U.S. Department of the Interior
Bureau of Land Management

Battle Mountain District
Shoshone – Eureka Resource Area, Battle Mountain, Nevada

January 1996

CORTEZ PIPELINE GOLD DEPOSIT

Final Environmental Impact Statement – Volume II

COOPERATING AGENCIES:

Nevada Division of Wildlife

MISSION STATEMENT

The Bureau of Land Management is responsible for the stewardship of our public lands. It is committed to manage, protect, and improve these lands in a manner to serve the needs of the American people for all times. Management is based upon the principles of multiple use and sustained yield of our nation's resources within a framework of environmental responsibility and scientific technology. These resources include recreation, rangelands, timber, minerals, watershed, fish and wildlife, wilderness, air and scenic, scientific and cultural values.

BLM/BM/PL-96/001+1610

INTRODUCTION
RESPONSE TO COMMENTS

The Final Environmental Impact Statement (FEIS) for the Cortez Pipeline Gold Deposit consists of two volumes. Volume I includes all changes made to the Draft Environmental Impact Statement (DEIS) as the result of comments by the public during the public review period. In addition, Volume I includes revisions made to the water resources section as the result of expanded groundwater and geochemistry modeling performed after completion of the DEIS. Volume I also includes the results of a screening level ecological risk assessment conducted after the completion of the DEIS.

Volume II presents the oral and written comments made during the public review period and responses to those comments. Written comments, in the form of letters to the Bureau of Land Management (BLM), are presented first. Transcripts of the comments made at public hearings follow the written comments. Public Hearing comments were received at each of four locations: Elko, Reno, Battle Mountain, and Crescent Valley, Nevada.

Written and oral comments received were reviewed and each identifiable comment has been assigned a comment number. For example, within the first comment letter the comments are numbered sequentially, beginning with comment A-1. The BLM's responses to each set of comments follow each letter or set of letters, and are numbered in the same fashion. Therefore, Response to Comment A-1 is specific to Comment A-1, and Response to Comment A-2 is specific to Comment A-2. This approach is repeated for each comment letter, A to Z. The same system was followed in assigning comment numbers to the printed transcript of comments made at the four Public Hearings. The transcript of each meeting is followed by a set of responses to the identified oral comments in that transcript.

WRITTEN COMMENTS AND RESPONSES Page

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PUBLIC HEARINGS COMMENTS AND RESPONSES

COMMENT LETTER A – NEVADA CATTLEMEN'S ASSOCIATION

Comment Letter A

Nevada Cattlemen's Association
Box 310, Elko NV 89803-0310
Phone [redacted]: (702) 738-9214

November 2, 1994

Bureau of Land Management
Attn: Dave Davis
PO Box 1420
Battle Mountain NV 89820

Dear Mr. Davis:

The following letter contains the comments of the Nevada Cattlemen's Association on the Cortez Pipeline Gold Deposit Draft Environmental Impact Statement, July 1994. We are making these comments on behalf of our 800 plus members.

We do not have any specific problems with the Cortez expansion, however< we take issue with some of the wording of the document and the apparent lack of substantiating data.

The document makes continual references to abuse of the resources through livestock use and mismanagement of livestock. We could not find any documentation in the EIS to prove or disprove these statements. Therefore, unless there is documentation provided, these type of statements should not be used in the EIS. Examples of these statements can be found on pages 3-34, 3-35, 3-41, and 5-17. A-1

When the EIS does reference data, it references 1991 studies and 1980 studies. We do not consider either of these to be current enough sources of data. The 1980 reference is particularly offensive since it is cited while discussing the conditions of various creeks and riparian areas (5-17). Since 1980 there have been several major water events which could have impacted these areas. No scientist would accept 14 year old data without recent (within the last year) corroboration. A-2

Therefore, the references to the 1980 surveys should either be updated or removed from the EIS. We also object to the use of subjective ocular surveys. Ocular surveys are not scientifically documentable and are not repeatable between different individuals or even the same individual at different times of the year. Everyone sees things slightly differently even if they are standing side-by-side while making the "surveys." A-3

The EIS continually sites livestock as the reason for riparian area damage, but does not consider any other users such as wild horses, recreationists, or wildlife. In order for the EIS to be complete, these other potential causes of past, present and future riparian damage must be recognized. A-4

On page 3-60 the EIS states that "portions of two wild horse management areas [HMA] do extend into the study area, but no wild horse management areas exist in and around the project area." If HMA's do extend into the study area, then why are horses not cited as possible causes of some of the "riparian area and resource damage"? Since HMA's do extend into the study area then the EIS must include horses as resource users and possible causes of damage. A-5

Under section 5.3.10 Land Use/Livestock Grazing, page 5-34 the EIS states that "no range improvements would be lost." However, within the same paragraph it states that "actual loss of historically available water, particularly at the Filippini #2 water well where dewatering of the Proposed Action could adversely impact water production at the well." Although the well development itself would not be impacted by the project, we do view the potential loss of the water as a direct impact on a range improvement. Without water the Filippini #2 water well range improvement would be useless. This loss needs to be addressed through some form of mitigation, i.e. Filippini's receive some of the dewatering water (if it is safe for livestock) or the mine should develop another well in the area to help prevent excessive resource damage around other water sources. A-6

Thank you for this opportunity to comment on the proposed EIS.

