacts (pinyon, various grass seeds, onion, sagebrush, possibly bitterroot, parsley/carrot family, and Chenopodium seeds - goosefoot family and pigweed family). There was also meat processing activity based on blood residue analysis of groundstone implements (rabbit, marmot, pronghorn, and deer).

Public notice letters seeking input from the Battle Mountain Band and the Te-Moak Tribe of the West Shoshone Nation were sent out on June 6, 2012. A follow up call on October 28, 2013 to the Te-Moak Tribe and Battle Mountain Band seeking input was also made. Currently no formal comments on input have been provided from either group.

3.4 Noxious Weeds, Invasive, and Non-native Species

3.4.1 Affected Environment

Noxious weeds, invasive, and non-native species are species that are highly competitive, highly aggressive, and spread easily. Noxious weeds and invasive plant species have been defined as pests by law or regulation. The BLM defines a noxious weed as, "a plant that interferes with management objectives for a given area of land at a given point in time." The Battle Mountain District (BMD) recognizes the current noxious weed list designated by the State of Nevada Department of Agriculture (NDOA) statute, found in the Nevada Administrative Code (NAC), Chapter 555, Section 010 (NAC 555.010). The list can be found at http://agri.nv.gov/Plant/Noxious_Weeds/Noxious_Weed_List/. An invasive species is further defined as a species that is non-native to the ecosystem under consideration and whose introduction causes or is likely to cause economic or environmental harm or harm to human health (EO 13112, signed February 3, 1999). The BLM's policy relating to the management and coordination of noxious weed activities is set forth in the BLM Manual 9015 – Integrated Weed Management.

A site assessment was conducted by an environmental consultant (biologist) for the project area on June 20, 2013. During the site visit three invasive non-native species were observed in the Proposed Action area and includes; red stork's bill (*Erodium cicutarium*), cheatgrass (*Bromus tectorum*), and bull thistle (*Cirsium vulgare*). Additionally, one noxious weed species, musk thistle (*Carduus nutans*), was noted in the Project Area. Weed density of the project area was low with the exception of cheatgrass which dominated much of the area.

3.4.2 Environmental Consequences

The Proposed Action

The Proposed Action has the potential to attract more livestock to the area, which has the risk of increasing ground disturbance that may lead to further weed abundance. Surface ground disturbance during construction may also introduce weeds or spread weeds already present at the site. Additionally, vehicles would be introduced to the area temporarily during the construction of the Proposed Action and may facilitate the spread of weeds. Newmont Mining Corporation and/or its contractors would minimize the potential for establishment and spread of noxious weeds and invasive non-native species. The proposed Project Area would be reseeded with a BLM-approved seed mix. If coming from an area of known noxious weeds and/or invasive non-native species, construction equipment would be washed to remove weed



seeds, roots, other vegetative debris, and soil capable of transporting weeds prior to entering the Project Area.

Alternative 1

Alternative 1 would have greater impacts than the Proposed Action due to the disturbance from a larger project footprint, an increase in water availability, and therefore an increase of livestock use, thus potentially increasing the amount of grazing and seed spread.

No Action Alternative

Under the No Action Alternative, the current conditions would remain the same. Noxious weed species present would continue to thrive and would still likely be spread by the presence of livestock grazing in the area. However, there would be no introduction of construction equipment that could act as transportation for weed species.

3.5 Special Status Species

3.5.1 Affected Environment

Several BLM special status species may occur within the project site area. BLM special status species are from a list of those that occur near Battle Mountain. No federally listed species were identified near the project site through the use of the USFWS Information, Planning, and Consultation System (IPAC) online tool. The area of interest identified in the IPAC tool covered the project area, and surrounding areas in both Lander and Elko counties. Table 3.4 contains a complete list of BLM sensitive species near Battle Mountain and federally listed species under the Endangered Species Act (ESA). Some federally listed species came from the BLM sensitive species list, but were not further analyzed because they were not identified by the USFWS IPAC tool to occur near the project area.

Table 3.4: Special Status Species That May Occur in the Project Area

Mammals	Common Name	BLM Sensitive	Federally Listed
<i>Euderma maculatum</i>	Spotted bat	X	No
<i>Lasiurus blossevillii</i>	Western red bat	X	No
<i>Myotis californicus</i>	California myotis	X	No
<i>Myotis lucifugus</i>	Little brown myotis	X	No
<i>Brachylagus idahoensis</i>	Pygmy rabbit	X	No
<i>Microdipodops pallidus</i>	Pale kangaroo mouse	X	No
<i>Ochotono princeps</i>	Pika	X	No
Birds	Common Name	BLM Sensitive	Federally Listed
<i>Accipter gentilis</i>	Northern goshawk	X	No
<i>Aquila chrysaetos</i>	Golden eagle	X	No
<i>Buteo swainsoni</i>	Swainson's hawk	X	No
<i>Centrocercus urophasianus</i>	Greater sage-grouse	X	Candidate
<i>Lanius ludovicianus</i>	Loggerhead shrike	X	No



<i>Leucosticte atrata</i>	Black rosy-finch	X	No
<i>Oreoscoptes montanus</i>	Sage thrasher	X	No
Plants	Common Name	BLM Sensitive	Federally Listed
<i>Asclepias eastwoodiana</i>	Eastwood milkweed	X	Species of Concern
<i>Boechera falcifruca</i>	Elko rockcress	X	Species of Concern
<i>Cordylanthus tecopensis</i>	Tecopa birdbeak	X	Species of Concern
<i>Cymopterus goodrichii</i>	Goodrich biscuitroot	X	Species of Concern
<i>Epilobium nevadense</i>	Nevada willowherb	X	Species of Concern
<i>Eriogonum anemophilum</i>	Windloving buckwheat	X	Species of Concern
<i>Eriogonum beatleyae</i>	Beatley buckwheat	X	No
<i>Parthenium ligulatum</i>	Low feverfew	X	No
<i>Penstemon palmeri</i> var. <i>macranthus</i>	Lahontan beardtongue	X	No
<i>Penstemon tiehmii</i>	Tiehm beardtongue	X	No
<i>Phacelia filiae</i>	Clarke phacelia	X	No

Greater sage-grouse

The Greater sage-grouse (*Centrocercus urophasianus*) was identified by the USFWS online IPAC tool and could occur in the project area. Greater sage-grouse are a candidate for listing under ESA in Region 8. Greater sage-grouse occurs throughout northern and central Nevada where suitable habitat is present, including the proposed project area (USFWS 2013). The project takes place in habitat identified by the BLM as “Preliminary Priority Habitat” (Figure 3).

Greater sage-grouse reside at elevations of 4,000 – 9,000 feet in areas that contain sagebrush. They must have sagebrush in order to live as they utilize it for food, cover, and nesting and breeding grounds. They breed at lek sites, where males and females congregate to mate, and then disperse to nesting areas. Females solely care for young following breeding (NDOW 2013; NatureServe 2009b). Greater sage-grouse may be year round permanent residents or migrate once or twice to breeding habitat and summer and winter ranges (NatureServe 2009b).

