1.0 INTRODUCTION

1.1 Background

X-Cal Resources, LTD (X-Cal) proposes to conduct mineral exploration activities on 358 unpatented federal lode mining claims located on public lands administered by the Bureau of Land Management (BLM) Winnemucca Field Office. No privately held surfaces or minerals would be involved. The proposed Project Area is located in Desert Valley on the western flank of the Slumbering Hills area of Humboldt County, Nevada, approximately 30 miles northwest of Winnemucca (Figure 1). The Project Area is divided into two blocks: Block A and Block B, and encompasses all or portions of Sections 13, 24, and 25 of T40N, R34E and Sections 7, 8, 9, 10, 15, 16, 17, 18, 19, 20, 21, 22, 28, 29, and 30 of T40N, R35E (Figure 1). Block A generally includes the existing Sleeper Mine complex; Block B is located west of and adjacent to Block A. Each block contains about 2,800 acres. Exploration emphasis would be concentrated in Block A with Block B of secondary importance. The majority of the exploration activities would occur on the Sleeper Mine site as defined by the Plan of Operations boundary, which is accessed from Nevada Route 140.

X-Cal and Kinross each holds 50 percent of the mineral rights in the area identified in the Plan of Operations. Except for X-Cal's permitted drill sites, Kinross has the current mine site liabilities, and Kinross is the bonded party regarding reclamation of previous mining operations. X-Cal has the option to purchase the Kinross interest, and has made payments towards that objective. The remaining step for X-Cal to complete purchase of the Kinross interest is for X-Cal to assume the Kinross mine site reclamation obligations by posting a new bond.

Active mining was conducted at the Sleeper Mine from March 1986 to October 1997. The mine was operated as a conventional open pit operation. The mine facilities at Sleeper consist of two connected major open pits (the Sleeper and the Wood pits), five cyanide heap leach pads with associated solution ponds, a carbon in pulp mill circuit, a tailings impoundment, waste rock disposal areas, and maintenance facilities.

The connected open pits extended into the pre-mining groundwater zone. The groundwater zone was largely dewatered in the pit area during mine operations. Water levels in the groundwater zone are currently recovering in response to completion of dewatering activities, and the open pit is currently a lake.

The five leach pads cover a total of 270 acres and contain a total of 48 million tons of leached oxide and sulfide ore. The heights of the pads range from 96 to 128 feet above original ground level. Nine solution ponds were associated with the leach pads. The ponds are currently used for collection of any solution remaining in the pads.

The tailings impoundment is rectangular and covers a total area of about 156 acres, with 43 acres comprising the embankment crests and outside slopes. The tailings impoundment contains about 6.6 million tons of tailings and is about 40 to 45 feet thick.

The mill and other buildings at the Sleeper Mine site are in the process of being dismantled and removed in preparation for final site closure and reclamation. This process will be continuing concurrently with the proposed X-Cal exploration project.

1.2 Purpose and Need

The purpose of the Proposed Action is to locate and delineate precious mineral deposits within the Project Area. The proposed activities are needed to evaluate the Project Area for the potential of future mine development.

In order to conduct the proposed exploration activities on the public lands, X-Cal submitted a plan of Operations (POO) to the BLM in accordance with BLM Surface Management Regulations at 43 CFR 3809 (as amended). The BLM is required to comply with the National Environmental Policy Act (NEPA) to analyze the impacts that the Proposed Action and possible alternatives would have on the human environment. This Environmental Assessment (EA) is prepared in conformance with NEPA, associated Council of Environmental Quality regulations (40 CFR 1500-1508), and BLM NEPA Handbook H-1790-1 (BLM 1988a).

1.3 Issues and Concerns

The POO was prepared in consultation with BLM personnel, and most issues and concerns were identified during meetings held in the BLM Winnemucca Field office June 11-13, 2003. BLM personnel identified the following issues and concerns regarding the Proposed Action and alternatives:

- Drilling activities could compromise the integrity of existing mine facilities including leach pads, solutions ponds, and tailing impoundment;
- Noxious weeds could be spread through incidental transportation to the site on equipment;
- Wildfires could be initiated by the operation;
- BLM system roads could be affected; and
- Exploration activities could delay or impair reclamation or closure of facilities at the mine site.

1.4 Land Use Plan Conformance Statement

The Proposed Action and Alternatives described in Section 2.0 are in conformance with the Paradise-Denio Management Framework Plan (BLM 1982), and are consistent with federal, state, and local laws, regulations, and plans to the maximum extent possible.

2.0 PROPOSED ACTION AND ALTERNATIVE

Chapter 2.0 describes the Proposed Action and the No Action Alternative. Exploration activities would begin immediately following approval of the Plan of Operations and would be completed by December 31, 2005.

2.1 Proposed Action

2.1.1 General Project Overview

The Proposed Action is designed principally to drill test the known and projected mineralized extensions that occur in this district. Exploration of the property is, and would be, part of an on-going effort to supplement existing mineral resources. X-Cal plans to complete a comprehensive level of exploration to identify any new zones for future expansion. As such, the exploration plan is developed to provide flexibility. In order to effectively complete exploration, drilling would be necessary to define the extent of the resource. When the geologic evaluation is complete in an area, the surface disturbance in that area would be reclaimed. Surface disturbance is proposed to be a maximum of 30 acres. This disturbance acreage would consist of approximately 16 acres of roads and 14 acres of drill pads as shown on Table 1.

TABLE 1

PROPOSED SURFACE DISTURBANCE			
	Total Length (feet)	Average Width (feet)	Acres
Bladed and Non-Bladed Access Roads	46,464 (8.8 miles)	15	16
Drill Sites – between 150 (0.09 acres of disturbance per drill site) and 497 (0.03 acres of disturbance per drill site)	35 - 65 (length of each drill site)	35 – 65 (width of each drill site)	14
Total			**30**

All proposed exploration would be conducted by truck or track mounted reverse circulation and/or diamond core drilling rigs. Best management practices would be used to minimize impacts to air, land, and water resources and to prevent their undue degradation. Exploration operations would include fire suppression and prevention measures as outlined in Appendix A. Drilling exploration would occur within Blocks A and B within the Project Area designated as "X-Cal Plan of Operations Boundary" as shown on Figure 1.

The current area of exploration interest is outlined in Figure 1. Exploration activity could occur anywhere within the Plan of Operations boundary. However, no drilling would occur within 100 feet of the pit highwall. Drilling would not penetrate the tailings impoundment embankment, solution ponds, or heap leach pad liners. In addition, a 20-foot buffer would be maintained around and above the liners of these types of facilities. Exploration within the area of interest would be completed to test extensions of existing zones. The maximum depth of the drill holes would be 2,500 feet. The majority of the drill holes are expected to be between 600 to 2,000 feet deep. The surface area disturbance, described in Table 1 above, includes construction of drill pads, roads, and sumps.

2.1.2 Proposed Drill Sites

An estimated 14 total acres of drill hole sites are proposed. However, many of the proposed drill hole locations would be collared along or within access roads, adding little to the disturbed acreage. Some holes drilled perpendicular to access routes would require drill pads up to 1,225 square feet. However, most holes would require drill pads averaging less than 500 square feet. The actual number of drill holes that could be developed is dependent on the acreage that is disturbed for each drill hole, as shown in Table 1 above. The drilling method would be reverse circulation and/or diamond core drilling.

Water would be used in drilling reverse circulation or core drill holes at the Project Area. Water is obtained from wells located in the Sleeper Pit area and is currently permitted for this use. All water from the drilling activity would be prevented from draining into the pit lake. No new drill pads would be located on the benches or re-contoured benches of the pit. An ample supply of

water exists at the site. There would be no effect to the water supply of any other operation, agricultural or otherwise, resulting from the drill water requirements for the program.

Drill chips and incidental sludge generated during drilling operations would be disposed of in shallow sumps within the established drill pad disturbance. In areas where drilling fluids would not enter the pit lake or surface drainages or cause surface erosion, excess drilling fluids, when encountered, would flow from the sumps and infiltrate into the nearby ground. The sumps would be installed with a backhoe to minimize disturbance. Sumps would be refilled after any fluids placed in the sump have evaporated and/or infiltrated. All drill holes would be drilled and plugged according to the Nevada Administrative Code (NAC) requirements. Standard drilling additives, such as bentonite and cement, are used to drill each hole. The drill holes in which groundwater is encountered would be plugged as a well, in accordance with Nevada Administrative Code 534.4371. Most of the drill holes would be capped upon completion. However, up to four drill holes may be kept open up to 12 months for future exploration work, then abandoned in accordance with NAC requirements, as part of the overall reclamation. No drill holes would be developed as wells.

2.1.3 Proposed Drill Access Roads

An estimated 16 acres of access road to the exploration drill sites is proposed. The average 15 foot road widths include stockpiled fill material and topsoil, each stockpiled in a separate berm along the roadways where both occur. Therefore, the actual road disturbance width would be 10 to 12 feet. Drill access roads would be constructed to minimize the impact and preserve topsoil while ensuring safe operating conditions during the drilling program. When possible, two-track roads would be utilized to minimize surface disturbance (i.e. no construction required, with vehicles following the same two-track path leaving any previously existing vegetation between the two tracks). It is estimated that 70% of the roads would be two-track and 30% of the roads would be constructed. All roads planned on grades of 20 percent or greater would follow BLM guidelines and be approved by the BLM prior to construction. All existing drill access roads used by X-Cal in this Proposed Action would be maintained by X-Cal. If altered by X-Cal, they

will be remediated to a condition matching or improving their status prior to the commencement of exploration activities, or as approved by the BLM.

2.1.4 Equipment

Roads and sumps would be constructed and reclaimed with an excavator and/or a bulldozer. Drill holes would be completed with reverse circulation and/or diamond core drilling rigs, which are equipped with rubber tires and/or tracks. Four-wheel-drive vehicles and perhaps ATVs would be used on the access roads. Two water trucks would be used to provide water during drill hole drilling, and to prevent fugitive dust emissions. The water trucks are equipped with 2-inch hoses, for fire suppression. Spill kits containing adsorbent pads, shovels and USDOT-approved barrels would be available to clean up any hazardous spills. Fuel storage would be provided for at the Sleeper Mine site.