Sincerely,

Betsy Macfarlan
Executive Director

RESPONSE TO COMMENT A-1

The description of riparian conditions on page 3-34 refers to conditions as observed during the seep and spring survey, conducted in the spring of 1993. The reference for the description on page 3-35 is cited (BLM 1991 surveys). Details of this survey are presented in Table 3.5-4. The statements on page 3-41 are based on the BLM studies and the field studies conducted during the preparation of this document, including the 1993 seep and spring survey. See, however, the Response to Comment A-4. The BLM also monitors range conditions (as well as riparian habitat conditions). Seventeen monitoring sites have been established in the South Buckhorn Allotment. According to the range conservationist who oversees this allotment, range conditions were poor in 1984, when these sites were established, and conditions have not changed appreciably since these sites were established (personal communication, Tom Warren, BLM, Range Conservationist, January 1995).

While the Carico Lake allotment does not have the degree of monitoring studies in place by the BLM as is the case for South Buckhorn, year-long grazing by livestock and wild horses has occurred historically, and range conditions reflect this heavy use. The need to improve ecological conditions and stop downward trend on 37 percent of the allotment was identified by the BLM during preparation of the Shoshone-Eureka Resource Management Plan and EIS (BLM 1984) and the Shoshone-Eureka Rangeland Program Summary (BLM 1988).

During the drought years, subsequent to the 1988 analysis, range conditions were subject to further deterioration.

RESPONSE TO COMMENT A-2

During the preparation of this document, available BLM survey information was used, and current conditions were assessed during field surveys. The inclusion of older data was not used

to indicate current condition without verification during field surveys. The inclusion of the older data does, however, show trends in range and/or riparian condition. An assessment made during a single visit, or based on a single survey will not reflect a trend. Riparian conditions as assessed in 1991, relative to 1980, show a decline. Field surveys conducted during the preparation of the Cortez Expansion and the Pipeline EIS documents, including the 1993 seep and spring survey (JBR 1993), did not indicate that conditions had improved compared to these earlier surveys. Photographs taken during the seep and spring survey document the impacts of large animal use.

RESPONSE TO COMMENT A-3

Ocular surveys are not simply a subjective assessment of stream and habitat condition, but involve a specific, numerical, scoring methodology. Factors considered and scored in developing an assessment of stream riparian conditions include substrate classification, pool quality, flow, turbidity, water temperature and depth, gradient, velocity, bank conditions and percent cover, types of cover, species present, presence or absence of beaver activity, extent of ungulate damage and fisheries characteristics. Scores for these various factors are combined to rate the overall habitat conditions of the stream and riparian zone. Photographs accompany the stream reports, as do the surveyor's notes. Personnel conducting these surveys have been trained in the techniques involved. Survey methodology is described in a detailed 56 page stream survey manual. The degree of subjectivity is, accordingly, limited.

RESPONSE TO COMMENT A-4

During the preparation of this document, horses and cattle were often both included under the single category of "livestock," because it is unclear whether many of the horses in the area are feral. Some horses in the area are owned and some are feral, or strays. Stray horses have been claimed by a rancher in the area (personal communication, Tom Warren, BLM Range Conservationist, January 1995).

Much of the damage to mountain springs has been the result of horse use, while valley water sources are used by horses and cattle during the winter, and primarily by cattle during the

summer. Horse gathers were conducted in 1992 to remove excess stray horses in the area. Stray horses are present throughout the year, rather than during a specified season of use. The horses, appearing in excessive numbers throughout the year, have indeed done a considerable amount of the damage to range and riparian resources, particularly springs in and near the mountainous portions of the area (personal communication, Gary Back, BLM Wildlife Biologist, January 1995).

However, BLM biologists and EIS preparers noted heavy cattle use along the streams during the summer months, and much of the damage to stream-side riparian communities has clearly resulted from this cattle use. In the case of the 1991 stream surveys conducted by the BLM in the Cortez Range, cattle are specifically mentioned in the surveyor's notes as the species adversely impacting the stream and riparian habitat. Stream-side habitats often lacked vegetation, cattle were commonly encountered and cattle tracks and droppings were the only type of animal or human sign found in the area (personal communication, Carol Evans, BLM, Riparian Specialist, January 1995; JBR field surveys). Recreational use of the area is not high, and the type of use that would result in damage to riparian areas was not documented during the field surveys. Mule deer populations in the area had, as noted in the document, declined by approximately 50 percent from their 1985 population high. This population assessment was made prior to the heavy 1992-1993 winter, which resulted in further deer population declines. The low population of large, wild ungulates in the area would not result in the damage to riparian areas noted in both BLM and JBR field surveys.

RESPONSE TO COMMENT A-5

See Response to Comment A-4 for analysis of horse impacts.

RESPONSE TO COMMENT A-6

Please refer to revisions to FEIS Section 5.3.10.

COMMENT LETTER B – NEVADA DEPARTMENT OF ADMINISTRATION

BOB MILLER
Governor

STATE OF NEVADA

JOHN P. COMEAUX
Director

Comment Letter B

DEPARTMENT OF ADMINISTRATION

Capitol Complex
Carson City, Nevada 89710
Fax (702) 687-3983
(702) 687-4065

November 1, 1994

Dave Davis
Pipeline Project EIS Team Leader
Bureau of Land Management
Battle Mountain District Office
50 Bastian Way
P O Box 1420
Battle Mountain, NV 89820

Re: SAI NV # 95300032 Project: DEIS--Cortez Pipeline Gold Deposit

Dear Mr. Davis:

Attached are the comments from the Nevada Divisions of Minerals, Water Resources, and Health concerning the above referenced project. These comments constitute the State Clearinghouse review of this proposal as per Executive Order 12372. Please address these comments or concerns in your final decision.

