provide opportunities for federal agencies to address environmental hazards in minority and low-income communities. In April of 1995, the EPA released the document titled Environmental Justice Strategy: EO 12898. The document established EPA-wide goals and defined the approaches by which the EPA would ensure that disproportionately high and adverse human health or environmental effects on minority communities and low-income communities are identified and addressed.

3.18.2 Affected Environment

3.18.2.1 Study Methods

The baseline data presented below are based upon information from the Socioeconomic Assessment (BCLLC/SDLLC 2008). The Socioeconomic Assessment is incorporated by reference. A complete copy of the report is available for review at the MLFO during normal business hours.

The Study Area for environmental justice effects of the proposed Project is southern Eureka County including the Town of Eureka, which is the only geographic area likely to experience substantial direct or indirect social or economic effects from the Project (Figure 3.17.1). This Study Area determination is based on the fact that employees may live up to 100 miles from the Project Area. Table 3.17-1 shows communities within a 100-mile commuting distance of the Project Area and the 2010 population of those communities.

EPA's Guidance For Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analyses (EPA 1998) suggests a screening process to identify environmental justice concerns. This two-step process defines the significance criteria for this issue; if either criteria is unmet, there is little likelihood of environmental justice effects occurring. The two-step process is as follows:

(1) Does the potentially affected community include minority or low-income populations?
(2) Are the environmental impacts likely to fall disproportionately on minority or low-income members of the community or tribal resource?

If the two-step process indicates that a potential exists for environment justice effects to occur, analyses are conducted to consider the following:

- Whether there exists a potential for disproportionate risk of high and adverse human health or environmental effects;
- Whether communities have been sufficiently involved in the decision-making process; and
- Whether communities currently suffer, or have historically suffered, from environmental and health risks and hazards.

3.18.2.2 Existing Conditions

3.18.2.2.1 Minority Population

Table 3.18-1 summarizes the ethnic composition of the study area, the State of Nevada, and the U.S. as a percentage of the total population. Racial and ethnic minorities make up 14.4 percent of the population in the study area that includes the Project Area. This is nearly 60 percent lower than the state population portion of racial and ethnic minorities. The percentage of minorities in Eureka County overall is 19.7 percent lower than the state population portion of racial and ethnic minorities. The percentage of racial minorities in the census block and in all of Eureka County is substantially lower than both the State of Nevada and the nation as a whole. The Hispanic or Latino population is the largest minority group in the study area. The percentage of Native Americans living in the analysis area is slightly higher than the statewide average, but not meaningfully higher.

Table 3.18-1: Minority Populations for Eureka Census Blocks, Nevada and the United States as a Percentage of Total Population

Ethnic Groupings	United States	Nevada	Eureka County (Single Census Track)	Eureka County Census Block Group 1-1 (Census Block Group Surrounding the Project Area)
White and Not Hispanic or Latino	69.1	65.2	84.9	85.6
American Indian and Alaska Native and Not Hispanic or Latino	0.7	1.1	1.5	1.2
Other Races, Two or More Races, and Not Hispanic or Latino	17.6	14.0	4.0	3.5
Hispanic or Latino Ethnicity	12.5	19.7	9.6	9.6
Total Racial and Ethnic Minorities[1]	**30.9**	**34.8**	**15.1**	**14.4**
Difference in Percent Minority Population Above/Below the State Average	3.9	N/A	-19.7	-20.4

Source: BCLLC/SDLLC 2008.

[1] Racial minorities include all persons identifying themselves in the census as a non-white race, including "Black or African American", "American Indian and Alaska Native", "Asian", "Native Hawaiian and Other Pacific Islander", "Some other race alone", and "Two or more races". Ethnic minorities include persons who identify themselves as Hispanic or Latino.

In accordance with the EPA's Environmental Justice Guidelines (EPA 1998), these minority populations should be identified when either:

- The minority population of the affected area exceeds 50 percent; or
- The minority population of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis.

For the purposes of screening for environmental justice concerns, a minority population, as defined in the EPA's guidance (EPA1998), does not exist within the study area.

3.18.2.2.2 Low-Income Populations

Table 3.18-2 presents the percentage of persons in poverty in the study area, the State of Nevada, the U.S., Eureka County, and the Project Area and surrounding areas. For this analysis, the

census block is larger than the local area that includes the Project Area due to the geographic boundaries used by the U.S. Census Bureau.

Persons in poverty at the time of the 2000 census were 13.5 percent of the population in the census block area that includes the Project Area. This is not meaningfully higher than the overall rates for Eureka County and the State of Nevada. It is important to note that no persons live within or immediately adjacent to the Project Area.

County-wide poverty data for 2004 indicate that nine percent of Eureka County residents had income below the poverty level, 3.6 percent fewer than the 2000 level. Poverty data for census block groups are not available for years beyond the 2000 census.

Table 3.18-2: Percentage of Population with Incomes Below Specific Poverty Thresholds in Areas Surrounding the Project Area and Geographic Comparison Areas

	United States	Nevada	Eureka County (Single Census Track)	Eureka County Census Block Group 1-1 (Census Block Group Surrounding the Project Area)
Percentage of Total Population: Below Poverty Level	12.4	10.5	12.6	13.5
Percentage of Total Population: Below 150 Percent of Poverty Level	20.9	18.7	19.4	20.6
Percentage of Total Population: Below 200 Percent of Poverty Level	29.6	27.7	30.2	34.2
Percentage of Low Income (Below Poverty) Population Above/Below the State Average	1.9	N/A	2.1	3.1
Percentage of Low Income (Below 200 Percent of Poverty) Population Above/Below the State Average	2.0	N/A	2.6	6.5

The percentage of persons in poverty in Eureka County is slightly above the statewide average (12.6 percent for the County contrasted with 10.5 percent for the state as a whole) and the percentage of people in poverty in the census block that contains the Project Area is 13.5 percent, which is three percent higher than the statewide average. These rates of poverty are not meaningfully higher than the statewide or national averages. Consequently, there are no environmental justice populations in southern Eureka County who are likely to be disproportionately affected by development or operation of the Project.

3.18.3 Environmental Consequences and Mitigation Measures

3.18.3.1 Significance Criteria

EPA's Guidance For Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analyses (EPA 1998) suggests a screening process to identify environmental justice concerns. This two-step process defines the significance criteria for this issue; if either criterion is unmet, there is little likelihood of environmental justice effects occurring. The two-step process is as follows:

(1) Does the potentially affected community include minority or low-income populations?
(2) Are the environmental impacts likely to fall disproportionately on minority or low-income members of the community or tribal resource?

If the two-step process indicates that there exists a potential for environment justice effects to occur, analyses are conducted to consider the following:

- Whether there exists a potential for disproportionate risk of high and adverse human health or environmental effects;
- Whether communities have been sufficiently involved in the decision-making process; and
- Whether communities currently suffer, or have historically suffered, from environmental and health risks and hazards.

3.18.3.2 Assessment Methodology

The socioeconomic characteristics of the study area, County, and communities are first analyzed for the presence of minority or low-income populations. Second, if minority or low-income populations are identified based on the EPA's Environmental Justice Guidelines (EPA 1998), the Project and alternatives are evaluated for potential effects which may be expected to disproportionally impact any such populations. If the two-step process above indicates that a potential for environmental justice effects exists, additional analyses under the significance criteria are then applied to determine if the adverse effects would be considered significant impacts if the Project or an alternative were implemented. As previously stated, there are no environmental justice populations in southern Eureka County who are likely to be disproportionately affected by development or operation of the Project.

3.18.3.3 Proposed Action

3.18.3.3.1 Environmental Justice Effects

Initial analyses concluded that the potential effects of the Proposed Action under any of the proposed stages of development would not be expected to disproportionately affect any particular population. The area in the immediate vicinity of the proposed Project is sparsely inhabited, with the nearest residences located approximately five miles to the east and west. The nearest residential areas are located in Diamond Valley and the Town of Eureka, approximately 20 and 23 miles southeast of the Project Area, respectively. Crescent Valley does not have an unusually high minority or low-income population, but does have a substantially greater proportion of Whites compared to the rest of the State of Nevada (see Table 3.18-1). Environmental effects that may occur at a distance from the Project Area, such as auditory resource or air quality impacts, would affect the area's population equally, without regard to nationality or income level; however, a second provision of this criteria requires consideration of "impacts that may affect a cultural, historical, or protected resource of value to an Indian Tribe or a minority population, even when the population is not concentrated in the vicinity." According to Section 3.21, no traditional cultural properties or EO 13007 (EO on Indian Sacred Sites) sites have been identified within the Project Area that might be impacted by the Proposed Action; therefore, there are no impacts associated with the Proposed Action on traditional Native American concerns.

On the basis of the second part of the criteria, the Proposed Action would not result in a disproportionate effect on a minority population. No further environmental justice analyses are required because there is no disproportionate effect on an identified minority population as a result of the Proposed Action.

3.18.3.3.2 Residual Effects

There are no residual adverse effects associated with the Proposed Action.

3.18.3.4 No Action Alternative

3.18.3.4.1 Environmental Justice Effects

Initial analyses concluded that the potential effects of the No Action Alternative would not be expected to disproportionately affect any particular population. The area in the immediate vicinity of the proposed Project is sparsely inhabited, with the nearest residences located approximately five miles to the east and west. The nearest residential areas are located in Diamond Valley and the Town of Eureka, approximately 20 and 23 miles southeast of the Project Area, respectively. Crescent Valley does not have an unusually high minority or low-income population, but does have a substantially greater proportion of Whites compared to the rest of the State of Nevada (see Table 3.18-1). Environmental effects that may occur at a distance from the Project Area, such as auditory or air quality impacts, would affect the area's population equally, without regard to nationality or income level; however, a second provision of this criteria requires consideration of "impacts that may affect a cultural, historical, or protected resource of value to an Indian Tribe or a minority population, even when the population is not concentrated in the vicinity." According to Section 3.21, no traditional cultural properties or EO 13007 (EO on Indian Sacred Sites) sites have been identified within the Project Area that might be impacted by the No Action Alternative; therefore, there are no impacts associated with the No Action Alternative on traditional Native American concerns.

On the basis of the second part of the criteria, the No Action Alternative would not result in a disproportionate effect on a minority population. No further environmental justice analyses are required because there is no disproportionate effect on an identified minority population as a result of the No Action Alternative.

3.18.3.4.2 Residual Effects

There are no residual adverse effects associated with the No Action Alternative.

3.18.3.5 Partial Backfill Alternative

3.18.3.5.1 Environmental Justice Effects

Initial analyses concluded that the potential effects of the Partial Backfill Alternative would not be expected to disproportionately affect any particular population. The area in the immediate vicinity of the proposed Project is sparsely inhabited, with the nearest residences located approximately five miles to the east and west. The nearest residential areas are located in Diamond Valley and the Town of Eureka, approximately 20 and 23 miles southeast of the Project Area, respectively. Crescent Valley does not have an unusually high minority or low-

income population, but does have a substantially greater proportion of Whites compared to the rest of the State of Nevada (see Table 3.18-1). Environmental effects that may occur at a distance from the Project Area, such as auditory or air quality impacts, would affect the area's population equally, without regard to nationality or income level; however, a second provision of this criteria requires consideration of "impacts that may affect a cultural, historical, or protected resource of value to an Indian Tribe or a minority population, even when the population is not concentrated in the vicinity." According to Section 3.21, no traditional cultural properties or EO 13007 (EO on Indian Sacred Sites) sites have been identified within the Project Area that might be impacted by the Partial Backfill Alternative; therefore, there are no impacts associated with the Partial Backfill Alternative on traditional Native American concerns.

On the basis of the second part of the criteria, the Partial Backfill Alternative would not result in a disproportionate effect on a minority population. No further environmental justice analyses are required because there is no disproportionate effect on an identified minority population as a result of the Partial Backfill Alternative.

3.18.3.5.2 Residual Effects

There are no residual adverse effects associated with the Partial Backfill Alternative.

3.18.3.6 Off-Site Transfer of Ore Concentrate for Processing Alternative

3.18.3.6.1 Environmental Justice Effects

Initial analyses concluded that the potential effects of the Off-Site Transfer of Ore Concentrate for Processing Alternative would not be expected to disproportionately affect any particular population. The area in the immediate vicinity of the proposed Project is sparsely inhabited, with the nearest residences located approximately five miles to the east and west. The nearest residential areas are located in Diamond Valley and the Town of Eureka, approximately 20 and 23 miles southeast of the Project Area, respectively. Crescent Valley does not have an unusually high minority or low-income population, but does have a substantially greater proportion of Whites compared to the rest of the State of Nevada (see Table 3.18-1). Environmental effects that may occur at a distance from the Project Area, such as auditory or air quality impacts, would affect the area's population equally, without regard to nationality or income level; however, a second provision of this criteria requires consideration of "impacts that may affect a cultural, historical, or protected resource of value to an Indian Tribe or a minority population, even when the population is not concentrated in the vicinity." According to Section 3.21, no traditional cultural properties or EO 13007 (EO on the Indian Sacred Sites) sites have been identified within the Project Area that might be impacted by the Off-Site Transfer of Ore Concentrate for Processing Alternative; therefore, there are no impacts associated with this alternative on traditional Native American concerns.

On the basis of the second part of the criteria, the Off-Site Transfer of Ore Concentrate for Processing Alternative would not result in a disproportionate effect on a minority population. , No further environmental justice analyses are required because there is no disproportionate effect on an identified minority population as a result of the Off-Site Transfer of Ore Concentrate for Processing Alternative.

3.18.3.6.2 Residual Effects

There are no residual adverse effects associated with the Off-Site Transfer of Ore Concentrate for Processing Alternative.

3.18.3.7 Slower, Longer Project Alternative

3.18.3.7.1 Environmental Justice Effects

Initial analyses concluded that the potential effects of the Slower, Longer Project Alternative under any of the proposed stages of development would not be expected to disproportionately affect any particular population. The area in the immediate vicinity of the proposed Project is sparsely inhabited, with the nearest residences located approximately five miles to the east and west. The nearest residential areas are located in Diamond Valley and the Town of Eureka, approximately 20 and 23 miles southeast of the Project Area, respectively. Crescent Valley does not have an unusually high minority or low-income population, but does have a substantially greater proportion of Whites compared to the rest of the State of Nevada (see Table 3.18-1). Environmental effects that may occur at a distance from the Project Area, such as auditory or air quality impacts, would affect the area's population equally, without regard to nationality or income level; however, a second provision of this criteria requires consideration of "impacts that may affect a cultural, historical, or protected resource of value to an Indian Tribe or a minority population, even when the population is not concentrated in the vicinity." According to Section 3.21, no traditional cultural properties or EO 13007 (EO on Indian Sacred Sites) sites have been identified within the Project Area that might be impacted by the Proposed Action; therefore, there are no impacts associated with the Proposed Action on traditional Native American concerns.

On the basis of the second part of the criteria, the Slower, Longer Project Alternative would not result in a disproportionate effect on a minority population.

3.18.3.7.2 Residual Effects

There are no residual adverse effects associated with the Slower, Longer Project Alternative.

3.19 Hazardous Materials

3.19.1 Regulatory Framework

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

Similarly, Nevada hazardous material and waste laws and regulations would be applicable to hazardous substances used, stored, and generated by the Project. NAC 445A.240 requires immediate reporting of a release of a reportable quantity of a hazardous substance to the Nevada Division of Emergency Management. Specific information on hazardous materials that would be associated with the Project **is** discussed in Section 2.1.11.

All hazardous substances would be transported by commercial carriers or vendors in accordance with the requirements of 49 CFR, which requires that all shipments of hazardous substances be properly identified and placarded. Shipping papers must be accessible and include information describing the substance, immediate health hazards, fire and explosion risks, immediate precautions, fire-fighting information, procedures for handling leaks or spills, first aid measures, and emergency response telephone numbers. Title 49 CFR also requires that the carrier notify local emergency response personnel, the National Response Center (for discharge of reportable quantities of hazardous substances to navigable waters), and the U.S. Department of Transportation (USDOT) in the event of an accident involving hazardous substances. Carriers would be licensed and inspected as required by the NDOT. Tanker trucks would be inspected and have a Certificate of Compliance issued by the Nevada Motor Vehicle Division. The permits, licenses, and certificates are the responsibility of the carrier.

In 1999, the metal mining industry began submitting reports on release of chemicals to the EPA and appropriate state agencies, under Section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986; commonly referred to as the Toxics Release Inventory (TRI) Program. Reports are due on July 1st for the previous reporting year. The EPCRA also requires industries to participate in emergency planning and to notify their communities of the existence of, and routine and accidental releases of, any chemical on the TRI chemical list. The goal is to help citizens, government officials, and community leaders to be better informed about the industrial use of chemicals in their communities. The TRI program was originally developed for manufacturing facilities that use man-made chemicals to produce other man-made chemicals (such as the synthetic organic chemical industry).

Data are submitted annually by covered facilities on TRI Form Rs. Data are reported by individual chemical or chemical group on a facility basis. On the federal level, the EPA checks these data on the Form Rs for reporting errors and then compiles them into a centrally managed database. Each year, over 80,000 reports, representing billions of pounds of released chemicals, are submitted to the EPA by more than 20,000 private facilities and 200 federal facilities.

3.19.2 Affected Environment

3.19.2.1 Study Methods

The baseline data presented below are based upon information from the Plan (EML 2006). Additional information has been obtained from public agency maps and reports, and from telephone communications with federal, state, county, and community officials.

3.19.2.2 Existing Conditions

The study area includes highways and road facilities that could reasonably be assumed to be used or needed for the transportation of hazardous materials to the Project Area. The affected environment for hazardous materials include air, water, soil, and biological resources that could

be potentially affected by an accidental release of hazardous materials during transportation to and from the Project Area, and during storage and use within the Project Area.

SR 278, which connects Carlin and Eureka passes through the eastern edge of the Project Area. NDOT traffic count data for 2010 indicates that the average daily trips on SR 278 are **570 to the north of the Project Area in the northern portion of Pine Valley and 490 south of the Project Area near the intersection with U.S. Highway 50** (NDOT 2011). Approximately **175** of these trips on SR 278 are trucks (**NDOT 2011**). There appears to be between **eight** and **56** of these trucks per day, depending on the day of the week, would be transporting hazardous material shipments on SR 278 (Enviroscientists 2011b).

The Project Area is also currently subject to some drilling activities associated with mineral exploration. Hazardous materials currently used in conjunction with exploration activities to operate and maintain equipment include petroleum motor fuels and lubricants, antifreeze, and solvents. The hazardous materials are brought to the exploration site in small amounts for daily consumption.

3.19.3 Environmental Consequences and Mitigation Measures

3.19.3.1 Significance Criteria

Impacts associated with hazardous materials would be considered significant if an action could result in any of the following:

- One or more accidents during transport, resulting in the release of a reportable quantity of a hazardous material; or
- Release of a hazardous material on the site exceeding the storage volume of the secondary containment structure.

3.19.3.2 Assessment Methodology

To evaluate impacts from hazardous materials, the Proposed Action and alternatives are reviewed against existing conditions and local transportation plans. Environmental consequences related to public safety are evaluated by reviewing relevant state and federal guidelines for public safety and the proposed Project processes and operations. It is assumed that the Proposed Action and alternatives would comply with all applicable county, state, and federal regulations with relevant public safety implications. The significance criteria are then applied to determine if the adverse effects would be considered significant impacts if the Project or an alternative were implemented.

3.19.3.3 Proposed Action

The Proposed Action affects public safety primarily through the use of chemicals on site, some of which may be classified as hazardous, and the transport of those chemicals to and from the Project Area on public roads. The impacts of hazardous materials use and transport are discussed fully below.

As described in Section 2.1.11 and Table 2.1-6, the mining and ore processing operations under the Proposed Action would involve the transportation, use, and storage of the following materials

that could be classified as hazardous: (a) diesel fuel, gasoline, oils, greases, anti-freeze, and solvents used for equipment operation and maintenance; (b) ferric chloride, sodium metasilicate, pine oil, diesel fuel, hydrochloric acid, flocculants, antiscalants, and other chemicals used in the **Mo** extraction processes; (c) **ammonium nitrate, fuel oil,** and other explosive agents used for blasting in the open pit; and (d) TMO and FeMo, which would be the products of the Project.

Trucks would be used to transport hazardous materials to the Project Area, generally from the Elko area (located approximately 85 miles from the Project Area), but could also come through the Ely area and Eureka from Utah. It is assumed that the primary transportation route would be west from Elko on I-80 to the **SR 278** exit (approximately 20 miles), then south on SR 278 through Pine Valley to the Project Area (approximately 65 miles). The primary transportation route travels through the communities of Elko and Carlin. The secondary transportation route travels through the communities of Ely and Eureka.

The environmental effects of a release would depend on the substance, quantity, timing, and location of the release. The event could range from a minor oil spill at the Project Area where cleanup equipment would be readily available, to a severe spill during transport involving a large release of diesel fuel adjacent to the Humboldt River. Some of the chemicals could have immediate adverse effects on water quality and aquatic resources if spills were to enter streams. Spills of hazardous materials could seep into the ground and contaminate ground water resources. Depending on the proximity of people to such spills or the use of degraded water for human consumption, an accidental spill could affect human health.

3.19.3.3.1 Transportation Impacts

Based on the quantity of material used and number of deliveries, the hazardous materials of greatest concern under the Proposed Action are diesel fuel, ammonium hydroxide, ANFO, TMO, and FeMo. Diesel fuel would be delivered to the Project Area in tanker trucks with a 12,000-gallon capacity. Ammonium hydroxide would also be shipped as a liquid in 5,000-gallon tanker trucks. **Explosives** in the form of solid ammonium nitrate would be shipped in 25-ton trucks and mixed with fuel oil on site. The TMO and FeMo would be shipped off site as a solid in 25-ton trucks. Based on the capacity of the delivery vehicles, the Project Area would receive approximately 2,488 tanker deliveries of diesel fuel annually, 204 tanker truck deliveries of ammonium hydroxide annually, and 312 trucks delivering ammonium nitrate annually. In addition, the Project would have approximately 1,800 trucks annually shipping product from the facility. On average this would total **26** trucks trips per day with the inclusion of the toll roasting.

The probability of an accident (i.e., release) occurring during transportation of the four substances was calculated using the **Federal Motor Carrier Safety Administration** (FMCSA) truck accident statistics (FMCSA 2001). According to these statistics, the average rate of truck accidents varies depending on the type of material being transported. For Class 2.1 flammable materials, the average rate is 0.36 accident per million miles traveled. The average rate of truck accidents for Class 9 miscellaneous dangerous goods is 1.09 accidents per million miles traveled.

The potential for a spill or release was based on accident statistics for liquid tankers carrying hazardous materials (FMCSA 2001). These statistics indicate that, on average, 17 percent of accidents involving Class 2.1 flammable materials resulted in a spill or release. Also, these statistics indicate that, on average, 33.6 percent of accidents involving Class 9 miscellaneous dangerous goods resulted in a spill or release. The probability of a spill resulting from a truck

carrying hazardous materials is calculated in Table 3.19-1. The analysis indicates that the potential for an accidental hazardous materials release is very low. The calculated potential of a spill per year along the entire truck route for the life of the Project under the Proposed Action is approximately 0.01 for deliveries of diesel fuel, 0.01 for deliveries of ammonium hydroxide, 0.01 for deliveries of ANFO, and 0.06 for shipments of TMO. If there was a spill, the local emergency response jurisdiction where the spill occurred would respond.

Table 3.19-1: Estimate of Annual Number of Spills Resulting from Truck Accidents Under the Proposed Action

Substance	Total Truck Deliveries Per Year	One-Way Haul Distance (miles)	Accident Rate Per Million Miles Traveled[a]	Calculated Number of Accidents Per Year	Probability of Release Given an Accident[b]	Calculated Number of Spills Per Year[c]
Diesel Fuel	1,488	85	0.36	0.09	17.0%	0.01
Ammonium Hydroxide	204	85	1.09	0.04	33.6%	0.01
Ammonium Nitrate	312	85	1.09	0.06	33.6%	0.01
TMO (FeMo)	1,800	85	1.09	0.33	33.6%	0.06
Toll Roasting	1,200	Nk	1.09	0.33	33.6%	0.18[d]

a Accident rates are based on the average number of truck accidents occurring per million road miles traveled by road types.
b Spill probabilities are based on statistics from accident reports that indicate the percentage of truck accidents involving liquid tankers that resulted in spills.
c Spills are based on a one-way loaded haul distance and the return trip is empty.
d For the calculation, an assumed travel distance of 250 miles was used.