2.1.5 General Schedule of Operations

Operations would commence as soon as possible upon approval by the BLM and in conjunction with any state regulations, and could occur during any month of the year. The project is currently operating under the Mining Notice level. The project is envisioned to be completed by December 31, 2005.

Each of the work areas would either be final or interim reclaimed annually, by November 15 of each year work is performed. An area which is interim reclaimed would again be explored during the following field season, which is between March and November. That area would then be either final or interim reclaimed at the end of that field season, depending on the results of the exploration work (see Section 2.1.9 Reclamation below). A map would be submitted to the BLM each year by November 15 showing the current and projected areas of disturbance. The reclamation status of the disturbed areas would also be shown on the map.

2.1.6 Work Force

The exploration activities described in this Proposed Action are expected to employ approximately 18 contractors and two X-Cal employees. Two or more drill rigs may operate concurrently at times. Approximately 14 of the contractors would be involved in drilling operations and would include a driller, driller's helper, sampler, geologist, backhoe and/or dozer operator and other support crew as necessary. Approximately four contractors may be involved in other miscellaneous activities. The contractors would stay in motels in the area while working at the site.

2.1.7 Access to Project Area

Access to the Project Area would be by the existing main access road from Nevada Highway 140 to the Sleeper Mine (Figure 3). No new road construction for access to the Project Area would be necessary. This existing main access road was approved as part of the Sleeper Mine and expansion Plans of Operation (EA #NV-020-5-22, 1985 and amendment, 1988b). These approvals called for the main access road to be maintained by the mine operator and would revert maintenance of the road to BLM upon meeting final reclamation requirements. In the event that Kinross completes reclamation activities and abandons the Sleeper Mine site, including this existing main access road, prior to X-Cal's completing the proposed exploration activities, this existing main access road is part of X-Cal's Plan of Operations (Proposed Action as analyzed under this EA) and X-Cal would maintain this existing main access road to the Project Area in as good or better condition as existed upon Kinross's abandonment. This existing main access road would revert to BLM maintenance responsibility upon X-Cal's final reclamation and abandonment of their activities in the Project Area.

2.1.8 Environmental Monitoring and Protection Measures

2.1.8.1 Infrastructure

To the extent possible, the exploration crew would use the existing facilities within the Sleeper Mine to minimize the required imported facilities and associated surface disturbance, and to minimize the potential for incidental fuel and oil spills. Any spills would be reported and remediated according to applicable Nevada State and Federal regulations.

2.1.8.2 Surface Water Management

Best Management Practices (BMPs), such as those described in this section, would be employed during all exploration activities to prevent and/or minimize erosion from the disturbed areas.

Construction and drilling activities would avoid springs or seeps. Sumps on the drill pads and/or berms around the drill pads would be used to settle drill cuttings and to prevent their release off the approved disturbance. Straw bales and/or silt fences would be placed in any proximal drainages to capture sediment from storm event/snow melt runoff. Straw bales and silt fences will be removed when no longer needed to protect drainages. Drill site access would use two-track roads whenever possible, to minimize erosion and water run-off. Water bars and/or ditches would be constructed on steep sections of newly constructed roads to control erosion and run-off.

2.1.8.3 Groundwater Management

As stated in Section 2.1.2, all drill holes would be drilled and plugged according to the Nevada Administrative Code requirements. The holes in which groundwater is encountered would be plugged as a well, in accordance with Subsection 2 of NAC 534.420. By following these regulations, groundwater would be protected from potential future migration of surface contamination.

2.1.8.4 Dust Control

The proposed project would operate under an air emission permit (number AP1629-1322) issued by the Nevada Division of Environmental Protection (NDEP). The permit would contain any stipulations required by the NDEP to ensure air quality protection. X-Cal would spray water on roads and/or reduce speeds to control fugitive dust. Water would also be sprayed when activities generate dust.

2.1.8.5 Weed Management

X-Cal would develop and implement a weed monitoring and control program that meets the requirements of BLM. The undercarriage and wheels of vehicles traveling into the Project Area would be power-washed at a commercial vehicle washing facility before entering the Project Area. Wash water would be handled and disposed of in accordance with the procedure used by the commercial facility. After washing, vehicles would not travel through known noxious weed infestations during periods when seeds or vegetative portions of the weeds, which could result in spreading the weeds, are present. X-Cal would contact the BLM if any noxious weeds are discovered resulting from exploration activities, and X-Cal would treat these noxious weeds to control their spread subject to acquiring the necessary permits from BLM.

2.1.8.6 Cultural Resources

All exploration activities would avoid known eligible or potentially eligible cultural resource sites. All of Block A, except for a small portion in the northwest corner, has been inventoried for cultural resources (Figure 2), and no cultural sites eligible or potentially eligible are known to exist there. Most of Block B has not been inventoried for cultural resources (Figure 2). Prior to disturbing surfaces where cultural resources have not been inventoried, X-Cal would:

- Prepare and submit to the BLM a map showing the location of planned disturbances;
- Prior to surface disturbance, cultural resource inventories would be conducted and submitted to the BLM; and
- Should cultural resources be present, X-Cal would either avoid cultural resources or develop a mitigation plan to be submitted to BLM for review and concurrence, prior to implementing surface disturbing activities.

Should any cultural resource artifacts or sites not previously identified become apparent, the field personnel onsite would immediately cease activities and notify the Project Coordinator. The Project Coordinator would immediately inform the BLM authorized agent. In accordance with 43 CFR 10.4 (g), the field representative shall notify the BLM authorized officer by telephone, with written confirmation, immediately upon discovery of human remains, funeral objects, sacred objects, or objects of cultural patrimony (as defined in 43 CFR 10.2). Further, in accordance with 43 CFR 10.4 (c) and (d) all activities in the vicinity of the discovery shall stop and the site be protected for 30 days or until notification to proceed by the BLM authorized officer.

2.1.8.7 Wildlife

Prior to surface disturbance during the nesting season (March through June) for migratory birds, a qualified, BLM-approved, biologist would conduct bird and nest surveys. Bird nests would be avoided by relocating proposed drill holes and access roads. No fences, or other structures which could inhibit wildlife movement, would be constructed. Wildlife mortalities, as a consequence of the Proposed Action, would be monitored and reported to the BLM and Nevada Division of Wildlife.

2.1.8.8 Spill Response and Control

Spill Reporting

All spills, regardless of size or quantity, would be reported immediately to one of the X-Cal Site Managers who would be responsible for spill clean up. Fuels and lubricants are the materials

that would be most likely to be spilled in the Proposed Action. Excess cement and bentonite that would have spilled around the drill hole, would be broken up and dispersed. Unused cement and bentonite would be stored for future drilling.

The following information regarding the spill would be communicated to the Project Coordinator:

- The chemical name of the substance that spilled or leaked;
- An estimate of the quantity that spilled or leaked;
- The time and duration of the release;
- Where the release is deposited;
- Why the release occurred;
- Any immediate health and safety, or environmental threats or issues; and
- The spill response action(s).

Spills that must be reported immediately to state and federal agencies include:

- Spills of any petroleum hydrocarbon substance that exceeds 25 gallons on the ground;
- Spills that cannot be totally cleaned up within 24 hours; and
- Spills of any substance that reach a surface water body.

Spill Clean Up Procedures

Trained personnel would immediately respond by employing the spill kit (after below procedures 1-4 are followed) to contain the spill. The first step in any emergency situation is to ensure that personal safety is not threatened. The spill clean up procedures are as follows:

1. Survey the situation and assess the safety and environmental threats.
2. Never address any emergency situation alone; call for a back-up person.
3. Assemble the required personal protective and clean up equipment.
4. Always wear chemical protective gloves to clean up a spill. If the spill or leak has the potential to contaminate clothing or skin, wear chemical protective suit, such as tyvek, chemical protective boots, and any other gear as necessary.
5. Prevent the spill or leak from spreading by using oil absorbent socks, building a dike or trench, or cover with sand or other absorbent material.

6. Plug a leak from a drum or container with a compatible material to stop material from leaking.
7. Clean up smaller spills with rags, which would then be placed in closed, sealed metal fire proof containers that comply with all applicable Federal and Nevada State Fire Regulations.
8. Clean up larger spills/leaks with absorbent socks and/or pillows. Place the socks and/or pillows in empty 55 gallon drums compatible with the spilled material. All drums would be properly labeled and would include a lid that would be secured. Call a licensed hazardous waste contractor to dispose of the contaminated absorbent materials.
9. Call a licensed hazardous waste contractor to clean up/remediate any spills that cannot be cleaned up by X-Cal personnel.
10. Assess what actions could have been taken to prevent the spill/leak from occurring and modify work procedures/methods as appropriate.

2.1.9 Reclamation

The Plan of Operations provides details for reclamation of proposed exploration activities. As required by the Surface Management Regulations at 43 CFR 3809, X-Cal would provide an acceptable reclamation bond.

The objective of the reclamation plan is to:

- Stabilize and protect surficial soil materials;
- Protect public health by eliminating hazards;
- Protect surface and groundwater resources;
- Ensure long term stability of disturbed areas;
- Establish a diverse self sustaining vegetation community on reclaimed surfaces;
- Meet post-mining land uses; and to
- Provide for concurrent reclamation.

The reclamation objectives would be met by regrading, reseeding, and other similar means to stabilize the disturbance associated with the project. Reclamation would be focused on stabilization and protection of soil erosion through the use of recontouring, regrading, and revegetation activities where appropriate to meet the reclamation objectives as outlined in the U.S.D.I. Solid Minerals Reclamation Handbook #H-3042-1 (BLM, 1992), Surface Management of Mining Operations (NSO) Handbook H-3809-1 (BLM, 1989a), and re-vegetation success standards per BLM/NDEP "Guidelines for Successful Re-vegetation" (BLM, 1989b).