Sincerely,

Julie Butler

Julie Butler, Coordinator
Nevada State Clearinghouse/SPOC

JB/jbw
Enclosures

RECEIVED

NEVADA STATE CLEARINGHOUSE

Department of Administration
Planning Division
Blasdel Bldg., Rm 200
fax (702) 687-3983
(702) 687-4065

DATE: August 29, 1994

Governor's Office
Business & Industry
Agriculture
Minerals
Economic Development
Tourism
Fire Marshal
Human Resources
Aging Services
Health Division
Colorado River Commission

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Wildlife
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State Parks
Water Resources
Water Planning
Nuclear Projects Office
Natural Heritage

Nevada SAI # 95300032 **Project: Cortez Pipeline Gold Deposit Draft Environmental Impact Statement**

CLEARINGHOUSE NOTES:

Attached, for your review and comment, is a copy of the above mentioned project. Please evaluate it with respect to its effect on your plans and programs; the importance of its contribution to state and/or local areawide goals and objectives; and its accord with any applicable laws, orders or regulations with which you are familiar.

Please submit your comments no later than **November 1, 1994**. Use the box below for short comments. If significant comments are provided, please use agency letterhead and include the Nevada SAI number and comment due date for our reference.

THIS SECTION TO BE COMPLETED BY REVIEW AGENCY:

____No comment on this project
____Proposal supported as written
____Additional information below
____Conference desired (See below)
____Conditional support (See below)
____Disapproval (Explain below)

9/7/94 **AGENCY COMMENTS:**

No comment on the Environmental Impact Statement. However, if this project proceeds, plans and specifications for water system/sewage disposal system [illegible] installations must be [illegible]

[illegible]

s:\SHARDAT\SAI\CLEAR.FRM

BOB MILLER
Governor

STATE OF NEVADA

PETER G. MORROS
Director

R. MICHAEL TURNIPSEED, P.E.
State Engineer

DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES

DIVISION OF WATER RESOURCES

Capitol Complex
123 W. Nye Lane
Carson City, Nevada 89710
(702) 687-4380

September 7, 1994

Nevada State Clearinghouse
Planning Division
Blasdel Bldg. Rm. 200
Carson City, NV 89710

RE: Nevada SAI# 95300032; Project: Cortez Pipeline Gold Deposit, due November 1, 1994

In response to the above project, the Division of Water Resources (DWR) has the following comments:

At present time Cortez Pipeline has permits and certificates that allow it to pump at the rate of 30,000 GPM (67.0 CFS) or a total of 48,506.0 AFA. If more water is to be removed from the ground in this basin, Cortez Pipeline Gold will need to apply for more water rights. B-1

Other than the above mentioned comment the Division of Water Resources supports the proposal as written.

If there are any questions please call our office at 702-687-3861.

Sincerely,

George Jackson

George Jackson, P.E.
Hydraulic Engineer II

GJ/jjs

STATE OF NEVADA
DEPARTMENT OF BUSINESS AND INDUSTRY
DIVISION OF MINERALS
400 W. King Street, Suite 106
Carson City, Nevada 89710
(702) 687-5050 • Fax (702) 687-3957

BOB MILLER
Governor

LAS VEGAS BRANCH
4220 S. Maryland Pkwy.
Suite 304
Las Vegas, Nevada 89119
(702) 486-7250
Fax (702) 486-7252

RUSSELL A. FIELDS
Administrator

October 20, 1994

Julie Butler, Clearinghouse Coordinator
Department of Administration, Planning Division
Blasdel Bldg., Room 200
Carson City, NV 89710

Re: Nevada SAI #95300032, Due Date November 1, 1994, Project: Cortez Pipeline Gold Deposit Draft Environmental Impact Statement (DEIS)

The Nevada Division of Minerals has reviewed the DEIS for the Cortez Pipeline gold deposit project.

The members of the interdisciplinary team who participated in this project are to be congratulated for their production of an outstanding environmental document. All areas of concern have been addressed using sound scientific and engineering principles and practices. B-2

The Cortez Pipeline project will be a very important one for the citizens and economy of Lander, Eureka, and Elko counties. Mining of these ore reserves will continue well into the next one to two decades, ensuring stable employment and revenue sources which will be of great benefit to citizens, the counties, Nevada and the U.S.

We support the Proposed Action as it provides the best means for balancing protection of wildlife, water, air, scenic and other resources with the economics of development and production of mineral resources.

We appreciate the opportunity to provide these comments and commend the Bureau of Land Management, Placer Dome U.S., and all those who contributed to the DEIS for their excellent efforts on this important project.

Sincerely,

Bill Durbin
Field Specialist

RESPONSE TO COMMENT B-1

Comment noted.

Based on groundwater modeling results, it is currently believed that the certificated water rights for 30,000 gpm will be sufficient for mining, milling, dewatering, and domestic purposes throughout the projected life of the Proposed Action. Should conditions prevail during the operation that require more water, the applicant will apply to the Nevada Division of Water Resources for additional water rights. In doing so, the applicant will demonstrate that the additional withdrawal of water from the basin will not impact existing water rights in the area.

RESPONSE TO COMMENT B-2

Comment noted.

