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**FINAL**

**ENVIRONMENTAL ASSESSMENT  
PROPOSED MOTHER LODGE PROJECT**

Prepared by  
Bureau of Land Management  
Battle Mountain District  
Tonopah Resource Area  
Tonopah, Nevada

With the Assistance of  
ENSR Consulting and Engineering  
Alameda, California

July 1989

**ENSR**

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**FINAL  
ENVIRONMENTAL ASSESSMENT  
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Prepared by  
U.S. DEPARTMENT OF THE INTERIOR  
Bureau of Land Management  
Battle Mountain District  
Tonopah Resource Area  
Tonopah, Nevada

With the Assistance of  
ENSR Consulting and Engineering  
1320 Harbor Bay Parkway  
Alameda, California 94501

**Abstract:** This Final Environmental Assessment (EA) summarizes the environmental analysis of the Mother Lode Project, a precious metals extraction operation proposed by the U.S. Nevada Gold Search Joint Venture (USNGS) in southern Nye County, Nevada. The project would involve the construction, operation, and abandonment of an open-pit mine and processing facilities on public land administered by the Bureau of Land Management (BLM). The proposed project is described in a Plan of Operations submitted to the BLM Tonopah Resource Area, Battle Mountain District, which is responsible for reviewing the plan to determine compliance with BLM regulations governing surface mining under the General Mining Laws (43 CFR 3809) and the implementing regulations (40 CFR 1505) of the National Environmental Policy Act (NEPA). As part of BLM's review process, the Draft EA described the projected impacts of the proposed mining operation on the natural and human environment. Based on public input and the design of the proposed facilities, the environmental analysis emphasized the following affected resources: air quality; groundwater and surface water quantity and quality; soils and reclamation potential; vegetation and wildlife; cultural resources; socioeconomics and community resources; and aesthetics. The analysis considered the No Action Alternative and two facility location alternatives.

This Final EA is considered a supplemental document to the Draft EA. The minor revisions to the EA arising from public comments are incorporated as errata in Appendix A of this Final EA. The Final EA documents the comments received during the public review period. It also documents the BLM's Finding of No Significant Impact and the Agency Preferred Alternative for the Mother Lode Project, including the mitigation measures stipulated in the BLM's Record of Decision.

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## **SUMMARY**

### **Introduction**

**This Final Environmental Assessment (EA) summarizes the conclusions of environmental analyses of the proposed Mother Lode Project, a precious metals mining and processing operation near Beatty in southern Nye County, Nevada. The proposed project would involve the construction, operation, and abandonment of facilities for extracting and processing gold ore.**

**U.S. Nevada Gold Search Joint Venture (USNGS) proposes to mine approximately 600,000 tons of ore per year. At this mining rate, gold production is estimated at approximately 25,000 ounces of gold per year. The project would have an estimated 2-year life of operation, based on current estimates of potential reserves.**

**Major project facilities would include an open pit; waste rock disposal area; stockpile areas for topsoil and sulfide ore; leach pads; and ancillary support buildings (maintenance shop and trailers, office, laboratory, and recovery building). The surface disturbance would total approximately 75 acres of public land.**

**Alternatives to the proposed action were analyzed in the Draft EA. Alternatives considered in detail in the analysis included the No Action Alternative and two facility location alternatives. An alternative of backfilling the open pit was initially considered but was subsequently eliminated from detailed analysis in the EA for a combination of economic, technical, and environmental reasons.**

**The proposed Plan of Operations for the Mother Lode Project addressed in this EA is projected to have a 3-year life, including construction, operation, and reclamation. USNGS' groundwater permits from the State Engineer cover a 7-year period; however, if USNGS proposes to extend their operation beyond the initial 3-year period, the project expansion would be subject to additional environmental analysis by the BLM.**

**The BLM Record of Decision for the Mother Lode Project is on file in the Battle Mountain District, Tonopah Resource Area Office of the BLM.**

## **Public Involvement**

A public scoping process was conducted prior to preparation of the EA in order to solicit public input on the important issues and concerns associated with the proposed project. This process included mailings of public scoping documents to agencies, organizations, and individuals; a public scoping meeting in Beatty on February 1, 1989; a 30-day written comment period; and meetings with local, state, and federal governmental officials and representatives of community services. The scoping process identified the following environmental resources for analysis in the EA:

- Water Resources
- Socioeconomics
- Air Quality
- Wildlife
- Cultural Resources
- Visual Resources

In addition to these resources, impacts to geology and mineral resources, soils, vegetation, land use, visual resources, noise, and transportation were also evaluated in the Draft EA.

The Draft EA was circulated for review by federal, state, and local government agencies and interested individuals, and a public meeting was held in Beatty on June 1, 1989. The majority of the comments made at the public meeting were specific questions about the proposed project and reclamation plan, and concerns about potential impacts on water resources and Beatty's economy. Letters of comment were received from federal and state agencies (through the State Clearinghouse), and from several individuals. Written letters of comment and specific responses are included in Appendix B of the Final EA. This Final EA reflects both verbal and written comments received during the public comment period.

## **Finding of No Significant Impact**

Based on the EA and the results of the formal scoping process and public review of the EA, BLM has concluded the proposed Mother Lode Project will not result in significant impacts to the environment. An environmental impact statement will not be prepared. The major factors used by BLM in determining the Finding of No Significant Impact are summarized below.

The Mother Lode Project would result in impacts to ecological resources in the project area, including wildlife and vegetation. Impacts to human resources would include visual impacts and both beneficial and adverse socioeconomic impacts. The proposed development would occur in a region in which mining is an important and acceptable land use; with the implementation of project alternatives and recommended mitigation measures, projected impacts for the Mother Lode Project are not judged to be significant. Specific impact conclusions for affected resources are summarized below.

The proposed project would meet the standards of BLM regulations governing surface management of public lands under the General Mining Laws (43 CFR 3809). Implementation of the project as described in USNGS' Plan of Operations, including mitigation measures identified in the EA, would not result in undue or unnecessary degradation of public lands.

#### **Air Resources**

The proposed project would generate air pollutant emissions and result in increased levels of particulate and other pollutants in the atmosphere around the project. However, projected emissions are predicted to be very small and would meet applicable State of Nevada air quality standards. Air pollutant emissions and control technologies are subject to review and approval by the Nevada Division of Environmental Protection (NDEP); the required permits have been issued by NDEP.

#### **Geology and Mineral Resources**

The proposed project would extract economically viable gold reserves. It would not interfere with future resource recovery efforts except in very limited areas. Proposed designs for the mine and other facilities recognize and account for seismic and other geologic hazards in the area.

#### **Water Resources**

Water withdrawal for the Mother Lode Project would result in short-term local drawdown in the immediate vicinity of the water supply wells; no impacts are projected to other users or to sensitive resources. No long-term adverse impacts to groundwater quantity or quality are

anticipated. The proposed groundwater monitoring program is designed to mitigate potential impacts of groundwater withdrawal.

There are no perennial streams on the project site; no adverse impacts to surface water would occur from the proposed project.

### **Soils**

Construction and operation of the proposed project would disturb approximately 75 acres of soil resources. Loss of soil resources would result from accelerated water and wind erosion and buried suitable topsoil material. Top soiling and revegetation would reduce the long-term impacts associated with soil erosion by increasing revegetation potential and promoting long-term stabilization of treated areas.

### **Vegetation**

Impacts associated with the proposed project would include vegetation removal and loss or reduction of plant productivity. Approximately 75 acres across two vegetation types would be affected by construction activities. The project would result in the loss of approximately 2 AUMs of grazing preference. This would not represent a significant impact to livestock grazing in this area.

Vegetation cover and productivity would gradually be restored on disturbed areas following reclamation and revegetation.

### **Wildlife**

The proposed project would affect local populations of small mammals, songbirds, and reptiles. No major impacts to other wildlife species or regional wildlife populations would be expected.

Approximately 75 acres of wildlife habitat would be impacted resulting in loss of prey species which would affect local populations of area predators and raptors. Habitat would be restored following project abandonment with revegetation of disturbed areas. Impacts of habitat loss to big game species would be minimal. No impacts to federal or state-listed threatened or

endangered wildlife species are expected to occur. Crucial habitat for the desert tortoise does not occur in the project region.

Potential impacts to waterfowl and other wildlife species resulting from cyanide poisoning at the heap leach solution ponds is a concern. USNGS has committed to netting and fencing the ponds to mitigate impacts to waterfowl and other wildlife.

### **Land Use and Recreation**

**Land Use.** The mining and processing operation would be consistent with federal and Nye County land use plans for the area and would be compatible with surrounding land uses. Approximately 2 AUMs of grazing would be lost. This would not be a significant amount. Post-mining land use would return to rangeland/wildlife habitat for the portion of the site excluding the open pit.

The proposed project is located within the Bullfrog Herd Management Area for wild horses and burros. Open water would attract these animals; however, fencing should eliminate potential impacts.

**Recreation.** The proposed project would not significantly impact dispersed recreation on public lands. The existing use is light, and the region has abundant acreage of public open-space lands.

### **Aesthetics**

**Visual Resources.** The proposed project would introduce high levels of visual change; however, the visual contrast would not exceed acceptable levels in an area designated for activities which require major modification of the existing visual conditions. The visual effects of the project would be reduced by application of mitigation measures designed to reduce the visual contrast of the Mother Lode mine and waste disposal area.