Source: FMCSA 2001.

3.19.3.3.2 Storage and Use Impacts

Over the life of the Project, the probability of minor spills of materials such as oils and lubricants would be relatively high. These releases could occur as a result of a bad connection on an oil supply line, an equipment failure, or human error. Spills of this nature would be localized, contained, and appropriately cleaned up and disposed of at an authorized facility. EML would have the necessary spill containment and cleanup equipment available on site, and personnel would be able to respond quickly. The design of the processing operations and hazardous materials storage facilities would minimize the potential for an upset that results in a major spill. Process systems are designed so that any spilled solution drains to a collection area where spillage can return to the system and are also designed to prevent spills during extreme storm events. Stored chemicals are protected from the elements. Petroleum fuels are stored in aboveground tanks or tanks in series and surrounded with a containment structure to accommodate at least 110 percent of the volume of the largest tank within the containment area.

All hazardous materials would be handled in accordance with applicable MSHA regulations. The hazardous substances to be used for the Proposed Action would be handled as recommended in the manufacturer's Material Safety Data Sheet (MSDS). With the proposed design features and operational practices in place, the probability of a release occurring at the mill or processing sites, or chemical storage areas, would not be significant.

3.19.3.3.3 Effects of a Release

The environmental effects of a release would depend on the material released, the quantity released, and the location. Potential effects of the four chemicals of concern, diesel fuel, ammonium hydroxide, ANFO, and TMO, are described below.

A direct release of diesel fuel would kill vegetation if direct contact occurred. Although extremely unlikely, a diesel fuel spill could ignite a rangeland fire. A direct release into a water body could contaminate water and sediments, possibly impacting local aquatic populations; however, due to the anticipated rapid response and cleanup of a diesel fuel spill, long-term increases of hydrocarbons in soils, surface water, or ground water are not expected to result.

A direct release of ammonium hydroxide would kill vegetation if direct contact occurred due to the extremely high pH. A direct release into a water body could contaminate water and sediments, possibly impacting local aquatic populations; however, due to the anticipated rapid response and cleanup of an ammonium hydroxide spill, long-term increases of ammonium hydroxide in soils, surface water, or ground water are not expected to result.

The effects of an ammonium nitrate or a TMO spill would be limited because both materials are in a solid form. Any spilled materials could be picked up and controlled; however, minor amounts may mix with surface soils. Should a spill occur into surface water or during a precipitation event, then the spilled materials could migrate from the spill site either as a dissolved or suspended material. This potential impact could occur until the spilled materials are cleaned up.

A large-scale release of a hazardous material could have implications for public health and safety; however, the probability of a release anywhere along the transportation route was calculated to be low, and the probability of a release within a populated area or that would cause an injury or fatality would be lower still. A release involving severe effects to human health or safety is not expected to occur during the life of the Project. In addition, none of the process chemicals or fuels used in large quantities are carcinogenic; therefore, no increases in cancer risk as a result of a release or Project processing activities are expected.

In the event of an off-site release during transport, the transportation company would be responsible for first response and clean-up. Each transportation company would develop a spill plan, or equivalent, to address the materials they would be transporting. Local and regional law enforcement and fire protection agencies may also be involved initially to secure the site and protect public safety. In addition, the Chemical Manufacturers' Association maintains the Chemical Transportation Emergency Center, which has a 24-hour "hotline" to provide information, advice, and assistance in identification and mitigation of chemical emergency scenes.

To prevent the escape of pollutants from on-site containment facilities and to ensure subsequent cleanup as necessary for petroleum products at existing facilities, EML has prepared a Spill Contingency Plan, which is consistent with State of Nevada Regulations (NAC 445A.242 and 445A.243). The plan establishes procedures and methods to be implemented to abate and cleanup an on-site hazardous material spill. If required, spills occurring at the Project Area would be reported to the appropriate federal and state agencies.

- **Impact 3.19.3.3-1:** A spill of hazardous materials could adversely affect public safety and the environment.

  Significance of the Impact: This impact is considered less than significant; however, the following mitigation measure is provided to reduce the adverse effects of this potential impact.

- **Mitigation Measure 3.19.3.3-1:** EML would maintain their existing Emergency Response Plan (EML 2006; Appendix 11).

- **Effectiveness of Mitigation and Residual Effects:** The implementation of this mitigation measure would result in EML completing the necessary steps to understand how to respond to emergency situations with hazardous materials. This mitigation measure would be effective when an emergency condition develops because EML would have completed readiness preparation for responding to the emergency conditions.

3.19.3.3.4 Residual Adverse Impacts

The Proposed Action would have the unavoidable indirect potential to adversely affect employee or public safety through the accidental spill or release of hazardous materials either during transport to the Project Area, or from activities within the Project Area; however, due to the low probability of a significant accidental hazardous materials spill or release, the unavoidable potential impact is considered less than significant.

3.19.3.4 No Action Alternative

3.19.3.4.1 Effects of a Release

Under the No Action Alternative, EML is currently conducting mineral exploration and data acquisition within the Project Area; therefore the potential for impacts to public safety or the environment from the use and transportation of hazardous materials is substantially less than under the Proposed Action.

- **Impact 3.19.3.4-1:** A spill of hazardous materials could adversely affect public safety and the environment.

  Significance of the Impact: This impact is considered less than significant, and no mitigation measures are proposed.

3.19.3.4.2 Residual Adverse Impacts

The No Action Alternative would have the unavoidable indirect potential to adversely affect employee or public safety through the accidental spill or release of hazardous materials either during transport to the Project Area, or from currently permitted activities within the Project Area; however, due to the very low probability of a significant accidental hazardous materials spill or release, the unavoidable potential impact is considered less than significant.

3.19.3.5 Partial Backfill Alternative

3.19.3.5.1 Effects of a Release

Impacts to public safety from the use and transport of hazardous materials would generally be similar as those described for the Proposed Action. The difference in impacts would be an increase in the amount of materials transported to the site after Year 32 because of the continued use of the mining fleet to complete the backfilling operations.

- **Impact 3.19.3.5-1:** A spill of hazardous materials could adversely affect public safety and the environment.

  Significance of the Impact: This impact is considered less than significant: however, the following mitigation measure is provided to reduce the adverse effects of this potential impact.

- **Mitigation Measure 3.19.3.5-1:** EML would maintain their existing Emergency Response Plan (EML 2006; Appendix 11).

- **Effectiveness of Mitigation and Residual Effects:** The implementation of this mitigation measure would result in EML completing the necessary steps to understand how to respond to emergency situations with hazardous materials. This mitigation measure would be effective when an emergency condition develops because EML would have completed readiness preparation for responding to the emergency conditions.

3.19.3.5.2 Residual Adverse Impacts

The Partial Backfill Alternative would have the unavoidable indirect potential to adversely affect employee or public safety through the accidental spill or release of hazardous materials either during transport to the Project Area, or from activities within the Project Area; however, due to the low probability of a significant accidental hazardous materials spill or release, the potential impact is considered less than significant.

3.19.3.6 Off-Site Transfer of Ore Concentrate for Processing Alternative

3.19.3.6.1 Effects of a Release

Impacts to public safety from the use and transport of hazardous materials would generally be the same as those described for the Proposed Action. The difference in impacts would be a slight reduction in the amount of materials transported to the site because there would not be the TMO production facilities. There would be a similar amount of product transported off site; however, the material would be molybdenum sulfide rather than TMO.

- **Impact 3.19.3.6-1:** A spill of hazardous materials could adversely affect public safety and the environment.

  Significance of the Impact: This impact is considered less than significant; however, the following mitigation measure is provided to reduce the adverse effects of this potential impact.

- **Mitigation Measure 3.19.3.6-1:** EML would maintain their existing Emergency Response Plan (EML 2006; Appendix 11).

- **Effectiveness of Mitigation and Residual Effects:** The implementation of this mitigation measure would result in EML completing the necessary steps to understand how to respond to emergency situations with hazardous materials. This mitigation measure would be effective when an emergency condition develops because EML would have completed readiness preparation for responding to the emergency conditions.

3.19.3.6.2 Residual Adverse Impacts

The Off-Site Transfer of Ore Concentrate for Processing Alternative would have the unavoidable indirect potential to adversely affect employee or public safety through the accidental spill or release of hazardous materials either during transport to the Project Area, or from activities within the Project Area; however, due to the low probability of a significant accidental hazardous materials spill or release, the potential impact is considered less than significant.

3.19.3.7 Slower, Longer Project Alternative

3.19.3.7.1 Effects of a Release

Impacts to public safety from the use and transport of hazardous materials would generally be proportionally less than those described for the Proposed Action. The difference in impacts would be a slight decrease in the amount of materials transported annually.

- **Impact 3.19.3.7-1:** A spill of hazardous materials could adversely affect public safety and the environment.

  Significance of the Impact: This impact is considered less than significant; however, the following mitigation measure is provided to reduce the adverse effects of this potential impact.

- **Mitigation Measure 3.19.3.7-1:** EML would maintain their existing Emergency Response Plan (EML 2006; Appendix 11).

- **Effectiveness of Mitigation and Residual Effects:** The implementation of this mitigation measure would result in EML completing the necessary steps to understand how to respond to emergency situations with hazardous materials. This mitigation measure would be effective when an emergency condition develops because EML would have completed readiness preparation for responding to the emergency conditions.

3.19.3.7.2 Residual Adverse Impacts

The Slower, Longer Project Alternative would have the unavoidable indirect potential to adversely affect employee or public safety through the accidental spill or release of hazardous materials either during transport to the Project Area, or from activities within the Project Area; however, due to the low probability of a significant accidental hazardous materials spill or release, the potential impact is considered less than significant.

3.20 Historic Trails

3.20.1 Regulatory Framework

The Pony Express Trail is the only historic trail within or adjacent to the Project Area. In 1992 the US Congress amended the National Trails System Act to include the California and Pony Express Trails. The act directs the Secretary of Interior to provide for the development and maintenance of the trails within federally administered areas. To this end, the BLM issued two IMs in 2003 that address the management and assessment of potential impacts to the trail. One of these IMs, NV-2204-004, specifically addressed the evaluation of potential effects under the National Trails System Act. In addition, information in this section was compiled from the Comprehensive Management and Use Plan Final EIS for the California National Historic Trail and the Pony Express National Historic Trail (NPS 1999).

The Pony Express Trail is considered a historic property, and Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. 470, et seq.) (NHPA), and its implementing regulations under 36 CFR 800 require all federal agencies to consider effects of federal actions on cultural resources eligible for or listed in the NRHP. Other laws related to NHPA with which agencies must comply include, but are not limited to, the following:

- Archaeological and Historic Preservation Act of 1974 (AHPA); and
- Archaeological Resource Protection Act of 1979 (ARPA).

3.20.2 Affected Environment

3.20.2.1 Study Methods

The cultural resources inventory for the Project was used to develop the description of the Pony Express Trail activities and the physical features of the trail within and adjacent to the Project Area (Kautz 2007). EML's assessment of the viewshed from the Pony Express trail within the Project Area was used in the impact assessment. Google Earth Pro^{R} was used to determine the viewshed from the trail outside of the Project Area.

3.20.2.2 Historic Development

The Pony Express was a short-lived horse-and-rider relay that carried light mail between Missouri and California in 1860 and 1861. Westbound from St. Joseph, the Pony Express followed the established emigrant trails to Salt Lake City and then continued through Nevada along the Central Overland mail and military route developed by George Chorpenning, Howard Egan, and Army Captain James Simpson. The trail crossed the Sierra Nevada at Carson Pass, ending in Sacramento. Eastbound mail followed the same route back to St. Joseph. The operation had approximately 150 stations, 500 horses, and 80 riders - some of whom earned celebrity for their courage and feats of physical endurance. Though the Pony Express has become highly mythologized, it was in fact historically important for demonstrating that mail could be expedited year-round between east and west, and for its role in carrying important news and dispatches to California on the cusp of the Civil War. The first ride began on April 3, 1860. The Pony Express' parent company, the Central Overland California & Pike's Peak Express Co., went bankrupt largely due to a string of bad business decisions and misfortunes unrelated to the Pony Express. Although that operation was a financial failure, this failure was also brought on because

Congress never awarded the government contract. The Pony Express closed because completion of the transcontinental telegraph on October 24, 1861, eliminated the need for overland express mail, which made the Pony Express obsolete. The Pony Express shut down two days later on October 26, 1861. Figure 3.20.1 shows the location of the Pony Express Trail in the vicinity of the Project Area.

The numerous stations that were constructed along the Pony Express Trail across the Great Basin provided fresh mounts for the riders but are also historically important in that they mark the inception of nonnative occupation in the area. Several of the stations developed into ranches that are still in operation today.

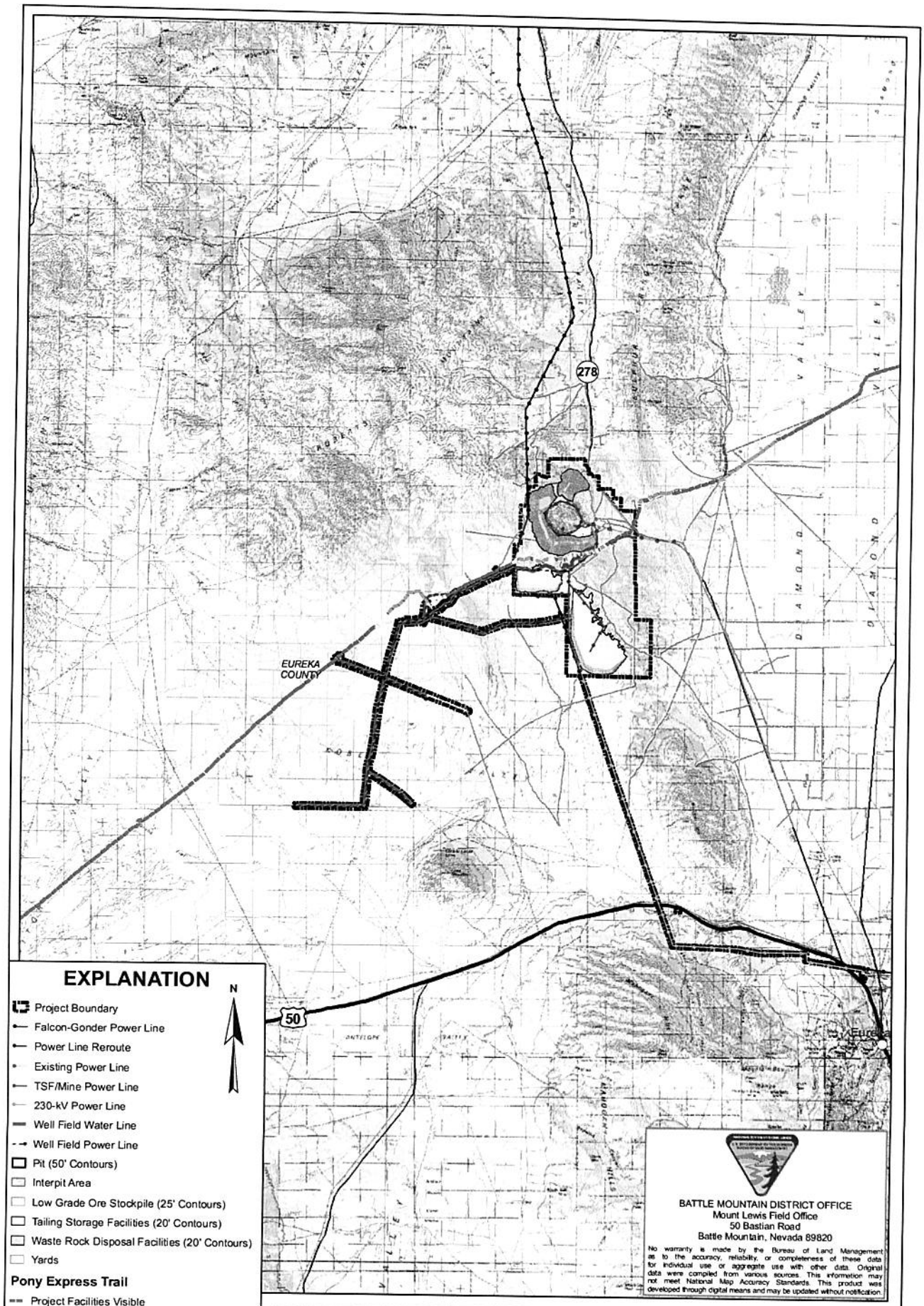
3.20.2.3 Existing Conditions

The portion of the historic trail in the vicinity of the Project Area has been identified as the Overland Canyon to Simpson Park Station Segment (NPS 1999). In the vicinity of the Project Area the trail is a two-track dirt road, which is used for general public land access, access by grazing permittee, and by recreationists. The Comprehensive Management and Use Plan Final EIS for the California and Pony Express National Historic Trails identified high potential segments and sites along these trails (NPS 1999). This segment has been determined to be a high potential segment of the Pony Express Trail. A high potential segment is one having greater than average scenic values or affording an opportunity to vicariously share the experience of the original users of a historic route, and is relatively free from intrusion. **Additionally, as stated in Section 3.21.3, segments of the Pony Express Trail in the vicinity of the Project Area are considered eligible for listing in the NRHP.**

A high potential site is an area along the trail that exhibits visible historic remnants, conveys historic significance, retains scenic quality, and is relatively free from intrusion. There are no high potential sites in the Project Area. Even though the Pony Express Trail crosses the Project Area, no stations were located within Project Area. The closest Pony Express stations were located at Roberts Creek Ranch, just 0.6 mile west of the Project Area, and Sulphur Springs, which is 4.3 miles east of the Project Area. Both locations are now private land, and there are no remains of the structures (Kautz 2007).

There are a number of organizations that promote and support the Pony Express Trail and the memory of the Pony Express system. Their activities include the placement and maintenance of trail markers, as well as conducting the Pony Express re-ride. The re-ride is an annual event that generally occurs in June between St. Joseph, Missouri and Sacramento, California. The re-ride, which is sponsored by the National Pony Express Association (NPEA), is managed within each state by that state's NPEA division. The schedule for each of the annual re-rides is set months to over a year in advance. Within each state, the divisions are given an allotted amount of time to complete the ride and the specific time for the handoff from one state to the other is defined.

Within the Nevada Division the re-ride is divided into sections and each section has a specific amount of time to complete the ride. The Project Area is within the Top of the Diamonds to Grubb's Well Section and seven hours are allocated to complete the ride. The re-ride on this section of the trail generally consists of a single rider or double riders and several support vehicles with horse trailers. This section of the trail is entirely a two-track road and vehicles can generally travel with the riders. The one exception to this is the portion of the trail through the western portion of the Project Area where the terrain would make vehicle travel with a horse



EXPLANATION

- Project Boundary
- Falcon-Gonder Power Line
- Power Line Reroute
- Existing Power Line
- TSF/Mine Power Line
- 230-kV Power Line
- Well Field Water Line
- Well Field Power Line
- Pit (50' Contours)
- Interpit Area
- Low Grade Ore Stockpile (25' Contours)
- Tailing Storage Facilities (20' Contours)
- Waste Rock Disposal Facilities (20' Contours)
- Yards

Pony Express Trail

- Project Facilities Visible
- Project Facilities Partially Visible
- Project Facilities Not Visible
- Trail Segment Not Evaluated for Visual Effects
- Analysis Area

N

0 2 4 6 Miles

DESIGN	EMLLC	DRAWN	CVD/GSL
REVIEWED	RFD	CHECKED	-
APPROVED	RFD	DATE	08/01/2012
FILE NAME	p1635_Fig3-20-1_PonyExpressTrail_v2.mxd		

BATTLE MOUNTAIN DISTRICT OFFICE
Mount Lewis Field Office
50 Bastian Road
Battle Mountain, Nevada 89820

BUREAU OF LAND MANAGEMENT

MOUNT HOPE PROJECT

DRAWING TITLE

Pony Express Trail

Figure 3.20.1

trailer unsafe. There are also other organizations that support the Pony Express Trail that conduct individual or group rides on segments or the entire length of the trail. In 2006 there were 45 ride participants on the segment of the trail within the Project Area. In 2010 there were a total **of 215 individuals that used the segment of the trail within the Project Area (Personal Communication, Gary Nezo, current National Pony Express Association, Nevada Branch President).**

3.20.3 Environmental Consequences and Mitigation Measures

Major issues related to the Pony Express Trail include the following: a) changes to the viewshed as seen from the Pony Express Trail; and b) access to the Pony Express Trail within the Project Area.

3.20.3.1 Significance Criteria

Impacts to historic trails would be considered significant if the Proposed Action or alternatives result in any of the following:

- Changes to the landscape adjacent to a historic trail that cannot be mitigated to a BLM Class II VRM objective, as outlined in BLM IM NV-2004-004; or
- Limiting the use of an identified portion of a historic trail.

3.20.3.2 Assessment Methodology

Potential impacts of the Proposed Action and Project alternatives were assessed based on the guidance in BLM IM NV-2004-004. The assessment is based on the potential effects within three miles of the centerline of the designated trail. The criterion for the evaluation is based on the BLM VRM Class II threshold.

3.20.3.3 Proposed Action

3.20.3.3.1 Historic Trail Viewshed

The Proposed Action would modify the existing viewshed through mining the top portion of the mountain known as Mount Hope and creating visible highwalls, the construction of WRDFs adjacent to the location of Mount Hope, all north of the historic trail, and the construction of two TSFs south of the historic trail. In addition, a number of Project-related activities would occur immediately adjacent to the historic trail with the initial Project development, that include the following: documentation, interpretation, and protection of historic trail remnants and associated structures; the construction of a 900-foot underpass through and subsequently beneath the historic trail for the Project tailings lines; the construction of an underground waterline and an above and below ground powerline adjacent to the historic trail for a distance of eight miles to the west of the mine facilities; and construction of water development facilities to the north and south of the historic trail in Kobeh Valley.

This impact is limited to those areas where the Project is visible from the historic trail. Due to the local topography, proximity to the Proposed Action is not always directly correlated to the degree of impact. There are a number of areas, as shown on Figure 3.20.1, immediately adjacent to the Project where there is no impact to the viewshed from the historic trail, in contrast to areas

three miles from the mine area in Kobeh Valley where the Project activities are plainly visible. As a result, the potential impact of the Project is sporadic; however, the overall effect of the Project on the viewshed of this portion of a high potential segment of the historic trail is one of a changed landscape from the point that the Project is visible at the three mile assessment distance. Once any riders pass the Project facilities, then the Project is no longer in the individual's direct line of sight unless the individual turns around to again to look back at the Project facilities.

The below ground activities that would occur beneath and adjacent to the historic trail would decrease in visual contrast as the Project reclamation measures take effect; however, the removal of a portion of Mount Hope, the construction of the open pit, WRDFs, and the North TSF would be permanent changes to the viewshed that would be diminished with reclamation. The South TSF would be constructed beyond the three-mile assessment boundary.

- **Impact 3.20.3.3-1:** The Proposed Action would permanently modify the viewshed from the historic trail within three miles of the centerline to a degree that is not consistent with the BLM VRM Class II threshold.

  Significance of the Impact: This potential impact to the historic trail is significant. **The following mitigation has been identified for this impact.**

- **Mitigation Measure 3.20.3.3-1: As part of the Historic Treatment Plan, mitigation for the historic trail would include photodocumentation to capture the setting and feel of the Pony Express Trail adjacent to the Project that would be visually impacted. The Treatment Plan would also include off-site mitigation in the form of GPS mapping and surveying of off-site portions of the Pony Express Trail located on public land. Segments would be selected at a one to one ratio of linear mileage based on the length of segments of the trail that would be impacted by the Project and are considered eligible as discussed in Section 3.21.3. Additionally, Mitigation Measure 3.7.3.3-1 would reduce visual impacts to users of the Pony Express Trail.**

- **Effectiveness of Mitigation and Residual Effects: The effectiveness of this mitigation in reducing the impact to less than significant is not likely; however, given the type and scale of the action this mitigation would be the most effective approach at limiting the impact. The mitigation is designed to document the user experience of those segments of the trail that would be impacted by the Project and enhance the understanding of unevaluated segments of the trail. Therefore, these measures and the ones identified in Mitigation Measure 3.7.3.3-1 would be effective at mitigating visual impacts to the Pony Express Trail.**

3.20.3.3.2 Historic Trail Access

The Proposed Action includes the construction of a public exclusion fence around the entire Project. As a result, access to that portion of the trail within the Project Area would be cut off for the duration of the Project, which could be as long as 80 years.