COMMENT LETTER C – U.S. FISH AND WILDLIFE SERVICE

Comment Letter C

United States Department of the Interior

FISH AND WILDLIFE SERVICE
NEVADA ECOLOGICAL SERVICES STATE OFFICE
4600 Kietzke Lane, Building C-125
Reno, Nevada 89502-5093

November 4, 1994
File No. BLM 4-4

Memorandum

To: District Manager, Battle Mountain District, Bureau of Land Management, Battle Mountain, Nevada

From: State Supervisor, Ecological Services, Reno, Nevada

Subject: Cortez Pipeline Gold Deposit Draft Environmental Impact Statement

The Fish and Wildlife Service (Service) has reviewed the July 1994 Draft Environmental Impact Statement for Cortez Pipeline Gold Deposit Project. Cortez Gold Mines proposes to develop and operate a new gold mine in Crescent Valley, Lander County, Nevada. The project would include development of an open pit, associated dewatering system, and waste dumps; construction of a combined heap leach and tailing impoundment facility, ore processing facility, and support facilities; and continued exploration drilling. Approximately 1,880 acres would be disturbed by this proposed project.

GENERAL COMMENTS

The Service is concerned that the statement may underestimate the impacts of the pipeline project by separating the proposed action from the planned expansion of the pipeline project. It is not clear from the information provided why the South Pipeline Expansion is not treated as a connected or similar action as defined in the National Environmental Policy Act (NEPA) regulations and, therefore, included in the scope of this statement. Under the regulations, (40 CFR § 1508.25 (a)(3)), to determine the scope of environmental impact statements, agencies shall consider the following: C-1

> Similar actions, which when viewed with other reasonably foreseeable or proposed agency actions, have similarities that provide a basis for evaluating their environmental consequences together, such as common timing or geography. An agency may wish to analyze these actions in the same impact statement. It should do so when the best way to assess adequately the combined impacts of similar actions or reasonable alternatives to such is to treat them in a single impact statement.

In addition, the statement provides detailed analysis for only the proposed action and the no action alternative, and thus does not appear to rigorously explore all reasonable alternatives. As specified in 40 CFR § 1502.14, the intent of alternatives is to provide a clear basis for choice among options by the decision maker and the public. Other alternatives we recommend be addressed are discussed below. C-2

Clarification and additional information is needed in many sections of the statement, especially those on dewatering and associated impacts to surface waters, and potential impacts resulting from heap leach, tailing, and waste rock facilities. Our comments on these and other issues are provided below.

SPECIFIC COMMENTS

2.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION

2.2.7 Proposed Reclamation Plan: Heap Leach and Tailing Facility Closure. Pages 2-32 to 2-34. The statement indicates that decommissioned heap leach cells would be allowed to sit undisturbed for about 4 months to allow cyanide compounds to "degrade naturally." We are interested in the amount of residue expected to remain that may potentially be harmful to wildlife. Further, there is no discussion of the potential for other compounds (e.g., arsenic, mercury, selenium) to occur in these spent cells. The final document should discuss the potential for trace elements and other toxic compounds to contaminate ground water, monitoring methods proposed to detect such contamination, and remedial measures to be implemented should contamination occur. The document also should specify the standards that will be used to measure water quality draining from the heap leach and tailings facilities. C-3

The last sentence in the third paragraph on page 2-32 reads, "If the results of the second rinsing indicated that the NDEP standards could not be met, alternate decommissioning procedures would be discussed with the NDEP." Possible alternate decommissioning methods should be specified. Is it possible that the project proponent would not be required to bring the closed heap leach into compliance with Nevada Department of Environmental Protection (NDEP) standards if the rinsing method does not produce the desired results? Clarification on this issue should be provided. C-4

In reference to decommissioning of the tailings and composite heap leach tailings cells, the statement indicates that proposed methods should allow closure within the range of chemical stability expected for this material. This description is vague and does not provide adequate information

to assess impacts of the tailings facility on water quality, soil, or wildlife. Specific information should be provided on the expected chemical composition of this material and the potential for toxic elements to be mobilized. C-5

Similarly, the discussion of the sludge remaining in the cells after final evaporation does not provide any specific information on what factors will determine how the sludge is ultimately disposed. The final document should provide the standards and thresholds for each of the possible disposal methods described (i.e., bury the sludge in place, move the sludge to the top of the leach facilities, or place the sludge in a landfill). C-6

On page 2-34 the document indicates that monitoring wells around the heap leach and tailings impoundment facilities would be maintained until Cortez Gold Mines was released of the requirement by NDEP. What factors determine when monitoring wells will no longer be maintained? Is monitoring required for a fixed amount of time, or until certain water quality standards are met? The document should provide this information. C-7

2.2.7 Proposed Reclamation Plan: Waste Rock Dumps Reclamation. Pages 2-34 to 2-36. The document states that the waste rock material is not likely to produce acid in excess of the neutralizing potential of the waste rock. This conclusion is based on the lack of evidence of acid generation in any of the existing waste rock extracted during exploration. Specific information should be provided on the composition of the waste rock. Has the waste rock already extracted been tested for acid generation potential or is the "lack of evidence" based on informal observation? What is the quantity of waste rock, and the time and conditions of exposure, on which the low acid producing determination was based? We recommend this information be provided in the document. In addition, the potential for mobilization of metals and other trace elements should be assessed and discussed. C-8

2.3 Reasonably Foreseeable Projects. Page 2-47. This section states that certain additional mine development activities are anticipated but not scheduled for development under the proposed action. Yet in section 5.0, pages 5-9 to 5-10, the statement indicates that Cortez Gold Mines plans to expand the pipeline project. The South Pipeline Expansion, which is expected to disturb an additional 1,734 acres, will require expansion of several facilities to be developed under the proposed action, including the waste rock dump, tailing facility, and the mine pit. Further, the rate of pit dewatering may increase from the estimated 30,000 gallons per minute (gpm) for the proposed action to 55,000 gpm after the expansion. The magnitude of many other impacts is likely C-9

to increase, including the area affected by the cone of depression, the number of springs and seeps affected, the size of the pit lake, and evaporative water loss from the lake, once the South Pipeline Expansion occurs. We recommend that the statement assess the environmental impacts potentially resulting from the full scope of the pipeline project (i.e., the proposed project and the intended expansion). C-9