**Noise.** The nearest sensitive receptor is over 4 miles from the project site. Noise from general operation of the Mother Lode Project would rarely, if ever, be perceptible at these sensitive receptors.

## **Socioeconomics**

**Population.** The proposed project (including workers and their families) would increase area population by approximately 93 to 128 people during peak construction activity, by 61 to 85 persons during the overall 1989 construction period, and by more than 125 during project operations. These increases would generate the beneficial and adverse effects described below.

**Economy.** The proposed project would reinforce the mining industry in Nye County. The project would increase employment in Nye County. Nye County would experience an increase in revenues from property, net proceeds, and sales taxes directly paid by USNGS and indirectly from mine workers who own property and spend their earnings in the local communities. Community facilities and services could improve due to the increased population base, if new revenues are allocated for community facilities such as parks and recreation, library, schools, and road improvements.

**Employment.** Nye County mining employment would increase moderately, generating minor secondary employment increases in other sectors of the economy. The greatest employment increase would be a total of 89 direct and indirect employees during the peak construction activity during the third quarter of 1989. During operations, 45 permanent workers would be added at the project and an estimated 9 jobs would be created in other sectors.

**Fiscal Effects.** During the 2- to 3-month construction period, the project would result in short-term, negative net fiscal effects on public service providers faced with an increased demand for services. Over the long term (during operations) increased property tax, sales tax, and net proceeds tax revenues would provide positive net fiscal effects for Beatty and Nye County.

**Housing.** The proposed project would generate an increase in demand for short-term rental housing during construction that would exceed the available supply in the Beatty area. Over the longer term operations period, USNGS would provide housing for their operations workforce.

**Public Facilities and Services.** The construction and operations phases of the project would intensify existing water supply and sewage problems in Beatty. A pipeline (which USNGS is providing) and a transmission line are required for the water supply system. An additional rapid infiltration bed, required to meet existing sewer system needs, is projected to begin operation

in summer 1989. The capacity of these services must be increased to serve the project-related demand for these services.

The proposed project would increase school enrollment during operations by approximately 67 children in Beatty and exceed capacity in grades 1-8 until new classrooms become available in fall 1989. Service agencies may face short-term increases in demand with no commensurate increase in staff or resources. The Beatty Medical Clinic and the sheriff's department would require additional staff to serve the increased population associated with operations. The demand on the fire department and social services may also require increased staff. USNGS has committed to providing a helipad at the Medical Clinic and a part-time librarian to help offset the impacts on public facilities and services.

Community recreation facilities in Beatty, particularly the ballfields and pool, are already at capacity; therefore, the increased population associated with the proposed project would further affect these resources.

### **Transportation**

Truck traffic to the project would be minimal and would not be expected to affect traffic or road conditions to any measurable degree. The proposed project would increase traffic levels in the site vicinity, particularly during peak hours at shift change times. The resulting traffic levels would be well below highway capacities, however, and would not significantly reduce current levels of service.

### **Summary of Cumulative Impacts**

The BLM conducted a cumulative impact assessment to determine potential impacts associated with the Mother Lode Project and other "reasonably foreseeable future actions" (40 CFR 1508.7). A discussion of the analysis is presented in Chapter 4 of the Draft EA. The assessment identified the following potential cumulative impacts.

## **Air Resources**

No significant cumulative air quality impacts are projected to occur from the Mother Lode Project. Particulate emissions would be highest in the immediate vicinity of each project and would not result in cumulative air quality impacts.

## **Water Resources**

Significant cumulative water resource impacts are not projected for the Mother Lode Project together with other potentially interrelated projects due to the presence of hydrologic boundaries which separate the groundwater source for the Mother Lode Project from the aquifers used to supply water for the other projects. In addition, the estimated radius of the drawdown from groundwater pumping of each of the interrelated projects would not intersect one another.

Operation of the projects would not be expected to cause cumulative water resource impacts to sensitive areas such as the Ash Meadows springs, Devils Hole, local springs in Oasis Valley, springs near the Park Headquarters in Death Valley National Monument, or the Town of Beatty municipal water supply.

## **Vegetation and Wildlife**

No significant cumulative impacts are anticipated to vegetation and wildlife. Vegetation and wildlife habitat loss would be short-term and, with the exception of the open pits, the habitat would be reclaimed following completion of mining activities. Potential adverse impacts of cyanide-laden waters to waterfowl and other wildlife would be mitigated by making these areas unavailable to wildlife, in compliance with Nevada Department of Wildlife permit stipulations.

## **Land Use and Recreation**

Impacts to land use and dispersed recreation on public lands would be site-specific and not interrelated with the Mother Lode Project. There is abundant open-space land available in the region.

## **Socioeconomics**

The increase in population associated with the interrelated projects would result in cumulative socioeconomic impacts in the Beatty area. Short-term adverse fiscal impacts are anticipated due to the immediate need for increased public services prior to the arrival of increased tax revenues.

Housing demand is expected to exceed the available supply of housing during both the construction and operation phases of the interrelated projects. Bond Gold and USNGS would both provide housing for operations employees to help offset these impacts.

Public services and facilities anticipated to be impacted by development of the interrelated projects include:

- Police and fire protection
- Judicial system
- Medical services
- Schools
- Water and sewer system

The financial requirements to meet these increased demands would come from intergovernmental revenues, which would lag behind the service demands, and from voluntary funding or advance financing by the operating companies.

### **Agency Preferred Alternative**

The Agency Preferred Alternative is Alternative 2. This alternative would disturb approximately 75 acres of federal land; approximately 159 acres would be removed from use by livestock and wildlife within the fenced area for the project. The visual impacts would be reduced somewhat compared to the other alternatives by the location of the leach pads and waste dump in an area partially screened from view by Bare Mountain.

The Bureau of Land Management approves the Plan of Operations for the Mother Lode Project with the following list of mitigation measures to prevent undue or unnecessary degradation of federal lands and to provide for reasonable reclamation.

## **Water Resources**

**Mitigation Measure WR-1:** Characterization of the waste rock and sulfide stockpile is currently underway to determine the potential for acid runoff. If tests indicate a potential problem, then a bed of crushed limestone would be constructed beneath the piles in compliance with Nevada Division of Water Resources stipulations.

**Mitigation Measure WR-2:** Pump tests have not been conducted in the area to quantify drawdown estimates. In order to verify the estimates and to ensure that if a change occurs it can be identified, a groundwater monitoring system will be implemented. On-site water supply wells will be monitored. An additional well completed by the U.S. Geological Survey in Crater Flat will also be monitored. (e.g., Well USW-VH-1 or USW-VH-2). The monitoring will continue through project operations.

The State Engineer has granted groundwater permits to USNGS, subject to monitoring (see Letter 7 in Appendix B). A groundwater monitoring plan for the Crater Flat basin will be submitted to the State Engineer by September 15, 1989 for approval.

## **Vegetation**

**Mitigation Measure V-1:** Establishment of noxious weeds in disturbed areas will be monitored during construction and operation. In the event that weeds (e.g., Russian thistle) begin to inundate the project site, BLM will be consulted to determine effective means of control, if deemed necessary.

**Mitigation Measure V-2:** Final slopes on waste dumps and leach pads will be graded to a slope of 3 horizontal to 1 vertical. Waste dumps will be resoiled prior to revegetation.

## **Cultural Resources**

**Mitigation Measure CR-1:** Specific cultural resources mitigation will be recommended by the BLM in consultation with the State Historic Preservation Office (SHPO). These measures will become stipulations in the Record of Decision.

## **Visual Resources**

**Measure VR-1:** To the extent practicable, the shape and form of waste dumps will be designed to repeat natural forms in the area. The project would be less visually obtrusive and would thus generate less impact if natural, curvilinear forms are used in the waste dump by rounding off the "shoulders" of the dump and changing the dump profile from a plateau to an irregular ridge form.

**Measure VR-2:** Natural colors in the project area will be employed to the extent possible. This should include use of dull, non-reflective paint on structures in colors mimicking those seen naturally in the area but in slightly darker tones.

**Measure VR-3:** If, as anticipated, the waste rock from the mine contrasts strongly with natural surface and vegetation colors in the vicinity, the final "layer" on the face of the dump should employ darker material approximating dominant natural colors.

## **Socioeconomics**

**Measure SE-1:** Provision of current project information to local governments is a critical mitigating factor to enable planning agencies to respond effectively to projected changes in demand for housing, public facilities, and services. USNGS should continue to work with Nye County and Beatty and provide county officials with current estimates regarding employment, project startup and completion dates, company housing policies, school-age children, and anticipated recreational needs of the workforce and their families.

## **Additional Project Commitments**

In addition to the previous mitigation measures stipulated by the BLM, USNGS has committed to include the following provisions in their Plan of Operations for the Mother Lode Project.

1. USNGS has committed to blasting during daylight hours to reduce noise impacts during darkness.

2. USNGS has committed to the partial filling of collection ditches to preclude bird access. USNGS has also agreed to increase the height of berms on the collection ditch side of the pads to control spills during heavy precipitation events.

The reclamation plan is considered an integral part of the Plan of Operations; concurrent reclamation is to be incorporated where feasible.

**APPENDIX A  
ERRATA TO DRAFT EA**



**Page 3-4. Second Paragraph**

Change "19" micrograms to "44" micrograms.