3.5.2 Environmental Consequences

The Proposed Action

The Proposed Action Alternative may have a short-term negative impact but long term beneficial impact to wildlife. Water is very limited in the area, and the improvement of the spring and subsequently the availability of water, would increase availability to not only livestock, but wildlife also. Improved habitat for bird, mammal, and other wildlife species would occur as a result of providing exclusionary fencing around springs ARG-1 and ARG-2. The



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increase in riparian vegetation at spring sources would help to improve water quality and improved diversity and abundance of insects surrounding the springs. In particular, bats, birds, and other insectivores will benefit as a result of increased forage availability.

Greater sage-grouse have essential habitat in the project area, which includes breeding habitat, brood rearing habitat, and winter range (Figure 3) (NDOW 2012b). Previous research for the Mule Canyon Mine EIS found that the closest known lekking areas are located several miles south, in Crescent Valley in an area known as The Park. Within the Mule Canyon Mine project area, two sightings of greater sage-grouse occurred in the summer of 1994, but none have been seen in the project area since. Sightings were of adult and young birds, indicating there may be breeding near the site (BLM 1996).

The project would take approximately one week to construct with the use of four-wheeled vehicles, construction equipment and staff. Noise is expected to be a disturbance to greater sage-grouse in the area, but is expected to be minimal and last only the duration of the project (1 week). Disturbance to the project site and sagebrush that provides habitat for greater sage-grouse would be minimized by using existing roads and overland travel. Overland travel will cause limited damage to vegetation and compaction of soil.

Additionally, if greater sage-grouse are seen in the area, they will be avoided by staff and reported to BLM biologists. There may be temporary displacement of wildlife present in the area during the construction phase, but long-term impacts are expected to be minimal as the project has a small overall disturbance area (0.45 acres). The Proposed Action would have a beneficial impact to the greater sage-grouse through the installation of the exclusionary fence around springs ARG-1 and ARG-2. The exclusionary fence would provide improved riparian habitat which is important for females as they move to moist areas such as stream banks and wet meadows during the brood-rearing phase to feed on the forbs and insects needed to ensure chick survival. The Proposed Action would increase the availability of water to wildlife, which could be used by greater sage-grouse present in the area, producing a beneficial impact of the Proposed Action.

Alternative 1

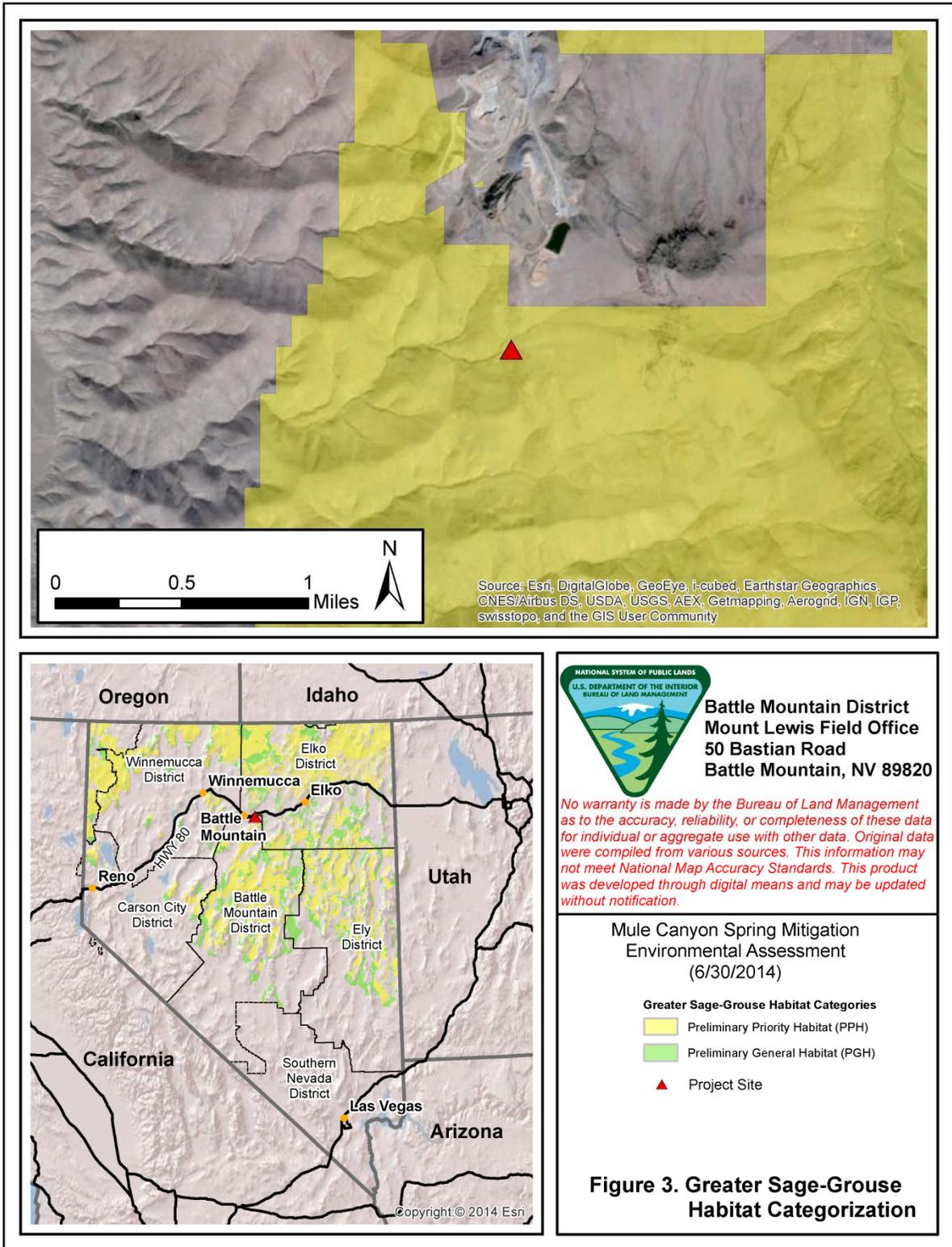
Alternative 1 is expected to have the similar impacts to federally listed species as the Proposed Action. In addition to the impacts described above, Alternative 1 will provide more water availability than the Proposed Action, but would also create more disturbance area from the additional water trough, but this impact is considered to be negligible in relation to the amount of similar habitat in the surrounding area.

No Action Alternative

The No Action Alternative would maintain the current conditions of the site. Therefore, no ground disturbance to soils or vegetation that provide habitat would occur. This alternative however would not produce the positive outcome of increased water availability to greater sage-grouse and other special status species present at the site.



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3.6 Water Resources and Water Quality

3.6.1 Affected Environment

The Clean Water Act (CWA) is the primary law protecting waters of the US. Section 404 of the CWA (33 USC 1344) prevents the discharge of dredged or fill material into waters of the US without a permit from the US Army Corps of Engineers. The Safe Drinking Water Act (SDWA) sets standards for public water systems in the US for many contaminants. SDWA also sets secondary standards for other pollutants that may cause cosmetic effects, but are not enforceable. The State of Nevada however has more stringent guidelines and enforces the EPA's secondary water standards. The Nevada Bureau of Water Quality Planning has water quality standards for toxic materials applicable to designated waters and livestock water standards (NAC 445A.1236).