2.4 Project Alternatives. Pages 2-47 to 2-55. The document states that no project alternatives were retained following an initial screening. Five project component alternatives were briefly discussed and rejected (four of which addressed essentially the same action of either constructing a new or refurbishing the existing mill at the current Cortez millsite). Six alternatives for the discharge of pumped water were also briefly analyzed and rejected. No other alternatives are addressed in the statement (except for the No Action alternative). We recommend that, to meet the NEPA objective of rigorously exploring and objectively evaluating all reasonable alternatives, pursuant to 40 CFR § 1502.14, additional alternatives be developed and analyzed. These should include, but not be limited to, full or partial backfilling of the pit, reinjection of pumped water upgradient from the pit, and alternative locations for the waste rock disposal area and tailing/heap leach facility. C-10

3.0 AFFECTED ENVIRONMENT

3.6 Wildlife Resources. Page 3-37 to 3-46. We provided a species list to you pursuant to the Endangered Species Act of 1973, as amended, for this project in our scoping comments dated February 1, 1993. The statement adequately addresses the occurrence of bird, mammal, and fish species within the study area. No information is provided, however, on invertebrates that may be found in the area. Many springs within the Humboldt River basin are known to host populations of endemic snails. We recommend that springs within the potential area of ground water drawdown be surveyed for snails. As you may be aware, the Service has been asked to enter into a Memorandum of Understanding among the Service, National Biological Survey, Bureau of Land Management, National Park Service, Forest Service, and Smithsonian Institution to develop management policies to conserve spring habitats and springsnails on Federal lands in the Great Basin Region. C-11

4.0 ENVIRONMENTAL CONSEQUENCES

4.4.1 Water Resources. Groundwater Significance Criteria. Pages 4-19 to 4-20. The threshold for significant impacts to wells, seeps, and springs is identified as the modeled 20-foot drawdown contour. This threshold was chosen because the model

used to predict drawdown operates on 20-foot contours. We note, however, that drawdown of a lesser magnitude, e.g., 10 feet, may impact surface water features such as springs, seeps, and creeks. Therefore, the impacts identified in the statement may underestimate the actual impacts to surface water resources. C-12

4.4.2 Water Resources. Potential Impacts to Groundwater. Pages 4-20 to 4-28. This section states that a maximum cumulative pumping rate of 30,000 gpm is expected. As noted above, however, the planned South Pipeline Extension may increase the pumping rate for this pit to 55,000 gpm. Thus, the higher rate of 55,000 gpm should be used to assess impacts to surface and ground waters. C-13

On page 4-24 the document states that six rock types were tested for acid generation potential and metals leaching potential. It is not clear if the sample rock types represent the full elevational gradient of rock that will potentially be subject to acid production or metals leaching. This issue should be clarified. C-14

4.4.3 Water Resources. Mitigation of Potential Impacts to Groundwater. Pages 4-28 to 4-32. According to the statement, the anticipated radius of pit dewatering effects is 5 to 7 miles. The dewatering rate on which this potential cone of depression is based is not stated. This information should be provided. As noted previously, we recommend that impacts be assessed based on the anticipated dewatering rate of 55,000 gpm. C-15

4.4.5 Water Resources. Potential Impacts to Surface Water. Pages 4-33 to 4-42. One potentially significant impact identified is that Cooks Creek may become dry over a greater length than under present conditions as a result of ground water drawdown. Additionally, a minimum of 25 springs may be impacted by lowering of the water table. The document states that these impacts are based on the predicted extent of drawdown after introduction of reinfiltration water. The document indicates in section 3.0, Affected Environment, that, within the study area, roughly 68 springs and seeps support 40.5 acres of wetlands and at least 220 riparian areas occur along approximately 50 miles of streams and channels. Section 4 should specify the acreage of wetlands, and the types of vegetation, that may be affected by ground water drawdown in the 25 springs. This section should also state whether any of the 220 riparian areas may be affected. Further, it is not clear from the text in this section or the referenced figures, which dewatering rate is the basis for determining the extent of these impacts. This information should be clearly stated. C-16

Page 4-39 is missing from the copy of the statement we reviewed. It appears that the discussion of water quality in the pit lake begins on this page. This error should be corrected. C-17

Under the topic of evaporative losses, the document estimates water loss from the pit lake will be 155 to 200 million gallons per year (300 to 380 gpm), or approximately 10 percent of the water pumped. We assume that this rate is based on the configuration of the pit resulting from the proposed action alone. As discussed above, we recommend that the document assess the full scope of impacts likely to occur once the pit is expanded under the South Pipeline Expansion project. C-18