Change "1 microgram" to "less than 1"; delete "and 0.1 microgram per cubic meter."

**Page 3-5. Table 3-2**

Change to read:

Maximum Impact Point	USNGS Impact	Total Impact
Particulate Annual	<u>5.1</u>	<u>10</u>
Particulate 24-hour	<u>44.2</u>	<u>52</u>
Beatty Town Center		
Particulate Annual	<u>0.02</u>	<u>5</u>
Particulate 24-hour	<u>0.27</u>	<u>10</u>

**Page 3-16. First Paragraph**

Reference to Section 3.12.4 should be changed to "Section 1.4.2.1 on page 1-14 of Draft EA."

**Page 3-16. Last Paragraph. Last Sentence**

Change to read: ... with the concurrence of the State Historic Preservation Office, determined National Register eligibility.

**Page 3-17. First Paragraph**

Change to read: Ten prehistoric lithic scatters, although not eligible for National Register of Historic Places (NRHP) nomination on their own merit, demonstrate eligibility as a district. These sites all contain an abundance of ... streamside environments.

Delete: Additional survey and evaluation of these sites is necessary prior to a final determination of eligibility.

**Page 3-17. Second Paragraph**

Delete entire paragraph.

Insert: Three prehistoric quarry sites are also eligible for NRHP nomination.

**Page 3-17. Third Paragraph**

Delete: Once NRHP eligibility ... pursued.

Insert: Effects to these properties are currently being determined by the BLM in consultation with the SHPO, and suitable mitigation options, if necessary, will be pursued. The BLM will address cultural resource impacts and associated mitigation in the Record of Decision.

Page 4-4. First Paragraph

Change to read: ... studies conducted for the proposed repository (PIC 1988) estimate that approximately 18 workers would reside in the Beatty and Amargosa Valley area."

Page 4-7. Fourth Paragraph

Change to read: ...in the northern Amargosa Desert with a static elevation of approximately 2,600 feet above sea level (BLM 1988). The Mother Lode Project would produce water from an aquifer with a static elevation of approximately 3,250 feet above sea level from interbedded alluvial and volcanic materials in Crater Flat (Hydro-Search Inc. 1989)

Page 4-8. Second Paragraph

Change to read: The Oasis Valley/Fortymile Canyon groundwater system is indirectly connected to the Amargosa Desert flow system through Oasis Valley and ultimately the Amargosa Narrows near Beatty (see Appendix A, Figure 1) and farther south and west ... Malmberg and Eakin 1962).

Page 4-9. Second Paragraph

Change to read: ... groundwater is generally moving from north to south. Sarcobatus Flat is a closed basin in that surface drainage leads to a playa. Groundwater in Sarcobatus Flat flows west toward Death Valley (Malmberg and Eakin 1962).

Page 4-10. Second Paragraph

Change to read: ...amount of pumping involved in this mine project and the long distance to sensitive areas, ...are not anticipated.

Page 4-10. Fourth Paragraph

Change to read: ...alluvial valley-fill aquifers utilized by the mines. Beatty currently utilizes wells completed in volcanic rocks of the Bullfrog Hills for its water supply. Additional wells in the alluvium of Oasis Valley also contribute to the town's overall groundwater resources. Neither of these two sources is impacted by the existing or proposed mines. Areas such as the Amargosa Farm area ... existing and proposed mines.

Page 4-11. First Paragraph

Change to read: The Yucca Mountain project is expected to use about 350 acre-feet of water per year over a 60-year project (DOE 1986). During the initial 6-year site characterization phase the project is expected to use approximately 21 acre-feet of water per year (DOE 1988). According to impact analyses... (DOE 1986).

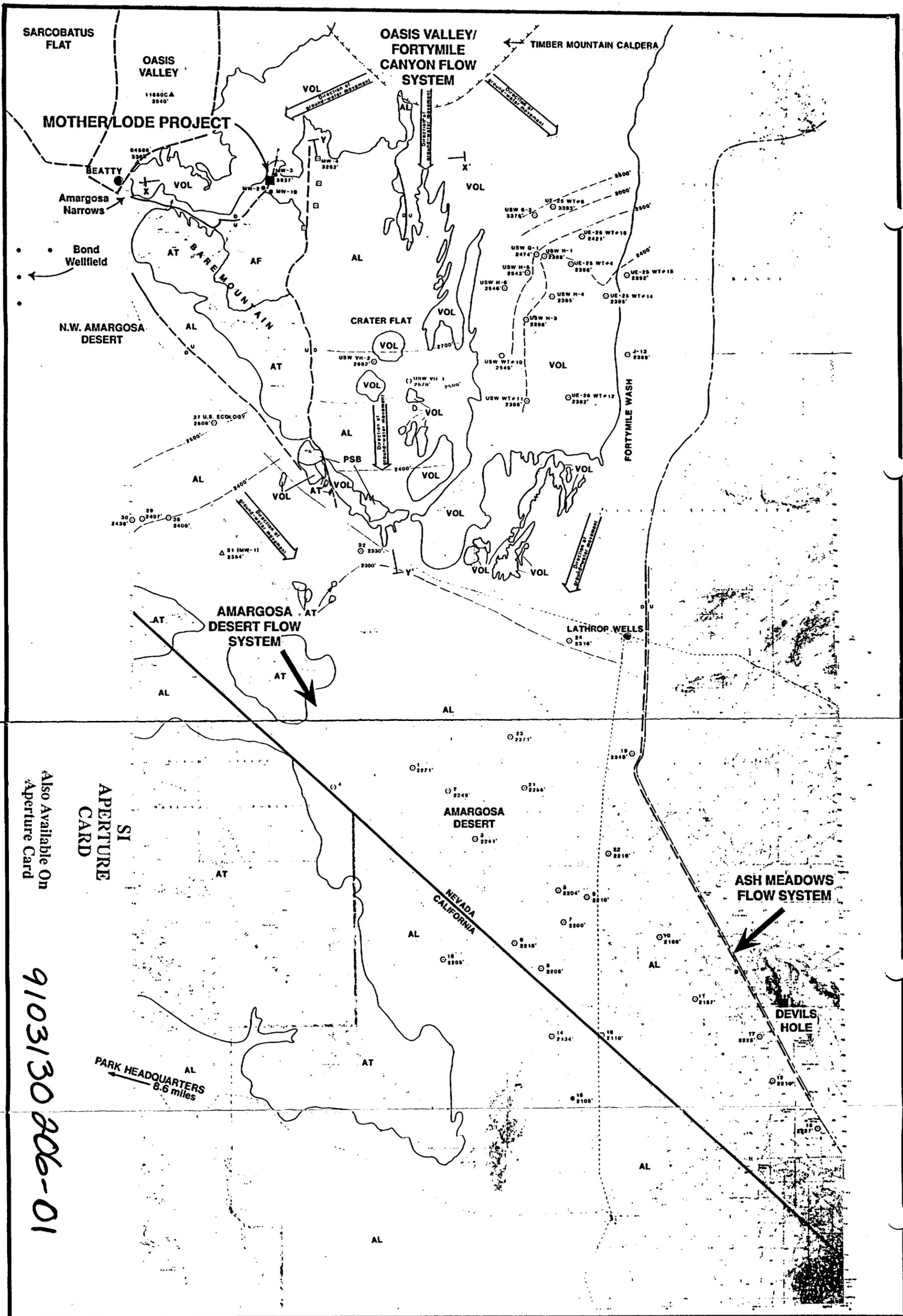
Page 4-26. Third Paragraph

Change to read: 2) Bond has drilled one new municipal water well which produces approximately 200 gpm of good quality water.

Page R-5

Add: U.S Department of Energy (DOE), 1988. Site Characterization Plan, Yucca Mountain Site, Nevada Research and Development Area, Nevada.

**APPENDIX B  
COMMENTS ON DRAFT EA**



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**EXPLANATION**

- |                                    |   |  |
|------------------------------------|---|--|
| [AL] Alluvium                      | ○ Existing well showing water level elevation     | - - - Fault showing movement (D/U), dashed where uncertain, queried where questionable |
| [VOL] Volcanic                     | ● Test hole showing water level elevation         | - - - 2600' Water level contours   |
| [AF] Paleozoic Carbonate Aquifer   | △ Observation holes showing water level elevation | - - - Approximate boundary of Ash Meadows Ground Water Basin                           |
| [AT] L. Paleozoic Clastic Aquitard | □ Recent ground-water application sites           | ▽ 2662' Ground-water surface elevation in test mean sea level                          |
| [PSB] Paleozoic Slide Block        | — Geologic contact                                |  |



**MOTHER LODE PROJECT**

APPENDIX A - FIGURE 1  
HYDROGEOLOGIC MAP OF THE  
CRATER FLAT AREA AND VICINITY  
Source: Hydro-Search, Inc. 1989

## **DRAFT EA COMMENTS AND RESPONSES**

The BLM received 12 written comment letters on the Draft EA. The comment letters were from:

1. Desert Survivors
2. U.S. Department of the Interior, National Park Service
3. U.S. Department of the Interior, Fish and Wildlife Service
4. George and LaRene Younghans
5. Nevada State Clearinghouse
6. Nevada Division of Historic Preservation
7. Nevada Division of Water Resources
8. Nevada State Fire Marshal's Office
9. Nevada Department of Wildlife
10. Nevada Division of Environmental Protection
11. Nevada Division of Conservation Districts
12. Nevada Department of Minerals

# Letter 1

# Response to Letter 1

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Victor's Direct Dial Number

June 7, 1989

Mr. Theodore Angle  
Area Manager  
Bureau of Land Management  
Tonopah Resource Area  
P.O. Box 911  
Tonopah, NV 89049

Re: Draft EA for Mother Lode Project

Desert Survivors submits the following comments to the Draft Environmental Assessment for the proposed Mother Lode Project (May, 1989).