Remaining exploration roads would be reclaimed upon completion of the exploration activities in the areas accessed by the road(s). Where roads are built on the existing contour, they would be ripped to a depth of at least 6 inches and seeded using a BLM approved seed mix (Appendix B). In areas where roads are built using cut and fill methods, the exploration roads would be re-contoured from the top of the cut to the bottom of the fill. All material cast to the side would be pulled back to prevent erosion along the road surface. The road berms would be pulled back to the road surface and blended with the natural contour of the slope. The disturbed area would then be seeded using an approved BLM seed mix.

2.1.9.1 Interim Stabilization

Areas that are expected to have follow-up drilling during the next season would be interim stabilized as opposed to final reclamation, which is described below. Topsoil stockpiles (stored uphill of cuts) and fill stockpiles (stored downhill of cuts) developed from road construction would be seeded (using BLM-approved seed mix in Appendix B) after installation for stabilization and erosion control and weed control purposes. Water bars, or other appropriate water control management methods, would be installed on roads to minimize water flow incising along road surfaces. These measures would reduce erosion during the period prior to final reclamation. Straw bales would be installed as necessary in drainages as silt barriers.

All work areas would be kept clean. All trash and solid wastes would be removed from the property and disposed of at approved disposal sites as needed to keep the area clean. All

portable equipment would be removed from the Project Area during extended periods of non-operation and would be stored in appropriate designated storage areas.

2.1.9.2 Concurrent Reclamation

Areas that have no future work anticipated would have final grades re-contoured and seeded. Roadbed and drill pad cut material would be replaced first, followed by topsoil replacement on top. A BLM-approved seed mixture would be used for reseeding. Water breaks would be cut on slopes 20 percent grade or steeper portions of reclaimed roads and sumps. Any placed culverts would be removed and crossings re-contoured and reseeded. Final reclamation would attempt to restore the surface to its pre-existing condition. Drill holes would be plugged per State of Nevada Administrative Code requirements (NAC 534.420 or NAC 534.4371). Reclamation would comply with the U.S.D.I. Solid Minerals Reclamation Handbook #H-3042-1 (BLM, 1992), Surface Management of Mining Operations (NSO) Handbook H-3809-1 (BLM, 1989a), and re-vegetation success standards per BLM/NDEP "Guidelines for Successful Re-vegetation" (BLM, 1989b).

2.2 No Action Alternative

Under the No Action Alternative, the Proposed Action would not be approved by the BLM, and exploration in the Project Area would continue under any previously approved Plan of Operations, Mining Notices, and permits.

3.0 AFFECTED ENVIRONMENT

The purpose of this Section is to describe the existing environment of the Project Area to be affected or created by the alternatives under consideration.

The Project Area is located at about 4,150 feet elevation in Desert Valley on the western flank of the Slumbering Hills of Humboldt County, Nevada, about 30 miles northwest of Winnemucca (Figure 1). Block A of the Project Area includes the Sleeper Mine complex at a point where the steeper slopes of the range gently grade onto the valley floor. Block B of the Project Area is located west of and adjacent to Block A, and extends westerly onto the valley floor.

The following fifteen critical elements of the human environment are subject to requirements specified in statute, regulation, policy, or executive order and must be considered in the Proposed Action and Alternatives of all EA's. The elements present within the Project Area have been analyzed in this EA; all others have not been further analyzed.

TABLE 2
CRITICAL ELEMENTS OF THE HUMAN ENVIRONMENT

Critical Element	Present	Affected	Critical Element	Present	Affected
Air Quality	Yes	Yes	Native American Religious Concerns	No	No
Areas of Critical Environmental Concern	No	No	Threatened & Endangered Species	No	No
Cultural Resources	Yes	Yes	Wastes, Hazardous/Solid	Yes	Yes
Environmental Justice	No	No	Water Quality	Yes	Yes
Farmlands, Prime/Unique	No	No	Wetlands/Riparian Zones	Yes	No
Floodplains	No	No	Wild & Scenic Rivers	No	No
Invasive, Nonnative Species	Yes	Yes	Wilderness	No	No
Migratory Birds	Yes	Yes			

In addition to the critical elements of the human environment, the following other resources are present in the Project Area, and are analyzed in this EA:

- Geology
- Soils
- Hazardous Materials
- Realty

The following other resources are either not present or not affected by the Proposed Action and Alternative, and are not analyzed in this EA:

- Range;
- Visual resources;
- Recreation;
- Wild horses and burros; and
- Socio-economic concerns.

3.1 Air Quality

The Project Area is in a permanent rain shadow caused by the Jackson Mountains, which bound the western side of Desert Valley. The mean annual precipitation is about 7 inches (Telesto, 2003). The mean annual low temperature is about 33 degrees F, with the lowest of about 17 degrees F occurring in January. The mean annual high temperature is about 65 degrees F, with the highest of about 91 degrees F occurring in July (Western Regional Climate Center, 2003). Winds are generally westerly with local variations due to mountain ranges. The Project Area is within the Nevada Division of Environmental Protection (NDEP) Air Quality Region No. 31, a basin considered "unclassified." The air quality of the Project Area is generally good and typical of large rural areas within the Great Basin. Dust storms and wildfires may reduce air quality during the summer months. The Proposed Action would operate under air permit number AP1629-1322 from the NDEP to ensure air quality protection. Although not related to the Proposed Action, one NDEP air permit, number AP1041-1152, is currently in effect for two lime silos used for balancing pit lake chemistry during mine reclamation at the Sleeper Mine.

3.2 Cultural Resources

During the permitting of the Sleeper Mine, Class III cultural inventories were completed to investigate the potential cultural resources in the area. Inventories #CR2-1024(P), #CR2-2226(N), and #CR2-2243 covered the majority of Block A and the eastern portion of Block B as shown in Figure 2. It was determined through field tours, mitigation and consultation with the State Historic Preservation Office that these sites did not meet the criteria of either a National Register District or individually.

3.3 Invasive, Nonnative Species

The Sleeper Mine site is in the process of reclamation and has been partially revegetated using a BLM approved seed mixture. Noxious weeds are not currently considered a problem on the site; however, some weedy species do occur. Although no noxious weed survey was completed for this Proposed Action, hoary cress, whitetop, halogeton, and cheat grass are known to occur at various locations on the site. A substantial invasion of tamarisk and whitetop has occurred in the old marsh area located in Block B of the Project Area (Figure 2).

3.4 Wildlife

Pronghorn antelope (*Antilocapra americana*) and mule deer (*Odocoileus hemionus*) occur in the area. Mule deer are known to use the reclaimed area for forage (personal communication with Glenn Alexander, Project Supervisor, Sleeper Mine, June 2003). Other mammal species in the area include the coyote (*Canis latrans*), kit fox (*Vulpes macrotis)*, black-tailed jackrabbit (*Lepus californicus*), cottontail (*Sylvilagus* sp.) and several species of rodents, including kangaroo rats (*Dipodomys* sp.) kangaroo mice (*Microdipodops* sp.), pocket mice (*Perognathus* sp.), desert woodrat (*Neotoma lepida*), and deer mouse (*Peromuscus maniculatus*).

Migratory bird species associated with the vegetation communities in the Project Area include black-throated sparrow (*Amphispiza bilineata*), sage sparrow (*A. belli*), horned lark (*Eremophila alpestris*), western meadowlark (*Sturnella neglecta*), gray flycatcher (*Empidonax wrightii*), and

common raven (*Corvus corax*). Raptor species that may occur, or at least forage, in the area include the prairie falcon (*Falco mexicanus*), golden eagle (*Aquila chrysaetos*), red-tailed hawk (*Buteo jamaicensis*), northern harrier (*Circus cyaneus*), great-horned owl (*Bubo virginianus*), short-eared owl (*Asio flammeus*), and burrowing owl (*Athene cunicularia*).

Reptiles, which would be expected to occur in the area, include western rattlesnake (*Crotalus viridis*), gopher snake (*Pituophis melanoleucus*), collard lizard (Crotaphytus), and side-blotched lizard (*Uta stansburiana*) (Water Management Consultants, Inc., 1999).

Because the open pit in Block A has substantially filled with water, migratory waterfowl and shorebirds may occur in the Project Area. Species likely to occur include Canada goose (*Branta canadensis*), green-winged teal (*Anas carolinensis*), mallard (*A. platyrhynchos*), American coot (*Fulica americana*), American avocet (*Recurvirostra americana*), and killdeer (*Charadrius vociferus*).

3.4.1 BLM Sensitive Species

The BLM sensitive species, which are most likely to occur in the Project Area, are the western burrowing owl, *Athene cuncicularia hypugea*, pygmy rabbit, *Brachylagus idahoensis*, and sage grouse, *Centrocercus urophasianus*. Additional information is provided below.

Western burrowing owl - No known colonies have been observed in the Project Area; however western burrowing owl habitat is present. The major habitat needs of western burrowing owls are prairie-like terrain with low herbaceous vegetation, deep soil for burrows, the occurrence of mammals that excavate burrows, and a food supply. They are adapted to open, usually dry country with short vegetation.

Pygmy rabbit - The pygmy rabbit, sagebrush obligate species, prefers stands of *Artemisia tridentata*. Pygmy rabbits mate in early spring and summer. Its primary food is sagebrush that makes up 99% of its diet. Grasses are an important food in the spring and summer, comprising

as much as 30-40% of its diet. However, due to the location, and lack of *A. tridentatia* in the Project Area, there are no foreseeable impacts to pygmy rabbit habitat.

Sage grouse - The Project Area contains no summer, nesting, brood rearing or important wintering habitat or lek sites used for mating.