4.4.6 Water Resources. Mitigation of Potential Impacts to Surface Water. Pages 4-42 to 4-47. The document states that the extent of drawdown can be controlled through spatial variation of infiltration sites. It appears that the reinfiltration pond(s) is the only mitigation measure proposed for impacts to surface water. As discussed above, however, the assessment that 25 or more springs and Cooks Creek may be potentially affected by ground water drawdown was based on impacts expected after reinfiltration. Thus, it appears that no mitigation is offered for the potential short- or long-term impacts to these 25 springs and Cooks Creek. We note further that the actual success of reinfiltration is dependent on many factors (e.g., hydraulic characteristics, soil characteristics, etc.) and cannot be determined with certainty at this point. Wetland and riparian habitats support the greatest diversity of wildlife within the study area, as was noted in section 3. Therefore, we recommend that the project proponent compensate for these potential impacts. One way of achieving this would be to create or restore in-kind habitat; a ratio of 2 acres created or restored for every 1 acre potentially impacted may be necessary to achieve full compensation. C-19

The statement indicates that evaporative loss from the pit lake is considered significant and that there are no feasible mitigation measures. As noted earlier, we recommend that the project proponent examine backfilling the pit as an alternative. Backfilling, at least to the anticipated level of ground water, could reduce or eliminate impacts associated with evaporative water loss. Alternatively, the project proponent could purchase additional water rights and dedicate these rights in perpetuity to benefit wildlife. For example, the water could be used to sustain created or restored wetland habitat, as noted above. C-20

4.5.2 Vegetation. Project Impacts. Page 4-48. This section states that there would be no impacts to riparian areas or wetlands directly or indirectly owing to ground water drawdown; the proposed infiltration system would provide for the continuation of plant communities associated with surface waters. This statement appears to be in conflict with the information presented earlier (i.e., that 25 or more springs and Cooks Creek may be affected by the cone of depression after taking into account the reinfiltration system). Further, because of the many unknown factors associated with the reinfiltration process, we do not agree that the infiltration system will necessarily sustain all of the plant communities associated with surface waters. A more realistic assessment would be that reinfiltration may provide for the continuance of some plant communities associated with surface waters.

C-21

SUMMARY COMMENTS

We recommend that the statement address the full extent of the pipeline project (the proposed project and the planned expansion) so that we can accurately assess the impacts to wildlife resources. We further recommend that additional alternatives to the proposed action be given serious consideration and analyzed in detail. Additional information or clarification is also needed in some sections, especially in regard to dewatering, ground water drawdown, impacts to surface water resources, and impacts resulting from heap leach, tailings, and waste facilities.

We appreciate the opportunity to provide comments on this statement. The Service may also comment on the final statement, as well as any Public Notice issued for an Army Corps of Engineers permit pursuant to section 404 of the Clean Water Act. If you have any questions, please contact Tiki Baron at (702) 784-5227.

David L. Harlow

cc:
State Director, Bureau of Land Management, Reno, Nevada
Administrator, Nevada Division of Wildlife, Reno, Nevada
Regional Manager, Nevada Division of Wildlife, Elko, Nevada
Administrator, Nevada Division of Environmental Protection, Carson City, Nevada
Chief, Regulatory Section, Army Corps of Engineers, Sacramento, California
Chief, Office of Federal Activities, Environmental Protection Agency, San Francisco, California
Chief, Wetlands Section, Environmental Protection Agency, San Francisco, California
Assistant Regional Director, Ecological Services, Fish and Wildlife Service, Portland, Oregon

RESPONSE TO COMMENT C-1

The cumulative impacts of the Proposed Action and South Pipeline Expansion (as well as other reasonably foreseeable projects) have been addressed in Chapter 5.0 of the DEIS. Resources and issue areas addressed include: acres of wildlife habitat; acres of vegetation; soils; recreation; air quality; visual resources; socioeconomic impacts including cumulative construction and operation work forces, grazing allotments, and cultural resources. Water resources are also addressed based on the assumption that the dewatering rate for the two projects could be in the range of 55,000 gpm.

The assessment of cumulative impacts resulting from the South Pipeline Expansion is based on conceptual information that the applicant has provided. If detailed engineering plans are developed by the applicant, a Plan of Operations would be required by the BLM. At that time additional environmental documentation would be required in response to the Plan of Operations submitted by the applicant. At the present time all potential cumulative impacts that could result from the South Pipeline Expansion have been addressed at the level of detail possible based on conceptual information.

RESPONSE TO COMMENT C-2

Alternatives considered but screened out because of technical feasibility, environmental impacts, and cost are addressed in Section 2.4. Other alternatives suggested by the U.S. Fish and Wildlife Service are addressed in Response to Comment C-10.

RESPONSE TO COMMENT C-3

Operational experience has shown that a rest period prior to rinsing promotes the natural degradation of WAD and free cyanide compounds. As described on page 2-32 of the DEIS the

rest period is only the first step in the closure process. Prior to commencing closure and rinsing activities, the heap leach cells will be representatively sampled by drilling pursuant to a sampling plan approved in advance by the NDEP. The samples will be analyzed for the NDEP Profile I constituents (various metal and cyanide compounds) by NDEP's Meteoric Water Mobility Procedure. Rinsing will then commence, with the rinsate monitored on a periodic basis. The standards used for closure of the cells are specified by NAC 445.2434 and include WAD cyanide <0.2 mg/L and pH of the rinsate in the range of 6.0 to 9.0 (standard units). The heap will be re-contoured to its final reclaimed topography, covered by two feet of alluvial growth material, and seeded. The capping by alluvial growth material and the greater degree of natural cyanide degradation near the surface of the heap material (due to sunlight and increased biological activity) serve to reduce wildlife exposure to cyanide "residues" in the spent ore materials. Exclusionary measures employed during operation (e.g., fencing, netting) to prevent harm to wildlife will be maintained until completion of final closure as required by NDOW. Other compounds, such as metals, which may be present in the heap material, will be evaluated and addressed in the NDEP approved closure plan on an individual basis as dictated by MWMT tests. Irrespective of the levels at which these compounds may occur, the closure plan approved by NDEP must achieve stabilization of these compounds to prevent the potential degradation of waters of the state. Alternative decommissioning procedures, such as incorporation with stabilized tailings, may also be approved by NDEP to achieve final closure standards.