The Draft EA fails to address the significant aspects of our January 24, 1989 letter, and is wholly inadequate as an environmental review document for this project.

First, we pointed out that the evaluation of alternatives was suffering from serious misconceptions, and that analyzing alternative project facility locations is simply not enough. The Draft EA fails to remedy this glaring defect in the environmental analysis for the project. At a minimum the Final EA must consider in detail, including a breakdown of costs and benefits, water-saving alternatives to the proposed operations and the visual impact alternative of backfilling the open pit.

Second, we pointed out that a thorough, independent analysis of water resource impacts is necessary here, including (1) a detailed description of each proposed use of water and an estimate for the water needs of each proposed use, (2) an analysis of alternatives to each proposed use of water, (3) a precise description of the water source or sources to be utilized, (4) a plan showing the design.

1 - 1

The proposed project is designed to use a minimum amount of water; therefore, an analysis of water conservation alternatives was deemed necessary. A cost benefit analysis is not part of the decision criteria; therefore, this type of analysis was not included in the EA.

An alternative of backfilling the open pit was discussed in Section 1.5 of the Draft EA. An additional reason for not backfilling the pit is to preserve evidence of mineralization in accordance with surface management regulations [43 CFR 3809.1-5(c)(5)]. Please refer to the response to comment 11-2 for additional discussion of backfilling.

An independent assessment of water resource impacts was conducted by ENSR Consulting and Engineering under the direction of the BLM. Please refer to the responses to the National Park Service comment letter (Letter 2) for additional discussion of the groundwater impact assessment.

B-2

1 - 1

# Letter 2

# Response to Letter 2



IN REPLY REFER TO

## United States Department of the Interior

NATIONAL PARK SERVICE  
DEATH VALLEY NATIONAL MONUMENT  
DEATH VALLEY, CALIFORNIA 92288

1.1071/1.1.4

June 9, 1989

Mr. Theodore Angle  
Area Manager  
Bureau of Land Management  
P. O. Box 911  
Tonopah, NV 89049

RECEIVED  
JUN 15 1989  
SPECIAL DELIVERY

Dear Ted:

The National Park Service (NPS) wishes to thank you for the opportunity to review and comment on the draft environmental assessment for the proposed Mother Lode mine near Beatty, Nevada. The BLM, ENSR, and USNGS are to be complimented on the adequacy of the document. However, during our review of the document we have noted several points that require comment. Specifically, our comments pertain to the observations and conclusions drawn in the analysis of water resources.

As you are aware, the NPS is concerned over the status and trend of ground water resources in the region. It is obvious there is not full agreement between traditional and senior ground water users and the rash of recent, junior applicants over the nature of the Amargosa Desert ground water resources. The regional ground water systems which provide water for Ash Meadows, Devils Hole, and Death Valley are an extensive, complex, three dimensional network which is less than adequately understood. The acceptance of simplified or conveniently compartmentalized interpretations which obviously support junior water applicants could result in irreversible damage to the system. As a sister Federal land management agency we trust you will recognize and join our deep concern in this matter.

The significance of the issue can be seen in the fact, as noted in the EA, the area lies within one of the most arid regions of Nevada and California. The area is undergoing a well documented long term drying trend which has resulted in the continued fall of the local ground water tables, lengthening of flow paths, and

2 - 1

Recognition of the complexity of the groundwater system has been central to the hydrologic impact analysis. A hydrologic monitoring program has been stipulated in the Draft Environmental Assessment and is conditional to the issuance of water rights permits by the State Engineer (see Letter 7). This monitoring is designed to detect potential regional impacts. In addition, local impact has been simulated in order to address the need for information on anticipated drawdown. The magnitude of the Mother Lode Project water supply requirement (250 gpm for approximately 7 years) does not result in significant drawdown, thus monitoring appears to be an appropriate approach to address the issue of regional groundwater impacts.

2 - 1

## Letter 2 Continued

## Response to Letter 2 Continued

2 - 4 Elevated levels of groundwater pumping west of the inferred fault in the early 1970's resulted in the lowering of the water table to the east. The event clearly established hydrologic communication across the fault. The event led to the Federal Court ruling, resulting from the US v. Cappaert, 426 U.S. 128 (1976), establishing federal water rights at the Devils Hole detached unit of Death Valley National Monument.

The EA contains repeated statements that lead the reader to believe that sufficient local groundwater recharge occurs to provide adequate water for needs of the region. Our research indicates conflicting data exists. Nichols (1986) determined from a 16 year study from 1961 to 1976 near Beatty, Nevada, that 97 percent of annual rainfall was lost due to evaporation. He further stated that the high evaporation rate may have allowed for only three recharge events during the 16 year period. Classen (1985) suggests that the last recharge to the valley-fill aquifer in the west-central Amargosa Desert, based on hydrochemical data, resulted primarily from overland snow-melt during late Pleistocene time. Thus, there is no present effective local recharge of the ground water aquifers.

B-5  
2 - 5 Recent studies conducted in support of the site characterization work at the proposed National High Level Nuclear Waste Repository at Yucca Mt. (on the east side of Crater Flats) support those observations. Data from current studies presented in the site characterization plan for Yucca Mt. indicate there is no recharge of groundwater from rainfall. Artificial rainfall tests performed by the Desert Research Institute (DRI) during the Yucca Mt. studies revealed that normal rainfall penetrates to only approximately one meter in porous soil. The rainfall is lost through evaporation as the result of plant root, diurnal and barometric pumping (personnel communication Mr. John Fordham, DRI).

The documentation of effective zero recharge for the Amargosa Desert area is reflected in the analysis for the low level nuclear waste site near Beatty, Nevada. In its permitting process of the site, the State of Nevada accepted data from the applicant supporting zero local recharge of the aquifer systems of the area.

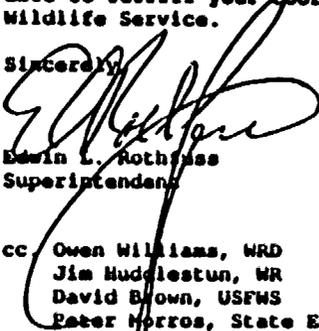
The NPS believes that zero recharge conditions prevail over a wide area. The nearest area of any recharge is Timber Mt. which is inadequately studied and contains insufficient surface area to provide water for all the demands placed upon the groundwater systems in the Beatty/Amargosa/Ash Meadows/Death Valley area. The same argument applies to the Kawich Peak area, leaving the area dependent upon substantive ground water recharge from

2 - 5 Local recharge is and has been recognized to be a minor component to the groundwater system in the vicinity of the Mother Lode Project. As in much of southern Nevada, however, the regional movement of groundwater does result in recharge to the groundwater system from distant highlands. The movement of groundwater in Crater Flat is from north to south indicating the area receives recharge from the Timber Mountain area. Other critical areas of concern receive recharge from additional distant highlands and thus are not necessarily subject to impact along different flow paths of the regional movement of groundwater. This is not meant to de-emphasize the potential impact to any critical areas as a result of groundwater development, but similarly, development at the Mother Lode Project does not necessarily impact areas believed to be recharged from other areas. The proposed monitoring program incorporates wells to the south and downgradient of the project to allow documentation of potential impact. The Nevada State Engineer has the authority to regulate and restrict groundwater use based on evaluation of monitoring results.

## Letter 2 Continued

contact us at any time. I would like to confirm the receipt of your letter requesting we send you copies of water monitoring data acquired under the Bond Gold monitoring plan. As soon as data are obtained we will send them to you in order for you to be able to fulfill your coordination needs with the U.S. Fish and Wildlife Service.