The project lies in the Humboldt River Basin (NDWR 1992). Both springs, springs ARG-1 and ARG-2, are on BLM land, but Julian Tomera Ranches, Inc. has water rights to appropriate water from the springs for stock watering or wildlife purposes. Julian Tomera Ranches, Inc water right (Application No. V09647) states the water right is located in an Unnamed Creek No. 2 in a natural channel in the SW¹/₄SW¹/₄ of Section 29 and in the NE¹/₄SW¹/₄ of Section 30 in Township 32 North, Range 47 East, M.D.M. The water right is used for stockwatering for up to 150 cattle, 10 horses, and 1,000 sheep in Sections 25, 34, 35 and 36 Township 32 North Range 46 East and Sections 29, 30, and 31 in Township 32 North Range 47 East. The water right states that the calculated diversion of water is 0.011 cubic feet per second (CFS), which equates to approximately 7,110 gallons per day. The period of use for the water right is from January 1 through December 31. No water discharge data is available for springs ARG-1 and ARG-2. The flow for the spring is minimal, dispersed, and difficult to measure. Water flows at the springs are estimated to be ~1 gallon per minute or less.

Springs ARG-1 and ARG-2 were sampled on June 26, 2013. Results of the sampling are provided in Table 3.5 and are compared to livestock water quality standards as per NAC 445A.1236. All concentrations in both springs were below the livestock water quality standards set by the Nevada Bureau of Water Quality Planning.

Table 3.5: Water Quality Testing Results

	Spring ARG-1 Concentration (mg/L)	Spring ARG-2 Concentration (mg/L)	Livestock Water Quality Standards (mg/L)
Aluminum	21.3	46.4	--
Antimony	<.003	<0.003	--
Arsenic	0.0143	0.0218	0.2
Barium	0.266	0.649	--
Beryllium	<0.002	0.0026	--
Bicarbonate	191	248	--
Bismuth	<0.06	<0.060	--
Boron	0.209	0.277	5



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	Spring ARG-1 Concentration (mg/L)	Spring ARG-2 Concentration (mg/L)	Livestock Water Quality Standards (mg/L)
Cadmium	<0.002	0.0023	0.05
Calcium	62.2	115	--
Carbonate	<1	<1.0	--
Chloride	43	58.1	--
Chromium	0.0264	0.0693	1
Cobalt	0.0118	0.0391	--
Copper	0.026	0.072	0.5
Cyanide	<0.01	<0.01	--
Fluoride	0.43	0.49	2
Gallium	<0.002	0.024	--
Iron	26.9	63	--
Lead	0.00841	0.0211	0.1
Lithium	0.027	0.058	--
Magnesium	20.9	41.8	--
Manganese	0.802	2.18	--
Mercury	<0.0002	<0.0002	0.01
Molybdenum	<0.008	<0.008	--
Nickel	0.027	0.062	--
Nitrate/Nitrite	0.716	0.116	--
Nitrogen, Total N	10.6	7.22	--
pH @ 24. C	7.48	7.76	--
Phosphorus	0.921	1.98	--
Potassium	25.9	30	--
Scandium	0.0053	0.0133	--
Selenium	<0.04	<0.04	0.05
Silver	<0.005	<0.005	--
Sodium	40.6	55.4	--
Strontium	0.191	0.303	--
Sulfate as SO4	47.2	59.8	--
Thallium	<0.001	<0.001	--
Tin	<0.05	<0.05	--
Titanium	0.668	0.837	--
TKN	9.91	7.11	--
Total Alkalinity	191	248	--
Total Dissolved Solids	388	490	--
Vanadium	0.122	0.217	--
Zinc	0.0636	0.178	25



3.6.2 Environmental Consequences

The Proposed Action

The Proposed Action would have both negative and positive impacts to water resources in the project area. Some flow from spring ARG-1 would be diverted to supply water to a tire trough, which would alter its natural regimes. However, both springs ARG-1 and ARG-2 water quality is likely to increase from being fenced off. The exclusionary fencing will enable riparian vegetation near the springs to flourish. Overtime, this will reduce soil compaction and erosion, increase porosity, and reduce meadow drainage from preferential flow paths that formed around the livestock induced hummocks and trails. The increased porosity and reduced surficial drainage that is expected to occur after livestock exclusion will increase the soil's storage capacity and help to offset the water lost to the troughs, decreasing the net change in the spring/riparian area's water balance. Livestock would not be able to trample the area and defecate directly in the spring water, thus improving water quality.

In the short-term, erosion and soil compaction associated with the land disturbance in the riparian zone may increase. However, the disturbance should revegetate and reverse the adverse effects caused by project construction. Furthermore, with the use of a float shut-off valve to minimize water diversion from spring ARG-1, it is expected that riparian health and water quality will improve.

Erosion and soil compaction around the watering troughs will likely increase from the increased use of livestock near the troughs. However, because riparian areas are significantly more productive than the upland sites where the trough will be located, the net effect is expected to be positive for the ecosystem, livestock, and wildlife.

To ensure water quality is not being degraded from the proposed project, the BLM requested that Newmont Mining Corporation monitor water quality before and after project implementation. Water quality sampling results before project implementation are provided in Table 3.5, and will be compared to testing results following construction, if the Proposed Action is chosen.

The current water right allocates that 150 cattle, 10 horses, 1,000 sheep can use the water right. The BLM estimates that cattle use 15 gallons of water per day, horses 15 gallons of water per day, and sheep 1.5 gallons of water per day. According to these estimates 2,250 gallons of water would be used for cattle, 150 gallons of water for horses, and approximately 1,500 gallons of water per day for sheep, totalling 3,900 gallons of water per day for the spring or approximately 54 percent of the water from the spring.

Alternative 1

Alternative 1 would require the installation of an additional tire trough. This trough would be located in the upland area near the first trough as proposed in the Propose Action alternative. Alternative 1 would have the similar impacts to water quality and resources as the Proposed Action, with the exception of an increase ground disturbance area by the inclusion of the second trough and the potential increase livestock loafing area surrounding the site. This alternative would also require Newmont Mining Corporation to sample water quality before and after construction.



No Action Alternative

The No Action Alternative would result in continued degradation of the two springs from livestock use. The current conditions allow livestock to traverse the springs, which results in impacts to water quality through trampling. This trampling causes erosion and sedimentation of the waters. Water quality is also impacted by livestock defecating directly in the water. The springs would continue to degrade under the No Action Alternative.

3.7 Wetland and Riparian Zones

3.7.1 Affected Environment

Both Federal and State laws and regulations protect waters of the state, which includes wetlands. The Clean Water Act (CWA) is the primary law protecting US waters. Section 404 of the CWA (33 USC 1344) prevents the discharge of dredged or fill material into waters of the US without a permit from the USACE. EO 11990 (Protection of Wetlands) requires Federal agencies to take action to minimize the destruction, loss or degradation of wetlands, and to conserve and enhance the beneficial values of wetlands.

National Wetland Inventory (NWI) data was viewed in ArcGIS and it was found that no wetland areas were identified within the project area. The closest mapped NWI wetland is 0.73 miles northeast of the project site, near the Argenta Mine. The NWI is not a comprehensive survey of wetlands and in Nevada focus primarily on the larger systems, typically in the valleys. Thus, small isolated wetlands may be present, but have not been mapped.