- **Impact 3.20.3.3-2:** The Proposed Action would eliminate access to that portion of the historic trail within the Project exclusion fence.

Significance of the Impact: This potential impact to the historic trail access is significant.

- **Mitigation Measure 3.20.3.3-2:** EML would implement the mitigation plan included in Appendix **D, Attachment 1** to provide access through the Project Area during the annual Pony Express re-ride, which generally occurs in June. This mitigation would allow for independent (non-NPEA) re-riders to follow the trail through the Project Area at other times of the year, subject to 30-day advance notice and certain safety restrictions, and subject to EML's approval, and to provide for an alternative route for trail riders during other times of the year, weather permitting.

- **Effectiveness of Mitigation and Residual Effects:** Implementation of this mitigation measure would effectively mitigate the impact for those times in June of each year when the re-ride occurs, as well as individual use at other times of the year. In addition, the mitigation would be effective by providing a continuous route, although not the designated route, year round. However, this mitigation has no effect on the closure of the designated route for most of the year.

3.20.3.3.3 Residual Adverse Impacts

The residual impact to the viewshed of the historic trail remains a significant effect and is an irretrievable and irreversible commitment of this resource. The potential residual impact to access to the historic trail is less than significant due to the mitigation. The overall impact to historic trail access is not irreversible or irretrievable.

3.20.3.4 No Action Alternative

3.20.3.4.1 Historic Trail Viewshed

As a result of implementation of the No Action Alternative, none of the impacts to the viewshed from the historic trail would occur. As a result, there would be no impacts.

3.20.3.4.2 Historic Trail Access

As a result of the implementation of the No Action Alternative there would be no impacts to historic trail access.

3.20.3.4.3 Residual Adverse Impacts

Under the No Action Alternative there would be no residual impacts.

3.20.3.5 Partial Backfill Alternative

3.20.3.5.1 Historic Trail Viewshed

Implementation of the Partial Backfill Alternative would result in potential visual impacts to the historic trail that are similar to, but proportionally less than those outlined under the Proposed Action. Even though the Non-PAG WRDF would be smaller, the PAG WRDF and the open pit high wall would remain visible and dominant features on the landscape.

- **Impact 3.20.3.5-1:** The Partial Backfill Alternative would permanently modify the viewshed from the historic trail within three miles of the centerline to a degree that is not consistent with the BLM VRM Class II threshold.

  Significance of the Impact: This potential impact to the historic trail is significant. **The following mitigation has been identified for this impact.**

- **Mitigation Measure 3.20.3.5-1: As part of the Historic Treatment Plan, EML for the historic trail would include photodocumentation to capture the setting and feel of the Pony Express Trail adjacent to the Project that would be visually impacted. The Treatment Plan would also include off-site mitigation in the form of GPS mapping and surveying of off-site portions of the Pony Express Trail located on public land. Segments would be selected at a one to one ratio of linear mileage based on the length of segments of the trail that would be impacted by the Project and are considered eligible as discussed in Section 3.21.3. Additionally, Mitigation Measure 3.7.3.3-1 would reduce visual impacts to users of the Pony Express Trail.**

- **Effectiveness of Mitigation and Residual Effects: The effectiveness of this mitigation in reducing the impact to less than significant is not likely; however, given the type and scale of the action this mitigation would be the most effective approach at limiting the impact. The mitigation is designed to document the user experience of those segments of the trail that would be impacted by the Project and enhance the understanding of unevaluated segments of the trail. Therefore, these measures and the ones identified in Mitigation Measure 3.7.3.3-1 would be effective at mitigating visual impacts to the Pony Express Trail.**

3.20.3.5.2 Historic Trail Access

Implementation of the Partial Backfill Alternative would result in similar impacts to historic trail access as those discussed under the Proposed Action.

- **Impact 3.20.3.5-2:** The Partial Backfill Alternative would eliminate access to that portion of the historic trail within the Project exclusion fence.

  Significance of the Impact: This potential impact to the historic trail access is significant.

- **Mitigation Measure 3.20.3.5-2:** EML would implement the mitigation plan included in Appendix **D, Attachment 1** to provide access through the Project Area during the annual Pony Express re-ride, which generally occurs in June. This mitigation would allow for independent (non-NPEA) re-riders to follow the trail through the Project Area at other times of the year, subject to 30-day advance notice and certain safety restrictions, and subject to EML's approval, and to provide for an alternative route for trail riders during other times of the year, weather permitting.

- **Effectiveness of Mitigation and Residual Effects:** Implementation of this mitigation measure would effectively mitigate the impact for those times in June of each year when the re-ride occurs, as well as individual use at other times of the year. In addition, the mitigation would be effective by providing a continuous route, although not the

designated route, year round. However, this mitigation has no effect on the closure of the designated route for most of the year.

3.20.3.5.3 Residual Adverse Impacts

The residual impact to the viewshed of the historic trail remains a significant effect and is an irretrievable and irreversible commitment of this resource. The potential residual impact to access to the historic trail is less than significant due to the mitigation. The overall impact to historic trail access is not irreversible or irretrievable.

3.20.3.6 Off-Site Transfer of Ore Concentrate for Processing Alternative

3.20.3.6.1 Historic Trail Viewshed

Implementation of the Off-Site Transfer of Ore Concentrate for Processing Alternative would result in potential impacts that are similar to those outlined under the Proposed Action.

- **Impact 3.20.3.6-1:** The Off-Site Transfer of Ore Concentrate for Processing Alternative would permanently modify the viewshed from the historic trail within three miles of the centerline to a degree that is not consistent with the BLM VRM Class II threshold.

  Significance of the Impact: This potential impact to the historic trail is significant. **The following mitigation has been identified for this impact.**

- **Mitigation Measure 3.20.3.6-1: As part of the Historic Treatment Plan, mitigation for the historic trail would include photodocumentation to capture the setting and feel of the Pony Express Trail adjacent to the Project that would be visually impacted. The Treatment Plan would also include off-site mitigation in the form of GPS mapping and surveying of off-site portions of the Pony Express Trail located on public land. Segments would be selected at a one to one ratio of linear mileage based on the length of segments of the trail that would be impacted by the Project and are considered eligible as discussed in Section 3.21.3. Additionally, Mitigation Measure 3.7.3.3-1 would reduce visual impacts to users of the Pony Express Trail.**

- **Effectiveness of Mitigation and Residual Effects: The effectiveness of this mitigation in reducing the impact to less than significant is not likely; however, given the type and scale of the action this mitigation would be the most effective approach at limiting the impact. The mitigation is designed to document the user experience of those segments of the trail that would be impacted by the Project and enhance the understanding of unevaluated segments of the trail. Therefore, these measures and the ones identified in Mitigation Measure 3.7.3.3-1 would be effective at mitigating visual impacts to the Pony Express Trail.**

3.20.3.6.2 Historic Trail Access

Implementation of the Off-Site Transfer of Ore Concentrate for Processing Alternative would result in similar impacts to historic trail access as those discussed under the Proposed Action.

- **Impact 3.20.3.6-2:** The Off-Site Transfer of Ore Concentrate for Processing Alternative would eliminate access to that portion of the historic trail within the Project exclusion fence.

  Significance of the Impact: This potential impact to the historic trail access is significant.

- **Mitigation Measure 3.20.3.6-2:** EML would implement the mitigation plan included in Appendix **D, Attachment 1** to provide access through the Project Area during the annual Pony Express re-ride, which generally occurs in June. This mitigation would allow for independent (non-NPEA) re-riders to follow the trail through the Project Area at other times of the year, subject to 30-day advance notice and certain safety restrictions, and subject to EML's approval, and to provide for an alternative route for trail riders during other times of the year, weather permitting.

- **Effectiveness of Mitigation and Residual Effects:** Implementation of this mitigation measure would effectively mitigate the impact for those times in June of each year when the re-ride occurs, as well as individual use at other times of the year. In addition, the mitigation would be effective by providing a continuous route, although not the designated route, year round. However, this mitigation has no effect on the closure of the designated route for most of the year.

3.20.3.6.3 Residual Adverse Impacts

The residual impact to the viewshed of the historic trail remains a significant effect and is an irretrievable and irreversible commitment of this resource. The potential residual impact to access to the historic trail is less than significant due to the mitigation. The overall impact to historic trail access is not irreversible or irretrievable.

3.20.3.7 Slower, Longer Project Alternative

Impacts to historic trails from the Slower, Longer Project Alternative are expected to be similar to impacts from the Proposed Action; however, impacts from the Slower, Longer Project Alternative would occur over a period approximately twice as long in duration compared to the Proposed Action.

3.20.3.7.1 Historic Trail Viewshed

- **Impact 3.20.3.7-1:** The Slower, Longer Project Alternative would permanently modify the viewshed from the historic trail within three miles of the centerline to a degree that is not consistent with the BLM VRM Class II threshold.

  Significance of the Impact: This potential impact to the historic trail is significant. **The following mitigation has been identified for this impact.**

- **Mitigation Measure 3.20.3.7-1: As part of the Historic Treatment Plan, mitigation for the historic trail would include photodocumentation to capture the setting and feel of the Pony Express Trail adjacent to the Project that would be visually impacted. The Treatment Plan would also include off-site mitigation in the form of**

GPS mapping and surveying of off-site portions of the Pony Express Trail located on public land. Segments would be selected at a one to one ratio of linear mileage based on the length of segments of the trail that would be impacted by the Project and are considered eligible as discussed in Section 3.21.3. Additionally, Mitigation Measure 3.7.3.3-1 would reduce visual impacts to users of the Pony Express Trail.

- **Effectiveness of Mitigation and Residual Effects: The effectiveness of this mitigation in reducing the impact to less than significant is not likely; however, given the type and scale of the action this mitigation would be the most effective approach at limiting the impact. The mitigation is designed to document the user experience of those segments of the trail that would be impacted by the Project and enhance the understanding of unevaluated segments of the trail. Therefore, these measures and the ones identified in Mitigation Measure 3.7.3.3-1 would be effective at mitigating visual impacts to the Pony Express Trail.**

3.20.3.7.2 Historic Trail Access

- **Impact 3.20.3.7-2:** The Slower, Longer Project Alternative would eliminate access to that portion of the historic trail within the Project exclusion fence.

  Significance of the Impact: This potential impact to the historic trail access is significant.

- **Mitigation Measure 3.20.3.7-2:** EML would implement the mitigation plan included in Appendix **D, Attachment 1** to provide access through the Project Area during the annual Pony Express re-ride, which generally occurs in June. This mitigation would allow for independent (non-NPEA) re-riders to follow the trail through the Project Area at other times of the year, subject to 30-day advance notice and certain safety restrictions, and subject to EML's approval, and to provide for an alternative route for trail riders during other times of the year, weather permitting.

- **Effectiveness of Mitigation and Residual Effects:** Implementation of this mitigation measure would effectively mitigate the impact for those times in June of each year when the re-ride occurs, as well as individual use at other times of the year. In addition, the mitigation would be effective by providing a continuous route, although not the designated route, year round. However, this mitigation has no effect on the closure of the designated route for most of the year.

3.20.3.7.3 Residual Adverse Impacts

The residual impact to the viewshed of the historic trail remains a significant effect and is an irretrievable and irreversible commitment of this resource. The potential residual impact to access to the historic trail is less than significant due to the mitigation. The overall impact to historic trail access is not irreversible or irretrievable.

3.21 Cultural Resources

3.21.1 Regulatory Framework

Section 106 of the NHPA and its implementing regulations under 36 CFR 800 require all federal agencies to consider effects of federal actions on cultural resources eligible for or listed in the NRHP. Other laws related to the NHPA with which agencies must comply include, but are not limited to, the following:

- AHPA;
- ARPA;
- American Indian Religious Freedom Act of 1978 (AIRFA); and
- Native American Graves Protection and Repatriation Act of 1990 (NAGPRA).

Properties of cultural or religious importance (PCRIs) are protected under the AIRFA, and NAGPRA. A PCRI may be eligible for listing in the NRHP because of its association with cultural practices or beliefs of a living community that are: (a) rooted in the history of the community or tribe; and, (b) important in maintaining the continuing cultural identity of the community or tribe. Consultation with tribes regarding PCRIs can be found in the Native American Traditional Values Section (Section 3.22).

3.21.2 Affected Environment

3.21.2.1 Area of Potential Effect

The NHPA and 36 CFR Part 800 requires the BLM to consider effects to historic properties within the Area of Potential Effect (APE). The APE for historic properties is defined in 36 CFR 800.9(a) as "the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The **APE** is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking." The Project APE or area of possible direct and indirect impacts for historic properties was defined by the BLM to include the areas of the undertakings for exploration and development projects subject to surface disturbance as shown on Figure 2.1.7. Mine development activities for each of the alternatives include areas that would be directly and indirectly affected (i.e., the footprint of the mine facilities, pipelines, access roads, rerouted transmission lines, staging areas, borrow areas, and other facilities). The BLM also determined that there would be an area of indirect visual impacts, viewshed APE, for eligible historic properties or unevaluated historic resources where the Project would be visible within a 20-mile radius of the top of Mount Hope, in which the indirect impacts would adversely affect the integrity of setting for these sites. A file search was conducted of the known sites within this viewshed on December 24, 2008. Historic properties and unevaluated historic resources that are present within the viewshed APE were determined by using a DEM to create a three-dimensional representation of the terrain surrounding Mount Hope. Using the DEM in conjunction with the file search results, the sites (i.e., a total of 436) that could be seen from the highest point of Mount Hope within a 20-mile radius were identified. The Project APE (area of direct and indirect effects) lies within this viewshed APE and is defined as the Project Area. The Project APE was completely surveyed to a Class III (considered100 percent inventory) level. In preparation for the survey of the Project Area, a file search was conducted of the Project APE and a one-mile buffer surrounding it (Malinky et al. 2008). The APE for Native American

Traditional Values is defined separately from the Project APE and viewshed APEs for historic properties and can be found in Section 3.22.

In addition, a PA was completed between the BLM and the Nevada SHPO to address potential adverse effects to eligible or unevaluated cultural sites and specifies the following: measures to be taken with regard to the identification and evaluation of historic properties; Native American consultation; resolutions of eligibility; development of treatment plans; measures to cover discovery situations; report and monitoring requirements; Notices to Proceed; time frames for inventory, consultation, report completion; curation; measures for posting surety bonds; protocols for dispute resolution; and procedures for amending, terminating, and execution of the PA. A copy of the PA is available for review at the MLFO during normal business hours. The following Native American tribes were invited to be concurring parties for the PA: the Te-Moak Tribe of the Western Shoshone, the Yomba Shoshone Tribe, the Duckwater Shoshone Tribe, the Ely Shoshone Tribe, and the Timbisha Shoshone Tribe. Although these tribes have indicated that they would not participate as concurring parties to the PA, ongoing consultation between the BLM and the Tribes is in progress (see Section 3.22).

3.21.2.2 Data Sources

Archival research of the Project APE and a one-mile buffer surrounding the APE was conducted at the Special Collections Library at the UNR, the Mackay School of Mines at the UNR, the Nevada Bureau of Mines and Geology, the BLM BMDO, and the Nevada Census Records to determine the presence of previously recorded or documented cultural resources. File searches were also conducted through the Nevada Cultural Resources Information System, the Nevada State Register, and the NRHP. Native American consultation efforts by the BLM for the Project are discussed under Native American Traditional Values (see Section 3.22).

Potential historic properties may include districts, sites, buildings, structures, and objects that possess historical integrity and are greater than 50 years old. Cultural resource types found within the Project APE for all mining study areas include prehistoric and historic archaeological sites. Examples of prehistoric sites include camps, lithic scatters, ceramic scatters, stone circles, quarries, hunting sites and blinds, among others. Examples of historic sites include roads, trails, railroads, mining sites, ranches, quarries, charcoal manufacturing camps, charcoal piles, buildings, structures, and features, among others.

The current NRHP status of previously recorded resources within the Project APE was noted, and resources recorded as a result of the Class III survey were fully documented and NRHP significance evaluated (Bengston 2007; Malinky 2006; 2008a-b; 2009a-e; 2010; Malinky et al. 2008). Evaluation of cultural resources is codified under 36 CFR 60.4 and summarized below (NRHP, National Register Bulletin, revised 1998):

> The quality of significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:
>
> a) that are associated with events that have made a significant contribution to the broad patterns of our history; or
> b) that are associated with the lives of persons significant in the past; or

c) that embody the distinctive characteristics of a type, period, or method of construction, or that represents the work of a master, or that possess high artistic value, or that represent a significant or distinguishable entity whose components may lack individual distinction; or

d) that have yielded, or are likely to yield, information important in prehistory or history.

Properties listed in or eligible for listing in the NRHP must be important in American history, architecture, archaeology, engineering, or culture. In addition, to be significant, a property must also have physical integrity to be listed in or be eligible for listing in the NRHP. In some cases, additional information must be gathered to evaluate a cultural resource with regard to the NRHP criteria. This information may be gathered by means of limited excavation or testing to determine the presence and extent of significant buried cultural material or, in the case of historic sites, archival research to better evaluate these sites under criteria a-c, as summarized above. Cultural resource sites recommended not eligible for the NRHP either do not meet any of the criteria outlined under 36 CFR 60.4 or lack physical integrity (i.e., have been significantly altered or destroyed by previous human activity or natural processes). Sites with field evaluations (i.e., field eligible, field not eligible, field needs data), those that have not been assessed with regard to NRHP eligibility, or those that cannot be relocated by means of file search data alone are considered unevaluated for inclusion in the NRHP.

3.21.2.3 Cultural History Overview

Consideration must be given to the human uses and occupation of the Project Area for the past 10,000 years to adequately summarize the cultural history of the Project APE. A concise summary of the history is provided in the following paragraphs. The information is presented in chronological stages, defined by anthropologists as changes in subsistence strategies (i.e., the techniques that societies use to transform natural resources into food, clothing, and shelter) and material cultural (i.e., the items manufactured by societies and the meanings cultures give to those items). The cultural history overview is summarized from the studies prepared for the Project (Bengston 2007; Malinky 2008a-e; 2010; Malinky et al. 2008).

Archaeologists working in the Great Basin have found evidence of human use of the region for more than 10,000 years. While they generally agree on the earlier dates, the experts often use different labels for the stages and there is some debate over end dates for the stages. This overview is based on the work of Malinky and others, and their chronological scheme has been adopted here. These experts note that the earliest human occupations occurred during the Pre-Archaic stage, the period prior to approximately 8,000 years before present (B.P.). These people hunted now extinct large animals and some smaller animals as well as gathered and processed plants found near lakes and marshes. The hunters used large projectile points, including some distinctive concave-base and stemmed points. Diffuse lithic scatters, some with tools, dominate the sites attributed to the Pre-Archaic. A small number of quarries and workshops also have been recorded. The Pre-Archaic sites are usually found in association with the shores of extinct lakes or near important permanent water resources.

The Archaic Stage lasted from approximately 8,000 years B.P. to the historic period 150 to 200 years B.P. in the Great Basin. Archaeologists further divide the Archaic into three periods beginning with the Early Archaic period (8,000 years B.P. to 4,000 years B.P.). Evidence from these sites indicates that people lived in small groups, occupied shelters, and hunted a range of

animals with atlatl and dart points instead of the larger stemmed and Clovis points of earlier times. Sites associated with the Early Archaic tend to be camps, hunting sites, and limited-activity lithic scatters. Within the Great Basin, the second period of the Archaic Stage, the Middle Archaic, dates from 4,000 years B.P. to 1,500 years B.P. Archaeologists have investigated numerous sites across the central Great Basin that date to this period. People of this period continued use of the atlatl and dart for hunting but came to rely more on seed processing for food. Evidence of regional trade networks for obsidian and marine shell beads has been found at various sites. Sites commonly associated with the Middle Archaic period include hunting sites, camp sites, quarries, and lithic scatters. The Late Archaic (1,500 years B.P. to 150 to 200 years B.P), also known as the Fremont Culture (1,500 years B.P. to 700 years B.P.), ends soon after the initial Euro-American intrusions into the region. The bow and arrow replaced the atlatl and dart technology for hunting. This indicates a likelihood that the hunters sought a variety of smaller game like cottontail rabbits, woodchucks, and chipmunks instead of the big horn sheep, deer, and antelope that had been the dominate species hunted earlier.

Migrations also took place, most notably the arrival of the Western Shoshone in the central Great Basin by 700 years B.P. following the disappearance of the Fremont Culture. The Western Shoshone lived in small extended family groups, made and used brownware ceramics, and gathered pine nuts. They were also highly mobile and held large seasonal gatherings for pine nut harvests and antelope drives. The end of the Late Archaic is also marked by the arrival of Euro-Americans, first as explorers during the 1820s, then as settlers and colonizers of the land by the 1860s. Bengston (2007) identified three periods of contact between the Western Shoshone and Euro-Americans: 1) Contact and Exploration (1826 to 1862); 2) Euro-American Settlement (1862 to 1930); and 3) Contemporary Times (1930 to the present). Native American culture experienced tremendous change during the era, and by the 1930s little remained of their original lifeways. Sites tended to be of similar types into the later years when Euro-American influences began to manifest themselves in the archaeological record.

Five themes related to the Euro-American history of the Mount Hope region have been identified (Malinky et al. 2008) and include: 1) exploration and emigration; 2) transportation and communication; 3) mining and industry; 4) ranching and agriculture; and 5) the role of ethnic populations in the region's development. The exploration period begins during the 1820s when parties of trappers from the Hudson's Bay Company visited Nevada, trapping the Humboldt River and its tributaries between 1826 and 1828. These explorers established the Humboldt River as a primary route through central Nevada that remained popular into the late 19th century. The river route proved to be a satisfactory route to California after the Mexican War and the discovery of **Au** in California (1848). Typically the resources associated with the explorers are small campsites, often not discernible from others or initials and other engravings on rocks and similar small sites.

The Mount Hope area served as part of an important transportation and communication area from the early 1850s into the 1930s. Malinky et al. (2008) identified three significant historic transportation routes that passed through the Project Area: 1) the Pony Express/Overland Stage and Mail Route; 2) the Garden Pass Road; and 3) the Eureka and Palisades Railroad. Transportation-related sites typically are linear or remnants of linear sites or facilities such as stage station ruins.

The third theme, mining and industry, perhaps had the greatest nineteenth century influences on the Project Area and region. Mining on Mount Hope began in 1886 and has continued

sporadically into modern times. The mines have produced Au, Ag, Cu, Pb, and Zn as well as other minerals. Some evidence indicates that a pioneer mining district, the McGeary (aka McGarry) mining district, may have been located within the Project Area but this has not been confirmed. Evidence of mining resources includes small campsites and prospect pits to the ruins of larger, industrial scale mines and mills. Charcoal production evolved as a support industry for the smelters that developed charcoal to refine the ores of Eureka's mines during the 1870s. Italian and Swiss charcoal makers, often referred to as Carbonari, built charcoal ovens and harvested wood throughout the Project Area during the late nineteenth century leaving behind a distinctive archaeological record.

Ranching and agriculture developed to support first the Pony Express and Overland Stage operations and later the miners in Eureka as well as other districts. Evidence of ranching and agricultural activities are generally present in the form of active ranches, line shacks, or the campsites associated with roundups as well as other site types.

The final theme, ethnicity, is an underlying theme that encompasses mining, the charcoal industry, agriculture, and the many other, lesser historic period activities of the region. Often the sites do have unique ethnic markers in the artifact assemblages such as Asian ceramics or opium tins.

3.21.2.4 Existing Conditions

Cultural resource investigations of the Project APE resulted in the documentation of 594 sites of which one previously recorded site has not been assessed (26EU4556). In some cases, the location of previously recorded sites is unclear. It is presumed that these resources may have been destroyed (Malinky 2008a). The BLM submitted nine reports (Malinky 2008a-e; 2010; Malinky et al. 2008) that provided NRHP determinations of eligibility for 594 sites to the Nevada SHPO for concurrence.

Of the 594 sites documented within the Project APE, a total of 242 sites are located within the area of direct impacts (i.e., the Project footprint). Of this number, 83 sites have been officially determined eligible and 159 have been officially determined not eligible. Site types include 80 prehistoric, 142 historic, and 20 multi-component. A total of 352 sites are located outside of the area of direct effects but still within the Project APE. Of these sites, 180 have been officially determined eligible, 171 have been officially determined not eligible, and one is unevaluated. Site types include 111 prehistoric, 37 multi-component, and two with unknown affiliation. Site types within the Project APE are enumerated in Table 3.21-1.