RESPONSE TO COMMENT C-4

Alternative decommissioning methodologies cannot be specified at this time, because they are dependent upon the particular physical and chemical composition of the heap at the time of closure. Examples of alternative methods may include, but are not limited to, such things as carbon treatment of the rinsate, biological treatment (addition of metals or cyanide metabolizing bacteria), capping with impervious material, and various methods to chemically destruct cyanide compounds. Any alternative decommissioning method must be approved by NDEP and by law, must ensure that the closed facility will not cause potential degradation to waters of the state.

RESPONSE TO COMMENT C-5

As described on page 3-11 of the DEIS, anomalous levels of arsenic, antimony and mercury are associated with the ore deposit. Specific data on the chemical composition for all material types to be mined and/or processed were provided to and reviewed by NDEP in the Water Pollution Control Permit application. Conceptual closure plans based on the expected chemical composition were proposed in the application.

The DEIS contained Acid Generating Potential data in Table 4.4-1 and contaminant mobility test data in Appendix Table C-6. Specific information on the geochemical composition and contaminant mobilization potential of ore and non-ore material to be mined has been summarized in the Final EIS. Anomalous levels of trace metals, relative to the general geochemical composition of whole rock, are commonly found in association with mineral deposits. The geochemical composition of mineralized rock does not give a direct indication of contaminant mobilization potential. To evaluate the potential of mined material (overburden, waste rock, and ore) to mobilize contaminants, representative samples of each material type are selected and subjected to prescribed test procedures. Proper characterization is important in determining the disposition of those material types (overburden and waste rock) which would normally not be placed in engineered containment. Processing of ore and storage of spent ore materials must be accomplished in facilities which meet regulatory standards for engineered containment and environmental protection; however, characterization of ore material is also important to demonstrate the practicality of meeting facility closure requirements. This level of mined material characterization has been completed for the proposed project and has been accepted by the Nevada Division of Environmental Protection. No heap leach or mill ore samples yielded leach solutions with chemical concentrations exceeding NDEP guidelines for the Meteoric Water Mobility Procedure.

Regarding the concern that tailing material could present a toxicity risk at decommissioning, it should be realized that the tailing material would be isolated by placing an alluvial cover over the exposed tailing surface prior to closure. During drain-down and desiccation, the composite liner system on which the spent ore material would remain prevents seepage to the underlying

soils. The lined solution collection system used during the operating period would be maintained for drain-down collection and treatment if required.

RESPONSE TO COMMENT C-6

Residual sludge and the liners will be characterized and disposed of in accordance with NDEP regulations and guidance documents governing these substances and activities. Process pond residue will be representatively sampled as specified in EPA Guidance document SW-846 (Methods for the Sampling and Analysis of Wastes) and analyzed by the TCLP (Toxicity Characteristic Leaching Procedure) method for RCRA constituents. If the substances are not determined to be RCRA wastes, the sludge will be either managed in place or placed within the Tailing/Heap Leach containment facility, according to the closure plan reviewed and approved by NDEP. If there are RCRA wastes identified, they will be properly managed and disposed of in a permitted off site RCRA disposal facility. A TSDF would be selected based on several factors, such as the management and operational compliance record of the TSDF. This is a decision which cannot be predetermined.

RESPONSE TO COMMENT C-7

Monitoring would be terminated once NDEP has determined that the process components are chemically stabilized and do not have the potential to cause degradation to waters of the state. This determination is based on the closure methodologies, levels of constituents in the closed units, monitoring results (groundwater, rinsate, etc.), and the potential for any constituents to degrade waters of the state.

Monitoring wells would serve to demonstrate that groundwater has not been effected by operation of the permitted facility. Assuming that monitoring wells demonstrate compliance throughout the operating period, monitoring may still be required for up to 30 years depending on closure conditions. If a release to groundwater has been detected, monitoring would continue until terminated by NDEP based on applicable closure criteria and regulatory standards. Process facility monitoring requirements also include other forms of performance observation and documentation such as leak detection within the composite liner system of the

facility, leak detection at the interface of the engineered containment and subsoil zone, sampling and analysis of contained solutions, and sampling and analysis of spent ores.

RESPONSE TO COMMENT C-8

As stated on page 2-35 of the DEIS the waste rock was representatively sampled during exploration of the deposit. A summary of acid base accounting results is provided in Table 4.4-1, page 4-90 of the DEIS. The sampling and analysis was conducted in accordance with NDEP methods/requirements for determining acid generation potential. The NDEP protocols (Meteoric Water Mobility Procedure) address the potential for mobilization of metals and trace elements.

Extensive exploration drilling (core and rotary) of the deposit has allowed geologic material included in the proposed open pit envelope to be categorized and typed, representatively sampled, and analytically characterized for acid generation and metals mobilization potential. Further information on this matter appeared in the DEIS at Section 2.2.1, Section 4.4.2, Section 4.4.5, Table 4.4-1, Appendix C, and Table C-6. Additional clarification is provided in Section 4.4.4, Table 4.4-2, Table C-6, and Table C-7 of the FEIS.