The project area contains two springs, spring ARG-1 and ARG-2. These two springs are currently non-functional and therefore fail to meet the Standards for Rangeland Health, which is the properly functioning condition (PFC) of the springs. The riparian areas surrounding the springs are severely degraded due to livestock intrusion which has compacted the soils and created hummocks around the springs. The bare ground between the hummocks is to the point that the hydrology surrounding the springs has been adversely impacted. Water is flowing more rapidly on the bare ground between the hummocks instead of moving slowly through the soil. This accelerated runoff has decreased the spatial extent of the saturated soils and corresponding riparian vegetation. The saturated soils surrounding the springs have been compacted from livestock trampling to the point that vegetation reestablishment is reduced. The condition of the riparian areas surrounding the springs is trending downwards as soil erosion has increased due to insufficient vegetation to bind the soil and slow runoff. The loss of organic rich soil has decreased the long-term potential of the site. Riparian areas act as a transition zone around bodies of water from upland areas to aquatic zones. The areas surrounding the springs contain little vegetation, are subject to erosion, and the water in the springs contain sediment (Images 1 and 2).

3.7.2 Environmental Consequences

The Proposed Action

The Proposed Action would fence off springs ARG-1 and ARG-2 aiming to restore the spring area by eliminating livestock access and subsequent trampling, over-utilization, and erosion. Removing livestock from the spring area, by including exclusionary fencing, will allow the springs and its corresponding riparian area to regain PFC by increasing the riparian extent,



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increasing soil water storage, biological integrity, and ecological value. By placing the proposed exclusionary fencing approximately 15 feet beyond the current riparian extent and approximately 30 feet down slope would allow for future expansion of the riparian areas as the soils rehydrate and the riparian vegetation returns. This alternative would pipe out water from the springs to a trough located in upland areas east of the springs. This water use may have an adverse impact to the water available for the riparian area. However, this alternative aims to balance the water currently used for watering livestock and the water needed to support the natural riparian areas. The installation of the float-valve on the watering tough would mitigate excessive water consumption from the spring by only allowing the troughs to be filled as needed.

The Proposed Action would likely stop the current negative trend in functionality of the springs and accelerate recovery of the riparian habitat to meet the Standards for Rangeland Health by fencing off the springs to livestock which could lead to the riparian area absorbing and transferring more water than a degraded site.

Alternative 1

Alternative 1 would have similar impacts to riparian zones in the project site as the Proposed Action alternative. The addition of a second trough could draw more livestock and wildlife into the area and potentially degrade upland vegetation around Spring ARG-1 and ARG-2 even more than the Proposed Action.

No Action Alternative

The No Action Alternative would leave both springs open to livestock grazing in the area. Both springs would continue to be traversed by livestock, causing continued damage to the springs and surrounding vegetation.

3.8 Rangeland Management/Livestock Grazing

3.8.1 Affected Environment

The project area is located within the Mule Canyon Use Area of the Argenta Allotment on BLM lands; adjacent private lands and Bureau of Reclamation lands are near the project area (Figure 4). The Argenta allotment consists of 331,521 total acres. Approximately 600 head of cattle graze in the Mule Canyon Use Area of the allotment in a typical year (grazing permit Auth Number 2706028). The Mountain Use Area is typically used by livestock from March 15 to July 15 in a typical year. Livestock use of the project site area is increased because of the presence of the two springs. Both springs have been degraded from livestock use.

3.8.2 Environmental Consequences

The Proposed Action

The Proposed Action would impact grazing distribution within the Mule Canyon Use Area by increasing water availability near springs ARG-1 and ARG-2. The trough and enclosure fencing would allow livestock to easily access water without continuing to access the existing springs. Spring ARG-1 would be the source of water for the trough and both springs ARG-1 and ARG-2 would be fenced off prohibiting livestock from directly accessing the spring water. Construction of a spring box, piping, water trough, and float valve for livestock would provide



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more readily available water than the springs on their own while balancing the water needs of cattle and the riparian vegetation near the springs. Increased grazing pressures around this water source could lead to negative impacts through heavier utilization of upland vegetation, increased localized soil compaction, increased runoff and erosion, and increased probability of weed infestation. However, by increasing water accessibility near springs ARG-1 and ARG-2 it would likely reduce these types of effects near unprotected spring sources in other areas of the Mule Canyon Use Area.

This alternative is expected to have an overall net positive effect on springs within the grazing allotment by increasing livestock use at this location, thus decreasing use in other areas of the Mule Canyon Use Area which have unprotected spring sources.

Alternative 1

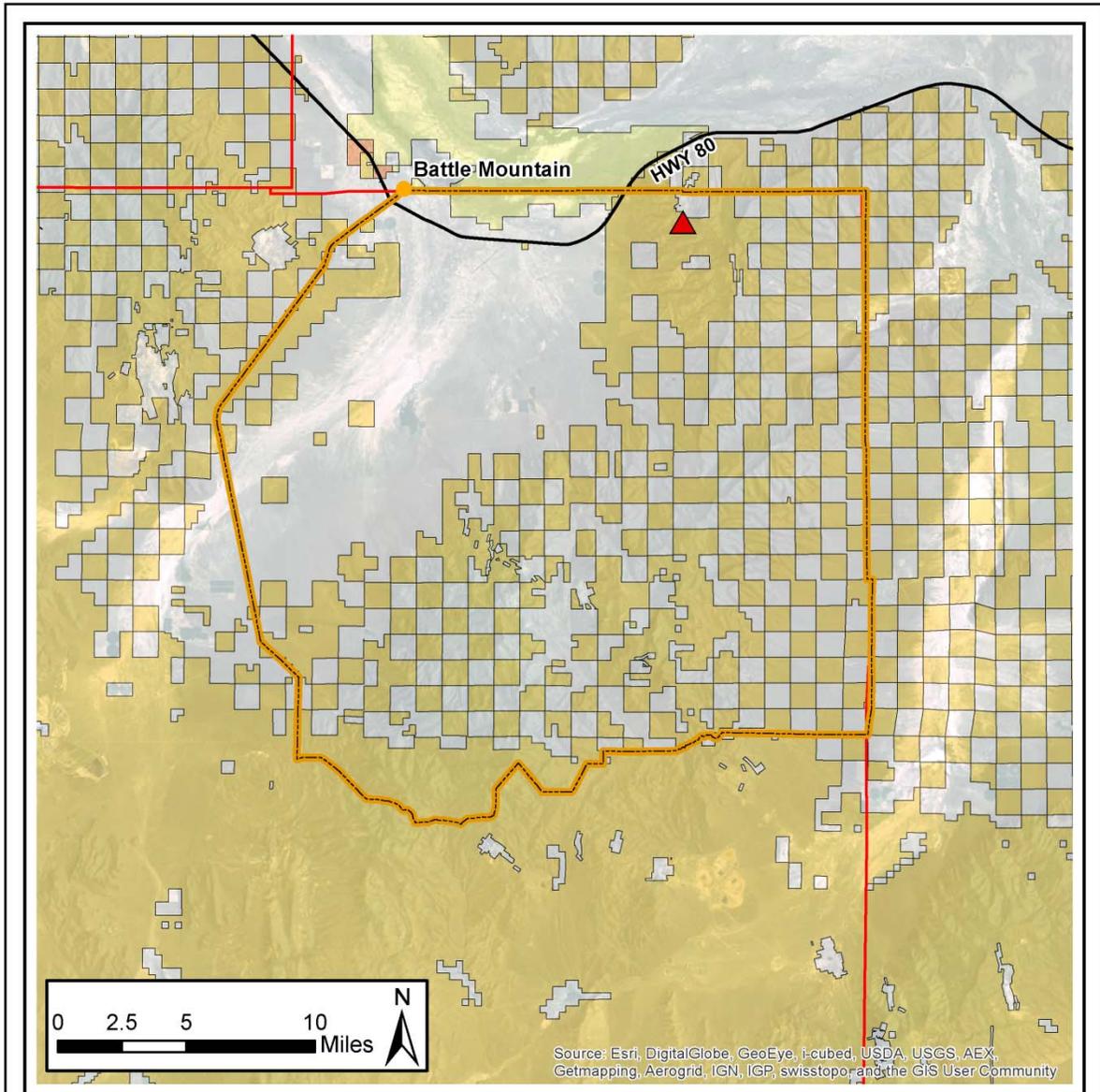
Alternative 1 would have similar impacts as the Proposed Action, but would increase the water holding capacity through the construction of a second trough. The second trough would provide additional water storage capacity; which would help to distribute the water to livestock herds more efficiently. The two troughs would potentially increase the number of livestock in the area, or the time they spend at the water source and surrounding area, which may result in a larger area of disturbance directly surrounding the troughs, and adjacent springs and nearby upland areas. The water troughs would increase the level of utilization of upland species near the trough while reducing the use of unfenced springs in other areas of the Mule Canyon Use Area. This alternative would have an overall positive effect on springs within the grazing allotment by decreasing the impacts of other unprotected spring sources within the allotment.