Sincerely,



Edwin L. Rothfuss  
Superintendent

cc Owen Williams, WRD  
Jim Huddleston, WR  
David Brown, USFWS  
Peter Morros, State Engineer  
Nobby Chidy, Wilderness Society  
Dane Floum, Sierra Club Legal Defense Fund

# Letter 3

# Response to Letter 3



## United States Department of the Interior

FISH AND WILDLIFE SERVICE

NEVADA FIELD STATION  
4600 Nietzsche Lane, Building C  
Reno, Nevada 89102

June 12, 1989  
File # BLN-5

JUN 15 1989

### MEMORANDUM

To: Area Manager, Tonopah Resource Area, Bureau of Land Management,  
Las Vegas, Nevada

From: Field Supervisor, Reno, Nevada

Subject: Draft Environmental Assessment Proposed Mother Lode Project

The Fish and Wildlife Service (Service) has reviewed the subject document, which describes plans to develop a heap leach gold mining operation on approximately 75 acres of a 250 acre site east of Beatty, NV. We offer the following specific comments:

- B-9
- 3 - 1 **Section 1.2 Table 1.1**  
The Service also requires compliance with the Migratory Bird Treaty Act, 16 U.S.C. 701-710h, which provides protection for most species of wild birds in the United States and virtually all species of birds which could be expected to be found at the project site.
    - 3 - 1 Compliance with the Migratory Bird Treaty Act has been added to Table 1-2; please see Appendix A, Errata.
  - 3 - 2 **Section 1.4.2**  
We suggest that conveyers be used to place ore on the heaps, this will help to improve percolation by reducing compaction that occurs when using trucks. Also, we recommend that a drip system be used rather than sprinklers. Both of these methods will help to reduce or eliminate the potential for ponding of solution, thus reducing possible exposure to wildlife. Additionally, these measures will reduce evaporation, thereby helping to reduce water needs. We also suggest that all collection ditches be partially filled with gravel, this will preclude any bird access while again, lessening evaporation. To facilitate flow of solution a perforated plastic pipe is placed beneath the gravel. A higher berm may also be needed to control spills during unusual precipitation events.
    - 3 - 2 Geotechnical studies to date indicate truck dumping would not seriously affect percolation. Proposed agglomeration of the ore will significantly increase percolation rates.
    - 3 - 3 Drip irrigation is included in the proposed design; please refer to Section 1.4.2 of the Draft EA.
    - 3 - 4 USNGS will partially fill collection ditches with gravel to prevent bird access and will increase the berm height on the collection ditch side of the leach pads.
  - 3 - 5 It is stated in the plan that solution ponds will be covered with a plastic mesh screen to prevent bird access. While the Service supports netting of all solution ponds, we suggest that the applicant investigate technology that eliminates pregnant and barren solution ponds with only an emergency holding pond being exposed. If solution ponds appear unavoidable we recommend that ponds be deeply excavated to reduce the surface area, this will aid in netting while, again, reducing evaporation. (The Nevada State Engineer's Office issues dam permits which are needed for impoundments of greater than ten acre feet of liquid. It is our understanding that these permits are not difficult to obtain).
    - 3 - 5 USNGS has designed the ponds to provide minimum evaporation while enabling effective operation of the pump suction lines.

# Letter 4

# Response to Letter 4

JUN 16 1989

June 14, 1989

MEMO  
100-7518

Bureau of Land Management  
Bannock Resource Area  
Bannock, Nv.

Ted Angle, Area Manager

RE: Draft Environmental Assessment, Proposed Mother Lode Project.

Dear Mr. Angle,

4 - 1 We feel the USNGS should be made to follow all of the mitigation measures as specified in Appendix A, Para. 4.2. In addition we are requesting USNGS monitor one of our wells as the well "to the north of the project site". Also because of the uncertainty of the draw down cone we are requesting USNGS monitor the discharge of Long Springs which is also North of the project site. If in the future the level of surface water in the wells being monitored or the discharge of Long Springs is affected, USNGS should be made to cease and desist pumping water.

4 - 1 USNGS will comply with the groundwater monitoring requirements of the State Engineer. The monitoring plan will be developed by USNGS and the State Engineer to incorporate any special conditions stipulated in the water permits. Your request will be considered in the development of this plan.

*[Signature]*  
P.O. Box 833  
Beatty, Nv.

B-11

Letter 5

Response to Letter 5

STATE OF NEVADA



BOB MILLER  
Acting Governor

ALAN SUMNER  
Director

OFFICE OF THE GOVERNOR  
OFFICE OF COMMUNITY SERVICES  
Capital Complex  
Cassan City, Nevada 89710  
(702) 885-6187

June 16, 1989

Mr. Theodore Angle  
Area Manager  
Bureau of Land Management  
P.O. Box 911  
Building 102 Military Circle  
Tonopah, Nevada 89049

Re: SAI NV 889300051 Project: E.A. - Mother Lode Gold  
Mine in Nye County

Dear Mr. Angle:

Attached are the comments from the Nevada Department of Wildlife and the Divisions of Conservation Districts, Environmental Protection, Historic Preservation/Archaeology and Water Resources and the State Fire Marshal's Office concerning the above referenced project.

Several of the above mentioned agencies have raised specific concerns that need to be addressed prior to the Bureau of Land Management's final decision on this project. In those circumstances where BLM, the project proponent or the contractor will be corresponding with State agencies, the State Clearinghouse would appreciate copies of such correspondence.

We do commend the ENSR Consulting and Engineering firm on the Draft Environmental Assessment for this project. We were particularly impressed with Section 4.0 -- Cumulative Impact Assessment. After months of requesting various BLM districts to implement cumulative impact analysis, it is reassuring to see that such an analysis can be accomplished in an open and honest manner.

Thank you for your comment.

B-12

# Letter 6

# Response to Letter 6

BOB MILLER  
Acting Governor

STATE OF NEVADA

BOLAND B. WESSBERGARD  
State Historic Preservation Officer



## DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES

DIVISION OF HISTORIC PRESERVATION AND ARCHEOLOGY

281 S. Fall Street  
Capital Complex  
Carson City, Nevada 89710  
(702) 688-6130

June 12, 1989

### MEMORANDUM

TO: John Walker, Office of Community Services  
FROM: Alice M. Becker, Staff Archeologist *Ronald M. Jones*  
SUBJECT: E.A. - MOTHER LODGE GOLD MINE IN NYE COUNTY SAI  
NV#89300051

The Division has reviewed the environmental assessment and BLM cultural resources report 6-109X(p) which was the result of an intensive archeological/historic survey of the project area. The report indicates the presence of historic properties eligible for inclusion in the National Register of Historic Places under criteria d. This office concurred with BLM's determinations of National Register eligibility on May 15, 1989.

6 - 1 [ Most of the significant sites can be avoided; however, several sites--CrNV-64-4878; CrNV-64-5024 and CrNV-64-4882--appear to be located within the area of impact. A data recovery plan should be prepared and submitted to this office for review as soon as possible. Additionally, the BLM should demonstrate the means by which remaining properties will be avoided such as through fencing, restricted access or road closure.

If questions remain regarding what is necessary please call us.

AMB:emt

The Bureau of Land Management has recommended mitigation to the State Historic Preservation Officer in a letter dated July 13, 1989.

B-14

# Letter 7

# Response to Letter 7

## NEVADA STATE CLEARINGHOUSE

OFFICE OF COMMUNITY SERVICES  
1100 EAST WILLIAM, SUITE 110  
CARSON CITY, NEVADA 89710  
863-3107

FROM: John B. Walker, Coordinator

TO:

<input type="checkbox"/> Governor's Office	<input type="checkbox"/> Nuclear Waste Project Office	<input type="checkbox"/> Conservation and Natural Resources
<input type="checkbox"/> Community Services	<input type="checkbox"/> Prisons	<input checked="" type="checkbox"/> Director's Office
<input type="checkbox"/> State Job Training Office	<input type="checkbox"/> Public Service Commission	<input checked="" type="checkbox"/> State Lands
<input type="checkbox"/> Administration	<input type="checkbox"/> SOICC	<input checked="" type="checkbox"/> Conservation Districts
<input type="checkbox"/> Agriculture	<input type="checkbox"/> State Communications Board	<input checked="" type="checkbox"/> Environmental Protection
<input type="checkbox"/> Economic Development	<input type="checkbox"/> Taxation	<input type="checkbox"/> Forestry
<input type="checkbox"/> Education	<input type="checkbox"/> Tourism	<input checked="" type="checkbox"/> Historic Preservation
<input type="checkbox"/> Employment Security Department	<input type="checkbox"/> Transportation	<input type="checkbox"/> and Archaeology
<input type="checkbox"/> Human Resources	<input type="checkbox"/> UMB-Bureau of Mines	<input type="checkbox"/> State Parks
<input type="checkbox"/> Aging Services	<input checked="" type="checkbox"/> UMB Library-Gov. Publications	<input checked="" type="checkbox"/> Water Resources
<input type="checkbox"/> Health Division	<input type="checkbox"/> UMB-Dept. of Range, Wildlife, and Forestry	<input checked="" type="checkbox"/> Fire Marshal's Office
<input checked="" type="checkbox"/> Legislative Counsel Bureau	<input type="checkbox"/> Wild Horse Commission	<input checked="" type="checkbox"/> Mine Inspector
<input checked="" type="checkbox"/> Minerals	<input checked="" type="checkbox"/> Wildlife	

Thank you for your comment.

SAI NO: 89300051

PROJECT: E.A. - Mother Lode Gold Mine in Nye County

RE:

Attached for review and comment is a copy of the aforementioned project. Please evaluate it with respect to: 1) the program's effect on your plans and programs; 2) the importance of its contribution to State and/or area-wide goals and objectives, and 3) its accord with any applicable laws, orders or regulations with which you are familiar with.

PLEASE SUBMIT YOUR COMMENTS NO LATER THAN 6/16/89. Type your comments if applicable, check the appropriate box below and return the form to this office. Please do so even if you have no comment on this project. If you are unable to comment by the prescribed date, please notify this office. Reviewers may substitute this form with agency letterhead. If letterhead is used, please cite the SAI number listed above.

**THIS SECTION TO BE COMPLETED BY REVIEWING AGENCIES:**

<input type="checkbox"/> No comment on this project	<input type="checkbox"/> Conference desired (see below)
<input type="checkbox"/> Proposal supported as written	<input type="checkbox"/> Conditional support (see below)
<input checked="" type="checkbox"/> Additional information (see below)	<input type="checkbox"/> Disapproval of funding (must specify reason below)

**QUANTITATIVE NOTES:**

Scoping occurred in January 1989. Attached are your previous comments.