Sage grouse are found throughout the West and have been declining for many years. These declines are primarily are due to loss, degradation, and fragmentation of habitat. In late winter to early spring, sage grouse gather on traditional breeding grounds known as leks. The males arrive first, with hens arriving a few weeks later to mate. Leks are usually small, open areas of 0.04 to 4 hectares, preferably surrounded by dense sagebrush that strutting birds can use for cover. Leks are generally used from late February to late May. After mating, sage-grouse hens leave the lek to lay their eggs, usually building a nest within 7-10 days. A basic requirement of nesting cover is concealment of the sage grouse hen and her nest. Quality nest sites will offer shelter from above by branches, good growth of understory grasses, and sagebrush within 70 centimeters (cm) of the nest. Sage grouse usually lay 6-8 eggs and have an incubation period of 25-27 days. Peak hatching occurs from the last week of May through the second week of June, depending on weather conditions.

Hens with broods require well-sheltered areas that provide protection from predators and the weather. Proximity to preferred forbs is important. Chicks leave the nest and begin feeding several hours after hatching. Chicks have limited mobility, so suitable food such as forbs and insects must be close by. As plants mature and dry, broods move to areas still supporting succulent vegetation, such as native or irrigated meadows, and high elevation drainages. These areas are important as a source with forbs, insects, and free water. Adult and juvenile birds congregate in these wetter areas during late summer and early fall.

As these areas dry, sage grouse consumption of sagebrush increases and the grouse move to lowlands for the winter season. During the winter, sage grouse feed almost entirely on sagebrush leaves. Typical winter ranges are large expanses of dense sagebrush (>20% canopy cover) with an average height of 25 cm. This association with dense sagebrush stands typically begins in

September and continues through the breeding season. Winter areas are critical to sage grouse and are a limiting factor determining sage-grouse distribution.

The following parameters have been found to constitute good conditions for sage grouse use:

1. Strutting habitats
    (a) Low sagebrush or brush free areas for strutting and nearby areas of sagebrush having 20-50% canopy cover for loafing.
2. Nesting habitats
    (a) Between 7 and 31 inches of sagebrush height (optimum of 16 inches);
    (b) Sagebrush canopy cover between 15-30% (optimum of 27%);
    (c) 25-35% basal ground cover; and
    (d) Average understory height of 6-7 inches.
3. Brood rearing habitats
    (a) Early season
        i) Sagebrush canopy cover of between 10 and 21% (optimum of 14%).
    (b) Late season
        i) Meadow areas that are in functioning condition; and
        ii) Residual meadow vegetation of no less than 3-6 inches in height.
4. Wintering habitats
    (a) Greater than 20% sagebrush canopy cover.

Habitat is not available in the Project Area to support pygmy rabbits and/or sage grouse. However, habitat to support western burrowing owls does occur in the Project Area.

3.5 Vegetation

The Project Area is located in the Basin and Range Physiographic Province and is within the Great Basin Salt Desert Shrub ecological zone. This zone is typified by alkaline to saline soils and low to medium-growing shrubs such as shadscale (*Atriplex confertifolia*), four-wing saltbush

(*Atriplex canescens*), black greasewood (*Sarcobatus vermiculatus*), and budsage (*Artemesia spinescens*). Other shrubs in the area include Wyoming big sagebrush (*Artemesia tridentata wyomingensis*), rabbitbrush (*Chrysothamnus* sp.), spiny hopsage (*Grayia spinosa*), and Torrey quailbush (*Atriplex torreyi*). The dominant herbaceous vegetation is cheat grass (*Bromus tectorum*). Other herbaceous components include bottlebrush squirreltail (*Sitanion hystrix*), inland saltgrass (*Distichlis spicata*), Indian ricegrass (*Oryzopsis hymenoides*), needle-and-thread (*Stipa* sp.), basin wildrye (*Elymus cinereus*), and alkali sacaton (*Sporobolus airoides*) (Water Management Consultants, Inc., 1999).

The composition of a plant community type is a function of soil chemistry, elevation, precipitation zone, aspect, and other variables. The landforms, and thus the vegetation component, in Block A of the Project Area have been largely altered by mining activities, including reclamation and revegetation. A portion of the plant communities in Block B were altered by the creation of marshes with water discharged during pit dewatering activities. The marshes are currently dry, and, although the vegetation is being replaced naturally, a substantial invasion of tamarisk and whitetop has occurred in the old marsh area located in Block B of the Project Area.

Lands burned in wildfires have been rehabilitated south of the Project Area. No rehabilitation of lands previously burned in wildfires has occurred in the Project Area.

3.6 Threatened, Endangered, and Candidate Species

A list of species protected under the Endangered Species Act, which may occur in the Project Area was requested from the US Fish and Wildlife Service (USFWS). The USFWS responded with a letter, which is provided in Appendix C. The USFWS letter states that "To the best of our knowledge, there are no endangered, threatened, proposed, or candidate species in the project area."

3.7 Water Resources

3.7.1 Groundwater

The Project Area is located in the Desert Valley Hydrographic Area of the Black Rock Desert Hydrographic Basin (Region 2). The Desert Valley Hydrographic Area covers 1,052 square miles in Humboldt and Pershing counties. The Desert Valley Hydrographic Area is considered a 'designated groundwater area' by the Nevada Division of Water Resources. A designated groundwater area is one where permitted groundwater rights approach or exceed the estimated annual recharge and the water resources are being depleted or require additional administration.

The following hydrogeologic units are identified at the Sleeper Mine Site (Telesto Solutions, Inc., 2003):

- Shallow Ground Water Zone (occurring in clays, silts, and sands);
- Basal Gravel Aquifer; and
- Volcanic Bedrock.

Groundwater naturally flows to the northwest, from the range front of the Slumbering Hills towards the central portion of the Desert Valley. The principal water-bearing unit is the Basal Gravel Aquifer, which thickens toward the west and pinches out to the east along the valley margin. Recharge to the system takes place primarily along the mountain front, where seasonal surface water flow in ephemeral stream channels infiltrates into alluvial materials.

3.7.1.1 Shallow Ground Water Zone

The Shallow Ground Water Zone is composed of silty-clayey sediments that are thin near the basin margins and thicken to the west towards the central portion of Desert Valley. Discrete and well-developed sand layers, that have higher hydraulic conductivity than the adjacent fine-grained materials, are found within the zone. The Shallow Ground Water Zone varies in

thickness from near surface along the east side of the existing pit to about 100 feet just west of the pit area in Block A.

The upper portion of the Shallow Ground Water Zone consists predominantly of clays and silts. Falling head tests conducted using on-site investigation boreholes (Telesto Solutions, Inc., 2003) indicate hydraulic conductivities ranging from 0.5 to 19 ft/day (2 X 10^{-4} to 4 X 10^{-3} cm/sec) in these materials.

A pervasive sand layer, referred to as the Intermediate Sand Layer, has been mapped across the Sleeper Mine Site (Block A). It has been interpreted that the Intermediate Sand Layer has a higher conductivity than adjacent (finer-grained) materials. The sand becomes finer-grained and has lower hydraulic conductivity to the west.

The Shallow Ground Water Zone was essentially dewatered while the Sleeper Mine was in production. Since mine-related dewatering has ceased, the recovering ground water has re-saturated this zone.

3.7.1.2 Basal Gravel Aquifer

The thickness of the Basal Gravel Aquifer ranges from near 0 feet along the eastern portion of Block A to over 500 feet about one mile west of the existing pit, near the western border of Block A. The Basal Gravel Aquifer is considered to be a single, continuous hydrologic unit that controls most groundwater flow within the immediate area.

Hydraulic conductivity of the Basal Gravel Aquifer is typically in the range of 75 to 100 ft/day (2.6 X 10^{-2} to 3.5 X 10^{-2} cm/sec), but locally, can be as high as 200 to 500 ft/day (7.1 X 10^{-2} to 1.8 X 10^{-1} cm/sec). In the area of Block A, dewatering wells completed in the Basal Gravel Aquifer sustained yields up to 1,600 gallons per minute (gpm).

Prior to dewatering operations when the Sleeper Mine was in production, the hydraulic gradient in the Basal Gravel Aquifer was similar to that of the water table in the overlying Shallow

Ground Water Zone. The unit was unsaturated in the eastern portion of Block A, where its base is higher than the pre-mining water table elevation of 4,113 feet above mean sea level. The unit was largely dewatered in the pit area during mine operations. Water levels in the aquifer, and thus in the pit, are currently recovering to near pre-mining levels, in response to termination of dewatering activities. Pit lake elevations were measured at about 4,090 feet above mean sea level in 2002 and 2003 (Nevada Gold Mining Inc., 2003).

3.7.1.3 Volcanic Bedrock

The top of the Volcanic Bedrock deepens to the west of Block A towards the center of Desert Valley basin. The depth below original ground surface to bedrock ranges from near surface along the current east pit wall to about 170 feet along the current west pit wall.

Groundwater movement in bedrock occurs by fracture flow. The frequency, orientation, and aperture of bedrock fractures are highly variable, leading to a wide range in hydraulic conductivity.

Range front faults and associated cross-faulting has caused the bedrock groundwater system to become compartmentalized. While fracturing near fault zones may enhance the bulk hydraulic conductivity of bedrock, the fault zones tend to be barriers to flow. Flow barriers are formed by a combination of fault gouge and chemical alteration along the fault plane. As a consequence, there can be significant variations in hydraulic head over short distances in bedrock, particularly near pumping wells. Due to the complexity of faulting and associated gouge formation, it is interpreted that widespread groundwater movement does not occur in bedrock.

At the end of mining, 5 to 10 percent of the dewatering system flow rate was derived from Volcanic Bedrock resulting in complex patterns of depressurization, due to the compartmental nature of bedrock materials. After termination of dewatering, the bedrock experienced rapid repressurization and resaturation.