No Action Alternative

The No Action Alternative would not require the construction of a trough that would provide water for grazing livestock or enclosure fence around the springs. This Alternative would continue to limit the quantity and quality of water available to livestock in the area.



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Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



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Land Ownership

- Bureau of Indian Affairs
- Bureau of Land Management
- Bureau of Reclamation
- Private

- City
- Project Site
- Argenta Grazing Allotment
- District Boundary
- Major Road

Figure 4. Argenta Grazing Allotment



3.9 Recreation

3.9.1 Affected Environment

Recreational uses within the project site are limited. The occasional recreational use of the area may occur for hunting and off-highway vehicle (OHV) use.

3.9.2 Environmental Consequences

The Proposed Action

No direct impacts would occur to recreational resources as the result of the Proposed Action. Long-term beneficial impacts associated from the Proposed Action may include increased regeneration of vegetation communities surrounding the springs which may increase the habitat for wildlife and increase hunting opportunities and recreational use surrounding the springs.

Alternative 1

Impacts associated with Alternative 1 would be similar to those of the Proposed Action except that a slight increase of water availability would occur with the addition of the second water trough, which may provide a beneficial impact for wildlife in the area. This may create a beneficial impact to hunting resources in the area by increasing game species in the area.

No Action Alternative

Under the No-Action Alternative, the BLM would not approve the Proposed Action or Alternative 1. The habitat and soils surrounding the springs would continue to be degraded as livestock and wildlife disturb the area surrounding the springs. An increase of soil erosion and loss of riparian vegetation and soils would occur, which may limit availability to wildlife populations thus limiting hunting resources for the area.

3.10 Social and Economic Values

3.10.1 Affected Environment

For this socioeconomic analysis, the study area includes the project area and communities within reasonable commuting distance to the project area. The characterizations of socioeconomic conditions presented in this section are based on qualitative analysis due to the size and scope of the project.

The study area is located in a fairly isolated area of northern Nevada in Lander County approximately 12 miles west of the City of Battle Mountain. Mining and agricultural activities have historically been the primary basis of the economy in Lander County with the service and trade industries supporting mining and agricultural industries.

3.10.2 Environmental Consequences

The Proposed Action

The Proposed Action is not expected to create long term jobs or increase new workers or families to the area. The Proposed Action is expected to be constructed in approximately one week. The Proposed Action may provide a beneficial impact to ranchers in the area by



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increasing water availability to cattle which would help reduce operating costs for ranchers by saving time and cost of fuel for trucking water to the cattle in the area. The Proposed Action may also draw more wildlife populations to the area which could potentially increase recreational opportunities for hunters in the area. Due to the size of the project, these beneficial impacts are expected to be negligible.

Alternative 1

Impacts associated with Alternative 1 would be similar to those of the Proposed Action. The addition of the second water trough would slightly increase water availability to livestock and further reduce operating costs for ranchers.

No Action Alternative

With no rehabilitation of the springs, water and vegetation availability surrounding the springs would continue to degrade. Livestock and wildlife would not benefit from the increased water availability of the spring mitigation. The degradation of the springs may continue to increase operating costs for ranchers by increasing the need for trucking in water for livestock.

Wildlife game species would not benefit from improved water availability and a healthy functioning riparian habitat. Recreational activities for hunters would be similar to the present conditions of the area.

3.11 Soils

3.11.1 Affected Environment

Soils are unconsolidated materials overlying bedrock or other parent material. Soils play a critical role in both the natural and human environment. Soil structure, elasticity, strength, shrink-swell potential, and erodibility determine the ground's ability to support vegetation, and man-made conservation practices, structures and facilities. Soils are typically described in terms of complex type, slope, physical characteristics and relative compatibility or constraining properties with regard to types of land use and/or construction activities.

The project area is comprised of two major soil compositions according to the Natural Resources Conservation Service (NRCS) (NRCS 2013, NRCS 1980). The project area lies in Ramires-Chen-Pie Creek association (RG) and is close to contacting the Humdun-Havingdon-Bucan (482) association.

RG soils are primarily found in upland hills in elevations of 5,500 to 6,200 feet with slopes between 15 and 30 percent. Ramires soils are found at higher elevations in mountains, are well drained with low water capacity and moderate hazard of water erosion. Chen soils are typically found at higher elevations in mountains, are also well drained with very low water capacity, and moderate water erosion hazard. Pie Creek soils are located on hills, are well drained with low water capacity and a high hazard of water erosion (NRCS 2013, NRCS 1980). The NRCS soil survey recommends the land should be managed to prevent erosion and subsequent decreased productivity, otherwise the land may not be suitable for grazing (NRCS 1980).

The Humdun-Havingdon-Bucan association primarily exists at 5,000-5,500 feet on hills and mountains with slopes between 15 and 30 percent. Humdun soils are well drained, have high



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water capacity, and rapid runoff causing high erosion hazard. Havingdon soils have slow permeability, low water capacity, and a high hazard of water erosion. Bucan soils are on uplands and are well drained, high water capacity, and high erosion hazard (NRCS 2013, NRCS 1980).

3.11.2 Environmental Consequences

The Proposed Action

The Proposed Action is estimated to impact up to approximately 0.45 acres of soils through the introduction of equipment, construction crews, and the installation of small permanent structures. The disruption of soils will only be temporary, as the project is estimated to take one week. The construction crew will utilize existing roads and overland travel paths to reduce the amount of new soil disturbance. Soil disturbance will be long-term in areas that contain permanent structures such as piping, a spring box, and trough.