**AGENCY COMMENTS: (use additional sheets if necessary)**

This office has reviewed the water resources related section of the subject Environmental Assessment and has no particular comment. A significant record was developed at the administrative hearing of January 10, 1989. The protests to the granting of applications 51555, 51556 and 51557 were overruled on June 15, 1989 and permits to appropriate water to support the project are to be granted subject to monitoring. Applications 52847 through 52850 for additional well locations are not requesting an additional appropriation of water, but protests were timely filed and action on 52857 through 52850 is pending.

*T.K. Walker*

HYDRAULIC ENGINEER

885-4180  
Phone

6/15/89  
Date

# Letter 8

# Response to Letter 8

**RECEIVED**  
 OFFICE OF COMMUNITY SERVICES  
 1100 EAST WILLIAM, SUITE 110  
 CARSON CITY, NEVADA 89701  
 803-3107

FROM: John W. Mather, Coordinator

MAY 14 1989

- TO: STATE OF NEVADA
- |  |  |  |
|--|--|--|
| <input type="checkbox"/> Governor's Office                     | <input type="checkbox"/> Nuclear Energy                              | <input type="checkbox"/> Conservation and Natural Resources  |
| <input type="checkbox"/> Community Services                    | <input type="checkbox"/> Prisons                                     | <input checked="" type="checkbox"/> Fire Marshal's Office    |
| <input type="checkbox"/> State Job Training Office             | <input type="checkbox"/> Public Service Commission                   | <input checked="" type="checkbox"/> Mine Inspector           |
| <input type="checkbox"/> Administration                        | <input type="checkbox"/> SOICC                                       | <input checked="" type="checkbox"/> Director's Office        |
| <input type="checkbox"/> Agriculture                           | <input type="checkbox"/> State Communications Board                  | <input checked="" type="checkbox"/> State Lands              |
| <input type="checkbox"/> Economic Development                  | <input type="checkbox"/> Tourism                                     | <input checked="" type="checkbox"/> Conservation Districts   |
| <input type="checkbox"/> Education                             | <input type="checkbox"/> Transportation                              | <input checked="" type="checkbox"/> Environmental Protection |
| <input type="checkbox"/> Employment Security Department        | <input type="checkbox"/> Wild-Bureau - Mines                         | <input checked="" type="checkbox"/> Forestry                 |
| <input type="checkbox"/> Human Resources                       | <input checked="" type="checkbox"/> Wild Library - Publications      | <input checked="" type="checkbox"/> Historic Preservation    |
| <input type="checkbox"/> Aging Services                        | <input type="checkbox"/> Wild Dept. of Range, Wildlife, and Forestry | <input checked="" type="checkbox"/> and Archeology           |
| <input type="checkbox"/> Health Division                       | <input type="checkbox"/> Wild Horse Commission                       | <input checked="" type="checkbox"/> State Parks              |
| <input checked="" type="checkbox"/> Legislative Counsel Bureau | <input checked="" type="checkbox"/> Wildlife                         | <input checked="" type="checkbox"/> Water Resources          |
| <input checked="" type="checkbox"/> Minerals                   |  | <input checked="" type="checkbox"/> Fire Marshal's Office    |
|  |  | <input checked="" type="checkbox"/> Mine Inspector           |

SAL NO: 8930051 PROJECT: E.E. - Mather Lake Gold Mine in Nye County

Attached for review and comment is a copy of the aforementioned project. Please evaluate it with respect to: 1) the program's effect on your plans and programs; 2) the importance of its contribution to State and/or area-wide goals and objectives; and 3) its accord with any applicable laws, orders or regulations with which you are familiar with.

PLEASE SUBMIT YOUR COMMENTS NO LATER THAN 6/14/89. Upon your comments if applicable, check the appropriate box below and return the form to this office. Please do so even if you have no comment on this project. If you are unable to comment by the prescribed date, please notify this office. Reviewers may substitute this form with agency letterhead. If letterhead is used, please cite the SAL number listed above.

THIS SECTION TO BE COMPLETED BY REVIEWING AGENCIES	
<input type="checkbox"/> No comment on this project <input type="checkbox"/> Proposal supported as written <input checked="" type="checkbox"/> Additional information (see below)	<input type="checkbox"/> Conference desired (see below) <input type="checkbox"/> Conditional support (see below) <input type="checkbox"/> Disapproval of funding (must specify reason below)
<b>CLEARINGHOUSE NOTES:</b> Scoping occurred in January 1989. Attached are your previous comments.	
AGENCY COMMENTS: (use additional sheets if necessary) A SITE PLAN AND PLANS FOR ANY STRUCTURES MUST BE SUBMITTED WITH FEE TO THE NEVADA ST. FIRE MARSHAL'S OFFICE FOR REVIEW BEFORE CONSTRUCTION.	

8 - 1

8 - 1 USNGS will comply with these requirements.


 DEPUTY STATE FIRE MARSHAL  
 MAY 14 1989

B-16

# Letter 9

# Response to Letter 9

## NEVADA STATE CLEARINGHOUSE

NEVADA DEPARTMENT OF WILDLIFE  
OFFICE OF COMMUNITY SERVICES  
1100 EAST WILLIAM, SUITE 110  
LAS VEGAS, NEVADA 89101  
801 730 7

NAME: John U. Walker, Coordinator

109 MAY 11, 1989

TO:

- |  |  |  |
|--|--|--|
| <input type="checkbox"/> Governor's Office                     | <input type="checkbox"/> Nuclear Waste Project Office                    | <input type="checkbox"/> Conservation and Natural Resources  |
| <input type="checkbox"/> Community Services                    | <input type="checkbox"/> Prisons   |  |
| <input type="checkbox"/> State Job Training Office             | <input type="checkbox"/> Public Service Commission                       | <input checked="" type="checkbox"/> Director's Office        |
| <input type="checkbox"/> Administration                        | <input type="checkbox"/> SNCC  | <input checked="" type="checkbox"/> State Lands              |
| <input type="checkbox"/> Agriculture                           | <input type="checkbox"/> State Communications Board                      | <input checked="" type="checkbox"/> Conservation Districts   |
| <input type="checkbox"/> Economic Development                  | <input type="checkbox"/> Tourism   | <input checked="" type="checkbox"/> Environmental Protection |
| <input type="checkbox"/> Education                             | <input type="checkbox"/> Tourism   | <input type="checkbox"/> Forestry                            |
| <input type="checkbox"/> Employment Security Department        | <input type="checkbox"/> Transportation                                  | <input checked="" type="checkbox"/> Historic Preservation    |
| <input type="checkbox"/> Human Resources                       | <input type="checkbox"/> Utah Bureau of Mines                            | <input type="checkbox"/> and Archaeology                     |
| <input type="checkbox"/> Aging Services                        | <input checked="" type="checkbox"/> Utah Library, Archives, Publications | <input type="checkbox"/> State Parks                         |
| <input type="checkbox"/> Health Division                       | <input type="checkbox"/> Utah Dept. of Mgmt. Studies                     | <input checked="" type="checkbox"/> Water Resources          |
|  | <input type="checkbox"/> and Forestry                                    | <input checked="" type="checkbox"/> Fish and Game            |
| <input checked="" type="checkbox"/> Legislative Council Bureau | <input type="checkbox"/> Wild Horse Commission                           | <input checked="" type="checkbox"/> Mine Inspector           |
| <input checked="" type="checkbox"/> Minerals                   | <input checked="" type="checkbox"/> Wildlife                             |  |

SAI NO: 8930051 PROJECT: E.A. - Mother Lode Gold Mine in Nye County

NO

Attached for review and comment is a copy of the aforementioned project. Please evaluate it with respect to: 1) the program's effect on your plans and programs; 2) the importance of its contribution to State and/or area-wide goals and objectives; and 3) its accord with any applicable laws, orders or regulations with which you are familiar with.

PLEASE SUBMIT YOUR COMMENTS NO LATER THAN 6/14/89. Type your comments if applicable, check the appropriate box below and return the form to this office. Please do so even if you have no comment on this project. If you are unable to comment by the prescribed date, please notify this office. Reviewers may substitute this form with agency letterhead. If letterhead is used, please cite the SAI number listed above.

THIS SECTION TO BE COMPLETED BY REVIEWING AGENCIES:	
<input type="checkbox"/> No comment on this project	<input type="checkbox"/> Conference desired (see below)
<input checked="" type="checkbox"/> Proposal supported as written	<input type="checkbox"/> Conditional support (see below)
<input type="checkbox"/> Additional information (see below)	<input type="checkbox"/> Disapproval of funding (must specify reason below)
CLEARINGHOUSE NOTES	
Scoping occurred in January 1989. Attached are your previous comments.	
AGENCY COMMENTS (use additional sheets if necessary)	
We have some concerns about whether the proposed reclamation will be as effective as the E.A. projects given the area. We will have to wait and see.	

9 - 1 Please see the response to comment 3-6.