3.21.3 Environmental Consequences and Mitigation Measures

3.21.3.1 Significance Criteria

The significance criterion used to evaluate the impacts of the Proposed Action and proposed alternatives on cultural resources is whether or not any action would adversely affect historic properties eligible for inclusion in the NRHP.

Table 3.21-1: Cultural Resource Sites within the Project Area of Potential Effect

Site Type	Officially Determined Eligible	Officially Determined Not Eligible	Not Assessed	Site Type Totals
Sites within Area of Direct Impacts				
Prehistoric	24	56	0	80
Historic*	45	97	0	142
Multi-Component*	14	6	0	20
Totals	83	159	0	242
Sites within Area of Indirect Impacts				
Prehistoric	48	62	1	111
Historic*	107	95	0	202
Multi-Component*	25	12	0	37
Unknown	0	2	0	2
Totals	180	171	1	352

*The historic sites and multi-component sites with a historic element within the Project APE are also within the viewshed APE; prehistoric sites are not considered in the viewshed APE.

NRHP eligibility of cultural resources is determined by applying the criteria specified in 36 CFR 60.4 (see Data Sources Section above). In addition to having eligibility related to one of the four criteria, a cultural resource must also retain sufficient physical integrity to convey their importance to present observers. The National Register has defined seven elements of integrity that are: 1) location; 2) design; 3) setting; 4) materials; 5) workmanship; 6) feeling; and 7) association.

For the Project, these general criteria were further refined into research themes for prehistoric and historic period sites. Five research themes (Malinky et al. 2008) were defined for the prehistoric period including: 1) chronology; 2) settlement and subsistence; 3) trade and exchange; 4) lithic technology; and 5) Native Americans in the "Ethnographic Present". For the historic period, an additional five themes were developed and include: 1) exploration and emigration; 2) transportation and communication; 3) mining and industry; 4) ranching and agriculture; and 5) ethnicity. Research questions and associated resource types relevant to each of the themes were also applied to the data. For a resource to be considered eligible for inclusion in the NRHP it had to be related to one of the themes and offer data to address the questions associated with the research themes.

3.21.3.2 Assessment Methodology

Impacts to cultural resources were assessed in light of the degree the Project may adversely affect cultural resources listed in the NRHP, eligible for listing in the NRHP, or unevaluated for the NRHP and, therefore, potentially eligible for listing in it. As per 36 CFR 800.16(i), a property would be affected if the Project would alter its NRHP qualifying characteristics. For this reason, it is necessary to know why the property is significant and what elements of the property contribute to that significance. Significant impacts to historic properties are irreversible. There would be direct impacts to resources located in the Project footprint and indirect impacts to those resources located outside of this area but within the Project APE.

3.21.3.3 Proposed Action

Construction of the mine and associated facilities have the potential to adversely affect cultural resources and would result in direct, indirect, and cumulative effects. As stated previously, there are 594 known sites within the Project APE. A total of 264 NRHP eligible or unevaluated sites (73 prehistoric, 152 historic, 39 multi-component) were identified within the Project APE (Bengston 2007; Malinky 2008a-b, 2009a-e, 2010; Malinky et al. 2008). The prehistoric sites (191) and multi-component sites with prehistoric elements (57) (see Table 3.21-1) within the Project APE range from large complex surface and subsurface assemblages, including: debitage; ground stone; lithic tools; diagnostic projectile points; stone features; prehistoric Shoshone Brownware ceramics; an extensive lithic scatter with a quarry; smaller campsites; lithic scatters with ground stone; and simple lithic scatters. The historic sites (344) and the multi-component sites with historic elements (57) (see Table 3.21-1) within the Project APE range from large and small mining sites, sites related to major transportation routes (Overland Road/Pony Express Trail and the Eureka & Palisades Railroad), a Chinese railroad construction site, Carbonari charcoal manufacturing areas including a charcoal ranch, a ranching complex, lesser transportation routes (roads), and historic refuse scatters. Two sites consist of stone features of unknown age. A total of 242 sites were located within the area of direct impacts (i.e., the Project footprint), and 83 sites have officially been determined eligible.

- **Impact 3.21.3.3-1:** Implementation of the Proposed Action would result in adverse effects to 83 officially eligible sites within the area of direct impacts. Outside of this area but within the Project APE, this action would also have indirect impacts on 180 officially eligible and one unevaluated site.

  Significance of the Impact: These direct impacts are considered to be significant. However, indirect impacts to eligible and unevaluated cultural resources within the Project APE are not considered to be significant at this time.

- **Mitigation Measure 3.21.3.3-1:** EML would develop, and submit to the BLM for approval, a treatment plan to address the potential direct impacts to the 83 officially eligible sites within the Project APE. EML would implement the treatment plan prior to any surface disturbance of eligible sites within the area of direct impacts. All adverse effects under the NHPA and direct and indirect impacts under the NEPA to known-eligible properties indentified within the Project APE would be mitigated in accordance with the PA and the treatment plan prepared for the Project. Any previously unknown-eligible properties that may be discovered during construction activities would be mitigated in accordance with the PA. No residual adverse effects are anticipated, as all known-eligible sites would be mitigated in accordance with the PA and the treatment plan prepared for the Project. Any previously unknown-eligible properties that may be discovered during construction activities would be mitigated in accordance with the PA.

  Effectiveness of Mitigation and Residual Effects: The implementation of the treatment plan under the mitigation measure would be effective at lessening the impact.

- **Impact 3.21.3.3-2:** Within the viewshed APE, 436 eligible and unevaluated historic and multi-component sites with a historic component would be indirectly impacted by reducing each site's integrity of setting as a result of the Proposed Action.

Significance of the Impact: Within the viewshed APE, eligible and unevaluated cultural resources would be indirectly affected by the Project and have also been previously impacted by past and present actions. The indirect impacts to eligible and unevaluated cultural resources within the viewshed APE **(outside the Project Area)** are not considered to be significant at this time.

No mitigation is proposed for this impact; see Section 3.1.1 for a general discussion of significance and the development of mitigation measures.

Due to the area's extensive historic mining, ranching, and prehistoric/historic Native American habitation, there is a possibility for any surface disturbing activity to expose both nonnative and native gravesites.

- **Impact 3.21.3.3-3:** As a result of the Proposed Action, there could be an impact to Native American remains or artifacts.

  Significance of the Impact: This impact would be considered potentially significant; however, the impact would become less than significant after implementation of the mitigation measure described below.

- **Mitigation Measure 3.21.3.3-3:** In the case of inadvertent discovery of human remains, the BMDO Policy for the Discovery of Human Remains (**IM** NV-2010-001) – notification procedures - would be followed. If the remains are determined to be native, NAGPRA inadvertent discovery procedures would be adhered to. Under the NAGPRA, section (3)(d)(1), it states that the discovering individual must notify the land manager in writing of such a discovery. If the discovery occurs in connection with an authorized use, the activity, which caused the discovery, is to cease and the materials are to be protected until the land manager can respond to the situation. Tribes, tribal organizations, possible lineal descendants, and individuals would then be contacted to determine cultural affiliation and subsequent transfer of custody procedures would begin.

  Effectiveness of Mitigation and Residual Effects: The Project could result in the exposure of Native American remains or artifacts. Implementation of Mitigation Measure 3.21.3.3-3 would prevent any impacts to these discoveries.

3.21.3.3.1 Residual Adverse Impacts

The Proposed Action would result in a potential impact that would be significant. The implementation of the mitigation measures would allow for the scientific collection of data these sites may yield; however, the potential impact would remain an irreversible and irretrievable commitment of cultural resources.

3.21.3.4 No Action Alternative

The No Action Alternative would allow the proponent to continue exploration activities under the existing Notices (NVN-080914, NVN-081485, NVN-081811, NVN-083120, NVN-083245, NVN-083246**, and NVN-090831**). The activities include mineral exploration, condemnation drilling, water quality monitoring well construction, hydrogeochemical, geotechnical data collection regarding areas under possible WRDFs and TSFs, and exploration for water supplies

outside the currently proposed Project boundaries. These activities would be located within the footprint of the Proposed Action; however, all activities under the Notices would be required to avoid cultural resources. Therefore, the No Action Alternative would have no impacts to cultural resources.

3.21.3.4.1 Residual Adverse Impacts

The No Action Alternative would not result in any irreversible or irretrievable commitment of cultural resources.

3.21.3.5 Partial Backfill Alternative

The Partial Backfill Alternative would have the same surface disturbance footprint as the Proposed Action Alternative; therefore, the same number of NRHP eligible and unevaluated sites would be impacted as noted above for the Proposed Action Alternative.

- **Impact 3.21.3.5-1:** Implementation of the Partial Backfill Alternative would result in adverse effects to 83 officially eligible sites within the area of direct impacts. Outside of this area but within the Project APE, this action would also have indirect impacts to 180 officially eligible and one unevaluated site.

  Significance of the Impact: These direct impacts are considered to be significant. However, indirect impacts to eligible and unevaluated cultural resources within the Project APE are not considered to be significant at this time.

- **Mitigation Measure 3.21.3.5-1:** EML would develop, and submit to the BLM for approval, a treatment plan to address the potential impacts to the 83 officially eligible sites within the Project APE. EML would implement the treatment plan prior to any surface disturbance of eligible sites within the area of direct impacts. All adverse effects under the NHPA and direct and indirect impacts under NEPA to known-eligible properties identified within the Project APE would be mitigated in accordance with the PA and the treatment plan prepared for the Project. Any previously unknown-eligible properties that may be discovered during construction activities would be mitigated in accordance with the PA. No residual adverse effects are anticipated, as all known-eligible sites would be mitigated in accordance with the PA and the treatment plan prepared for the Project.

- **Effectiveness of Mitigation and Residual Effects:** The implementation of the treatment plan under the mitigation measure would be effective at lessening the impact.

- **Impact 3.21.3.5-2:** Within the viewshed APE, 436 eligible and unevaluated historic and multi-component sites with a historic component would be indirectly impacted by reducing each site's integrity of setting as a result of the Proposed Action.

  Significance of the Impact: Within the viewshed APE, eligible and unevaluated cultural resources would be indirectly affected by the Project and have been previously impacted by past and present actions. The indirect impacts to eligible and unevaluated cultural resources within the viewshed APE **(outside the Project Area)** are not considered to be significant at this time.

No mitigation is proposed for this impact; see Section 3.1.1 for a general discussion of significance and the development of mitigation measures.

Due to the area's extensive historic mining, ranching, and prehistoric/historic Native American habitation, there is a possibility for any surface disturbing activity to expose both nonnative and native gravesites.

- **Impact 3.21.3.5-3:** As a result of the Proposed Action, there could be an impact to Native American remains or artifacts.

  Significance of the Impact: This impact would be considered potentially significant; however, the impact would become less than significant after implementation of the mitigation measure described below.

- **Mitigation Measure 3.21.3.5-3:** In the case of inadvertent discovery of human remains, the BMDO Policy for the Discovery of Human Remains (**IM** NV-2010-001) – notification procedures - would be followed. If the remains are determined to be native, NAGPRA inadvertent discovery procedures would be adhered to. Under the NAGPRA, section (3)(d)(1), it states that the discovering individual must notify the land manager in writing of such a discovery. If the discovery occurs in connection with an authorized use, the activity, which caused the discovery, is to cease and the materials are to be protected until the land manager can respond to the situation. Tribes, tribal organizations, possible lineal descendants, and individuals would then be contacted to determine cultural affiliation and subsequent transfer of custody procedures would begin.

  Effectiveness of Mitigation and Residual Effects: The Project could result in the exposure of Native American remains or artifacts. Implementation of Mitigation Measure 3.21.3.5-3 would prevent any impacts to these discoveries.

3.21.3.5.1 Residual Adverse Impacts

The Partial Backfill Alternative would result in a potential impact that would be significant. The implementation of the mitigation measures would allow for the scientific collection of data these sites may yield; however, the potential impact would remain an irreversible and irretrievable commitment of cultural resources.

3.21.3.6 Off-Site Transfer of Ore Concentrate for Processing Alternative

The surface disturbance footprint for the Off-Site Transfer of Ore Concentrate for Processing Alternative is approximately 20 acres less than under the Proposed Action Alternative due to the placement of a processing facility elsewhere; however, the same number of NRHP eligible and unevaluated sites would be impacted as noted above for the Proposed Action Alternative.

- **Impact 3.21.3.6-1:** Implementation of the Off-Site Transfer of Ore Concentrate for Processing Alternative would result in adverse effects to 83 officially eligible sites within the area of direct impacts. Outside of this area but within the Project APE, this action would also have indirect impacts on 180 officially eligible and one unevaluated site.

Significance of the Impact: These impacts are considered to be significant. However, indirect impacts to eligible and unevaluated cultural resources within the Project APE are not considered to be significant at this time.

- **Mitigation Measure 3.21.3.6-1:** EML would develop, and submit to the BLM for approval, a treatment plan to address the potential impacts to the 83 officially eligible sites within the Project APE. EML would implement the treatment plan prior to any surface disturbance of eligible sites within the area of direct impacts. This mitigation would be effective at reducing the impacts to cultural resources. All adverse effects under the NHPA and direct and indirect impacts under NEPA to known-eligible properties identified within the Project APE would be mitigated in accordance with the PA and the treatment plan prepared for the Project. Any previously unknown-eligible properties that may be discovered during construction activities would be mitigated in accordance with the PA. No residual adverse effects are anticipated, as all known-eligible sites would be mitigated in accordance with the PA and the treatment plan prepared for the Project.

- **Effectiveness of Mitigation and Residual Effects:** The implementation of the treatment plan under the mitigation measure would be effective at lessening the impact.

- **Impact 3.21.3.6-2:** Within the viewshed APE, 436 eligible and unevaluated historic and multi-component sites with a historic component would be indirectly impacted by reducing each site's integrity of setting as a result of the Proposed Action.

  Significance of the Impact: Within the viewshed APE, eligible and unevaluated cultural resources would be indirectly affected by the Project and have been previously impacted by past and present actions. The indirect impacts to eligible and unevaluated cultural resources within the viewshed APE **(outside the Project Area)** are not considered to be significant at this time.

  No mitigation is proposed for this impact; see Section 3.1.1 for a general discussion of significance and the development of mitigation measures.

Due to the area's extensive historic mining, ranching, and prehistoric/historic Native American habitation, there is a possibility for any surface disturbing activity to expose both nonnative and native gravesites.

- **Impact 3.21.3.6-3:** As a result of the Proposed Action, there could be an impact to Native American remains or artifacts.

  Significance of the Impact: This impact would be considered potentially significant; however, the impact would become less than significant after implementation of the mitigation measure described below.

- **Mitigation Measure 3.21.3.6-3:** In the case of inadvertent discovery of human remains, the BMDO Policy for the Discovery of Human Remains (**IM** NV-2010-001) – notification procedures - would be followed. If the remains are determined to be native, NAGPRA inadvertent discovery procedures would be adhered to. Under the NAGPRA, section (3)(d)(1), it states that the discovering individual must notify the land manager in writing of such a discovery. If the discovery occurs in connection with an authorized use,

the activity, which caused the discovery, is to cease and the materials are to be protected until the land manager can respond to the situation. Tribes, tribal organizations, possible lineal descendants, and individuals would then be contacted to determine cultural affiliation and subsequent transfer of custody procedures would begin.

Effectiveness of Mitigation and Residual Effects: The Project could result in the exposure of Native American remains or artifacts. Implementation of Mitigation Measure 3.21.3.6-3 would prevent any impacts to these discoveries.

3.21.3.6.1 Residual Adverse Impacts

The Off-Site Transfer of Ore Concentrate for Processing Alternative would result in a potential impact that would be significant. The implementation of the mitigation measures would allow for the scientific collection of data these sites may yield; however, the potential impact would remain an irreversible and irretrievable commitment of cultural resources.

3.21.3.7 Slower, Longer Project Alternative

Impacts to cultural resources from the Slower, Longer Project Alternative are expected to be similar to impacts from the Proposed Action.

- **Impact 3.21.3.7-1:** Implementation of the Slower, Longer Project Alternative would result in adverse effects to 83 officially eligible sites within the area of direct impacts. Outside of this area but within the Project APE, this action would also have indirect impacts on 180 officially eligible and one unevaluated site.

  Significance of the Impact: These impacts are considered to be significant. However, indirect impacts to eligible and unevaluated cultural resources within the Project APE are not considered to be significant at this time.

- **Mitigation Measure 3.21.3.7-1:** EML would develop, and submit to the BLM for approval, a treatment plan to address the potential impacts to the 83 officially eligible sites within the Project APE. EML would implement the treatment plan prior to any surface disturbance of eligible sites within the area of direct impacts. This mitigation would be effective at reducing the impacts to cultural resources. All adverse effects under the NHPA and direct and indirect impacts under NEPA to known-eligible properties identified within the Project APE would be mitigated in accordance with the PA and the treatment plan prepared for the Project. Any previously unknown-eligible properties that may be discovered during construction activities would be mitigated in accordance with the PA. Therefore, no mitigation or monitoring is proposed. No residual adverse effects are anticipated, as all known-eligible sites would be mitigated in accordance with the PA and the treatment plan prepared for the Project.

- **Effectiveness of Mitigation and Residual Effects:** The implementation of the treatment plan under the mitigation measure would be effective at lessening the impact.

- **Impact 3.21.3.7-2:** Within the viewshed APE, 436 eligible and unevaluated historic and multi-component sites with a historic component would be indirectly impacted by reducing each site's integrity of setting as a result of the Proposed Action.

Significance of the Impact: Within the viewshed APE, eligible and unevaluated cultural resources would be indirectly affected by the Project and have been previously impacted by past and present actions. The indirect impacts to eligible and unevaluated cultural resources within the viewshed APE **(outside the Project Area)** are not considered to be significant at this time.

No mitigation is proposed for this impact; see Section 3.1.1 for a general discussion of significance and the development of mitigation measures.

Due to the area's extensive historic mining, ranching, and prehistoric/historic Native American habitation, there is a possibility for any surface disturbing activity to expose both nonnative and native gravesites.

- **Impact 3.21.3.7-3:** As a result of the Proposed Action, there could be an impact to Native American remains or artifacts.

  Significance of the Impact: This impact would be considered potentially significant; however, the impact would become less than significant after implementation of the mitigation measure described below.

- **Mitigation Measure 3.21.3.7-3:** In the case of inadvertent discovery of human remains, the BMDO Policy for the Discovery of Human Remains (**IM** NV-2010-001) – notification procedures - would be followed. If the remains are determined to be native, NAGPRA inadvertent discovery procedures would be adhered to. Under the NAGPRA, section (3)(d)(1), it states that the discovering individual must notify the land manager in writing of such a discovery. If the discovery occurs in connection with an authorized use, the activity, which caused the discovery, is to cease and the materials are to be protected until the land manager can respond to the situation. Tribes, tribal organizations, possible lineal descendants, and individuals would then be contacted to determine cultural affiliation and subsequent transfer of custody procedures would begin.

  Effectiveness of Mitigation and Residual Effects: The Project could result in the exposure of Native American remains or artifacts. Implementation of Mitigation Measure 3.21.3.7-3 would prevent any impacts to these discoveries.

3.21.3.7.1 Residual Adverse Impacts

The Slower, Longer Project Alternative would result in a potential impact that would be significant. The implementation of the mitigation measures would allow for the scientific collection of data these sites may yield; however, the potential impact would remain an irreversible and irretrievable commitment of cultural resources.

3.22 Native American Traditional Values

3.22.1 Regulatory Framework

In accordance with the NHPA (P.L. 89-665), the NEPA (P.L. 91-190), the FLPMA (P. L.94-579), the AIRFA (P.L. 95-341), the NAGPRA (P.L. 101-601), ARPA (P.L. 96-95), Executive Order 13007 (Indian Sacred Sites, 1996), Executive Order 13175 (Consultation and Coordination

With Indian Tribal Governments, 2000), **and the Department of the Interior Policy on Consultation with Indian Tribes (IM 2012-062), and** the BLM must provide affected Tribes, organizations, and/or individuals an opportunity to participate in, comment, and consult on proposed actions that might impact resources, sites, or activities of concern. Through consultation initiation with area tribes, BLM must attempt to identify specific traditional/cultural/spiritual sites, activities, and resources and limit, reduce, or possibly eliminate any negative impacts. BLM also utilizes H-8120-1 General Procedural Guidance for Native American Consultation and National Register Bulletin 38, Guidelines for Evaluating and Documenting Traditional Cultural Properties (TCPs).

The NEPA requires the preparation of applicable environmental analysis (EA, EIS) for major federal land management actions that may significantly impact the quality of the human environment. CEQ regulations and guidance, specific to NEPA, require agencies to contact Indian Tribes and provide participation/comment opportunities for planning and decision making purposes. Section 40 CFR 1501.2(d)(2) states that Federal agencies must consult with tribes early in the NEPA process.

Consultation efforts with tribes under the auspices of NHPA seek to identify and evaluate these types of historic properties that contain traditional religious and cultural importance to their communities. In 1990, the NPS commissioned a publication to assist federal agencies in evaluating these types of historic properties for inclusion in the National Register. The ensuing National Register Bulletin 15 described these types of properties as TCPs, terms that are commonly used to categorize these historic properties.

By definition, a TCP is "one that is eligible for inclusion in the NRHP because of its association with cultural practices or beliefs of a living community that are (a) rooted in that community's history, and are (b) important in maintaining the continuing cultural identity of the community" (Parker and King 1998). TCP types can be, but are not limited to, ceremonial sites, habitation sites, traditional origin locations, resource collection areas for subsistence or ceremonial use (includes mineral, plant, and water sources), burial sites, trails, and ethnohistorical locations. To qualify for nomination to the National Register as a Historic Property, a TCP must be more than 50 years old, must be a place with definable boundaries, must retain integrity (condition, relationship to culture group), and must meet certain criteria as outlined in National Register Bulletin 15 (NPS 1990). Consultation with tribes should be conducted by federal agencies when identification, evaluation, and management of TCPs are being considered.

Under the FLPMA, tribal governments are provided the opportunity to comment on BLM land use plans to ensure consistency between the BLM's and the tribe's land use plans. FLPMA requires the BLM to consult with interested publics, including Indian Tribes, when writing land use plans. When tribal land/resource management plans/policies exist, the BLM would coordinate planning with these existing plans/policies. FLPMA sets policy to protect historic and archaeological sites. Federal land managers may have sufficient authority under FLPMA to issue a tribe a Special Use Permit to accommodate undisturbed ceremonial use for a certain amount of time.

AIRFA was passed in 1978 to establish a policy of Federal protection for traditional Native American religious freedoms and **the inherent right of freedom to believe, express, and exercise their traditional religions, including but not limited to access to religious sites, use and possession of sacred objects, and freedom to worship through ceremonials and**

traditional rights. The AIRFA requires that (1) the views of Indian leaders be obtained and considered when a proposed land use might conflict with traditional Indian religious beliefs or practices, and that (2) unnecessary interference with Indian religious practices be avoided during project implementation, but specifying that (3) conflict need not necessarily bar Federal agencies from adopting proposed land uses in the public interest. This is the only law that specifically requires consultation with the practitioner of the native religion, not political leaders or academicians.

NAGPRA requires consultation between federal agencies and tribal governments, traditional leaders, and lineal descendants to determine affiliation and disposition of the specific kinds of "cultural items" defined in the Act, which include Native American human remains, funerary objects, sacred objects, and objects of cultural patrimony. NAGPRA also provides provisions for inadvertent discoveries. The agency must consult with any affected tribe before issuing a permit to excavate or remove remains and associated funerary objects from public land.

ARPA established a permitting process prior to the intentional disturbance of traditional/cultural resource sites (testing and data recovery) on federal lands and requires notification of the appropriate tribes prior to approving a cultural resource use permit for excavation. Notification is contingent on a determination by the responsible federal land manager that a location of cultural or religious importance to the tribe may be harmed or destroyed as a result of excavation procedures.

EO 13007 (Indian Sacred Sites) obligates federal land managing agencies to work with Indian Tribes to help protect their basic rights to practice their religions at specific sites. If an agency is made aware of specific sites and associated activities well before the implementation of land uses, the BLM generally has the ability to accommodate tribal access to sacred sites and prevent physical damage. The major purpose of the EO is to improve communication between land managing agencies and tribes. The EO requires that sacred sites, any specific, discrete, narrowly delineated location on federal land, must be identified as such either by an Indian Tribe or by an Indian individual whom the tribe has named as the appropriately authorized representative of its religion. As stated in the EO, effects to the physical integrity of sacred sites are to be avoided "to the extent practicable, permitted by law, and not clearly inconsistent with essential agency functions."