The Proposed Action will fence off both springs ARG-1 and ARG-2 in order to improve spring conditions including soils and vegetation by reducing livestock access. The Proposed Action will therefore benefit soil health near springs ARG-1 and ARG-2 as well as water quality by reducing erosion and sedimentation potential.

However, impacts to soil from livestock traveling to and from the water source and from loafing around the area are expected. These impacts would include soil compaction, increased wind driven soil erosion as vegetation is denuded in the area from livestock grazing. Increased soil erosion via water could occur during storm events in areas where vegetation has been denuded. However, it is anticipated that other areas of the Mule Canyon Use Area would see a reduction of soil erosion and compaction from livestock through the decreased livestock use in other areas, thus creating a net positive effect by transferring livestock grazing in riparian areas to upland areas.

The Proposed Action will increase soil stability and water holding capacity in fenced off areas, allowing riparian vegetation to expand. The increased root structure and surface roughness will reduce future erosion and downstream sedimentation.

Alternative 1

Alternative 1 would have similar impacts to the soils in the project area as those described under the Proposed Action. With the construction of one additional water trough, there would be more long-term impacts to soils from increased use by livestock. However, this impact is considered to be negligible in overall relation to the surrounding area. Both springs would benefit from being fenced off to exclude livestock intrusion and reduce subsequent compaction, sedimentation, and erosion. As with the Proposed Action, it is anticipated that other areas of the Argenta grazing allotment would see a reduction of soil erosion and compaction from livestock through the decreased livestock use in other areas, thus creating a net positive effect by a transferring livestock grazing in riparian areas to upland areas.



No Action Alternative

The No Action Alternative would result in continued impacts to soils from livestock trampling of the wet soils around the springs. Livestock would continue to alter the soil health near both springs.

3.12 Vegetation

3.12.1 Affected Environment

The project lies in the Central Nevada High Valleys ecotone in the Great Basin, which is mostly composed of rolling hills and valleys over 5,000 feet. Wyoming big sagebrush (*Artemisia tridentate* var. *wyomingensis*) tends to dominate flatter areas and black sage brush (*Artemisia nova*) is commonly present on alluvial fans and volcanic hills (Bryce *et al.* 2003).

Upland Vegetation

The project area contains many native vegetation species. Most of the species identified were upland species, however one species (basin wildrye - *Leymus cinereus*) identified during a BLM survey in 2007 (BLM, 2007) has a Facultative designation, meaning it occurs in both wetlands/riparian areas and upland areas. Upland species identified during the site visit included crested wheatgrass (non-native/non-invasive), western wheatgrass (*Pascopyrum smithii*), lupine (*Lupinus* sp.), fourwing saltbush (*Atriplex canescens*), Wood's rose (*Rosa woodsii*) and rabbitbrush (*Chrysothamnus* sp.). Other upland species identified during the BLM survey included forage kochia (non-native/non-invasive), Sandberg's bluegrass (*Poa secunda*), bottlebrush squirreltail (*Elymus elymoides*), vetch (*Aeschynomene* sp.), spiny phlox (*Phlox hoodii*), longleaf phlox (*Phlox longifolia*), broom snakeweed (*Gutierrezia sarothrae*), basin wildrye (*Leymus cinereus*), and deathcamas (*Zigadenus* sp.) (BLM 2007). There were also weedy species documented, which are discussed in Section 3.4.

Wetland/Riparian Vegetation

Only two species identified during the 2007 BLM survey were identified as potentially occurring within wetland areas. Neither of the species have an Obligate Wetland, or Facultative Wetland status. Wood's rose is listed as a Facultative Upland, which indicates it's primarily found in upland habitats but can be found in wetland and riparian areas. In Nevada, Wood's rose is primarily found on the perimeters of wetland and riparian habitats. This species was recorded near the springs during the site visit. Basin wildrye (*Leymus cinereus*) is listed as a Facultative species, which indicates it can be found in either upland or wetland habitats.

3.12.2 Environmental Consequences

The Proposed Action

Upland Habitats

The Proposed Action would potentially negatively impact approximately 0.45 acres of upland and wetland/riparian vegetation. The majority of the disturbance will occur within the upland vegetation community with placement of the watering trough, and temporary disturbance associated with construction activity. Short term disturbance would occur as a result of overland travel, site work, and installation of the piping to the watering trough. These impacts



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are expected to be small as much of the area is devoid of vegetation near the springs and on overland travel paths, where construction crews would be working. These short-term impact will be minimized and mitigated by having construction crews use areas that are not vegetated to reduce overall disturbance, and seeding of areas impacted by these activities to re-establish vegetation. Due to the relatively small surface area disturbed by the installation of the proposed project it is proposed that revegetation of the disturbed area would consist of hand seeding and raking the seed mixture. The seed mixture and time of year proposed for the reseeded would be approved by the BLM.

Long-term disturbance would result from placement of the water trough and from trampling of vegetation around the trough by livestock. The placement of the trough will be away from the spring and the fencing around the spring to limit activity in these areas. These long term impacts will persist as long as the trough remains. As better water sources become available due to improved spring conditions, heavier than normal grazing may occur in the surrounding areas, as the livestock remains in the area. Proper management of livestock can minimize this additional grazing pressure on the surrounding vegetation. .

Wetland/Riparian Habitats

Existing riparian vegetation is limited in the vicinity of the springs due to the trampling of soils and vegetation by livestock. During construction, some vegetation will be impacted by installation of the spring box, but due to past livestock activity this will result in minimal impact due to previous livestock damage to the spring area and workers will stay on previously disturbed ground to the extent possible. Following the installation of the spring box and associated piping, an exclusionary fence will be installed to prevent livestock from accessing both springs. This will allow native riparian and wetland vegetation, as well as upland vegetation on the spring fringes, to re-establish. Vegetation near both springs is expected to improve overtime as a result of restricting livestock access to the springs. As vegetation growth recovers around the spring, evapotranspiration could increase through greater surface area and increased plant vegetation surrounding the springs. However, as vegetation stabilizes the soil and fills the preferential flow paths between hummocks, water will travel through the system much more slowly (subsurface vs. overland), increasing the amount of water being stored in the soils. Overtime, this will expand the extent of the riparian area and increase the frequency and composition of riparian vegetation.

Alternative 1

Alternative 1 would have the same impacts to vegetation as the Proposed Action with additional permanent disturbance because of the construction of an additional water trough. Although another water trough is planned for construction in Alternative 1, this impact is considered to be negligible in overall relation to the surrounding area.

No Action Alternative

The No Action Alternative would continue to degrade vegetation around the springs from livestock trampling. The vegetation would remain as is and no new structures would permanently remove vegetation.