3.7.1.4 Groundwater Quality

Groundwater in the Basal Gravel Aquifer has the chemical characteristics shown in Table 3, provided by Nevada Gold Mining Inc., 2003. These concentrations were measured in water samples from monitoring wells in 2003 as reported to NDEP. The water quality is generally good with few exceedances of NDEP standards. These exceedances are found in well EP4D for chloride, mercury, and TDS. No use of groundwater for drinking water is currently known in the immediate vicinity of the Project Area. Due to the low population of the area, no use of groundwater for drinking water is anticipated in the near future.

3.7.2 Surface Water

There are no perennial surface water flows in the Project Area. All drainages in the immediate vicinity are ephemeral and flow only in response to large storm events. Surface water quality data from these drainages are not available. Groundwater in the mine area is filling the open pit, located within the Project Area, thus creating surface water. The current pit lake elevation of about 4,090 feet above sea level creates a lake of about 190 acres (Nevada Gold Mining Inc., 2003). Water quality in the two connected pits is provided in Table 4. Water quality in the pit lake is generally good. Only manganese, sulfate, and TDS exceeded the NDEP water quality standards in the pit lake.

TABLE 3

GROUNDWATER QUALITY IN THE BASAL GRAVEL AQUIFER – SLEEPER MINE [1]

Elements	Concentration/Value[2]				Nevada NDEP Profile II Standards[3]
	EP3D	EP4D	EP5D	OH36	
Alkalinity, Total	200	160	200	220	---
Bicarbonate	200	160	200	210	---
Aluminum	<0.05	0.06	<0.05	<0.05	0.05-0.2
Antimony	<0.002	<0.005	<0.002	<0.002	0.146
Arsenic	.022	0.026	0.034	0.04	0.05
Barium	.042	0.12	0.038	0.034	2.0
Beryllium	<0.002	<0.005	<0.002	<0.002	0.004
Boron	.86	0.88	0.8	1	---
Cadmium	<0.002	<0.005	<0.002	<0.002	0.005
Calcium	21	360	24	20	---
Chloride	160	**1500**	160	150	250-400
Chromium	0.006	0.005	0.006	0.005	0.1
Copper	<0.002	<0.005	<0.002	<0.002	1.3
Fluoride	1.1	0.56	1.3	1.3	2-4
Iron	<0.002	<0.005	<0.05	<0.05	0.3-0.6
Lead	<0.002	<0.005	<0.002	<0.002	0.015
Magnesium	3.7	65	4.7	3.7	125-150
Manganese	0.005	<0.005	<0.002	<0.002	0.05-0.10
Mercury	<0.0002	**0.0021**	<0.0002	<0.0002	0.002
Nickel	0.039	0.018	<0.002	<0.002	0.1
Nitrate	0.54	0.97	0.56	0.57	10
PH	8.21	8.03	8.22	8.33	6.5-8.5
Potassium	18	49	18	19	---
Selenium	<0.012	0.04	<0.012	<0.012	0.05
Silver	<0.002	<0.005	<0.002	<0.002	0.1
Sodium	200	520	210	200	---
Sulfate	140	220	140	130	250-500
Thallium	<0.001	<0.0025	<0.001	<0.001	0.002
TDS	670	**2900**	700	700	500-1000
Cyanide, WAD	<0.01	0.04	<0.01	<0.01	0.2
Zinc	<0.02	<0.05	<0.02	<0.02	5.0

[1] Samples Taken from Basal Gravel Aquifer Wells EP3D, EP4D, EP5D, and OH36; for 2nd Quarter 2003 reporting (Nevada Gold Mining Inc. 2003)

[2] All units in mg/l except pH, which is in s.u

[3] From NDEP Bureau of Mining Regulation and Reclamation Form 0090, Quarterly Monitoring Report numbers in bold exceed the NDEP Profile II standards.

TABLE 4
WATER QUALITY OF SLEEPER AND WOOD PIT LAKES[1] – SLEEPER MINE

Element	Concentration/Value[2]		Nevada NDEP Profile II Standards[3]
	Sleeper Pit	**Wood Pit**	
Alkalinity, Total	72	74	---
Bicarbonate	72	74	---
Aluminum	<0.05	<0.05	0.05-0.2
Antimony	0.004	0.003	0.146
Arsenic	<0.002	<0.002	0.05
Barium	0.025	0.025	2.0
Beryllium	<0.002	<0.002	0.004
Boron	1	1	---
Cadmium	<0.002	<0.002	0.005
Calcium	350	350	---
Chloride	270	270	250-400
Chromium	<0.002	0.002	0.1
Copper	0.005	0.007	1.3
Fluoride	1.2	1.2	2-4
Iron	<0.05	0.12	0.3-0.6
Lead	<0.002	<0.002	0.015
Magnesium	54	55	125-150
Manganese	**0.25**	**0.25**	0.05-0.10
Mercury	<0.0002	<0.0002	0.002
Nickel	0.074	0.077	0.1
Nitrate	0.34	0.34	10
PH	8.06	8.07	6.5-8.5
Potassium	25	25	---
Selenium	<0.012	<0.012	0.05
Silver	<0.002	<0.002	0.1
Sodium	310	310	---
Sulfate	**1300**	**1300**	250-500
Thallium	0.002	0.002	0.002
TDS	**2400**	**2400**	500-1000
Cyanide, WAD	<0.01	<0.01	0.2
Zinc	0.089	0.08	5.0

[1] Samples taken at 15 feet depth for 2nd Quarter 2003 reporting (Nevada Gold Mining Inc., 2003)
[2] All units in mg/l except pH, which is in s.u.
[3] From NDEP Bureau of Mining Regulation and Reclamation Form 0090, Quarterly Monitoring Report

3.8 Geology

The Project Area is located within the Basin and Range Physiographic Province. Ground elevations around Block A slope gently to the west-northwest from about 4,300 feet on the east side on the flanks of the Slumbering Hills to about 4,140 feet above mean sea level on the western side - over a distance of about 8,000 feet. Depth to bedrock beneath Block A varies between five feet or less on the steeper western slopes of the Slumbering Hills to as much as 120 feet toward the valley floor.

Block B is located west of and adjacent to Block A, and is completely on the valley floor. Surface elevations of Block B slope even more gently to the west from about 4,150 feet adjacent to Block A to about 4,120 feet - over a distance of about 9,000 feet at the western boundary. Due to a limited amount of deep exploration, less is known about the underlying geology of Block B (Telesto Solutions, Inc., 2003).

3.8.1 Stratigraphic Sequence

Three main geologic units occur beneath the Project Area. They are listed below from oldest to youngest:

- Volcanic bedrock, which underlies the alluvium throughout most of the area of Desert Valley;
- Older alluvium, representing basin-fill sediments derived from the Jackson Mountains and the Slumbering Hills; and
- Younger alluvium, representing sediments associated with the Pleistocene Lake Lahontan (Telesto Solutions, Inc., 2003).

3.8.2 Volcanic Bedrock

The bedrock in the area of Block A consists of a layered sequence of Tertiary volcanic rocks, primarily ash flow tuffs, with minor basalts and rhyolites. The volcanic units dip to the east at about 15° and have been subjected to varying degrees of silicification and argillization.

Typically, the upper 100 to 300 feet of the bedrock is oxidized. The volcanic sequence is underlain in the area of the open pit at a depth of greater than 2,000 feet by Triassic metasedimentary rocks. Undifferentiated Triassic metasedimentary rocks crop out along the range front bordering the east side of Block A.

The bedrock forms an irregular surface beneath the Basal Gravel Unit (described below). The bedrock surface shows distinct northwest to north-northwest trending paleochannels where the overlying alluvium is thicker (Telesto Solutions, Inc., 2003).

3.8.3 Older Alluvium

The older alluvium is present over the full extent of the floor of Desert Valley. The unit is composed of unconsolidated silty, sandy, fine to coarse, poorly sorted gravel. It forms the Basal Gravel Aquifer in the area of Block A. Data from exploration drill holes indicate that grain size becomes smaller and the unit becomes better sorted with increasing distance west from the Slumbering Hills range front. The basin-fill deposits are likely to be more consolidated and, in some areas, may be partially lithified within the deeper parts of the basin.

The surface of the Basal Gravel unit dips to the west-northwest. The unit occurs at a depth of less than 40 feet along the eastern edge of Block A and is found deeper beneath the surface to the west (Telesto Solutions, Inc., 2003).

3.8.4 Younger Alluvium

The Younger Alluvium is composed predominantly of silty-sandy clays alternating with thin discrete sand beds, possibly representing shoreline features of periglacial Lake Lahontan. The Younger Alluvium in portions of Block A is composed of two different zones: the Intermediate Sand unit and the shallow Lahontan Clays.

The percentage of sand and gravel in the Younger Alluvium is generally 50 to 100 percent adjacent to the range front, with grain size decreasing to the west. The Intermediate Sand unit

consists of silty-sand horizons, which are laterally continuous along the basin margin trending N15°E. The unit crops out in the eastern portion of Block A. The sands rapidly become thinner and less permeable to the west, consistent with the observed decrease in overall grain size.

The surface of the Intermediate Sand Unit is broadly uniform with an average gradient of 5 percent to the west-northwest, consistent with the top of the Basal Gravel Unit and the present day ground surface. Typically, the unit is bounded above and below by clays; however, the sands directly overlie the Basal Gravel Unit in at least a portion of Block A.

The upper 30 to 50 feet of Lahontan sediments typically consist of silty-clays. In general, there are few sand partings above the Intermediate Sand Unit (Telesto Solutions, Inc., 2003).

3.8.5 Geologic Structure

Fault and fractures in the Project Area fall into three major groups:

- Range front faults (trending N-S to N30°E);
- Northwesterly faults (trending N45°W-N65°W); and
- Northeast to east faults (trending N45-65°E and S80-90°E).

The range front faults dip steeply (65-85°) to the west and are associated with extensively brecciated zones, including clay gouge on their hanging wall sides. They vary in width from a few inches to over 50 feet. The range front faults step progressively downward to the west. Hydraulic connectivity is greatest parallel to this structural direction in the volcanic bedrock, due to the frequency of occurrence, magnitude of displacement, and associated brecciation.