EO 13175 was issued to "establish regular and meaningful consultation and collaboration with tribal officials in the development of federal policies that have tribal implications, to strengthen the U.S. government-to-government relationships with tribes, and to reduce the imposition of unfunded mandates upon Indian Tribes…" EO 13175 directs federal agencies to coordinate and consult with Indian tribal governments whose interests might be directly and substantially affected by activities on federally administered lands.

Although not regulation or law, the BLM also utilizes H-8120-1 (General Procedural Guidance for Native American Consultation) and National Register Bulletin 38 (Guidelines for Evaluating and Documenting Traditional Cultural Properties) in their consultation and evaluation of Native American issues.

3.22.2 Affected Environment

3.22.2.1 Study Methods

The study area for Native American Traditional Values is based on supporting documentation from an ethnographic assessment produced for the Project (Bengston 2007). The area includes Mount Hope in the northern portion of the study area and several springs including Garden Spring, McBrides Spring, Mount Hope Springs, and other unnamed springs. The southwestern corner of the study area includes a portion of Kobeh Valley. Information presented in the following sections is based on the results of the ethnographic assessment and the ongoing consultation process with participating tribes, organizations, and individuals for the Project. BLM coordination to date has included postal, phone, fax, and electronic correspondence, meetings, and various site visits. Some documents generated during the consultation process are included in Appendix **F** of this EIS. Certain sensitive information is on file at the MLFO and considered confidential.

3.22.2.2 Existing Conditions

3.22.2.2.1 Native American Consultation

In addition to the ongoing consultation process, MLFO utilized the services of an ethnographer to provide an additional vehicle for tribal participants to identify issues/concerns and be active in the Project.

MLFO consultation initiation/notification with federally recognized tribes and tribal organizations for the Project began in early 2007.

Current topics of discussion with the Duckwater Shoshone Tribe include, but are not limited to the following: Cultural Inventory; training/education opportunities; inadvertent discovery of human remains notification procedures (cautionary); use of tribal monitors/observers; Project-specific long-term monitoring, including CESA boundary; sensitive records confidentiality; identification of affected cultural sites/resources and development of impact lessening alternatives.

On February 6, 2007, the MLFO mailed certified consultation initiation letters (**see table in** Appendix **F**) to ten recognized tribal governments: Te-Moak Tribal Council; Elko Band Council; Wells Band Council; Battle Mountain Band Council; South Fork Band Council; Ely Shoshone Tribe; Duckwater Shoshone Tribe; Yomba Shoshone Tribe; Duck Valley Shoshone-Paiute Tribes; and the Timbisha Shoshone Tribe. Letters were also mailed to the Bureau of Indian Affairs, Eastern Nevada Agency, Western Shoshone Defense Project, and the Western Shoshone Committee of Duck Valley. The MLFO also provided the services of an ethnographer to assist the BLM and tribal participants in identifying any specific traditional/cultural site, activity, and resource concerns. A list of the number of follow-up contacts with each recognized tribal government and organizations is presented in Table 3.22-1. The Table in Appendix **F** provides the dates for these contacts.

On August 15, 2007, **the Southfork Band of the Te-Moak** Tribe issued a resolution in opposition of the Project citing the destruction of pine nut gathering areas, springs for the wildlife and bird life, and medicinal plants if the Project is implemented. One additional tribe,

the Bridgeport Indian Colony of California, mailed written comments on July 16, 2007, stating strong opposition to the Project. Site-specific information was not included in either letter, nor were there any request for further consultation or participation.

Table 3.22-1: Follow-up Contacts with Recognized Tribal Governments and Organizations

Recognized Tribal Government / Organizations	Number of Contacts
Battle Mountain Band Council	3
Duckwater Shoshone Tribe	56
Elko Band Council	4
Ely Shoshone Tribe	4
South Fork Band Council	5
Te-Moak Tribal Council	2
Wells Band Council	5
Yomba Shoshone Tribe	4

Of the initial tribal entities contacted, representatives and/or members of the Wells Band, South Fork Band, Timbisha Shoshone Tribe, Duckwater Shoshone Tribe, Ely Shoshone Tribe, and various other Western Shoshone individuals have participated throughout the process, with the Duckwater Shoshone Tribe being the most active. To date, the MLFO has conducted four field visits to the Project Area at the request of various tribal representatives, community members, and in particular the Duckwater Shoshone Tribe. Based on requests from the Duckwater Shoshone Tribe to review the cultural resource report for the Project, the MLFO has **entered into** a Project-specific MOU for information sharing and tribal monitoring with the Duckwater Shoshone Tribe.

On March 21, 2008, the MLFO mailed a draft PA for cultural resources on to the Te-Moak Tribal Council, Ely Shoshone Tribe, Duckwater Shoshone Tribe, and Yomba Shoshone Tribe. All tribes declined to be signatories on the PA. Of all the contacted, interested, and participating tribal entities, the Duckwater Shoshone Tribe has remained the most active.

3.22.2.2.2 Mount Hope Ethnographic Assessment

In 2007, MLFO also produced an ethnographic assessment of the Project Area and surrounding areas to determine the presence of previously recorded traditional cultural places, document contemporary tribal concerns, and provide recommendations for mitigation of culturally significant places identified by tribal representatives. Contact was made by telephone, mail, e-mail, faxes, and field visits (two) to the Project Area. Results of the assessment showed that the study area is culturally significant to the Western Shoshone; however, no specific places of cultural or religious importance were identified within the study area during the field tours. Three culturally significant places (Kobeh Valley, Sulphur Springs Range, and Roberts Mountains) were identified during the ethnographic literature review, but tribal representatives did not provide specific information concerning any of these areas during the field visits. The following concerns were voiced:

- Potential destruction of the existing piñon trees (no other species of concern were identified);
- Potential effects on the water, including potential destruction of springs;
- Potential effects on the wildlife in the area;

- Potential ecological effects of the removal of Mount Hope if mining is allowed to occur; and
- Air quality, particularly with respect to dust.

3.22.2.2.3 EML Communication with Native Americans

EML, between 2007 and 2010, has had a number of contacts and communications with the Duckwater Shoshone Tribe. The following is a listing of those contacts. This list includes coordination between EML and the Tribe and does not constitute consultation, which is a formal government to government process.

- EML representatives (Brian Musser) at Mount Hope with Duckwater July 2007.
- EML representatives (Zach Spencer and Brian Musser) at Duckwater Halloween October 31, 2007.
- EML representatives (Zach Spencer and George Blankenship) at Duckwater December 2007.
- EML representatives (Zach Spencer and Elaine Barkdull-Spencer) at Duckwater Annual Festival 2008.
- EML representatives (Zach and Pat Rogers) tour of Mount Hope July 15, 2008.
- EML representatives (Zach Spencer) at Duckwater Health Fair September 18, 2008.
- EML representatives (Zach Spencer and Pat Rogers) tour of Mount. Hope August 18, 2009.
- EML representatives (Zach Spencer, Pat Rogers, and Tim Arnold) at Duckwater October 2009.
- EML representatives (Zach Spencer and Kevin Kinsella) at Duckwater Halloween October 30, 2009.
- EML representatives (Zach Spencer, Lee Shumway, and Bill Albert) lunch with Gonnie Mendez in Elko April 2010.
- EML representatives (Zach Spencer, Tim Arnold, and Carrie Dubray) at Duckwater May 2010.
- EML representatives (Zach Spencer, Pat Rogers, Kevin Kinsella) et al. at Duckwater Annual Festival June 2010.
- EML representatives (Zach Spencer, Pat Rogers, Tim Arnold) September 2010.
- EML representatives (Zach Spencer and Lee Shumway) breakfast meeting with Gonnie Mendez in Elko October 2010.

3.22.3 Environmental Consequences and Mitigation Measures

3.22.3.1 Significance Criteria

The AIRFA and EO 13007 apply to sites used for religious ceremonies or sacred sites. However, consultation is ongoing and the BLM acknowledges that locations of nut producing pine tree stands may vary from year to year. These statutes do not specify criteria for determining whether a project would affect such places; however, for purposes of the analysis in the EIS, with respect to sites used for religious ceremonies as referred to in the AIRFA and to sacred sites as referred to in EO 13007, a project effect is considered significant if it restricts access to such sites, in some way impedes the exercise of ceremonies at such sites, or affects the physical integrity of such sites.

A site within an avoidance area (a Native American identified area of concern) would be considered susceptible to a significant effect under one (or more) of the following Project-related situations:

- Access is reduced or lost (EO 13007);
- Physical destruction or disturbance (EO 13007, NHPA);
- Alteration of setting (NHPA);
- Introduction of visual, noise, or atmospheric elements that are out of character (NHPA); or
- Area is somehow rendered unsuitable for traditional or religious use (EO 13007).

Effects on National Register eligible properties including properties that are eligible because of traditional religious or cultural values, are assessed in terms of criteria of adverse effects, listed in regulations implementing Section 106 of the NHPA, at 36 CFR 800.9. The effects include the following that are most applicable to TCPs:

- Destruction or alteration of all or part of a property;
- Isolation from or alteration of surrounding environment; or
- Introduction of visual, audible, or atmospheric elements that are out of character with a property or alter its setting.

3.22.3.2 Assessment Methodology

The Proposed Action and the alternatives were compared with the information developed in the ethnographic assessment and Native American Consultation process. The effects are determined to be significant or not significant based on the applicable significance criteria listed in Section 3.22.3.1.

3.22.3.3 Proposed Action

Although tribal participants have not made any formal TCPs designations or identified specific locations of religious or spiritual activity within or in close proximity to the Project Area, general concerns have been raised throughout the consultation process, such as: impacts to and loss of pine tree stands; impacts to water sources; disturbance of archaeological sites (prehistoric and ethno-historic); potential to encounter gravesites; loss of edible/medicinal plant species; impacts to wildlife; and participation in reclamation or "healing the Earth." Often, spiritual and/or religious beliefs/practices and certain resource impacts can be difficult if not impossible to mitigate. Therefore, at this time, the BLM is currently coordinating with those participating tribes and EML to identify impact lessening procedures/techniques, possible avoidance measures, and potential off and on site mitigation measures.

Mitigation of cultural resources sites, specific to archaeology, via data recovery (surface collecting and excavation), is often considered an adverse impact to tribes since they consider "artifact" removal to be erasing the evidence of the existence of their ancestors. Discussions to date have focused on tribal monitoring and observation during any data recovery and new surface disturbance; cultural resources and archaeological processes training and education; and identifying opportunities for youth and elder participation.

Impacts to pine trees and other plant species within the Project Area would occur. However, the BLM and the participating tribes are currently identifying possible species to be used for future reclamation purposes. Also, opportunities for off-site mitigation are also being made available, such as enhancing, preserving, and/or introducing traditional/cultural use plant species in other areas within the CESA boundary. Wood product use discussions are also occurring, such as tribal member and elder heating assistance program fire wood use.

3.22.3.3.1 Inadvertent Discoveries

Due to the area's extensive historic mining, ranching, and prehistoric/historic Native American habitation, there is a possibility for any surface disturbing activity to expose both nonnative and native gravesites.

- **Impact 3.22.3.3-1:** As a result of the Proposed Action, there could be an impact to Native American remains or artifacts.

  Significance of the Impact: This impact would be considered potentially significant; however, the impact would become less than significant after implementation of the mitigation measure described below.

- **Mitigation Measure 3.22.3.3-1:** In the case of inadvertent discovery of human remains, the BMDO Policy for the Discovery of Human Remains (**IM** NV-2010-001) – notification procedures - would be followed. If the remains are determined to be native, NAGPRA inadvertent discovery procedures would be adhered to. Under the NAGPRA, section (3)(d)(1), it states that the discovering individual must notify the land manager in writing of such a discovery. If the discovery occurs in connection with an authorized use, the activity, which caused the discovery, is to cease and the materials are to be protected until the land manager can respond to the situation. Tribes, tribal organizations, possible lineal descendants, and individuals would then be contacted to determine cultural affiliation and subsequent transfer of custody procedures would begin.

  Effectiveness of Mitigation and Residual Effects: The Project could result in the exposure of Native American remains or artifacts. Implementation of Mitigation Measure 3.22.3.3-1 would prevent any impacts to these discoveries.

3.22.3.3.2 Impacts to Pine Nut Gathering Locations

To date, the MLFO consultation effort has not produced specific locational information concerning pine nut gathering locations within the Project Area. During field tours for the ethnographic assessment, Te-Moak Tribe representatives stated that the area north of Mount Hope was one of the last pine nut gathering areas still accessible to their families. If replanting of piñon trees occurs as a mitigation measure for the Project, representatives stated that it would be many years before the trees would bear pine nuts. The ethnographic assessment literature review conducted as part of the Mount Hope ethnographic assessment documented the Sulphur Springs Range and Roberts Mountains as being two locations that were historically accessed by Western Shoshone people for pine nut gathering and other resource utilization. Historic Shoshone camps were documented in these ranges but exact locations are unknown.

Development of the Proposed Action would result in the removal of approximately 3,**296** acres of piñon-juniper habitat. The return of piñon-juniper habitat to these areas would likely not occur for at least 75 to 100 years, if at all. Within the Project Area, approximately 3**4** percent of the piñon-juniper habitat would be directly impacted. In addition, 4,600 acres of piñon-juniper habitat not directly affected would not be available for pine nut gathering for the duration of the Project because that habitat would be within the Project fence boundary. To the south and north of the Project Area there is extensive piñon-juniper habitat, and within the BMDO planning area there are approximately 2,124,063 acres of piñon-juniper habitat.

- **Impact 3.22.3.3-2:** The Proposed Action would remove 3,**296** acres of piñon-juniper habitat, which includes piñon trees that would then not be available for pine nut gathering.

  Significance of the Impact: The impact does not meet the significance criteria listed in Section 3.22.3.1 since there are no identified avoidance areas.

  No mitigation is proposed for this impact; see Section 3.1.1 for a general discussion of significance and the development of mitigation measures.

- **Impact 3.22.3.3-3:** The Proposed Action would restrict 4,600 acres of piñon-juniper habitat within the Project boundary fence, which would then not be available for pine nut gathering for the duration of the Project.

  Significance of the Impact: The impact does not meet the significance criteria listed in Section 3.22.3.1 since there are no identified avoidance areas. However, the following mitigation measure is proposed.

- **Mitigation Measure 3.22.3.3-3:** In years of greater than average cone production, as determined by the BLM **and requested by the tribes**, EML would make areas within the Project Area fence available for Native American pine nut gathering, subject to all applicable MSHA requirements.

3.22.3.3.3 Impacts to Water Resources

The Mount Hope ethnographic assessment documented environmental concerns including impacts to water resources; however, specific locations of environmental concerns have not been identified during the course of consultation for the Project. Western Shoshone people consider water resources to be sacred (Bengston 2007). Impacts to the water sources impact all other resources as well as the animals that utilize the water and plant foods for survival. Once the water is gone, then life would be gone, according to Shoshone representatives. Water sources, such as hot springs are also used for ceremonial purposes, although these types of sites have not yet been identified during the course of consultation.

As outlined in Section 3.2.3.3, the Proposed Action could impact 22 springs, 7.7 miles of perennial streams (Roberts Creek and Henderson Creek), **and 61.4 acres of riparian areas associated with these creeks**. This effect would principally occur in the Roberts Mountains. **Table 3.2-8 outlines the springs that would be affected.** As outlined in Section 3.11.3.3, the potential decline in the water table and potential decrease in flows in the springs and perennial drainages, may result in a change in the riparian and wetland vegetation. This potential indirect

effect would cover approximately four acres of riparian vegetation associated with springs and **61.4** acres associated with the 7.7 miles of perennial streams.

- **Impact 3.22.3.3-4:** The Proposed Action could impact 22 springs, 7.7 miles of perennial streams (Roberts Creek and Henderson Creek), **and 61.4 acres of riparian areas associated with these creeks,** which are, in a general nature, considered sacred by Native Americans.

  Significance of the Impact: Even though water has been identified through Native American Consultation by the BLM as an important issue to the Western Shoshone, none of the springs or perennial streams that could potentially be impacted by the Proposed Action have been specifically identified as traditional or religious use areas. Therefore, the Proposed Action impact does not meet the significance criteria listed in Section 3.22.3.1, and no resource specific mitigation measures were determined necessary. Mitigation for impacts to water resources have been identified in Section 3.2.3.3, which would have the potential of reducing some of the impacts.

3.22.3.3.4 Impacts to Cultural Sites

As outlined in Table 3.21-1, there are 100 prehistoric sites within the area of direct effect for the Proposed Action. Thirty-eight of the 100 sites are considered as eligible for the NRHP. Even though EML has identified that eligible sites would be treated prior to their removal and the initiation of Project construction, all 100 sites would be removed from the landscape as part of the Proposed Action. Since Native Americans view the removal of sites from the landscape as a method of "wiping their cultural footprint from the land," the removal of any sites is of concern to the Native Americans.

- **Impact 3.22.3.3-5:** The Proposed Action could impact 100 prehistoric cultural sites by removing them from the landscape.

  Significance of the Impact: The removal of any sites from the landscape is considered significant by the Native Americans. Therefore this impact is significant. As outlined in Section 3.21, those sites that are eligible for the NRHP would be treated prior to Project activities; however, this does not reduce the impact to Native Americans. Although prehistoric and ethnohistoric sites and associated artifacts exist within the general area of the proposed expansion, no Native American traditional use sites, activities, or associated resources are known to exist in proposed disturbance areas. Therefore, no mitigation measures specific to contemporary tribal uses are proposed.

  However, for those archaeological sites (prehistoric and historic) scheduled or proposed for treatment (i.e., data recovery/excavation), tribal participants would be given the opportunity to monitor the data recovery efforts, and provide interpretation of any artifacts or features discovered during the process. In addition, the BLM or a contracted Cultural Resources Specialist/Archaeologist, accompanied by designated tribal representatives and/or descendants, may conduct periodical or stipulated monitoring of sites scheduled for avoidance before, during, and after Project construction. Monitoring of identified archaeological sites within and in close proximity to proposed disturbance areas could occur throughout the life of the Project to ensure agreed upon avoidance.

3.22.3.3.5 Residual Adverse Impacts

The Proposed Action would have an unavoidable impact to pine nut gathering and potentially to springs and perennial streams in the vicinity of the Project. The Proposed Action would have an unavoidable and adverse impact to cultural sites within the footprint of the Project facilities.

3.22.3.4 No Action Alternative

3.22.3.4.1 Inadvertent Discoveries

The No Action Alternative is not expected to affect Native American remains or artifacts.

3.22.3.4.2 Impacts to Pine Nut Gathering Locations

The No Action Alternative would have a very limited impact on pine nut gathering, due to the removal of a small and undetermined number of acres of piñon-juniper habitat within the Project Area for road building.

- **Impact 3.22.3.4-1:** The No Action Alternative Action would remove a small and undetermined number of acres of piñon-juniper habitat, which would then not be available for pine nut gathering.

  Significance of the Impact: The impact does not meet the significance criteria listed in Section 3.22.3.1.

3.22.3.4.3 Impacts to Water Resources

The No Action Alternative would not affect springs or perennial streams.

3.22.3.4.4 Impacts to Cultural Sites

The No Action Alternative would not affect cultural sites.

3.22.3.4.5 Residual Adverse Impacts

The No Action Alternative would have an unavoidable impact to pine nut gathering.

3.22.3.5 Partial Backfill Alternative

3.22.3.5.1 Inadvertent Discoveries

- **Impact 3.22.3.5-1:** As a result of the Partial Backfill Alternative, there could be an impact to Native American remains or artifacts.

  Significance of the Impact: This impact would be considered potentially significant; however, the impact would become less than significant after implementation of the mitigation measure described below.

- **Mitigation Measure 3.22.3.5-1:** In the case of inadvertent discovery of human remains, the BMDO Policy for the Discovery of Human Remains (**IM** NV-2010-001) – notification procedures - would be followed. If the remains are determined to be native, NAGPRA inadvertent discovery procedures would be adhered to. Under the NAGPRA, section (3)(d)(1), it states that the discovering individual must notify the land manager in writing of such a discovery. If the discovery occurs in connection with an authorized use, the activity, which caused the discovery, is to cease and the materials are to be protected until the land manager can respond to the situation. Tribes, tribal organizations, possible lineal descendants, and individuals would then be contacted to determine cultural affiliation and subsequent transfer of custody procedures would begin.

  Effectiveness of Mitigation and Residual Effects: The Project could result in the exposure of Native American remains or artifacts. Implementation of Mitigation Measure 3.22.3.5-1 would prevent any impacts to these discoveries.

3.22.3.5.2 Impacts to Pine Nut Gathering Locations

To date, the MLFO consultation effort has not produced specific locational information concerning pine nut gathering locations within the Project Area. Impacts to pine nut gathering locations from the Partial Backfill Alternative would be the same as under the Proposed Action. If replanting of piñon trees occurs as a mitigation measure for the Project, representatives stated that it would be many years before the trees would bear pine nuts. The ethnographic assessment literature review conducted as part of the Mount Hope ethnographic assessment documented the Sulphur Springs Range and Roberts Mountains as being two locations that were historically accessed by Western Shoshone people for pine nut gathering and other resource exploitation. Historic Shoshone camps were documented in these ranges but exact locations are unknown.

Development of the Partial Backfill Alternative would result in the removal of approximately 3,**296** acres of piñon-juniper habitat. The return of piñon-juniper habitat to these acres would likely not occur for at least 75 to 100 years, if at all. Within the Project Area, approximately **34** percent of the piñon-juniper habitat would be directly impacted. In addition, 4,600 acres of piñon-juniper habitat not directly affected would not be available for pine nut gathering for the duration of the Project because that habitat would be within the Project fence boundary. To the south and north of the Project Area there is extensive piñon-juniper habitat.

- **Impact 3.22.3.5-2:** The Partial Backfill Alternative would remove 3,**296** acres of piñon-juniper habitat, which would then not be available for pine nut gathering.

  Significance of the Impact: The impact does not meet the significance criteria listed in Section 3.22.3.1 since there are no identified avoidance areas.

  No mitigation is proposed for this impact; see Section 3.1.1 for a general discussion of significance and the development of mitigation measures.

- **Impact 3.22.3.5-3:** The Partial Backfill Project Alternative would restrict 4,600 acres of piñon-juniper habitat within the Project boundary fence, which would then not be available for pine nut gathering for the duration of the Project.

Significance of the Impact: The impact does not meet the significance criteria listed in Section 3.22.3.1 since there are no identified avoidance areas. However, the following mitigation measure is proposed.

- **Mitigation Measure 3.22.3.5-3:** In years of greater than average cone production, as determined by the BLM **and requested by the tribes**, EML would make areas within the Project Area fence available for Native American pine nut gathering, subject to all applicable MSHA requirements.

3.22.3.5.3 Impacts to Water Resources

The Mount Hope ethnographic assessment documented environmental concerns including impacts to water resources, but specific locations have not been identified during the course of consultation for the Project. Western Shoshone people consider water resources to be sacred (Bengston 2007). Impacts to water resources from the Partial Backfill Alternative would be the same as under the Proposed Action. Once the water is gone, then life would be gone, according to Shoshone representatives. Water sources, such as hot springs are also used for ceremonial purposes, although these types of sites have not yet been identified during the course of consultation.

As outlined in Section 3.2.3.3, the Proposed Action could impact 22 springs, 7.7 miles of perennial streams (Roberts Creek and Henderson Creek), **and 61.4 acres of riparian areas associated with these creeks**. This effect would principally occur on Roberts Mountain. **Table 3.2-8 outlines the springs that would be affected.** As outlined in Section 3.11.3.3, the potential decline in the water table and potential decrease in flows in the springs and perennial drainages, may result in a change in the riparian and wetland vegetation. This potential indirect effect would cover approximately four acres of riparian vegetation associated with springs and an undetermined number of acres associated with the 7.7 miles of perennial streams.

- **Impact 3.22.3.5-4:** The Partial Backfill Alternative could impact 22 springs, 7.7 miles of perennial streams (Roberts Creek and Henderson Creek), **and 61.4 acres of riparian areas associated with these creeks,** which are, in a general nature, considered sacred by Native Americans.