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3.13 Wildlife

3.13.1 Affected Environment

Wildlife in the project area is characteristic of that in the Great Basin. In addition to the species discussed in Section 3.5, the Mule Canyon Mine EIS found typical wildlife in the area include black-tailed jackrabbit (*Lepus californicus*), coyote (*Canis latrans*), desert kangaroo rat (*Dipodomys deserti*), mule deer (*Odocoileus hemionus*), pronghorn antelope (*Antilocapra americana*), chukar (*Alectoris chukar*), and gopher snake (*Pituophis catenifer catenifer*). During a site visit on June 20, 2013, biologists noted a herd of approximately 10 pronghorn antelope very close to the project area. Many other bird species were noted during the site visit and are discussed in Section 3.2.

3.13.2 Environmental Consequences

The Proposed Action

The Proposed Action would have some negative short-term impacts to wildlife. Wildlife present in the area would be temporarily displaced during the construction phase. Some habitat destruction would occur from the introduction of construction vehicles, equipment, and personnel. Long-term habitat destruction would occur in places where permanent structures (spring box, trough and fencing) would be located.

There would also be long-term benefits to wildlife as a result of the Proposed Action. The construction of the water trough would increase water availability for both livestock and wildlife, including special status species such as greater sage-grouse. Benefits to wildlife would be expected from the improved riparian vegetation surrounding the springs, these benefits would include increased forage, water viability, and increased habitat.

Alternative 1

Alternative 1 would have similar impacts to wildlife as the Proposed Action. Because the Alternative proposes the construction of two troughs, there would be more long-term permanent decreases in habitat, but this impact is considered to be negligible in overall relation to the surrounding area. There would however be more long-term positive impacts through two troughs being able to provide additional water availability for wildlife and livestock.

No Action Alternative

The No Action Alternative would maintain the current amount of habitat available for wildlife, but would not provide additional water sources for wildlife, as no troughs are proposed to be built in this option.



4.0 CUMULATIVE EFFECTS

4.1 Introduction

As required under the NEPA and the regulations implementing NEPA, this chapter addresses those cumulative effects on the environmental resources in the Cumulative Effects Study Area (CESA). Cumulative impacts are the sum of all past, present (including the Proposed Action), and reasonably foreseeable future actions (RFFAs). The purpose of the cumulative effects analysis in the EA is to evaluate the significance of the Proposed Action's contributions to cumulative impacts. A cumulative impact is defined under federal regulations as follows:

"...the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time" (40 CFR 1508.7).

The extent of the CESA was defined based on the geographic or biologic limits of the resources analyzed. In addition, the length of time for cumulative effects analysis would vary according to the duration of impacts from the Proposed Action on the particular resource. For the purposes of this analysis and under federal regulations, 'impacts' and 'effects' are assumed to have the same meaning and are interchangeable.

4.1.1 Cumulative Effects Study Area

Since the construction impact of rehabilitating the springs by installing a spring box, fencing, and associated facilities is expected to be minimal, the CESA area has been kept to a minimum of approximately a three mile radius around each spring source (Figure 5). The duration of the cumulative impact is assumed to be five years for the recovery time for vegetation and wildlife in the CESA.

4.1.2 Past and Present Actions

Past and present actions in the CESA include historic mining, mineral exploration, dispersed recreation (hunting, OHV use), wildfires, livestock grazing, and noxious weed control and emergency stabilization and rehabilitation seeding (ESR). The existing road network originated from these past activities. Several mines are located in the vicinity of the CESA which include Mule Canyon Mine to the southeast and the Argenta Mine located to the north of the project area.

Past and present actions in the CESA are supported by surface roads which include a paved highway located approximately 2.5 miles north of the project site (Interstate 80), county roads, dirt roads, and "two-track" roads on public and private lands. Few of the dirt roads are regularly maintained and OHV use may occur outside of this network of roads.

Livestock grazing has historically occurred within the CESA within the Argenta allotment. Currently the Argenta grazing allotment allows for 600 head of cattle to graze in the area within the CESA.



4.1.3 Reasonable Foreseeable Future Actions

RFFAs, in addition to the Proposed Action, in the CESA include; expanded mineral and mining exploration, a continuation of dispersed recreation and hunting, OHV use, livestock grazing, and noxious weed control. Wildfires have the potential to occur within the CESA, but are not quantifiable due to the unpredictability of wildfires.

Potential impacts to resources located within the CESA associated with, fire, roads, Rights Of Ways, or minerals and mining activities could occur. There is no specific data available on the potential impacts to these resources; therefore, RFFAs associated with these resources are not discussed further.

4.2 Impact Analysis

Past and Present Actions within CESA:

Past and present actions within the CESA that could have an impact on resources within the CESA are dispersed recreation, hunting, OHV use, utilities and other ROWs, livestock grazing, mineral exploration, and mining. Examples of impacts to habitat and vegetation include the following: 1) destruction of habitat associated with mining activities; 2) disruption from human presence or noise from drill rigs, water trucks, and OHVs and other vehicles, and 3) livestock grazing.

There are no specific data available that quantify impacts to recreational resources and social and economic values located within the CESA; therefore, recreational resources are not discussed further in the cumulative effects section. However, impacts from recreational activities would include destruction of native vegetation or nesting areas from OHVs that travel off of established roadways.

It seems reasonable to assume that approved, closed or expired mining, quarry and mineral exploration notices or plans of operations, or state reclamation plans within the proximity of the CESA will be reclaimed since state and federal regulations require reclamation. Therefore, once the disturbance associated with these operations has been reclaimed and revegetated, impacts to vegetation and habitat would no longer contribute to a cumulative effect. Disturbance to resources from past and present actions would have been reduced through reclamation and seeding of disturbed areas and natural recolonization of native species.

4.2.1 Cultural Resources

A Class III resource survey was conducted for the footprint of the Proposed Action. No cultural resources were present, thus no cumulative impacts would occur to cultural and historic resources within the study area.

4.2.2 Migratory Birds, Special Status Species, Vegetation, Noxious Weeds, and Wildlife

Proposed Action

Based on the impact analysis presented in Chapter 3 for resources located in the project area, incremental impacts to vegetation, wildlife and wildlife habitat, soils, special status species habitat, and migratory bird habitat as a result of the Proposed Action when added to the past



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and present actions and RFFAs would be minimal. In addition, all surface disturbances would be reclaimed and revegetated at the end of the Project, so the cumulative impacts associated with the Proposed Action would be temporary.

The potential for wildfires does exist within the CESA. If a wildfire does occur within the CESA it could potentially affect wildlife and vegetation communities. The impacts from wildfires would temporarily displace wildlife and increase the intrusion of noxious weeds or non-native species in the area until vegetation communities are re-established.

Alternative 1

The cumulative impacts associated with Alternative 1 would be similar to those of the Proposed Action except that a slight increase of surface disturbance would occur with the addition of the second water trough.

No Action Alternative

Under the No-Action Alternative, the BLM would not approve the Proposed Action and the potential for cumulative impacts analyzed above would not occur. Present activities would continue in the CESA and current BLM management practices would continue for past, present, and RFFAs. The spring sources would continue to degrade slowly as cattle and wildlife disturb the area surrounding the springs. An increase of soil erosion and loss of riparian soils vegetation would occur but would be minimal to the overall area within the CESA.