Northwest faults cut and offset the earlier range front faults. Some of these faults are interpreted to have left-lateral offsets. These faults are known to offset mineralized veins in the Sleeper Pit, and some are mineralized with pyrite fillings, indicating that they developed late in the mineralizing event. Northwest faults are also associated with deeper supergene oxidation in the shallow bedrock, indicating that they may have served locally as groundwater conduits. There is

a close association of bedrock paleochannels with northwesterly faults. In some cases, northwest faults have caused small displacements of alluvial material above the bedrock surface.

Northeast faults generally strike between N45-65°E and east-west (S80-90°E), and have near vertical dips. They generally lack mineral fillings. They appear to be hydraulically conductive but do not display the same magnitude of continuity and displacement as that observed for the range front and northwesterly faults (Telesto Solutions, Inc., 2003).

3.9 Soils

The Project Area is located in the Basin and Range Physiographic Province, within the Great Basin Salt Desert Shrub ecological zone. This ecological zone is typified by alkaline to saline soils. The Natural Resource Conservation Service (NRCS) (USDA, 2002) has described the soils found in the Project Area and has assigned map units to each soil type as described below.

Map Unit 171 (northeast portion of Block A): This map unit contains Bubus soils that occur on alluvial fans, inset fans, fan skirts, and basin floor remnants. The Bubus series consists of very deep, well drained, moderately alkaline to very strongly alkaline soils that formed in alluvium from mixed rock sources of mostly volcanic origin that are high in pyroplastic materials. Slopes in this unit range from 0 to 4%. Dominant pre-disturbance vegetation consists of black greasewood, bottlebrush squirreltail, bud sagebrush, and shadscale.

Map Unit 544 (eastern portion of Block A): This map unit contains Pumper-Weso Association soils that occur on fan piedmonts and fan skirts. The Pumper series consists of very deep, somewhat excessively drained, moderately alkaline or strongly alkaline soils that formed in loess high in volcanic ash superimposed over gravelly or extremely gravelly sandy alluvium or lacustrine materials from mixed rock sources. Pumper soils are on longshore bars and beach terraces. Slopes in this unit range from 0 to 8%. The Weso series consists of very deep, well drained, moderately alkaline through very strongly alkaline soils that formed in alluvium from mixed rock sources, with a loess mantle high in volcanic ash. The Weso soils developed on relic lagoons, inset fans, fan remnants, and fan skirts. Slopes in this unit range from 0 to 8%.

Dominant pre-disturbance vegetation for both series consists of bottlebrush squirreltail, bud sagebrush, and shadscale.

Map Unit 615 (southern portions of Block A): This map unit contains Weso soils that are described above in Map Unit 544.

Map Unit 1594 (western side of Block A and all of Block B): This map unit contains Boton complex soils that occur on lake plains. The Boton series consists of very deep, well drained, moderately to very strongly alkaline soils that formed in a thin layer of loess and alluvium influenced by volcanic ash over lacustrine sediments. Slopes in this unit range from 0 to 2%. Dominant pre-disturbance vegetation consists of black greasewood, bottlebrush squirreltail, seepweed, and shadscale.

After mining occurred in the area, most of the soils in Block A were re-classified by the NRCS as Map Unit 998 - Dumps-Pits Complex. These soils consist of mine fragmented rock, rubble, and unweathered bedrock.

All soils on the Project Area have slow runoff, slight water erosion potential, and severe wind erosion potential except for the Dumps-Pits Complex soils, which are not assigned these descriptors.

3.10 Hazardous Materials

The Proposed Action would use equipment, such as drill rigs, water trucks, and support vehicles, which burn diesel fuel and use lubricants. Diesel fuel and lubricants are considered hazardous materials and are handled and stored appropriately. Bentonite and cement are added to drill holes. No known hazardous material spills have occurred in the area of proposed exploration. There are no known contaminated areas in the area of proposed exploration.

3.11 Realty

Only one BLM-authorized Right-of-way, which is to Harney Electric Inc. N41945, is within the Project Area. No other right-of-ways or BLM system roads occur in the Project Area.

4.0 ENVIRONMENTAL CONSEQUENCES

The environmental consequences section discusses the environmental effects of the Proposed Action and the No-Action Alternative and any appropriate mitigation measures.

4.1 Proposed Action

4.1.1 Air Quality

Impacts to air quality from the Proposed Action would occur mainly from fugitive dust created by construction of roads, drill pads, and traffic, and also from vehicles burning diesel fuel. Impacts are expected to be minor based on the localized nature of the impact and implementation of environmental protection measures. X-Cal would comply with air emission standards contained in the air quality permit issued by NDEP. Exploration activities could cause rangeland wildfires; however, implementation of environmental protection measures described in Appendix A would lessen the potential for wildfire.

4.1.2 Cultural Resources

No recorded sites occur within the Project Area. Cultural resources not previously identified in cultural resource inventories could be impacted through physical damage or by burying during construction of roads and drill pads. All areas not previously inventoried for cultural resources will be inventoried prior to conducting any surface disturbing activities. Also, any cultural resources identified in future inventories will be avoided by all activities. Should any cultural resource artifacts or sites become apparent, the field personnel onsite will immediately cease activities and notify the BLM authorized agent immediately.

4.1.3 Invasive, Nonnative Species

New surface disturbance from the Proposed Action would increase the potential for and promote the establishment and spread of invasive, nonnative, and noxious weeds. These impacts would be low based on implementation of concurrent reclamation efforts; operator control; removal of invasive, nonnative, and noxious weeds on reclaimed areas; washing of vehicles prior to entering the Project Area; and avoiding areas of invasive, nonnative, and noxious weeds during periods when the weeds could be spread by vehicles, as described in Section 2.1.7.5.

4.1.4 Wildlife

Impacts to wildlife would be limited given the small amount of disturbance, concurrent reclamation/restoration of habitat, and the avoidance of habitat for western burrowing owls (a BLM sensitive species) and migratory birds during nesting season. Wildlife impacts would consist of temporary habitat loss, habitat fragmentation, temporary displacement resulting from vegetative cover removal, disturbance from human activities during the project duration, and possible physical injury to less mobile species.

Impacts to BLM sensitive species are not anticipated based on limited availability of critical habitat in the Project Area and implementation of environmental protection measures for wildlife and migratory birds.

4.1.5 Vegetation

A maximum of 30 acres of vegetation would be disturbed by the Proposed Project. Disturbance would occur on reclaimed lands previously disturbed by the Sleeper Mine activities and on undisturbed lands. Impacts to vegetation would include removal during construction of access roads and drill pads and crushing by vehicles traveling cross-country on two-track roads (i.e. no construction required, with vehicles following the same two-track path leaving vegetation between the two tracks). Impacts to vegetation would be minimal and short term based on the

small amount of disturbance in any one area (noncontiguous drill sites) and concurrent reclamation of disturbed areas.

Wildfires are a common threat to vegetation community types in the area. Prevention and suppression of wildfire by the Proposed Action would be accomplished by following the fire management guidelines presented in Appendix A.

4.1.6 Threatened, Endangered, and Candidate Species

No impacts to threatened, endangered, or candidate species are anticipated, as no species in these categories are known to occur on the Project Area (U.S. Fish and Wildlife Service letter included in Appendix C).

4.1.7 Water Resources

Impacts to groundwater resources would include contamination from drilling fluids, possible contamination from solutions escaping contained mine facilities (existing heap leach pads, solution ponds, tailing impoundment) and potential mixing of aquifers. Impacts to groundwater from solutions escaping containment would be moderate to high depending on the volume and nature of the solution. Impacts from drilling fluid contamination and aquifer mixing would be low due to following State of Nevada enforced drilling procedures, which are designed to reduce impacts to groundwater after drilling, and implementation of the environmental protection measures as described in section 2.1.8.

An ample supply of water with an approved use for drilling exists at the site. Impacts are not anticipated to occur to the water supply of any other operation, agricultural or otherwise, resulting from the drill water usage for the Proposed Action.

Impacts to surface water resources would include the potential for drilling fluids to enter the existing pit lake or ephemeral drainages via surface flows from drill pads, and the potential for sediment to enter the existing pit lake or ephemeral drainages via erosion caused by surface

runoff from access roads and drill pads during storm events. These impacts would not likely occur because sumps would be used to contain drill cuttings on each drill pad and best management practices would be used to keep drilling fluids from entering the pit lake or ephemeral drainages and to control erosion from drill pads and access roads.

4.1.8 Geology

Impacts to the geology of the Project Area are not anticipated.

4.1.9 Soils

Impacts to soils would occur due to removal of surface soils on up to 30 acres during construction of access roads and drill pads, and due to surface erosion from disturbed surfaces during storm events. These impacts are expected to be minimal based on the careful salvaging, storage, and replacement of surface soils on disturbed areas during concurrent reclamation. Also, best management practices will be used, where and when needed, to control water erosion from storm events. Soil erosion from wind would likely occur, but is expected to be minimal due to the small size of the disturbances (roads and pads) and because existing vegetation would remain as a windscreen adjacent to the disturbances.

4.1.10 Hazardous Materials

Impacts from hazardous materials would occur from spills or leaks of diesel fuel and lubricants from equipment, or from fueling and maintenance operations, or from excess bentonite and cement around the drill hole. These impacts would be minimal based on the small amount of fuel, lubricants, and other fluids used by the equipment in the Proposed Action; containment of these fuels in the equipment; use and or removal of excess bentonite and cement; and the spill response actions that would be implemented if a spill did occur.

4.1.11 Realty

The one existing right-of-way and BLM system roads would not be impacted by the Proposed Action. The BLM would still be able to issue right-of-ways in the Project Area regardless of the exploration activities.