  Significance of the Impact: Even though water has been identified through Native American Consultation by the BLM as an important issue to the Western Shoshone, none of the springs or perennial streams that could potentially be impacted by the Proposed Action have been specifically identified as traditional or religious use areas. Therefore, the Partial Backfill Alternative impact does not meet the significance criteria listed in Section 3.22.3.1, and no resource specific mitigation measures were proposed. Mitigation for impacts to water resources have been identified in Section 3.2.3.5, which would have the potential of reducing some of the impacts.

3.22.3.5.4 Impacts to Cultural Sites

As outlined in Table 3.21-1, there are 100 prehistoric sites within the area of direct effect for the Partial Backfill Alternative. Thirty-eight of the 100 sites are considered as eligible for the NRHP. Even though EML has identified that eligible sites would be treated prior to their removal and the initiation of Project construction, all 100 sites would be removed from the landscape as part

of the Partial Backfill Alternative. Since Native Americans view the removal of sites from the landscape as a method of "wiping their cultural footprint from the land", the removal of any sites is of concern to the Native Americans.

- **Impact 3.22.3.5-5:** The Partial Backfill Alternative could impact 100 prehistoric cultural sites by removing them from the landscape.

  Significance of the Impact: The removal of any sites from the landscape is considered significant by the Native Americans. Therefore this impact is significant. As outlined in Section 3.21, those sites that are eligible for the NRHP would be treated prior to Project activities; however, this does not reduce the impact to Native Americans. Although prehistoric and ethnohistoric sites and associated artifacts exist within the general area of the proposed expansion, no Native American traditional use sites, activities, or associated resources are known to exist in proposed disturbance areas. Therefore, no mitigation measures specific to contemporary tribal uses are proposed.

  However, for those archaeological sites (prehistoric and historic) scheduled or proposed for treatment (i.e., data recovery/excavation), tribal participants would be given the opportunity to monitor the data recovery efforts, and provide interpretation of any artifacts or features discovered during the process. In addition, the BLM or a contracted Cultural Resources Specialist/Archaeologist, accompanied by designated tribal representatives and/or descendants, may conduct periodical or stipulated monitoring of sites scheduled for avoidance before, during, and after Project construction. Monitoring of identified archaeological sites within and in close proximity to proposed disturbance areas could occur throughout the life of the Project to ensure agreed upon avoidance.

3.22.3.5.5 Residual Adverse Impacts

The Partial Backfill Alternative would have an unavoidable impact to pine nut gathering and potentially to springs and perennial streams in the vicinity of the Project. The Partial Backfill Alternative would have an unavoidable and adverse impact to cultural sites within the footprint of the Project facilities.

3.22.3.6 Off-Site Transfer of Ore Concentrate for Processing Alternative

3.22.3.6.1 Inadvertent Discoveries

- **Impact 3.22.3.6-1:** As a result of the Off-Site Transfer of Ore Concentrate for Processing Alternative, there could be an impact to Native American remains or artifacts.

  Significance of the Impact: This impact would be considered potentially significant; however, the impact would become less than significant after implementation of the mitigation measure described below.

- **Mitigation Measure 3.22.3.6-1:** In the case of inadvertent discovery of human remains, the BMDO Policy for the Discovery of Human Remains (**IM** NV-2010-001) – notification procedures - would be followed. If the remains are determined to be native, NAGPRA inadvertent discovery procedures would be adhered to. Under the NAGPRA, section (3)(d)(1), it states that the discovering individual must notify the land manager in

writing of such a discovery. If the discovery occurs in connection with an authorized use, the activity, which caused the discovery, is to cease and the materials are to be protected until the land manager can respond to the situation. Tribes, tribal organizations, possible lineal descendants, and individuals would then be contacted to determine cultural affiliation and subsequent transfer of custody procedures would begin.

Effectiveness of Mitigation and Residual Effects: The Project could result in the exposure of Native American remains or artifacts. Implementation of Mitigation Measure 3.22.3.6-1 would prevent any impacts to these discoveries.

3.22.3.6.2 Impacts to Pine Nut Gathering Locations

To date, the MLFO consultation effort has not produced specific locational information concerning pine nut gathering locations within the Project Area. During field tours for the ethnographic assessment, Te-Moak Tribe representatives stated that the area north of Mount Hope was one of the last pine nut gathering areas still accessible to their families. If replanting of piñon trees occurs as a mitigation measure for the Project, representatives stated that it would be many years before the trees would bear pine nuts. The ethnographic assessment literature review conducted as part of the Mount Hope ethnographic assessment documented the Sulphur Springs Range and Roberts Mountains as being two locations that were historically accessed by Western Shoshone people for pine nut gathering and other resource exploitation. Historic Shoshone camps were documented in these ranges but exact locations are unknown.

Development of the Off-Site Transfer of Ore Concentrate for Processing Alternative would result in the removal of approximately 3,**296** acres of piñon-juniper or piñon habitat. The return of piñon-juniper habitat to these acres would likely not occur for at least 75 to 100 years, if at all. Within the Project Area, approximately 34 percent of the piñon-juniper habitat would be directly impacted. In addition, 4,600 acres of piñon-juniper habitat not directly affected would not be available for pine nut gathering for the duration of the Project because that habitat would be within the Project fence boundary. To the south and north of the Project Area there is extensive piñon-juniper habitat.

- **Impact 3.22.3.6-2:** The Off-Site Transfer of Ore Concentrate for Processing Alternative would remove 3,**296** acres of piñon-juniper habitat, which would then not be available for pine nut gathering.

  Significance of the Impact: The impact does not meet the significance criteria listed in Section 3.22.3.1 since there are no identified avoidance areas.

  No mitigation is proposed for this impact; see Section 3.1.1 for a general discussion of significance and the development of mitigation measures.

- **Impact 3.22.3.6-3:** The Off-Site Transfer of Ore Concentrate for Processing Alternative would restrict 4,600 acres of piñon-juniper habitat within the Project boundary fence, which would then not be available for pine nut gathering for the duration of the Project.

  Significance of the Impact: The impact does not meet the significance criteria listed in Section 3.22.3.1 since there are no identified avoidance areas. However, the following mitigation measure is proposed.

- **Mitigation Measure 3.22.3.6-3:** In years of greater than average cone production, as determined by the BLM **and requested by the tribes**, EML would make areas within the Project Area fence available for Native American pine nut gathering, subject to all applicable MSHA requirements.

3.22.3.6.3 Impacts to Water Resources

The Mount Hope ethnographic assessment documented environmental concerns including impacts to water resources, but specific locations have not been identified during the course of consultation for the Project. Western Shoshone people consider water resources to be sacred (Bengston 2007). Impacts to the water sources impact all other resources as well as the animals that utilize the water and plant foods for survival. Once the water is gone, then life would be gone, according to Shoshone representatives. Water sources, such as hot springs are also used for ceremonial purposes, although these types of sites have not yet been identified during the course of consultation.

As outlined in Section 3.2.3.3, the Proposed Action could impact 22 springs, 7.7 miles of perennial streams (Roberts Creek and Henderson Creek), **and 61.4 acres of riparian areas associated with these creeks**. This effect would principally occur in the Roberts Mountains. **Table 3.2-8 outlines the springs that would be affected.** As outlined in Section 3.11.3.3, the potential decline in the water table and potential decrease in flows in the springs and perennial drainages, may result in a change in the riparian and wetland vegetation. This potential indirect effect would cover approximately four acres of riparian vegetation associated with springs and **61.4** acres associated with the 7.7 miles of perennial streams.

- **Impact 3.22.3.6-4:** The Off-Site Transfer of Ore Concentrate for Processing Alternative could impact 22 springs, 7.7 miles of perennial streams (Roberts Creek and Henderson Creek), **and 61.4 acres of riparian areas associated with these creeks,** which are, in a general nature, considered sacred by Native Americans.

  Significance of the Impact: Even though water has been identified through Native American Consultation by the BLM as an important issue to the Western Shoshone, none of the springs or perennial streams that could potentially be impacted by the Proposed Action have been specifically identified as traditional or religious use areas. Therefore, the Off-Site Transfer of Ore Concentrate for Processing Alternative impact does not meet the significance criteria listed in Section 3.22.3.1, and no resource specific mitigation measures were determined necessary. Mitigation for impacts to water resources have been identified in Section 3.2.3.6, which would have the potential of reducing some of the impacts.

3.22.3.6.4 Impacts to Cultural Sites

As outlined in Table 3.21-1, there are 100 prehistoric sites within the area of direct effect for the Off-Site Transfer of Ore Concentrate for Processing Alternative. 38 of the 100 sites are considered as eligible for the NRHP. Even though EML has identified that eligible sites would be treated prior to their removal and the initiation of Project construction, all 100 sites would be removed from the landscape as part of the Off-Site Transfer of Ore Concentrate for Processing Alternative. Since Native Americans view the removal of sites from the landscape as a method of

"wiping their cultural footprint from the land", the removal of any sites is of concern to the Native Americans.

- **Impact 3.22.3.6-5:** The Off-Site Transfer of Ore Concentrate for Processing Alternative could impact 100 prehistoric cultural sites by removing them from the landscape.

  Significance of the Impact: The removal of any sites from the landscape is considered significant by the Native Americans. Therefore this impact is significant. As outlined in Section 3.21, those sites that are eligible for the NRHP would be treated prior to Project activities; however, this does not reduce the impact to Native Americans. Although prehistoric and ethnohistoric sites and associated artifacts exist within the general area of the proposed expansion, no Native American traditional use sites, activities, or associated resources are known to exist in proposed disturbance areas. Therefore, no mitigation measures specific to contemporary tribal uses is proposed.

  However, for those archaeological sites (prehistoric and historic) scheduled or proposed for treatment (i.e., data recovery/excavation), tribal participants would be given the opportunity to monitor the data recovery efforts, and provide interpretation of any artifacts or features discovered during the process. In addition, the BLM or a contracted Cultural Resources Specialist/Archaeologist, accompanied by designated tribal representatives and/or descendants, may conduct periodical or stipulated monitoring of sites scheduled for avoidance before, during, and after project construction. Monitoring of identified archaeological sites within and in close proximity to proposed disturbance areas could occur throughout the life of the project to ensure agreed upon avoidance.

3.22.3.6.5 Residual Adverse Impacts

The Off-Site Transfer of Concentrate for Processing Alternative would have an unavoidable, but not adverse impact to pine nut gathering and potentially to springs and perennial streams in the vicinity of the Project. The Off-Site Transfer of Ore Concentrate for Processing Alternative would have an unavoidable and adverse impact to cultural sites within the footprint of the Project facilities.

3.22.3.7 Slower, Longer Project Alternative

3.22.3.7.1 Inadvertent Discoveries

- **Impact 3.22.3.7-1:** As a result of the Slower, Longer Project Alternative, there could be an impact to Native American remains or artifacts.

  Significance of the Impact: This impact would be considered potentially significant; however, the impact would become less than significant after implementation of the mitigation measure described below.

- **Mitigation Measure 3.22.3.7-1:** In the case of inadvertent discovery of human remains, the BMDO Policy for the Discovery of Human Remains (**IM** NV-2010-001) – notification procedures - would be followed. If the remains are determined to be native, NAGPRA inadvertent discovery procedures would be adhered to. Under the NAGPRA, section (3)(d)(1), it states that the discovering individual must notify the land manager in

writing of such a discovery. If the discovery occurs in connection with an authorized use, the activity, which caused the discovery, is to cease and the materials are to be protected until the land manager can respond to the situation. Tribes, tribal organizations, possible lineal descendants, and individuals would then be contacted to determine cultural affiliation and subsequent transfer of custody procedures would begin.

Effectiveness of Mitigation and Residual Effects: The Project could result in the exposure of Native American remains or artifacts. Implementation of Mitigation Measure 3.22.3.7-1 would prevent any impacts to these discoveries.

3.22.3.7.2 Impacts to Pine Nut Gathering Locations

To date, the MLFO consultation effort has not produced specific locational information concerning pine nut gathering locations within the Project Area. Impacts to pine nut gathering locations from the Slower, Longer Project Alternative would be the same as under the Proposed Action. If replanting of piñon trees occurs as a mitigation measure for the Project, representatives stated that it would be many years before the trees would bear pine nuts. The ethnographic assessment literature review conducted as part of the Mount Hope ethnographic assessment documented the Sulphur Springs Range and Roberts Mountains as being two locations that were historically accessed by Western Shoshone people for pine nut gathering and other resource exploitation. Historic Shoshone camps were documented in these ranges but exact locations are unknown.

Development of the Slower, Longer Project Alternative would result in the removal of approximately 3,**296** acres of piñon-juniper habitat. The return of piñon-juniper habitat to these acres would likely not occur for at least 75 to 100 years, if at all. Within the Project Area, approximately 3**4** percent of the piñon-juniper habitat would be directly impacted. In addition, 4,600 acres of piñon-juniper habitat not directly affected would not be available for pine nut gathering for the duration of the Project because that habitat would be within the Project fence boundary. To the south and north of the Project Area there is extensive piñon-juniper habitat.

- **Impact 3.22.3.7-2:** The Slower, Longer Project Alternative would remove 3,**296** acres of piñon-juniper habitat, which would then not be available for pine nut gathering.

  Significance of the Impact: The impact does not meet the significance criteria listed in Section 3.22.3.1 since there are no identified avoidance areas.

  No mitigation is proposed for this impact; see Section 3.1.1 for a general discussion of significance and the development of mitigation measures.

- **Impact 3.22.3.7-3:** The Slower, Longer Project Alternative would restrict 4,600 acres of piñon-juniper habitat within the Project boundary fence, which would then not be available for pine nut gathering for the duration of the Project.

  Significance of the Impact: The impact does not meet the significance criteria listed in Section 3.22.3.1 since there are no identified avoidance areas. However, the following mitigation measure is proposed.

- **Mitigation Measure 3.22.3.7-3:** In years of greater than average cone production, as determined by the BLM **and requested by the tribes**, EML would make areas within the Project Area fence available for Native American pine nut gathering, subject to all applicable MSHA requirements.

3.22.3.7.3 Impacts to Water Resources

The Mount Hope ethnographic assessment documented environmental concerns including impacts to water resources, but specific locations have not been identified during the course of consultation for the Project. Western Shoshone people consider water resources to be sacred (Bengston 2007). Impacts to water resources from the Slower, Longer Project Alternative would be the same as under the Proposed Action. Once the water is gone, then life would be gone, according to Shoshone representatives. Water sources, such as hot springs are also used for ceremonial purposes, although these types of sites have not yet been identified during the course of consultation.

As outlined in Section 3.2.3.3, the Proposed Action could impact 22 springs, 7.7 miles of perennial streams (Roberts Creek and Henderson Creek), **and 61.4 acres of riparian areas associated with these creeks**. This effect would principally occur in the Roberts Mountains. **Table 3.2-8 outlines the springs that would be affected.** As outlined in Section 3.11.3.3, the potential decline in the water table and potential decrease in flows in the springs and perennial drainages, may result in a change in the riparian and wetland vegetation. This potential indirect effect would cover approximately four acres or riparian vegetation associated with springs and **61.4** acres associated with the 7.7 miles of perennial streams.

- **Impact 3.22.3.7-4:** The Slower, Longer Project Alternative could impact **29** springs, 7.7 miles of perennial streams (Roberts Creek and Henderson Creek), **and 61.4 acres of riparian areas associated with these creeks,** which are, in a general nature, considered sacred by Native Americans.

  Significance of the Impact: Even though water has been identified through Native American Consultation by the BLM as an important issue to the Western Shoshone, none of the springs or perennial streams that could potentially be impacted by the Proposed Action have been specifically identified as traditional or religious use areas. Therefore, the Slower, Longer Project Alternative impact does not meet the significance criteria listed in Section 3.22.3.1, and no resource specific mitigation measures were determined necessary. Mitigation for impacts to water resources have been identified in Section 3.2.3.5, which would have the potential of reducing some of the impacts.

3.22.3.7.4 Impacts to Cultural Sites

As outlined in Table 3.21-1, there are 100 prehistoric sites within the area of direct effect for the Slower, Longer Project Alternative. Thirty-eight of the 100 sites are considered as eligible for the NRHP. Even though EML has identified that eligible sites would be treated prior to their removal and the initiation of Project construction, all 100 sites would be removed from the landscape as part of the Slower, Longer Project Alternative. Since Native Americans view the removal of sites from the landscape as a method of "wiping their cultural footprint from the land", the removal of any sites is of concern to the Native Americans.

- **Impact 3.22.3.7-5:** The Slower, Longer Project Alternative could impact 100 prehistoric cultural sites by removing them from the landscape.

  Significance of the Impact: The removal of any sites from the landscape is considered significant by the Native Americans. Therefore this impact is significant. As outlined in Section 3.21, those sites that are eligible for the NRHP would be treated prior to Project activities; however, this does not reduce the impact to Native Americans. Although prehistoric and ethnohistoric sites and associated artifacts exist within the general area of the proposed expansion, no Native American traditional use sites, activities, or associated resources are known to exist in proposed disturbance areas. Therefore, no mitigation measures specific to contemporary tribal uses is proposed.

  However, for those archaeological sites (prehistoric and historic) scheduled or proposed for treatment (i.e., data recovery/excavation), tribal participants would be given the opportunity to monitor the data recovery efforts, and provide interpretation of any artifacts or features discovered during the process. In addition, the BLM or a contracted Cultural Resources Specialist/Archaeologist, accompanied by designated tribal representatives and/or descendants, may conduct periodical or stipulated monitoring of sites scheduled for avoidance before, during, and after Project construction. Monitoring of identified archaeological sites within and in close proximity to proposed disturbance areas could occur throughout the life of the Project to ensure agreed upon avoidance.

3.22.3.7.5 Residual Adverse Impacts

The Slower, Longer Project Alternative would have an unavoidable impact to pine nut gathering and potentially to springs and perennial streams in the vicinity of the Project. The Slower, Longer Project Alternative would have an unavoidable and adverse impact to cultural sites within the footprint of the Project facilities.

3.23 Wildlife and Fisheries Resources

3.23.1 Regulatory Framework

This section discusses the laws, regulations, guidelines, and procedures that apply to management of wildlife resources potentially affected by the Project.

3.23.1.1.1 BLM/NDOW Memorandum of Understanding

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

- **Impact 3.22.3.7-5:** The Slower, Longer Project Alternative could impact 100 prehistoric cultural sites by removing them from the landscape.

  Significance of the Impact: The removal of any sites from the landscape is considered significant by the Native Americans. Therefore this impact is significant. As outlined in Section 3.21, those sites that are eligible for the NRHP would be treated prior to Project activities; however, this does not reduce the impact to Native Americans. Although prehistoric and ethnohistoric sites and associated artifacts exist within the general area of the proposed expansion, no Native American traditional use sites, activities, or associated resources are known to exist in proposed disturbance areas. Therefore, no mitigation measures specific to contemporary tribal uses is proposed.

  However, for those archaeological sites (prehistoric and historic) scheduled or proposed for treatment (i.e., data recovery/excavation), tribal participants would be given the opportunity to monitor the data recovery efforts, and provide interpretation of any artifacts or features discovered during the process. In addition, the BLM or a contracted Cultural Resources Specialist/Archaeologist, accompanied by designated tribal representatives and/or descendants, may conduct periodical or stipulated monitoring of sites scheduled for avoidance before, during, and after Project construction. Monitoring of identified archaeological sites within and in close proximity to proposed disturbance areas could occur throughout the life of the Project to ensure agreed upon avoidance.

3.22.3.7.5 Residual Adverse Impacts

The Slower, Longer Project Alternative would have an unavoidable impact to pine nut gathering and potentially to springs and perennial streams in the vicinity of the Project. The Slower, Longer Project Alternative would have an unavoidable and adverse impact to cultural sites within the footprint of the Project facilities.

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3.23.1.1.2 Nevada Department of Wildlife Programs

The NDOW is the state agency responsible for the restoration and management of fish and wildlife resources within the state. The NDOW administers state wildlife management and protection programs as set forth in NRS Chapter 501, Wildlife Administration and Enforcement, and NAC Chapter 503, Hunting, Fishing and Trapping; Miscellaneous Protective Measures. NRS 501.110 defines the various categories of wildlife in Nevada, including protected categories. NAC 503.010-503.080, 503.110, and 503.140 list the wildlife species currently placed in the state's various legal categories, including protected species, game species, and pest species.

3.23.1.1.3 Special Status Wildlife Species

Species in need of additional management and protection, due to declining numbers or loss of habitat are termed "special status species." These animals are protected under provisions of the ESA or the Nevada BLM sensitive status (BLM Manual 6840.06 C). In addition, there is a Nevada State Protected Animal List (NAC 501.100 - 503.104) that BLM has incorporated, in part, into the sensitive list. The BLM sensitive species list is included as Appendix **G**.

3.23.1.1.4 Endangered Species Act

The ESA safeguards the continued existence of any species classified as "endangered" or "threatened", as well as habitat that is determined by the Secretary of the Interior to be critical to such species. The ESA is administered by the USFWS, in consultation with other federal and state agencies. The ESA defines the following terms:

- Endangered species: "... any species which is in danger of extinction throughout all or a significant portion of its range..."
- Threatened species: "... any species which is likely to become an endangered species within the foreseeable future..."
- Critical habitat: "... the specific areas within the geographical area occupied by the species... on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection..."

The ESA prohibits the "take" (i.e., killing, harming, or harassment) of listed threatened or endangered species without special exemptions. Protection under the ESA also extends to species and habitat proposed for listing (proposed). Candidate species are species for which sufficient information on the vulnerability and threats to the species exists to warrant listing as threatened or endangered, but for which development of a proposed listing regulation is precluded by other higher priority listing activities. Candidate species receive no statutory protection under the ESA. The USFWS encourages cooperative conservation efforts for these species because they are, by definition, species that may warrant future protection under the ESA. Analogous to the ESA, Nevada State law (NRS 527.270-.300) prohibits removal or destruction of species listed as "threatened with extinction" except by special permit from the USFWS.

In addition to listed threatened or endangered and candidate species, the USFWS identifies another group of species known as species of concern (formerly candidate, Category 2 species). Species of concern are not specifically afforded the same protection under the ESA as Threatened or endangered species, but federal agencies are required to afford them consideration in their planning and decision-making processes. The BLM evaluates species of concern in a manner analogous to threatened or endangered species. On May 1, 1996, the NSO incorporated all former USFWS-designated Category 2 candidate species into the Nevada Special Status Species List and classified them as sensitive. Sensitive species are protected by BLM policy that requires that actions authorized, funded, or carried out by the agency do not contribute to the listing of any candidate or sensitive species as threatened or endangered under the ESA.

3.23.1.1.5 Migratory Bird Treaty Act

Migratory bird means any bird listed in the 50 CFR 10.13. All native birds commonly found in the U.S., with the exception of native resident gallinaceous birds, are protected under the provisions of the MBTA. Under this act, nests with eggs or the young of migratory birds may not be harmed, nor may any migratory birds be killed. Measures to prevent bird mortality must be incorporated into the Project's design as discussed in Section 2.1.15.5.

3.23.1.1.6 Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (16 U.S.C. 668) applies primarily to taking, hunting, and trading activities that involve any bald (*Haliaeetus leucocephalus*) or golden eagle (*Aquila chrysaetos*). The act prohibits the direct or indirect take of an eagle, eagle part or product, nest, or egg. The term "take" as used in the act includes "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb."

Golden eagles are protected by the MBTA and the Bald and Golden Eagle Protection Act, both of which prohibit take. The Interim Golden Eagle Technical Guidance: Inventory and Monitoring Protocols; and Other Recommendations in Support of Golden Eagle Management and Permit Issuance provides guidance to conduct informed impact analyses and mitigation during the NEPA process (USFWS 2010).

3.23.2 Affected Environment

3.23.2.1 Study Methods

Surveys for wildlife, including mammals, birds, and reptiles were conducted aerially and on the ground in June 2005 and in July and August of 2006 for the majority of the Project Area (SRK 2007b, 2007c). The Kobeh Valley portion of the Project Area was surveyed for wildlife in July 2008 (Great Basin Ecology 2008).