4.2.3 Soils, Water Resources, Wetland and Riparian Zones, Rangeland Management/Livestock Grazing, and Social and Economic Value

Proposed Action

Based on the impact analysis presented in Chapter 3 for resources located in the project area, incremental impacts to soils, water resources, wetland and riparian zones, rangeland management/livestock grazing, and social and economic value as a result of the Proposed Action when added to the past and present actions and RFFAs would be minimal. In addition, all surface disturbances would be reclaimed and revegetated at the end of the Project, so the cumulative impacts associated with the Proposed Action would be temporary. As discussed in section 3.8 livestock may have a negative impact to soils and vegetation around the upland areas surrounding springs ARG-1 and ARG-2 from increased use, but there would be an overall beneficial impact to soils, water quality, and vegetation in the CESA due to the decreased use of unfenced spring sources within the area.

The potential for wildfires does exist within the CESA. If a wildfire does occur within the CESA it could potential affect soils, water quality, wetland and riparian zones, livestock grazing, and the potential to increase noxious weed or invasive plant species. The impacts from wildfires would temporarily increase soil erosion, degrade water quality from increased sedimentation, and displace livestock in the area until vegetation communities are re-established.

Alternative 1

The cumulative impacts associated with Alternative 1 would be similar to those of the Proposed Action except that a slight increase of surface disturbance would occur with the addition of the second water trough.



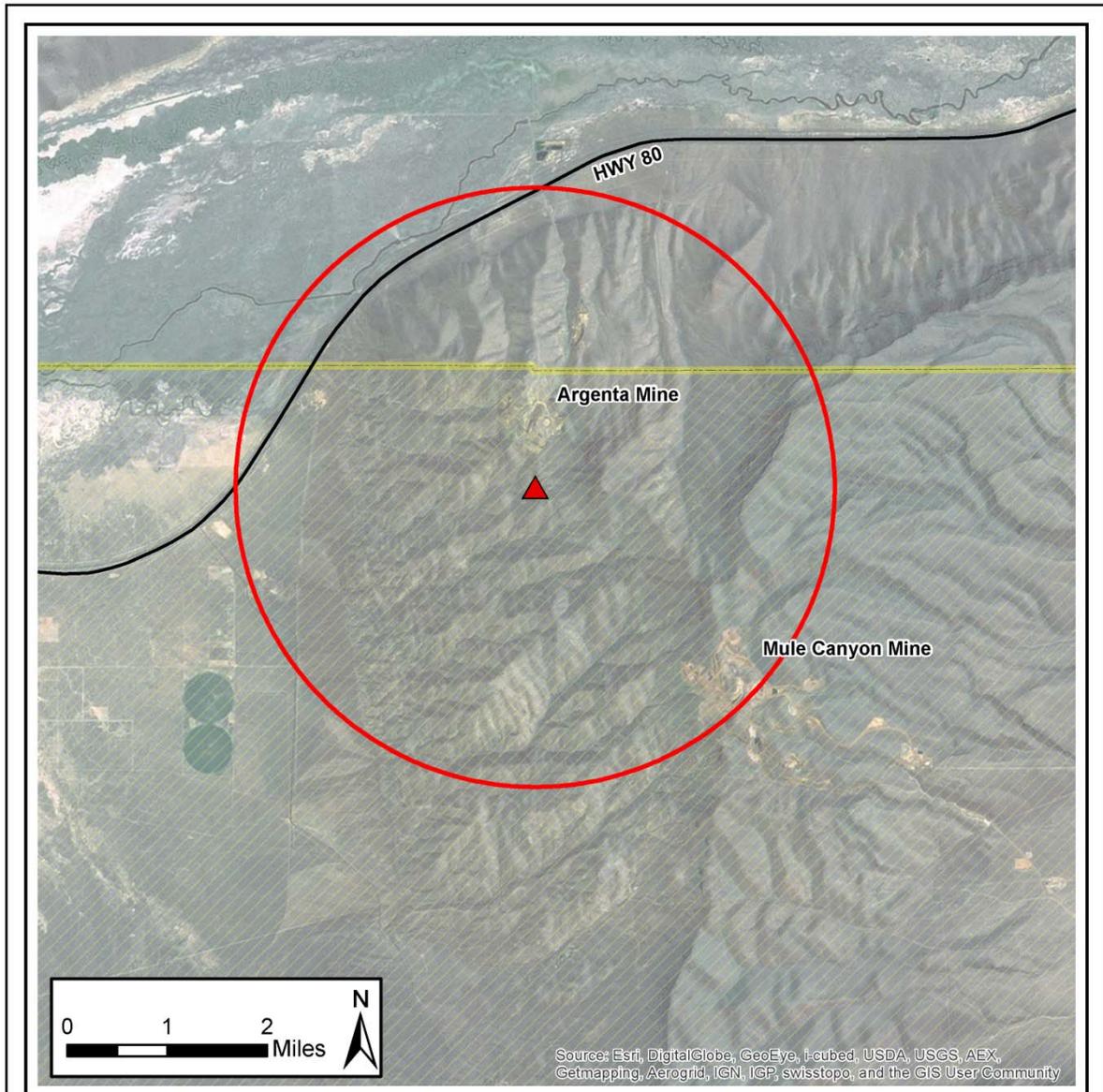
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No Action Alternative

Under the No-Action Alternative, the BLM would not approve the Proposed Action and the potential for cumulative impacts analyzed above would not occur. Present activities would continue in the CESA and current BLM management practices would continue for past, present, and RFFAs. The spring sources would continue to degrade slowly as livestock disturb the area surrounding the springs. An increase of soil erosion and loss of riparian soils would occur but would be minimal to the overall area within the CESA.



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- Project Site
- Cumulative Effects Study Area
- Major Road
- Argenta Grazing Allotment

Figure 5. Cumulative Effects Study Area



5.0 CONSULTATION AND PUBLIC INPUT

The following is a list of individuals responsible for preparation of the EA.

5.1 List of Preparers

BLM, MLFO

Adam Cochran	Project Lead and Rangeland Management Specialist
Alden Shallcross	Hydrologist
Leesa Marine	Environmental Protection Specialist
Christopher J. Cook	Field Manager
Ben Cramer	Recreation Specialist
Ethan Ellsworth	Wildlife Biologist
Joseph Moskiewicz	Planning and Environmental Coordinator/ Environmental Protection Specialist
John Kinsner	Archaeologist
Kent Bloomer	Weed Management Specialist
Michael Vermeys	Assistant Field Manager, Range/Renewable Resources

BLM, BMD

Kathy Graham	GIS Specialist
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AMEC, Environment & Infrastructure

Rich Weber	Project Manager, Senior Reviewer
Bryan Morse	Assistant Project Manager, Environmental Specialist
Craig Hauer	Archaeologist

Newmont Mining Corporation

Brant Ivey	Environmental Specialist
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5.2 Persons, Groups and Agencies Contacted

Federal Agencies

Eric Eldredge	Natural Resource Conservation Service
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US Fish and Wildlife Service, Reno Office

State Agencies

Jeremy Lutz	Nevada Department of Wildlife
Lindsey Lesmeister	Nevada Department of Wildlife
Chet Vandellon	Nevada Department of Wildlife
Eric Miskow	Nevada Natural Heritage Program

Nevada Division of Environmental Protection Bureau of Water Pollution Control

5.3 Tribes Governments Consulted With

Battle Mountain Band

Te-Moak Tribe of the West Shoshone Nation



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