4.2 No Action Alternative

Under the No Action Alternative none of the impacts associated with the Proposed Action would occur. However, ongoing mineral activities currently permitted in the area under any previously approved plan of operations, mining notice, and/or permits, which are similar to those described for the Proposed Action, would result in impacts similar to, but proportionally less than, those associated with the Proposed Action.

5.0 CUMULATIVE IMPACT ASSESSMENT

5.1 Cumulative Actions

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

5.2 Cumulative Effects Study Area

The Cumulative Effects Study Area for the Proposed Action is bounded on the east by the western flanks of the Slumbering Hills; on the north by Nevada Highway 140; on the south by a line between the Gabica Butte and Gabica Well; and on the west by a line just west of, and following Bottle Creek Slough. The Cumulative Effects Study Area encompasses over 83,000 acres and is shown on Figure 3.

Past activities in the Cumulative Effects Study Area include livestock grazing, recreational use (rockhounding and hunting), mineral exploration, and mining at the Sleeper Mine. Present activities in the Cumulative Effects Study Area include livestock grazing, recreational use, mineral exploration (five mining notices for mineral exploration projects disturbing less than five acres each are currently in effect), and mine reclamation at the Sleeper Mine. Reasonably foreseeable future actions (RFFAs) include livestock grazing, recreation (rockhounding could increase and camping, boating, and fishing could be added to the recreational uses of the area due to closure of the Sleeper Mine site and its reversion to the BLM), continued mineral exploration, and possible mine development.

It should be noted that any future actions in the Cumulative Effects Study Area would be subject to review under NEPA.

5.3 Cumulative Impact Analysis for the Proposed Action

5.3.1 Air Quality

5.3.1.1 Past Actions

Cumulative impacts to air quality from past actions included impacts from background emission sources including windblown dust and dust from public recreational traffic on unpaved roads, and effects from the Sleeper Mine emission sources including mining operations and fugitive dust. The impacts due to emissions from background sources are considered to have been low. Emissions from mineral exploration and mining were regulated by various permits issued by the NDEP, resulting in a moderate cumulative impact to air quality in the Cumulative Effects Study Area.

5.3.1.2 Present Actions

Cumulative impacts to air quality from present actions include the same past background emission sources as well as emissions from mineral exploration and mine reclamation. Mineral exploration projects, which disturb less than five acres, are considered to have a minimal impact on air quality and are not regulated by NDEP. Mineral exploration projects, which disturb more than five acres, would operate under one or more air permits from the NDEP, with a resulting moderate impact. Mine reclamation at the Sleeper Mine is currently operating under one permit from NDEP, and the impact is considered moderate. Cumulative impacts from mineral exploration and mine reclamation in the Cumulative Effects Study Area are currently considered to be moderate.

5.3.1.3 Reasonably Foreseeable Future Actions (RFFAs)

Cumulative impacts to air quality from RFFAs could result from an increase in dust from public recreational traffic on unpaved roads, mineral exploration, and possible mine development. Dust from public traffic on unpaved roads would likely create a moderate impact to air quality.

Impacts from mineral exploration and possible mining would be regulated by the NDEP and BLM, and impacts to air quality from RFFAs in the Cumulative Effects Study Area (CESA) would be moderate depending on the extent of disturbance and processing from mining operations.

5.3.2 Cultural Resources

5.3.2.1 Past Actions

Impacts to cultural resources could have occurred from recreation due to incidental collection of artifacts on public lands, and from inadvertent destruction of artifacts from mineral exploration and mining. Past impacts from recreation are considered to have been low. Cultural resources could have been impacted from mineral exploration and mining; however, these activities on the public lands have required that inventories of cultural resources be conducted prior to surface disturbance. Through field tours, mitigation, and consultation with the State Historic Preservation Office, it was determined that no cultural resource sites discovered during those inventories met the criteria of either a National Register District or individually. Cumulative impacts to cultural resources due to past actions in the Cumulative Effects Study Area are considered to have been low.

5.3.2.2 Present Actions

Cumulative impacts to cultural resources due to present actions in the Cumulative Effects Study Area are considered to be the same as that for the past actions.

5.3.2.3 Reasonably Foreseeable Future Actions (RFFAs)

Cumulative impacts to cultural resources due to RFFAs in the Cumulative Effects Study Area are considered to be the same as that for the past actions except for a possible increase in incidental collection of artifacts on public lands due to possible increased recreation. This cumulative impact on cultural resources is considered to be low.

5.3.3 Invasive, Nonnative Species

5.3.3.1 Past Actions

Past actions, in particular mining, have resulted in invasions of hoary cress, whitetop, halogeton, and cheat grass at various locations on the Sleeper Mine site. Also, a substantial invasion of tamarisk and whitetop has occurred in the old marsh area located in Block B of the Project Area as a result of mining activities. The presence of invasive, nonnative species in the Cumulative Effects Study Area due to all of the past actions is localized and considered to be a low cumulative impact.

5.3.3.2 Present Actions

Cumulative impacts from invasive, nonnative species from present actions in the Cumulative Effects Study Area are expected to be low due to an aggressive BLM program to control invasive, nonnative species.

5.3.3.3 Reasonably Foreseeable Future Actions (RFFAs)

Cumulative impacts from invasive, nonnative species from RFFAs would be dependent on the extent of surface disturbance proposed. Overall impacts are expected to be low due to control measures that would be implemented by the mine and as required by BLM.

5.3.4 Wildlife

5.3.4.1 Past Actions

Cumulative impacts occurred to wildlife as a result of past actions. Recreational hunting resulted in a regulated take of animals. Upland habitat was lost due to mining thus reducing wildlife species dependant upon that habitat, and marshes were created due to mining resulting in temporary reduction in terrestrial species and temporary increase in marsh species. Overall

cumulative impacts to wildlife from past actions are considered to be low based on regulated hunting, which should not result in overall harm to wildlife populations, and on the small percentage of habitat removed from the Cumulative Effects Study Area due to mining.

5.3.4.2 Present Actions

Overall cumulative impacts to wildlife have occurred due to present actions but are considered to be lower than that for past actions. Recreational hunting should not result in overall harm to wildlife populations; mineral exploration will temporarily disturb a very small percentage of habitats in the Cumulative Effects Study Area; and mine reclamation activities on disturbed lands should result in creating habitat for upland wildlife species. In addition, the pit lake provides habitat to waterfowl and shore birds where no such habitat existed before. The overall cumulative impacts to wildlife due to present actions are considered to be low.

5.3.4.3 Reasonably Foreseeable Future Actions (RFFAs)

Cumulative impacts could occur to wildlife from RFFAs. Recreation could increase and result in increased hunting of both upland and waterfowl species; however, regulated hunting should result in low cumulative impact to wildlife based on the reasons stated above. Mineral exploration could temporarily disturb a very small percentage of upland habitat in the Cumulative Effects Study Area. Possible mine development, similar in extent to previous mine development, could reduce both upland habitat as either native or reclaimed habitat is disturbed and could also result in draining the existing pit lake and creating marshes with excess water with impacts similar to those that occurred in past actions. Creating a marsh area would improve habitat for some migratory bird and wildlife species. Overall cumulative impacts to wildlife in the Cumulative Effects Study Area as a result of RFFAs are anticipated to be low.

5.3.5 Vegetation

5.3.5.1 Past Actions

Cumulative impacts to native vegetation occurred from disturbance due to mineral exploration and mining, and from the creation of marshes due to mine dewatering. Reclamation of areas disturbed from these past actions, except for the existing pit lake and main access road which constitute a small percentage of the Cumulative Effects Study Area, and natural revegetation of the marsh areas, are considered to result in overall low impacts to vegetation.

5.3.5.2 Present Actions

Impacts to vegetation from mineral exploration would occur due to removal during construction of access roads and drill pads and crushing by vehicles traveling cross-country on two-track roads. Impacts to vegetation would also occur due to vegetation replacement from mine reclamation. Reclamation, including revegetation, of disturbed lands following mineral exploration and mine reclamation are anticipated to result in a low cumulative impact to vegetation in the Cumulative Effects Study Area.

5.3.5.3 Reasonably Foreseeable Future Actions (RFFAs)

Impacts to vegetation from RFFAs are considered to be similar to those described for past actions and would be dependent on the nature and extent of surface disturbances proposed from mining actions. Overall impacts would be considered low when compared to the CESA.

5.3.6 Threatened, Endangered, and Candidate Species

5.3.6.1 Past Actions

No cumulative impacts are known to have occurred to threatened, endangered, and candidate species as a result of past actions.

5.3.6.2 Present Actions

No cumulative impacts to threatened, endangered, and candidate species are anticipated to occur from present actions, as no species in these categories are currently known to occur in the area.

5.3.6.3 Reasonably Foreseeable Future Actions (RFFAs)

Cumulative impacts are not likely to occur to threatened, endangered, and candidate species as a result of RFFAs, based on their absence, and regulations designed to protect these species should they occur in the area in the future.

5.3.7 Water Resources

5.3.7.1 Past Actions

Impacts to water resources occurred due to the past action of mining. Groundwater was exposed in the creation of an open pit and was pumped to large shallow marshes where much was lost due to evaporation. In addition, water was consumed in the mineral recovery process. Impacts to water resources from loss due to mining are considered low based on approval of the actions by regulatory agencies. Impacts to water quality due to mining are not known, but are estimated to be low based on approval and monitoring of the mining operation by regulatory agencies. Overall cumulative impacts to water resources in the Cumulative Effects Study Area due to past actions are considered to be low.

5.3.7.2 Present Actions

Impacts to water resources from present actions are similar to the impacts from past actions.

5.3.7.3 Reasonably Foreseeable Future Actions (RFFAs)

Impacts on water resources in the Cumulative Effects Study Area are considered to be similar to past actions should the RFFAs of mineral exploration and/or possible mine development occur. Cumulative impacts are anticipated to be low based on regulatory agency approvals.