Survey information for special status species in the Project Area was requested from the NNHP and the USFWS. The lists provided by the NNHP and the USFWS identified the following animal species with potential to occur within the region: pygmy rabbit (*Brachylagus idahoensis*), BLM sensitive species; and the yellow-billed cuckoo (*Coccyzus americanus*), a USFWS candidate species. The BLM identified the following additional special status species with potential to occur in the region: greater sage-grouse, a USFWS candidate species; Lahontan cutthroat trout (*Oncorhynchus clarki henshawi*), a federally listed threatened species; burrowing

owl (*Athene cunicularia*), BLM sensitive species; and migratory birds and raptors protected under the MBTA.

3.23.2.1.1 Pygmy Rabbits

A helicopter survey was conducted on April 28, 2006, for wildlife and to search for raptor nests in the higher elevations including rock outcrops and ledges of the Project Area. During aerial surveys in the spring of 2006, pygmy rabbit habitat was aerially mapped using big sagebrush vegetation. Two separate areas of potential habitat were identified from the aerial surveys conducted in the spring, the Kobeh Valley site and the eastern flank of Mount Hope. Surveys were conducted in August 2006 in all locations that were determined to be suitable for pygmy rabbits. These areas typically occurred in elevations ranging between 6,000 and 7,000 feet amsl.

Meandering transects were surveyed through suitable habitat according to NDOW protocol and both pygmy rabbits and their burrows were noted when located. UTM coordinates (NAD 27) were recorded, along with photographs and habitat descriptions for each observation or burrow site. Often burrow sites are a multi-entranced burrow complex and were identified when adequate pellets in the area suggested annual use. A diverse composition of pellets was assumed to signify both historic and current use of the burrow. If only older pellets were located, the site was noted as inactive. Any burrow with recent fecal pellets was noted as active and an actual pygmy rabbit observation indicated an active site. The same survey protocol was utilized during the July 2008 survey of the Kobeh Valley portion of the Project Area.

3.23.2.1.2 Springsnails

A presence/absence survey for springsnails (*Pyrogulopsis* sp.) was conducted in the Project Area on July 9, 2007. The survey was conducted in the middle of summer when perennial springs were flowing and intermittent springs would be at low flow (SRK 2007d). A subsequent presence or absence springsnail survey was conducted between September 27 and October 31, 2007 (SRK 2010). Streams in the larger regional area, including streams near the ten-foot water drawdown contour, were surveyed. Although no springsnails were present within the Project Area or the predicted ten-foot water drawdown contour surveyed, springsnails were noted in locations near the predicted drawdown boundary (to the northwest of the northern boundary and to the southeast of the southern boundary) (SRK 2010).

3.23.2.1.3 Bats

Twenty-one openings provided access to 12 discrete mines. These openings were surveyed during warm and cold seasons for bat species and habitat in the Project Area (Sherwin 2007).

3.23.2.1.4 **Pit Lake Wildlife** Risk Assessment

A SLERA of the proposed pit lake was prepared for the analysis of the Project (SRK 2009). The SLERA has four main objectives: 1) identification of those inorganic chemical constituents and chemical characteristics (e.g., pH, TDS) based on model predictions that may have the potential to contribute to adverse affects on mammal and avian wildlife as per NAC 445B.429; 2) identify ecological receptors, or appropriate surrogate species occupying similar niches, with the highest potential for exposure to chemical constituents in the pit water; 3) identify complete exposure pathways between the post-mining pit lake and the identified receptors; and 4) quantitatively or

qualitatively assess the ecological risks to select mammal and avian wildlife receptors exposed to inorganic chemical constituents in water whose concentration in the post-mining pit lake is predicted to exceed the calculated screening level toxicity criteria.

3.23.2.2 Existing Conditions

3.23.2.2.1 General Wildlife and Fisheries

Wildlife species and habitats occurring in the Project Area are typical of the northern Great Basin desert region. Results for the 2005, 2006, and 2008 surveys are included below. The general wildlife species are listed to indicate which species are commonly encountered in the Project Area and vicinity.

Important wildlife habitat in the Project Area is located in the big sagebrush (mountain and Wyoming big sagebrush), piñon-juniper woodlands, black sage, low sagebrush, and salt desert scrub vegetation types. The components of these habitats are described in the vegetation section (Section 3.9). Big sagebrush provides important habitat for many sagebrush obligate and facultative wildlife species. Piñon-juniper woodlands provide structural diversity for wildlife species as both thermal cover and food sources, particularly during the winter season. The salt desert scrub vegetation type also provides habitat for wildlife species. As a result of the limited water availability associated with salt desert scrub, the habitat is used seasonally by larger animals and provides a lower abundance of smaller animals than found in the more mesic plant communities. Similarly, the low sagebrush areas provide seasonal habitat for some species and year-round habitat for smaller animal species. Wetlands and riparian communities within the Project Area are limited to small seeps and springs (see Section 3.11).

Common wildlife species, those that are not special status species or migratory birds, are relatively abundant within and adjacent to the Project Area. Migratory birds and special status species, such as those listed as threatened, endangered, or sensitive by government agencies are covered below under special status species.

Mammals

The mammal species within the Project Area include those typically found in lower and mid-elevation Great Basin habitats. Mammalian species observed in or near the Project Area include mule deer, pronghorn antelope, black-tailed jackrabbits (*Lepus californicus*), yellow-bellied marmots (*Marmota flaviventris*), coyote (*Canis latrans*), bobcat (*Lynx rufus*), badger (*Taxidea taxis*), mountain cottontail (*Sylvilagus nuttallii*), and a variety of other small mammals (i.e., mice, voles, chipmunks) (SRK 2007b).

Mountain lions prey on mule deer and are known to occur within the Project Area. The topography of the Project Area is desirable for mountain lions and two lions were harvested just west and north of the Project Area (NDOW Public Scoping Comments March 16, 2007).

Mule deer utilize the wooded hills and sagebrush habitats within and adjacent to the Project Area. **A moderate increase in spring fawn recruitment rates, resulted in an increasing** mule deer population **trend in 2012 (NDOW 2012).** The trend for the Roberts Mountains (unit 143) portion of the overall management area follows the current trend of stable to downward. The Roberts Mountains deer are migratory in nature. Mule deer leave the Roberts Mountains in

October or November and migrate south into the Mountain Boy and Fish Creek Ranges south of U.S. Highway 50. The migration pattern includes moving south from Roberts Creek Ranch to Lone Mountain and from Henderson Summit along Whistler Mountain to Devil's Gate (NDOW Public Scoping Comments, March 16, 2007). Mule deer corridors are illustrated on Figure 3.23.1.

The immediate area around Mount Hope has limited summer range for mule deer due to the lack of water and mountain brush vegetation community. There are a few deer that reside on Mount Hope. Increased numbers of deer migrate through the Mount Hope area from summer ranges in the north and west during the fall and spring (NDOW Public Scoping Comments, March 16, 2007).

Pronghorn antelope were observed on the west side of the Project Area during the quarterly water sampling in November 2006 (SRK 2007b) and were observed in the lower elevations of the Project Area that are located in Kobeh Valley where low sagebrush and rabbitbrush were prominent. The population of pronghorn antelope in NDOW units 141, 143, and 151 through 155 has been in an upward trend. **The average fawn ratio for the past five years was 49 fawns to 100 does. This was above long-term averages and resulted in strong population growth (NDOW 2012).** The pronghorn antelope population in Kobeh Valley is low and variable with most of the antelope observed in the southern part of the valley near Lone Mountain and U.S. Highway 50 (NDOW Public Scoping Comments, March 16, 2007).

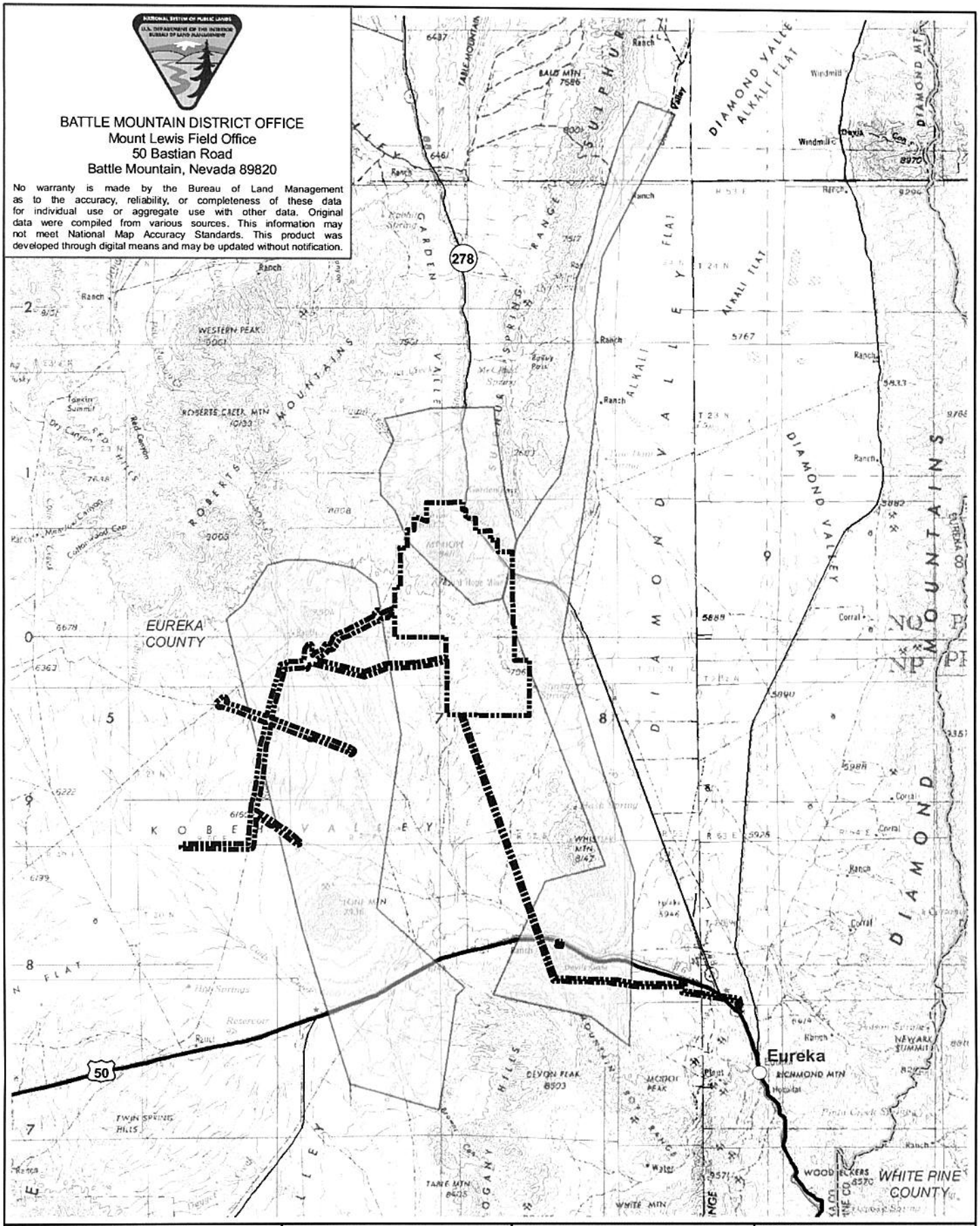
Game Birds

Few game birds are known to occur within the Project Area; however, chukar and mourning dove, occur in and adjacent to the Project Area. Even though greater sage-grouse is a game bird, this species is discussed under special status species.

Chukar typically inhabit rock outcrops and ledges adjoining grassy and sagebrush hillsides. Chukar are common in the Roberts Mountains, Whistler Mountain, and Sulphur Springs Ranges (NDOW Public Scoping Comments, March 16, 2007). Seasonal habitat occupation occurs in accordance with increased moisture and heavy snows. The birds typically move to lower elevations and south-facing slopes during heavy snow events and concentrate around spring sources in the summer months. Mourning doves usually forage on seeds in more open terrain and nest and roost in the trees. Mourning doves are commonly found along unimproved roads where they obtain gravel for food digestion. During the summer months the doves are commonly found near springs and artificial water sources (e.g., cow troughs, guzzlers, etc.) and migrate south for the winter (SRK 2007b). Mourning doves nest and forage in the area from spring to early autumn (NDOW Public Scoping Comments, March 16, 2007).

Reptiles

There are a variety of reptiles (i.e., snakes and lizards) that are commonly found in the sagebrush or rock outcrops and talus slopes in the Project Area. No reptilian surveys were conducted; however, it is likely that species such as the western fence lizard (*Sceloporus occidentalis*), northern sagebrush lizard (*Sceloporus graciosus*), leopard lizard (*Gambelia wislizenii*), western whiptail lizard (*Cnemidophorus tigris*), and horned lizard (*Phrynosoma* spp.) occur within the Project Area. The Great Basin rattlesnake (*Crotalus viridis lutosis*) is also likely to occur in the broken rocks and brush habitats within the Project Area. It is possible that other species not mentioned may occur within the Project Area.



EXPLANATION

- Project Area Boundary
- Deer Corridors

N

0 2 4 6 Miles

DESIGN:	EMLLC	DRAWN:	GSL	REVIEWED: RFD
CHECKED:	.	APPROVED:	RFD	DATE: 08/01/2012

FILE NAME: p1635_Fig3-23-1_DeerCorridors.mxd

BUREAU OF LAND MANAGEMENT
MOUNT HOPE PROJECT

DRAWING TITLE:

Deer Corridors in the Vicinity of the Mount Hope Project

Figure 3.23.1

Fisheries

Within the perennial drainages of the Roberts Mountains, recreational fisheries are present in Roberts Creek and Pete Hanson Creek. Fisheries may be present in other perennial drainages. NDOW data for 2010 on Roberts Creek document an average of 72.6 fish per mile for brook trout (*Salvelinus fontinalis*), 39.6 for rainbow trout (*Oncorhynchus mykiss*), and 13.2 for brown trout (*Salmo trutta*). An estimated 1,016.5 game fish existed along 5.5 miles of Roberts Creek. A ten-year study on Pete Hanson revealed an average of six anglers a day, ten days of fishing, and 85 fish caught per year. The same study on Roberts Creek averaged 17 anglers a day, 58 days of fishing, and 171 fish caught per year. A discussion of surface water resources (streams) is included in Section 3.2.2.3.1.

3.23.2.2.2 Special Status Wildlife Species

Greater Sage-Grouse

Greater sage-grouse is a candidate for listing under the ESA and on March 23, 2010, the USFWS's 12-month status review of the species determined that the species warrants the protection under the ESA. The listing of the greater sage-grouse at this time is precluded by the need to address higher priority species and the state and BLM are responsible for management of the species.

Greater sage-grouse are largely dependent on sagebrush for nesting and brood rearing and feed almost exclusively on sagebrush leaves during the winter. Greater sage-grouse are known to occur in foothills, plains, and mountain slopes where sagebrush meadows, and aspen, are in close proximity. Dense sagebrush overstory and an herbaceous understory of grasses are important to provide shade and security, and both new herbaceous growth and residual cover are important in the understory. Greater sage-grouse have specific habitat requirements to carry out their life cycle functions. Early spring habitat or breeding sites called "leks," are usually situated on ridge tops or grassy areas surrounded by a substantial brush and herbaceous component (Schroeder et al. 1999). Leks have less herbaceous and shrub cover than surrounding areas. In early spring males gather in leks where they strut to attract females.

The distribution of greater sage-grouse in Nevada is closely tied to the sagebrush ecosystem that provides nesting, brood, and fall/winter cover as well as forage throughout the year. Summer habitat consists of sagebrush mixed with areas of wet meadows, riparian, and irrigated agricultural fields. Fall habitat consists of mosaics of low-growing sagebrush and Wyoming big sagebrush. Winter habitat is contingent on the severity of winter weather, topography, and vegetative cover (NDOW 2004). Late spring habitat or nesting sites are located in thick cover in sagebrush habitat beneath sagebrush or other shrubs. Nests are situated on the ground in a shallow depression with an average distance between nest sites and nearest leks of 0.7 to 3.9 miles; however, females may move greater than 12.4 miles from a lek to nest (NatureServe 2010). Individual greater sage-grouse move seasonally between habitat types throughout the year.

The NDOW defines lek status as active, inactive, historic, or unknown. An active lek is defined as a lek that had two or more birds present during at least one of three or more visitations in a given breeding season. For a strutting ground to attain this status it must also have had two or more birds present during at least two years in a five-year period. An inactive lek is a lek that has

been surveyed three or more times during one breeding season with no birds detected during the visitations and no sign observed on the lek. If a lek is only visited once during a breeding season and was surveyed under adequate conditions and no birds were observed at the location during the current and the previous year and no sign was observed at the lek, then an inactive status can be applied to the lek. An unknown lek is a lek that may not have had birds present during the last visitation, but could be considered viable due to the presence of sign at the lek. This designation could be especially useful when weather conditions or observer arrival at a lek could be considered unsuitable to observe strutting behavior. The presence of a single strutting male would invoke the classification of the lek as unknown. A lek that was active in the previous year, but was inadequately sampled (as stated above) in the current year with no birds observed could also be classified as unknown. A historic lek is a lek that has not had bird activity for twenty years or more and has been checked according to protocol at least intermittently. Another means of classifying a lek as historic is to photograph a lek location and determine if the habitat is suitable for normal courtship displays. For example, if a lek location lies in a monotypic stand of sagebrush that is three to four feet tall, then conditions are no longer suitable for lekking activity.

The NDOW also designates a notice status for active, inactive, and unknown status leks. As a result of the number of documented lek locations in the State of Nevada and the limited personnel available to visit all leks each year, the status applied to a lek through its most recent visitation will be upheld in subsequent years until the lek is revisited to verify its status. These descriptions are the most current attempt at applying a definition to the status of a lek and are subject to change to compensate for any unforeseen scenarios. All the leks in Nevada have not yet had these classification applied to them; however, the NDOW is committed to standardizing lek status across regions and field verifying lek status over time.

An ongoing study is being conducted in relationship to the Falcon-Gondor transmission line and the effects on greater sage-grouse populations. The Falcon-Gondor line is approximately 180 miles long and has 735 towers that vary in height from 75.5 to 131 feet, depending on the topography. The path of the Falcon-Gondor line places it in the middle of Eureka County's prime greater sage-grouse habitat. The study site for the transmission line is located in central Nevada within Eureka County and is bounded by the Cortez and Simpson Park Mountains to the west and the Diamond and Sulphur Spring Mountains to the east. This area includes the Denay, Pine, Kobeh, Diamond, Horse Creek, Grass, and Garden Valleys. The study area encompasses approximately 2,500 square miles of sagebrush steppe and piñon-juniper mountain ranges with many ephemeral streams. The study area includes 74.6 miles of the Falcon-Gondor line and focuses on 13 active leks at various distances from the Falcon-Gondor line. Five of these leks have been monitored by the NDOW and BLM for the past thirty years. The Falcon-Gondor line crosses through the proposed Project Area and this region was the focus of the Roberts Creek greater sage-grouse population. The Cortez greater sage-grouse population was also studied. The most recent summary of the results of these studies indicate that there are substantial demographic differences between the Roberts Creek and Cortez populations, and suggest that greater sage-grouse in the Cortez Range are at higher risk. Variation in habitat conditions, driven at least in part by wildland fire, partially explain this variation for male survival and nest success, whereas variation in predator communities and challenges associated with reproduction may limit female survival. The greater sage-grouse population in the area monitored appeared to have stabilized in 2010, based on patterns in lek attendance and male capture-recapture estimates (Blomberg et al. 2010).

The greater sage-grouse trend in Eureka County is **as follows**. The peak male attendance at ten comparable areas surveyed in 2012 was **259** for an average of **25.9** males per ground. This resulted in a **25** percent increase from 2011 when **207** males were counted, for an average of **20.7** males per ground. There **were** 41 males per **these same trend grounds in 2006** the highest average since 1986 when the average was 47 males. **In addition to trend counts there were additional leks monitored by the NDOW, BLM, and University of Nevada-Reno graduate students in 2012. These 18 leks monitored in 2012 had 346 males in attendance for an average of 19.2 males per lek. In 2011, these same leks had 307 males yielding an average of 17.1 males per lek for a twelve percent increase from 2011 to 2012. There were 21 active leks surveyed in the 3-Bar PMU in 2012 with 339 males for an average of 16.1 males per lek.** Greater sage-grouse are a USFWS candidate species, BLM sensitive species, NNHP watch species, and State of Nevada protected species (NRS 501). Individual greater sage-grouse counts can vary year to year and approximately ten years of data are required to establish population trends.

Potential greater sage-grouse habitat within the Project Area was surveyed and no active leks were identified within the area of proposed disturbance and no individual greater sage-grouse were observed (SRK 2007b). Although no leks have been identified within the Project Area, the BLM has recorded the following greater sage-grouse use in the Project Area: hens; nests; additional brood, hen, and lek locations are located near the well field corridor and near the powerline (Personal Communication, Duane Crimmins, BLM Biologist, April 4, 2008). One greater sage-grouse dropping was recorded in the northeast portion of the proposed well field in the Project Area. **Additionally, greater sage-grouse are known to inhabit Kobeh, Diamond, and Garden Valleys and the Roberts Mountains. Greater sage-grouse are known to move from Kobeh Valley to the Roberts Mountains during their life cycle.**

The BLM and NDOW have identified known greater sage-grouse leks within the vicinity of the Project Area (Figure 3.23.2). As illustrated on Figure 3.23.2, the area covers approximately 38 miles east-west and 21 miles north-south centered on the Project's well field. The figure illustrates **16** active leks, **12** historic leks, and 13 unknown leks. Four leks were surveyed by SRK and found to be active: the Pony Express Lek; Kobeh 8-1 Lek; Lone Mountain Lek; and Dome House Lek. **Following SRK's survey, the NDOW and BLM identified Henderson Pass and Roberts Creek #2 leks as active.**

The Pony Express Lek only had two greater sage-grouse present on the lek during the time of the survey. A third bird flushed upon approach, approximately 1,000 feet from the lek. The area adjacent to the lek was overgrown with Wyoming big sagebrush and the birds used the road to strut, since it was the only open feature in the vicinity (SRK 2007b). **The NDOW reported a peak male count of 11 in 2011 and 21 in 2012.**

The Kobeh 8-1 Lek was active with approximately 15 birds present. The lek was fairly typical of greater sage-grouse lek sites with open, low vegetation at the lek surrounded by taller shrub cover (SRK 2007b). **The NDOW reported a peak male count of 14 in 2011 and 15 in 2012.**

The Lone Mountain Lek was active with approximately 36 birds present. This lek was large with birds scattered over approximately 650 feet. The lek was on a ridge covered with low sagebrush and adjacent Wyoming big sagebrush (SRK 2007b). **The NDOW reported a highest single day male count of 30 in 2011 and 41 in 2012.**

The Dome House Lek was active with 25 to 30 birds present. The lek area was fairly small and relatively close to piñon-juniper trees (SRK 2007b). **The NDOW reported a peak male count of nine in 2011 and 12 in 2012.**

The Henderson Pass lek has also been identified as active by the BLM and was first documented in 2008 with 27 males in attendance, in 2009 with 16 males, and in 2010 with seven males. **The NDOW reported a peak male count of eight in 2011 and seven in 2012.**

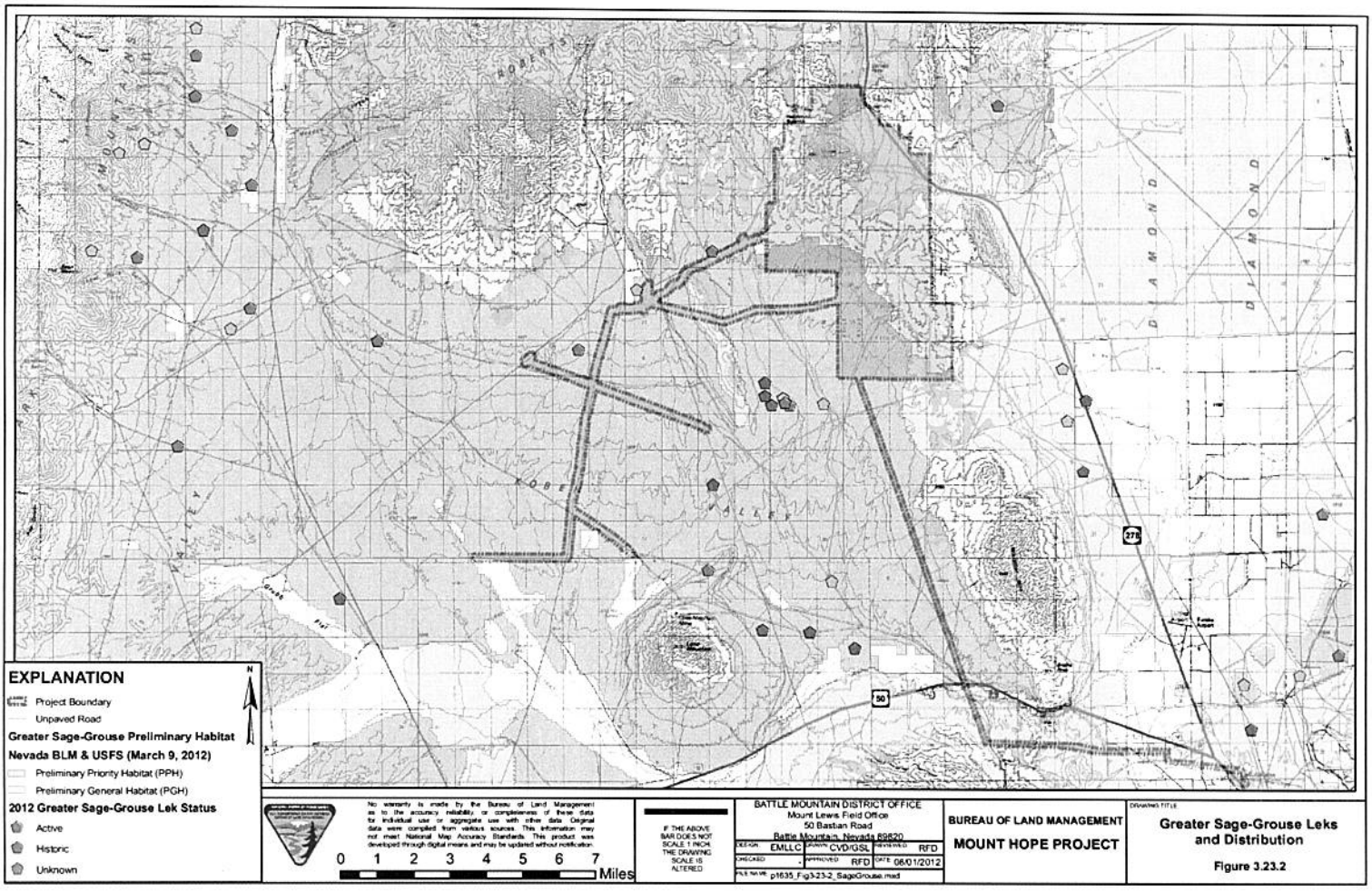
The Roberts Creek #2 lek is in an old crested wheatgrass (*Agropyron cristatum*) seeding that is dominated by Wyoming big sagebrush with very little open spaces preferred by greater sage-grouse for lekking. This lek has moved several times in the seeding over the years due to the change in vegetation. The peak male greater sage-grouse count at the Robert's Creek #2 lek is as follows: in 2006 it was 30; in 2007 it was 26; in 2008 it was nine; in 2009 it was nine; in 2010 it was five; in 2011 it was zero; and in 2012 it was two.