Lawrence R. King Habitat Staff Specialist 789-0500 6/7/89  
Signature Title Phone Date

B-17

# Letter 10

# Response to Letter 10

Administration 702/000 0070  
Air Quality 000 0000  
Construction Grants 000 0070

BOB MILLER, Acting Governor

STATE OF NEVADA

Administration 702/000 0070  
Waste Management 000 0070  
Water Pollution 000 0070



DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES  
**DIVISION OF ENVIRONMENTAL PROTECTION**

300 South Fall Street  
Carson City, Nevada 89710

**CLEARINGHOUSE COMMENTS**

VAL NV# NYMANN:1

June 13, 1989

Title: E.A. - Mother Lode Gold Mine in Nye County

Air: Gay McCleary -

- 10 - 1 [ Air quality applications have been received; however, USMGS claimed a percent reduction from the control equipment than what is accepted. Therefore, the predicted particulate emissions will actually be much higher. (page 3-3, fogging sprays have a maximum control efficiency of 85%)

Water: Ralph Capurro -

- 10 - 2 [ NDEP, Water Quality, made some comments on the original scoping document for this project which were to be addressed in the draft E.A. In reviewing the draft E.A., it appears that none of the comments/concerns were addressed or commented on. Prior to construction, NDEP requests that these points be addressed. In addition, Best Management Practices (as defined by BLM) will need to be used on all construction. The first storage tank area should not only be bermed but also lined to protect against leakage. Leach field septic tanks will need to be approved by the Nevada Division of Health, CHPS.

Waste: Allen Blaygl -

- 10 - 3 [ The project will generate significant amounts of solid waste. Where will this material be disposed of? If disposal on-site is desired, approval must be obtained from the NDEP. If disposal is to occur in Beatty, what will the impacts be to that facility and Nye County?
- 10 - 4 [ Will solvents for degreasing be used? If so, how will they be disposed of?
- 10 - 5 [ Will underground tanks be used to store petroleum or cercla listed chemicals? If so, tank construction must conform to requirements outlined in 40 C.F.R. Part 270.

- 10 - 1 The Draft EA air quality analysis was based on information presented in the air quality application submitted to the Nevada Department of Environmental Protection (NDEP). This information has since been revised by the applicant in response to questions and concerns expressed by NDEP. The EA has been revised to reflect the new data (see Appendix A, Errata). NDEP has recently issued the air permit for this project.

- 10 - 2 The referenced comments on the original scoping document were addressed in the Draft Environmental Assessment. The following is an item-by-item discussion of each of the four original comments.

- One comment concerned the effect on water quality of a possible breach of the ponds or leak of the liners. A discussion of this subject is contained in Section 3.1 and Appendix A of the Draft EA.
- One comment concerned planting of topsoil and other stockpiles. In Section 1.4.5.2 of the Draft EA, it is stated that topsoil stockpiles will be seeded with fast-growing species. Opportunities do not exist to plant other stockpiles due to their active nature.
- One comment indicated that diversions need to accommodate a 100-year, 24-hour storm event; water diversions will be designed and constructed in compliance with these requirements.
- It was suggested that reclamation be coordinated with other agencies. The U.S. Soil Conservation Service has been contacted and will continue to be involved, as appropriate.

Requirements of permits issued by the State of Nevada are designed to ensure implementation of Best Management Practices.

The storage tank area will be constructed in compliance with all federal and state regulations for groundwater protection.

Once the final location of the sanitary waste system has been determined, USMGS will obtain the necessary approval from the Nevada Division of Health.

- 10 - 3 Solid waste from the Mother Lode Project will be collected by a licensed contractor for disposal at the county landfill west of Beatty. The landfill has an estimated remaining life of approximately 10 years.
- 10 - 4 Used solvents and used oil will be picked up by an outside vendor for offsite treatment and disposal.
- 10 - 5 There will be no underground storage tanks associated with the Mother Lode Project.

B-18

# Letter 11

# Response to Letter 11

Division of Conservation  
Bureau  
Department of Conservation  
and Natural Resources  
State of Nevada  
Carson City, Nevada



Address reply to  
Division of Conservation Bureau  
1000 E. 3rd Street  
Carson City, Nevada 89402  
835 4365

STATE OF NEVADA

DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES  
DIVISION OF CONSERVATION DISTRICTS  
June 8, 1989

MEMORANDUM

TO: John B. Walker, Coordinator  
FROM: Chris K. Freeman, Conservation District Specialist  
SUBJECT: SAI NV #8900051 - Mother Lode Gold Mine

B-20

11 - 1 [ 1. The reclamation plan covered in the Draft Environmental Assessment Proposed Mother Lode Project does a good job of identifying actions that are to be taken. However, reclamation needs to be keyed to the future success of the disturbed lands being able to support wildlife and other multiple uses.

It is stated on page 1-23 that it would be uneconomical to backfill with waste material. Some backfill may be beneficial if it lessens the steepness of slopes and reduces erosion. An area that is to receive topsoil will also take a better planting if the slopes are not too steep.

11 - 2 [ In looking at the economics it would appear from the information given in the assessment that to produce 25,000 ounces of gold a year that requires 1.5 million tons of earth to be moved the gross profit is \$5.83 per ton. This is assumed gold has a value of \$350.00 per ounce. If the overhead cost is 42% then \$2.46 a ton is needed to process the ore and regain capital investments. This would leave a profit of \$3.37 a ton for every ton of earth moved. Therefore a cost of \$1.85 a ton to backfill has some potential consideration in areas that could benefit from a little extra work to put them back into productive habitat.

11 - 1 Please refer to the response to comment 3-6 for a discussion of the BLM's reclamation goals.

11 - 2 In addition to the economic rationale provided in Section 1.5 of the Draft EA, another reason for not backfilling the pit is the potential for USMGS to mine the sulfide deposit beneath the oxide deposit at some time in the future.

It should be noted that the economic analysis presented in Section 1.5 of the Draft EA does not include such additional costs as permitting, water supply development, provision of an employee trailer court, and provision of a municipal water pipeline for Beatty.

# Letter 11 Continued

## Animal performance and plant production from continuously grazed cool-season reclaimed and native pastures

L. HOFMANN AND R.E. RILEY

### Abstract

The Surface Mining Control and Reclamation Act of 1977 requires that surface-mined land be revegetated with "the same seasonal variety", meaning species of the same season of growth as the species native to the area. Our objective was to compare warm- and cool-season species with pastures composed of a mix of native warm- and cool-season species. The study was conducted on surface-mined land near Center, North Dakota, dominated by smooth bromegrass (*Bromus inermis* Leyn.) and alfalfa (*Medicago sativa* L.) and on adjacent unmined mixed prairie. Pastures were 1.86 ha in size and stocked with 2 yearling steers (steer spp.) each. Grazing was started in May or June and ended in late September or early October for 90 days in 1982 and 120 days each in 1983, 1984, and 1985. Liveweight gain increased from mid June through August and then remained constant on all pastures. Herbage dry matter yield from reclaimed pastures was equal to or greater than yield from native pastures each year. The season of grazing was no different for reclaimed cool-season pastures than for native mixed prairie, and there was no evidence that species with the same growing season as those native to the area were necessary to provide season-long grazing use. Cool-season forage species are easier to seed, establish, and less expensive to buy and can be used to revegetate surface-mined land for season-long grazing use.

**Key Words:** surface-mined land, warm-season species, ground cover, species composition, liveweight gain, herbage dry matter

In the northern Great Plains, most of the native grasslands contain a mixture of cool- and warm-season grass, legume, and forb species and generally provide season-long grazing use. Surface-mined land can be revegetated at low expense and more readily with cool-season introduced plant species, but there is general concern that these species will not provide season-long grazing use. This is the primary reason that the Surface Mining Control and Reclamation Act of 1977 (The Act), Public Law 95-87, required that the permanent vegetative cover establishment should be "of the same seasonal variety native to the area of land to be affected" (Sec. 513, (b) (19)).

Barber et al. (1977) found that cool-season species, especially the more commonly used introduced species, were much easier to establish than warm-season species on mined land. DePest (1982) and Riley (1983) summarized the use of cool-season and warm-season perennial grasses, respectively, for revegetation of mined land in the northern Great Plains. The greater ease of revegetating with cool-season perennial grass species than with warm-season grasses also was apparent from these reports, and indicated that similar "seasonal variety" may be one of the most difficult criteria to attain.

DePest et al. (1980) established a predominantly native plant

community by excluding introduced species from the seeding mix. Even though warm-season grasses, shrubs, and forbs were seeded, the established native community was dominated by cool-season perennial grasses and flowering wildrue (*Astriflex canadensis*).

Williamson (1984) successfully established a seasonally balanced grassland by seeding late in spring, irrigating during the first growing season, and weighing the seed mixture in favor of warm-season species. Con conventionally seeded areas produced vegetation of predominantly cool-season species. Young et al. (1983) studied use of cattle grazing to enhance native species composition. Two grazing periods did not produce a desired change in plant composition nor did interseeded with native species and grazing.

Section 513 (b)(2) of the Act "requires the operator, as a minimum, to restore the land affected to a condition capable of supporting the use which it was capable of supporting prior to any mining, or higher or better use of which there is a reasonable likelihood." There are few data comparing productivity of animals grazing reclaimed mined lands dominated by cool-season species with animals grazing seasonally balanced native rangeland of the same stocking rate for the same number of grazing days. Our objectives were to determine if the length of grazing use would differ between reclaimed pastures composed of vegetation with strikingly different seasonal growth patterns from native range and to quantify the effect on animal productivity.