5.3.8 Geology

5.3.8.1 Past Actions

Impacts to geology occurred from past mining actions in the Cumulative Effects Study Area. These impacts were due to removal of overburden, waste rock, and ore from their native state by operations at the Sleeper Mine. No cumulative impacts to mining occurred in the Cumulative Effects Study Area due to other past actions.

5.3.8.2 Present Actions

Cumulative impacts to the geology of the Project Area are not anticipated as a result of the present actions.

5.3.8.3 Reasonably Foreseeable Future Actions (RFFAs)

The RFFA of possible mining would likely impact the geology of the Cumulative Effects Study Area in the same manner as occurred in past actions. Cumulative impacts to the geology of the Project Area are not anticipated from other RFFAs, and the overall cumulative impact is considered to be low.

5.3.9 Soils

5.3.9.1 Past Actions

Cumulative impacts to soils occurred during past actions as a result of vehicle travel over native surface during recreation, and surface disturbance during mineral exploration and mining. Impacts from recreation were considered low due to the small amount of surface area traveled in the Cumulative Effects Study Area. Impacts from mineral exploration and mining were considered low because topsoil was salvaged and protected, and was or will be used in reclamation of surfaces disturbed due to these past actions. Overall impacts to soils from past actions are considered to have been low.

5.3.9.2 Present Actions

Impacts to soils could occur in the Cumulative Effects Study Area due to present actions. Impacts could occur from mineral exploration due to improper soil salvage prior to planned surface disturbance and due to surface erosion, and from mine reclamation due to improper handling of stored soil. However, the cumulative impacts on soils in the Cumulative Effects Study Area due to present actions are considered to be low based on the use of approved methods of soil handling and erosion prevention techniques.

5.3.9.3 Reasonably Foreseeable Future Actions (RFFAs)

Impacts to soils could occur in the Cumulative Effects Study Area due to RFFAs. Impacts could occur from mineral exploration due to improper soil salvage and surface erosion, and would be dependent on the nature and extent of surface disturbance from mine development. However, the cumulative impacts on soils in the Cumulative Effects Study Area due to RFFAs are considered to be low based on the use of approved methods of soil handling and erosion prevention techniques.

5.3.10 Hazardous Materials

5.3.10.1 Past Actions

Hazardous materials, including petroleum products and antifreeze, were used in the Cumulative Effects Study Area in recreation, mineral exploration, and mining. No impact from the use of hazardous materials is known. Cumulative impacts from hazardous materials use by Past Actions in the Cumulative Effects Study Area are considered low.

5.3.10.2 Present Actions

Hazardous materials, including petroleum products and antifreeze, similar to that used in Past Actions are being used in the Cumulative Effects Study Area, but in lower quantities, in Present Actions. Cumulative impacts from hazardous materials use in Present Actions in the Cumulative Effects Study Area are considered low.

5.3.10.3 Reasonably Foreseeable Future Actions (RFFAs)

Impacts from RFFAs in the Cumulative Effects Study Area from hazardous materials could be similar to those from Past Actions depending on the future level of recreation, mineral exploration, and possible mining. The overall impacts from hazardous materials use by RFFAs in the Cumulative Effects Study Area are considered low.

5.3.11 Realty

5.3.11.1 Past Actions

Past actions have resulted in only one right-of-way in the Cumulative Effects Study Area. This right-of-way was issued to Harney Electric Inc. for an electric transmission line. Cumulative

impacts to realty due to past actions in the Cumulative Effects Study Area are considered to have been low.

5.3.11.2 Present Actions

The one right-of-way issued to Harney Electric Inc. for an electric transmission line is still in effect, and remains the only right-of-way in the Cumulative Effects Study Area. Cumulative impacts to realty due to present actions in the Cumulative Effects Study Area are considered to have been low.

5.3.11.3 Reasonably Foreseeable Future Actions

Additional right-of-ways could be issued in the Cumulative Effects Study Area for recreational uses and/or for possibly future mine development. None of the RFFAs would preclude issuing right-of-ways for any action, and impacts to realty from RFFAs in the Cumulative Effects Study Area would be low.

5.4 Cumulative Impact Analysis for the No Action Alternative

Under the No Action Alternative, cumulative impacts would be similar for all resources based on past and present actions. There would be few if any, cumulative impacts from RFFA actions for mineral exploration and development.

6.0 CONSULTATION AND COORDINATION

6.1 List of Preparers

This EA was prepared by Earthworks Technology, Inc, under a contract with X-Cal, and at the direction of the Bureau of Land Management, Winnemucca Field Office, Winnemucca, Nevada. The following is a list of individuals responsible for preparing the EA.

Bureau of Land Management

Jeff Johnson - Planning & Environmental Coordinator
Scott Richey - Geology and Minerals
Regina Smith - Cultural Resources, Paleontology
Mike Zielinski - Soil Scientist, Reclamation/Revegetation
Steve Bird - Wildlife; Threatened, Endangered, and Sensitive Species
Craig Drake - Hydrology
Merv Lent - Wildfire Management
Chuck Schlarb - Engineering
Terri Barton - Wildfire Rehabilitation
Janet Hook - Geology and Minerals
Chuck Neill - Noxious weeds
M. Lynn Trost - Realty and Lands
Rod Herrick - Hazardous Materials
Fred Holzel - Document Review

Earthworks Technology, Inc.

Eric Klepfer – Project Management
Jack Clark – Technical Coordination and Document Preparation
Lori Dombrowski – Technical and Document Review

6.2 Persons, Groups, and Agencies Contacted

The following individuals, organizations, and agency representatives were contacted during the preparation of this EA.

X-Cal Resources, LTD.

Shawn Kennedy
Larry Martin
Keith Blair

Kinross Gold U.S.A., Inc.

Glenn Alexander

Public Agencies

Humboldt County Road and Bridge Department
Nevada Division of Environmental Protection – Bureau of Air Quality
Randy Phillips
U.S. Department of Agriculture – Natural Resource Conservation Service – Craig Plummer and Paul Blackburn
U.S. Department of Interior – Fish and Wildlife Service – Nevada Fish & Wildlife Office

6.3 Public Notification and Availability

Notification of the X-Cal Resources, LTD. Sleeper Gold Project was sent to the following:

Associated Press of Reno
Battle Mountain Bugle
KUNR – Reno

Lovelock Miner Review

KWNA – Radio

The local Hispanic newspaper (Hispana)

Mail Box News

The Humboldt Sun

This N That (a newsletter issued by U.S. Gypsum Co. in Gerlach area)

The Gerlach General Improvement Committee/Community Center

Valley New Lahontan (Fallon area)

In addition, copies of the draft EA were mailed to 48 agencies, groups and individuals. The draft EA is also available on the BLM Winnemucca Field Office web page http://www.nv.blm.gov/Winnemucca and at the field office during regular business hours.

6.4 Individuals/Organizations Sent This EA

Federal Government

US Army Corps of Engineers – Reno, NV

USDI/Bureau of Land Management – Nevada State Office – Reno, NV

Honorable John Ensign – Reno, NV

Honorable Jim Gibbons – Reno, NV

Honorable John Marvel, State Assemblyman – Carson City, NV

Honorable Harry Reid – Reno, NV

Honorable Dean Rhoads, State Senator – Carson City, NV

Libraries

Humboldt County Library – Winnemucca, NV

University of Nevada Libraries – Reno, NV

Local Governments

Humboldt County Commissioners – Winnemucca, NV

Humboldt River Basin Water Authority – Winnemucca, NV

City of Winnemucca – City Council Members – Winnemucca, NV

Native American Groups

For McDermitt Tribal Council – McDermitt, NV

Lovelock Paiute Colony – Lovelock, NV

Winnemucca Colony – Western Band of the Western Shoshone – Winnemucca, NV

Mining Companies

Newmont Gold Company – Environmental Department – Reno, NV

Nevada Gold Mining, Inc. – Winnemucca, NV

Newspapers

Elko Daily Free Press – Elko, NV

Humboldt Sun – Winnemucca, NV

Non-Affiliated Individuals

Glenn Miller – Reno, NV

Tina Nappe – Reno, NV

State Government

Nevada Bureau of Mines and Geology, University of Nevada – Reno, NV

State Planning Coordinator, State of Nevada, Department of Administration – Carson City, NV

State of Nevada Clearinghouse, Department of Administration (10 copies) – Carson City, NV

Nevada Division of State Lands – Carson City, NV

Nevada Department of Conservation & Natural Resources – Carson City, NV

Nevada Division of Environmental Protection, Bureau of Mining Regulation and Reclamation – Carson City, NV

Nevada Division of Minerals – Carson City, NV

State of Nevada, Governor's Office – Carson City, NV

State of Nevada, Division of Water Resources – Carson City, NV

Nevada Division of Wildlife – Reno, NV

Nevada Division of Wildlife – Winnemucca, NV

Nevada State Historic Preservation Office – Carson City, NV

Private Groups and Businesses

Committee for the High Desert – Boise, ID

Desert Research Institute – Reno, NV

Great Basin Mine Watch – Reno, NV

Natural Resources Defense Council – San Francisco, CA

Nature Conservancy, Northern Nevada Office – Reno, NV

Nevada Mining Association – Reno, NV

Nevada Land and Resource Company – Carson City, NV

Public Resource Associates – Reno, NV

Sierra Club, Toiyabe Chapter – Reno, NV

Western Watershed Project – Hailey, ID

James Buell – Orovada, NV

DeLong Ranches Inc – Winnemucca, NV

Leon Frey – Winnemucca, NV

Jordan Meadows LLC – Orovada, NV

Grace McErquiaga – Orovada, NV

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Telesto Solutions, Inc. 2003. Sleeper Mine Nevada Gold Mining, Inc., Final Closure Plan and Water Pollution Control Permit Application Renewal. Telesto Solutions, Inc. 2636 Midpoint Drive, Suite B, Fort Collins, CO 80525.

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Western Regional Climate Center, 2003. Winnemucca WSO Airport, Nevada. Internet Access: www.wrcc.dri.edu. Reno, Nevada. August 2003.