The highest single day lek attendance at the Pony Express Lek, Kobeh 8-1 Lek, Lone Mountain Lek, Dome House Lek, and Henderson Pass Lek were recorded in the most recent Falcon-Gondor Study and are summarized in Table 3.23-1 (Blomberg et al. 2010). The cyclic nature of greater sage-grouse populations is illustrated in Table 3.23-1 as lek attendance dropped in 2007. To date, there has not been a recovery to pre-2007 numbers and the effects to these leks as a result is not known. Results from the 2010 study indicate that male attendance in the Horse Creek, Pinefield, Pony Express, Lone Mountain, and Kobeh Leks have decreased from approximately 60 to 30 between 1970 and 2010; however, male attendance in these leks has been relatively stable at approximately 30 since 2000.

Table 3.23-1: Highest Single Lek Attendance for Each Lek by Sex and Year from the Falcon-Gondor Study

Year	Lek									
	Pony Express		Kobeh 8-1		Lone Mountain		Dome House		Henderson Pass	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
2003	14	1	14	5	32	3	15	1	-	-
2004	11	1	10	3	33	7	17	5	-	-
2005	15	1	12	2	50	17	28	4	-	-
2006	15	6	54	4	63	11	47	5	-	-
2007	10	3	6	1	56	14	22	3	-	-
2008	6	1	7	1	34	12	23	8	27	8
2009	8	0	6	2	22	6	12	5	16	6
2010	0	0	9	7	17	2	17	1	7	3

The BLM has issued two IMs for the protection of greater sage-grouse. IM 2012-043, Greater Sage-Grouse Interim Management Policies and Procedures, provides interim policies and procedures to the BLM to be applied to ongoing and proposed authorizations that affect greater sage-grouse, while long-term permanent measures are being developed (BLM 2011b). IM 2012-044, BLM National Greater Sage-Grouse Land Use Planning Strategy, provides direction to the BLM for the consideration of conservation measures, identified in A Report on National Greater Sage Grouse Conservation Measures prepared by the Sage-Grouse National Technical Team, to apply during the land use planning process (BLM 2011c). The NDOW has recently mapped greater sage-grouse habitat in Nevada to support these IMs and published a Habitat Characterization Map in



EXPLANATION

- Project Boundary
- Unpaved Road

Greater Sage-Grouse Preliminary Habitat
Nevada BLM & USFS (March 9, 2012)

- Preliminary Priority Habitat (PPH)
- Preliminary General Habitat (PGH)

2012 Greater Sage-Grouse Lek Status

- Active
- Historic
- Unknown

N

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.

0 1 2 3 4 5 6 7 Miles

IF THE ABOVE BAR DOES NOT SCALE 1 INCH, THE DRAWING SCALE IS ALTERED

BATTLE MOUNTAIN DISTRICT OFFICE
Mount Lewis Field Office
50 Bastian Road
Battle Mountain, Nevada 89820

DESIGN	EMLLC	DRAWN	CVD/GSL	REVIEWED	RFD
CHECKED	-	APPROVED	RFD	DATE	06/01/2012

FILE NAME: p1635_Fig3-23-2_SageGrouse.mxd

BUREAU OF LAND MANAGEMENT
MOUNT HOPE PROJECT

DRAWING TITLE
Greater Sage-Grouse Leks and Distribution

Figure 3.23.2

March 2012. The BLM used this NDOW map to create a map identifying Preliminary Priority Habitat (PPH) and Preliminary General Habitat (PGH) on BLM administered lands. According to this map, there are approximately 9,027 acres of PPH located within the Project Area and approximately 4,173 acres of PGH located within the Project Area.

Migratory Birds and Raptors

The following raptors (also migratory birds) or their sign were observed in or near the Project Area: Cooper's hawk (*Accipiter cooperii*); ferruginous hawk (*Buteo regalis*); golden eagle; prairie falcon (*Falco mexicanus*); and kestrels (*Falco sparverius*) (SRK 2007b) (Figure 3.23.3). It is possible that other species of raptors not mentioned may utilize the Project Area.

Two raptor nests were located in the Project Area. A Cooper's hawk was observed on the west side of Mount Hope during the aerial survey. The hawk nest was observed in subsequent field work in the southwest 1/4 of Section 1, T22N, R51E. A ferruginous hawk nest was also observed in the Project Area. A pair of ferruginous hawks was observed on April 28, 2006, in Section 20, T22N, R52E, near Tyrone Creek. The male was flushed from the ground and the female was observed in a nearby piñon tree on the nest (SRK 2007b).

Steep and extensive rock ledges are located at the eastern edge of the Project Area. This rock formation was the site of many inactive raptor nests. Just east of the Project Area boundary in the same rock formation, two active prairie falcon nests were located. Kestrels, which normally nest in tree cavities or crevices within rock ledges, were also observed in this rock formation. Although it is likely that kestrel nests were present in the rock formation east of the Project Area, specific locations could not be determined at the time of the survey (SRK 2007b).

Golden eagle nesting habitat is located in the rock ledges found east of the Project Area (SRK 2007b). Three golden eagle nests are located within ten miles of the Project Area. SRK located an active golden eagle nest approximately 1.25 miles east of the Project Area boundary and three miles from Project activities in Section 22 (SRK 2007b). This nest is located on the east side of the ridge, approximately 40 to 60 feet below the ridgeline (i.e., facing Diamond Valley and away from Project activities). SRK also located an inactive golden eagle nest approximately 1.5 miles east of the Project Area in Section 27. This nest is also located on the east side of the ridge and more than 60 feet below the ridgeline. The NDOW identified an active nest approximately 8.4 miles southeast of the Project Area. Golden eagle foraging habitat is found throughout the Project Area (SRK 2007b).

No nests were observed on the Falcon-Gondor Power Transmission Line towers. This line was constructed with materials designed to discourage nesting by raptors and ravens (*Corvus corax*). Although a red-tailed hawk (*Buteo jamaicensis*) was observed perched on a cross bar, and the whitewash typical of raptor perch sites was common on many of the powerline poles, no nests were observed (SRK 2007b).

A number of migratory birds that breed in North America and winter in the neotropical region of South America also breed in the Project Area and vicinity. Species commonly occurring in piñon-juniper habitats include the piñon jay (*Gymnorhinus cyanocephalus*), gray flycatcher (*Empidonax wrightii*), mountain bluebird (*Sialia currucoides*), western bluebird (*Sialia mexicana*), Virginia's warbler (*Vermivora virginiae*), and Scott's oriole (*Icterus parisorum*) have the potential to occur in the Project Area. Other species such as the sage thrasher (*Oreoscoptes*

montanus), sage sparrow (*Amphispiza belli*), loggerhead shrike (*Lanius ludovicianus*), and black rosy finch (*Leucosticte atrata*) have potential to occur in the sagebrush habitats in the Project Area (SRK 2007b). Green-tailed towhee (*Pipilo chlorurus*) also has the potential to occur in the sagebrush habitat in the Project Area (NDOW Public Scoping Comments, March 16, 2007). The piñon jay, loggerhead shrike, and black rosy finch are also BLM sensitive species.

Common nighthawk (*Chordeiles minor*) and common raven *(Corvus corax)* were observed in the survey of the Kobeh Valley portion of the Project Area (Great Basin Ecology 2008). The following migratory birds are located in Kobeh Valley and have the potential to occur in the Project Area: black-throated gray warbler (*Dendroica nigrescens*), black-throated sparrow (*Amphispiza bilineata*), Brewer's sparrow (*Spizella passerina*), lark sparrow (*Chondestes grammacus*), and western meadowlark (*Sturnella magna*) (Great Basin Ecology 2008). It is likely that there are some migratory bird species not mentioned here that may utilize the Project Area for nesting or foraging.

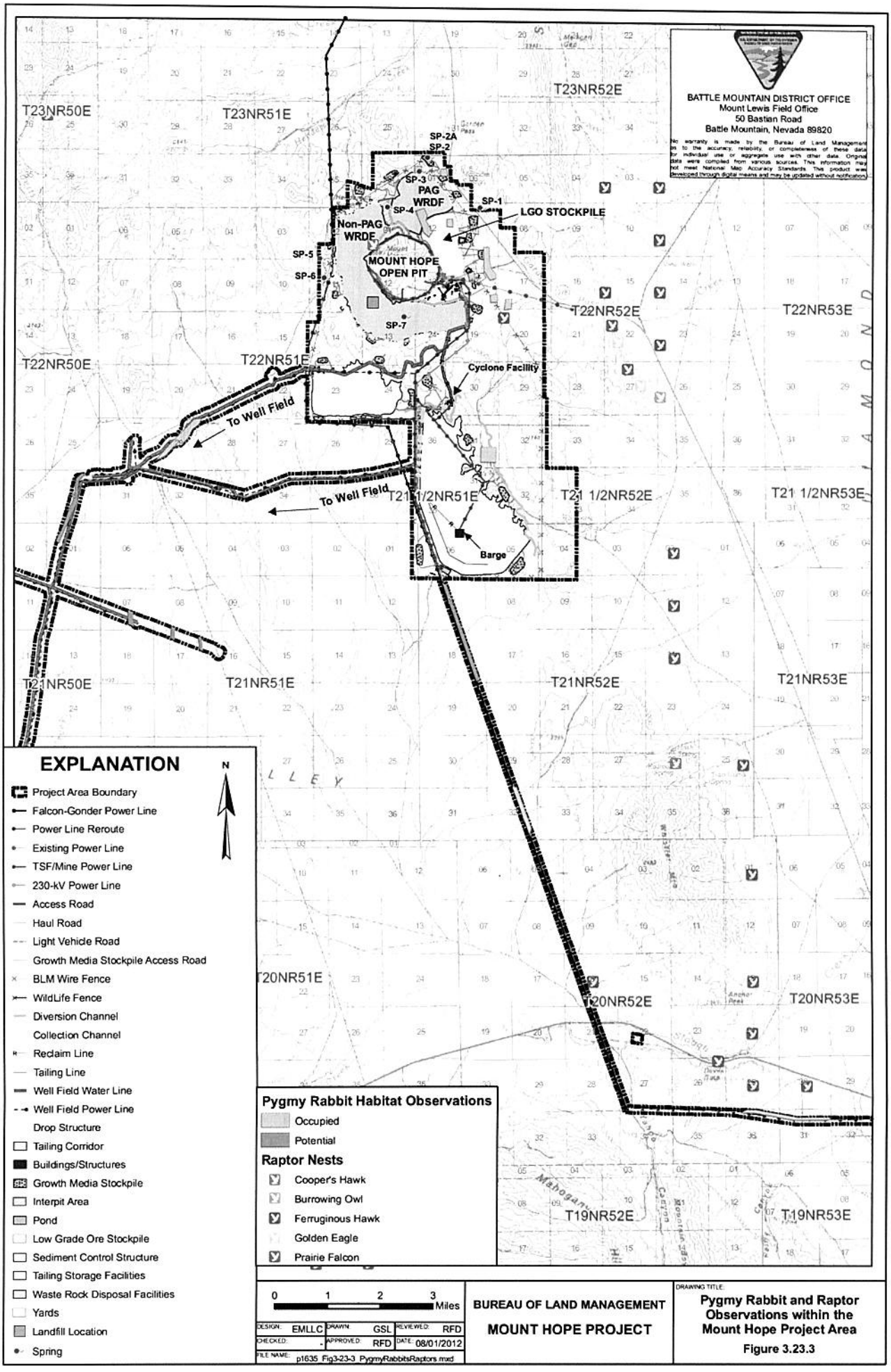
Pygmy Rabbits

The Project Area and vicinity contains suitable habitat for occupation by pygmy rabbits. Known pygmy rabbit locations and previously occupied habitat are shown on Figure 3.23.3. The pygmy rabbit is a BLM sensitive, NNHP watch, and State of Nevada protected species. Pygmy rabbits are often found in dense big sagebrush and rubber rabbitbrush areas. Such vegetation is associated with deeper soils, which is an important component of pygmy rabbit habitat, occur in many areas on the alluvial fans located in the Project Area. Nineteen burrows and ten pygmy rabbits were documented during the surveys conducted on August 3, 4, and 18, 2006, in the proposed mine portion of the Project Area. The majority of the sightings and burrow locations occurred along the old railroad grade that parallels SR 278 to the west. The deep soil embankments along with the railroad timbers provided necessary structure and vegetation for pygmy rabbits to thrive. Burrows or pygmy rabbits were found along the entire length of the historical structure. Numerous sightings and burrow complexes were located along the alluvial fan east of Mount Hope Spring. These areas were vegetated by tall (i.e., greater than four feet in height) dense big sagebrush and rubber rabbitbrush and contained adequate understory for cover and forage (SRK 2007b).

Additionally, one isolated colony of pygmy rabbits was located in the southern portion of the Project Area surveyed in 2006. This colony was located within a small island of basin big sagebrush. The height of the shrubs exceeded four feet within the piñon-juniper vegetation type. The site was typical for pygmy rabbits except for the surrounding piñon-juniper trees and small size of the sagebrush island (SRK 2007b).

The proposed transmission line corridor is located adjacent to U.S. Highway 50 and extends north toward the Project Area. The corridor contains suitable pygmy rabbit habitat. Pygmy rabbit habitat within the proposed transmission line corridor consists of a length of approximately 0.76 mile of occupied habitat, 1.37 miles of potential habitat, and 1.95 miles of previously occupied habitat (SRK 2007c).

During the survey of the proposed well field in Kobeh Valley on July 1 and 2, 2008, pygmy rabbits were observed in three areas. One occupied site was located in the Wyoming big sagebrush vegetation type in higher elevations and the two other sites were located in basin big sagebrush associated with drainages. Additional unoccupied areas in Kobeh Valley were


BATTLE MOUNTAIN DISTRICT OFFICE
Mount Lewis Field Office
50 Bastian Road
Battle Mountain, Nevada 89820
T23NR50E
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T21NR51E
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T21 1/2NR53E
T20NR51E
T20NR52E
T20NR53E
T19NR52E
T19NR53E
SP-2A
SP-2
SP-3
PAG WRDF
SP-4
SP-1
LGO STOCKPILE
Non-PAG WRDF
SP-5
SP-6
MOUNT HOPE OPEN PIT
SP-7
Cyclone Facility
To Well Field
To Well Field
Barge
EXPLANATION
Project Area Boundary
Falcon-Gonder Power Line
Power Line Reroute
Existing Power Line
TSF/Mine Power Line
230-kV Power Line
Access Road
Haul Road
Light Vehicle Road
Growth Media Stockpile Access Road
BLM Wire Fence
WildLife Fence
Diversion Channel
Collection Channel
Reclaim Line
Tailing Line
Well Field Water Line
Well Field Power Line
Drop Structure
Tailing Corridor
Buildings/Structures
Growth Media Stockpile
Interpit Area
Pond
Low Grade Ore Stockpile
Sediment Control Structure
Tailing Storage Facilities
Waste Rock Disposal Facilities
Yards
Landfill Location
Spring
Pygmy Rabbit Habitat Observations
Occupied
Potential
Raptor Nests
Cooper's Hawk
Burrowing Owl
Ferruginous Hawk
Golden Eagle
Prairie Falcon
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DESIGN: EMLLC
DRAWN: GSL
REVIEWED: RFD
CHECKED:
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DATE: 08/01/2012
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BUREAU OF LAND MANAGEMENT
MOUNT HOPE PROJECT
DRAWING TITLE:
Pygmy Rabbit and Raptor Observations within the Mount Hope Project Area
Figure 3.23.3

identified as suitable pygmy rabbit habitat, which were associated with ephemeral drainages where basin big sagebrush grew between ridges of low sagebrush (Great Basin Ecology 2008).

Burrowing Owls

Burrowing owls breed throughout the western U.S. in open grassland areas. In northern Nevada, the burrowing owl occurs as a summer breeder and migrates south during the winter (Herron et al. 1985). Burrowing owl breeding sites are strongly dependent on the presence of burrows constructed by prairie dogs, ground squirrels, or badgers. Prime burrowing owl habitat must be open, have short vegetation, and contain an abundance of burrows.

Burrowing owl habitat is located in the Kobeh Valley portion of the Project Area; however, none of the burrows examined during the field survey exhibited signs of recent use by burrowing owls (Great Basin Ecology 2008). Burrowing owls are a BLM sensitive species, NNHP watch species, and State of Nevada Protected Species.

Yellow-billed Cuckoo

The yellow-billed cuckoo is a candidate for listing as threatened or endangered west of the Rocky Mountains. Available data suggest that the yellow-billed cuckoo's range and population numbers have declined substantially across much of the western U.S. over the past 50 years (USFWS 2001). Habitat continuity is an important landscape feature for yellow-billed cuckoos. Unfragmented riparian woodland patches of at least 50 acres have been suggested to meet minimal habitat requirements in California populations, although occupancy of patches this small was estimated at less than ten percent (Laymon 1998). More suitable habitat consists of unfragmented riparian woodland patches of 100 acres or larger. Suitable breeding habitat for yellow-billed cuckoos consists of healthy shrub thickets, multi-aged riparian woodland stands, wet meadows, and open water (GBBO 2005). Threats to the yellow-billed cuckoo have been identified following loss or degradation of riparian habitat from human activities including agricultural development, river flow management, stream alterations, and livestock grazing (USFWS 2001). Yellow-billed cuckoos nesting west of the Continental Divide occur almost exclusively close to water, and biologists have hypothesized that the species may be restricted to nesting in moist river bottoms because of humidity requirements for successful hatching and rearing of young (Hamilton and Hamilton 1965; Rosenberg et al. 1991).

Riparian thicket habitat is nonexistent within the Project Area. No yellow-billed cuckoos were observed during the field surveys of the Project Area (SRK 2007b). Riparian thicket habitat does exist adjacent to perennial stream in the Roberts Mountains; however, this habitat is very limited in extent (less than 50 acres).

Bats

Several bat species have the potential to occur within the Project Area. The historic underground mine workings serve as potential habitat for bats. The survey conducted in the Project Area found hibernation habitat for small-footed myotis (*Myotis ciliolabrum*), a BLM sensitive species and NNHP watch species, and Townsend's big-eared bat (*Corynorhinus townsendii*), a BLM sensitive species, NNHP at-risk species, and State of Nevada protected species. The most notable use was documented in the largest and most complex of the mines within the Project Area, the Mount Hope Mine. Cold season use by bats of other workings in the Project Area was relatively

low. Virtually all mines in the Project Area experienced some warm season use. Evidence of extensive summer habitat for Townsend's big-eared bat was located in the Mount Hope Mine. Evidence of maternity use was documented in portions of the Mount Hope Mine closely associated with Adit 9. Additionally, the distribution of Townsend's big-eared bat guano in the Lorraine Mine suggests that this or another maternity colony utilizes these workings (Sherwin 2007).

3.23.2.2.3 Special Status Fish Species

Lahontan Cutthroat Trout

Lahontan cutthroat trout (LCT) is the only ESA-listed species of potential concern under consideration as a result of the proposed Project. LCT were originally listed as endangered under the ESA on October 13, 1970 (35 FR 16047-16048), then reclassified as threatened on July 16, 1975, under the ESA to facilitate management and allow regulated angling (40 FR 29863-29864). The Recovery Plan for LCT was approved on January 30, 1995.

LCT is an inland subspecies of cutthroat trout (family Salmonidae). The species may be either riverine or lacustrine and are endemic to the Lahontan Basin of northeast California, southeast Oregon, and northern Nevada. The range for LCT in Nevada includes the Truckee, Carson, Walker, Quinn, and Humboldt River basins, the Honey and Coyote Lake basins, and Black Rock Desert basin. A portion of the Project Area, and a portion of the wildlife study area falls within the Humboldt River basin, which is the basin that supports the greatest number of fluvial LCT populations (USFWS 1995). The Humboldt River basin is broken up into subbasins. A portion of the wildlife study area is located within the Pine Creek subbasin. Within the Pine Creek subbasin, there are two streams, Birch Creek and Pete Hanson Creek, with five miles of occupied habitat and two streams, Henderson Creek and Vinini Creek, with 15.6 miles of potential habitat (seven and 8.6 miles respectively) for this species with no metapopulation potential (Figure 3.23.4).

Riverine, or stream-dwelling, LCT usually live less than five years and may reach ten to 15 inches in length. Females mature at three to four years of age and males at two to three years of age (USFWS 1995). As with all cutthroat trout, the LCT is an obligate riverine spawner. Spawning occurs from April to July, depending on discharge, elevation, and water temperature. Spawning and nursery habitat is characterized by cool water, pools in close proximity to instream cover, velocity breaks, well-vegetated and stable streambanks, and relatively silt-free rocky substrate in riffle-run areas (USFWS 1995). This species spawns in riffles over gravel substrate when water temperatures are between 41 to 60 °F. Intermittent tributaries are sometimes used as spawning sites during high-water years. Fry may develop in the tributary stream until flushed into the mainstream during high runoff (Coffin 1981; Trotter 1987).

General characteristics of riverine cutthroat habitat include a relatively stable flow regime, a 1:1 pool to riffle ratio, well-vegetated stable streambanks, instream cover exceeding 25 percent, and relatively silt-free riffle-run areas. Cutthroat trout waters generally have a stable summer temperature regime with less than 39 °F fluctuation in water temperature and maximum water temperatures less than 72 °F (Hickman and Raleigh 1982). LCT may have a higher thermal tolerance than other cutthroat trout and can tolerate temperatures exceeding 80 °F for short periods of time and 57 to 63 °F fluctuations of temperature (Coffin 1983; Dickerson and Vinyard 1999). Beaver ponds may provide thermal refuge for trout in the summer and winter.