### Materials and Methods

The study was located near Center, North Dakota, on a surface-mined site previously used for a grazing intensity study (Hofmann et al. 1984, Hofmann and Riley 1985) and on adjacent unmined native rangeland. Original reclaimed and native soils are, Cobbe (loam mixed, calcareous, frigid, shallow, Typic Ustorthents) and Son (fine-silty, mixed Typic Haptochrepts). Mined spots were reshaped to near original contour and covered with approximately 10 cm of clay loam topsoil material.

The reclaimed area was fertilized only once with 12-12-0 kg ha<sup>-1</sup> N, P, K in spring, 1973, and seeded with a mixture of smooth bromegrass (*Bromus inermis* Leyn.), crested wheatgrass (*Agropyron desertorum* [Fisch. ex Link] Schult.), intermediate wheatgrass (*Agropyron intermedium* [Host] Beauv.), alfalfa (*Medicago sativa* L.), and yellow sweet clover (*Melilotus affinis* Lam.). The site was divided into 6 pastures with 2 replicates of 3 grazing intensities from 1976 through 1981 (Hofmann and Riley 1985). Two ungrazed enclosures, located within each pasture, provided an ungrazed check.

Enclosure size was adjusted following grazing in 1981 in order to obtain pastures with 1.86 ha grazable area. The pasture designated Reclaimed I (Fig. 1) included 0.62 ha of the formerly heavily grazed pasture combined with 1.24 of moderately grazed pasture. Lightly grazed pastures were reduced to 1.86 ha grazable area and are designated Reclaimed II. Two additional pastures with 1.86 ha grazable area were constructed on unmined native rangeland that had a condition rating of 39 (good) using SCS range condition classification techniques (Hytchock 1949), located 100 meters from the reclaimed site. One ungrazed unharvested sample was

# Letter 11 Continued

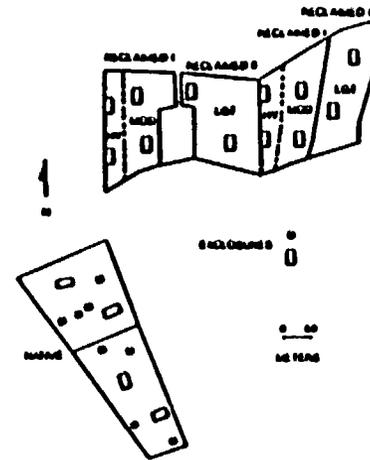


Fig. 1. Location of Reclaimed I, Reclaimed II, native pastures, and enclosures for season-of-grazing use study; and heavily (H), moderately (M), and lightly (L) grazed pastures from former grazing intensity study.

obtained from each of the 6 enclosures which provided 6 subsamples from each replicate. Subsamples were averaged when analysis of variance showed no significant ( $P < 0.05$ ) difference. Two enclosures in each replicate were 13.2 x 30.3 m in size while the others were adjusted in size to produce 1.86 ha grazable areas.

All pastures were grazed from 13 June through 21 September for a 90-day season in 1982. Grazing began on 23, 30, and 29 May in 1983, 1984, and 1985 and ended on 28 September and 3 and 7 October, respectively, for a 120-day season each of these 3 years.

Each pasture was stocked with 2 yearling Hereford x Simmental steers (steer spp.) and grazed at 2.0 AUM ha<sup>-1</sup>. The SCS guide recommends an initial stocking rate of 1.0 AUM ha<sup>-1</sup> for this site. Overnight off-meat shrink starting weights ranged from 240 to 320 kg and averaged 315 kg head<sup>-1</sup> for the 4 years. Animals were weighed at 14-day intervals throughout the grazing season.

Thirty 10-pm point frames (Levy and Madden 1973) were read within each former heavily and moderately grazed section of

Reclaimed I, and to Reclaimed II and to native pastures each year. Each frame was randomly located and oriented by tossing a meter stick and placing the frame along side where it fell. Five frames were read within each enclosure. Basal point counts at the soil surface were recorded for live plant cover, plant species, standing or ground litter, and bare ground.

Precipitation data were collected by the National Oceanic and Atmospheric Administration at Center, North Dakota, about 7 km west-northwest of the study area. Annual June through May precipitation was used because it was better correlated to vegetation dry matter than January through December precipitation (Hofmann and Riley 1985).

Total herbage dry matter within the grazed portion of each pasture was determined by mowing six 0.3 x 3.0 m strips at a 0.1 m height with a sickle bar mower immediately before grazing started, the first week in August, and immediately after grazing ended. Season-long dry matter was determined in October by mowing a 0.3 x 3.0 m area with the sickle bar mower under each of 6 protective cages that were randomly placed within each pasture before grazing began. One 0.3 x 1.0 m area was similarly harvested within each enclosure each time vegetation was sampled.

Percent live, litter, and bare ground cover means were analyzed as a completely random design (CRD) ( $P < 0.05$ ). The Waller-Duncan test was used to rank means for reclaimed and native areas. However, plant species composition was not statistically compared between a reclaimed and native plant communities because they were completely defoliated. Change in cover or plant species from 1982 to 1985 was tested using paired comparisons ( $P < 0.05$ ). Plant dry matter and animal gain means were tested using CRD and the Waller-Duncan test ( $P < 0.05$ ).

### Results and Discussion

Annual June through May precipitation for 1981, 1982, and 1983 was about 90 mm above the 1914-1970 yearly average of 43 mm whereas 1984 and 1985 precipitation was approximately 100 mm below average.

Percent live plant cover on the native areas was significantly greater than on the reclaimed areas in both 1982 and 1983 (Table 1). The only noticeable cover change from 1982 to 1983 was an increase in live cover on the previous moderately grazed portion of Reclaimed I. There was less litter cover and more bare ground on the Reclaimed I pastures at the start and the end of the study than on any other areas. Total ground cover (live plant plus litter) in 1983 on the previously heavily and moderately grazed portions of Reclaimed I still did not equal that of the native site. However, all areas had less than 30% bare soil, which has been suggested as the maximum acceptable level for adequate soil erosion protection (Packer 1954, Marton 1952, Hofmann 1986).

Table 1. Percent ground cover on reclaimed and native pastures measured by basal point counts on 15 June 1982 and 30 May 1983

Treatment	Pasture treatment	Live plant				Total				Bare ground	
		02	03	02	03	02	03	02	03		
Reclaimed I	Heavy	11b <sup>a</sup>	10b	10c	61c	61c	76c	39c	73c		
	Moderate	17b	17b*	16bc	71bc	68b	70b	44b	62b		
	Light	13b	16b	6ab	76b	97a	66ab	1c	66c		
Native	Good	10c	10c	67cd	67c	97a	97a	1c	1c		
	Ungrazed	7a	21a	62d	66c	92a	91a	4c	1c		

<sup>a</sup>Standard error (SE) rank

<sup>b</sup>Means within columns followed by the same letter are not significantly different at the  $P < 0.05$  (Waller-Duncan test) ( $n = 10$ )

<sup>c</sup>Significant change from 1982 to 1983 ( $n = 10$ ) ( $P < 0.05$ )

# Letter 12

STATE OF NEVADA



BUD MILLER  
Acting Governor

MAN FORD  
Secretary

OFFICE OF THE GOVERNOR  
OFFICE OF COMMUNITY SERVICES  
Capitol Complex  
Carson City, Nevada 89710  
(702) 685-6187

June 23, 1989

Mr. Theodore Angle  
Area Manager  
Bureau of Land Management  
P.O. Box 911  
Building 102 Military Circle  
Tonopah, Nevada 89049

Re: SAI NV 889300051      Project: E.A. - Mother Lode Gold  
Mine in Nye County

Dear Mr. Angle:

Attached is an additional comment from the Nevada Department of Minerals that was received after our previous letter to you. Please incorporate this comment in your decision making process.

Sincerely,

A handwritten signature in cursive script that reads "John B. Walker".

John B. Walker, Coordinator  
State Clearinghouse, NCCS/SNOC

JHW/11  
Enclosure

B-24

# Letter 12 Continued

employee housing, if necessary, provided the mine life is expanded beyond the present estimates.

This project is relatively short-term as mentioned in the Environmental Assessment. The mining company is cognizant of community needs directly attributable to its operation. This is demonstrated by the offer to construct a medical building, hire a part-time librarian, and supply water to be fully equal to that used by its employees and their dependents.

To mitigate potential wildlife mortalities the Mother Lode Project will employ netting and fencing for its long-term mitigation ponds. These methods have proved successful in significantly reducing mortalities and are recommended by both the U.S. Fish and Wildlife Service and Nevada Department of Wildlife.

In the event that the sulfide ore body can be mined cost-effectively, a new environmental assessment will be required. Therefore, this problem need not be addressed further at this time.

Overall, this draft Environmental Assessment addresses potential environmental problems and their mitigation. It is important for the company to continue its commitment to maintaining dialogue with the community. USMGS appears to have responded to all requests where feasible.

The Beatty area, and Nye County as a whole, should benefit by additional employment opportunities, increased tax revenues, and stimulation to the private sector economy.

The Nevada Department of Minerals supports the Mother Lode Project as it is reasonable, consistent with local and county land use objectives, and consistent with other operations in the state.

Sincerely,



Walter S. Lombardo  
Las Vegas Office

WL/lw