RESPONSE TO COMMENT C-9

As described in Response to Comment C-2, the South Pipeline Expansion is a reasonably foreseeable project because of ore resources present at that location. The statement on pages 5-9 to 5-10 of the DEIS does not contradict the statement of page 2-47. Please refer to the statement on page 5-7 for further clarification. The deposits at South Pipeline are in an exploration phase. Information needed to develop a distinct mine plan is unavailable. Using the existing database, a preliminary estimate of impact can be based on engineering and geological experience. If future conditions allow development of South Pipeline these preliminary estimates would be refined in another environmental document. This approach applies to any other foreseeable (but not engineered) project in Chapter 5.0.

As suggested by the commenter, the impact analysis in Section 4.4 of the FEIS assumed a conservative pumping rate of 55,000 gpm that may result from dewatering both the proposed pit and the South Pipeline expansion.

It should be noted that numerous court rulings have mandated that federal agencies need only analyze those "reasonably foreseeable development scenarios" (RFDSs). The Pipeline deposit EIS has done that. All current BLM guidance related to analyzing RFDSs with existing information has been followed.

RESPONSE TO COMMENT C-10

The BLM local office worked closely with Cortez Gold Mines in the development of the Plan of Operations. This coordination in development of the proposal is mandated by the CEQ, Department of Interior, and BLM guidelines. The purpose of such up-front coordination is to limit environmental degradation through the use of project proposal design. Upon completion of this effort, the number of reasonable, viable, subalternatives as defined by the CEQ resulted in only the Proposed Action and the No Action Alternative analyzed in the document. Alternative locations of various facilities (subalternatives to the Proposed Action, not "true" alternatives as required by CEQ) would change the impact analysis very little, with the possible exception of air quality (potentially longer hauling distances) and the economics of the proposal (again, longer hauling distances increase costs per ton for processing).

In addition, the Proposed Action, i.e., the development and operation of an open pit mine, has no practical alternatives that would meet the proponents needs. The mineralized ore body cannot be relocated analogous to a power plant or power line right-of-way. This fact alone limits the number of viable, reasonable alternative (see CEQ's Forty Most Asked Questions) available for analysis. Reclamation alternatives, sites for facility locations, different methods for dewatering and backfilling were all seriously considered, but ultimately rejected for full analysis for various reasons discussed in Section 2.4.2 of Volume 1.

Regarding the specific group of alternatives suggested:

(1) Open pit backfilling options are addressed in Section 2.4.2.3 of the FEIS.

(2) Upgradient reinjection of dewatering pumpage is not feasible based on considerations related to baseline conditions, the proposed action, and related regulatory authority:

The basin-fill aquifer is an alluvial water-bearing unit in which nearly all groundwater production takes place in Crescent Valley. The greatest density of existing groundwater production wells (protected from impairment by Nevada water law) are located, under natural groundwater conditions, downgradient from the proposed dewatering well field. Groundwater investigation indicates that, once water stored in the bedrock aquifer local to the pit excavation is withdrawn, the basin-fill (alluvial) aquifer would be the primary source of groundwater inflow to the dewatering well field. It is necessary to control drawdown in the basin-fill aquifer in order to avoid significant lowering of the water level in existing groundwater production wells or adversely influencing springs or seeps which are in direct hydraulic connection with the basin-fill aquifer. To accomplish this dewatering discharge must be introduced as aquifer recharge at an intervening location between the dewatering well field and those otherwise potentially impacted wells and surface water features.

Upgradient reinjection alternatives such as well injection in the discontinuous bedrock formations to the west of the open pit or reinfiltration galleries located in the upper reaches of the basin would serve no purpose but to exacerbate drawdown effects in areas of the basin-fill aquifer currently committed for groundwater production. If the concern is potential impacts to the spring/meadow complex located near Rocky Pass, this potential impact can be more effectively offset by intercepting drawdown using the proposed rotational infiltration system within the radial segment area described in the DEIS project description and in the FEIS.

The reinfiltration plan described in the DEIS proposed action section was developed in coordination with the Nevada State Engineer. Subsequent to the preparation of

the DEIS, water right permit applications for this project have been approved by the State Engineer (June 1994).

The proposed waste dump location was identified based on site environmental conditions and the economics of material haulage. The proposed waste dump location is the closest site with the best haul profile and would result in the least impacts based on soils, vegetation, livestock use, wildlife use, and hydrological criteria. Processing and tailings heap leach facility locations were identified based on similar considerations. Given the homogeneity of soils, vegetation, and other surface features in adjacent areas, no significant reduction in impacts was identified for the various locations of subalternative project components.

RESPONSE TO COMMENT C-11

Section 3.6.3 of the FEIS has been revised to report the results of a springsnail survey.

RESPONSE TO COMMENT C-12

The numerical flow model and calibration well data have been further developed to enable simulation of predicted groundwater elevations, reliable to 10 ft. resolution or better, for a selected pumping stress rate and duration. The significance criteria for wells, seeps, and springs have been revised in the FEIS to reflect the minimum 10-foot drawdown contour used in the expanded groundwater model. Ten feet of drawdown is used as a quantitative significance criteria for groundwater impacts to wells. Significance criteria for seeps and springs include any diversion or reduction in flow. Therefore, based on the significance criteria, mitigation measures such as supplementing with pit dewatering water, solar-powered wells, etc., will be implemented. Refer to Mitigation Measure 4.4.5-1 of the FEIS for a detailed description of the proposed mitigation.

RESPONSE TO COMMENT C-13

The 30,000 gpm pumping rate is expected for the Pipeline Pit only, not cumulative. The highest dewatering pumping rate of about 56,500 gpm (with infiltration) is analyzed in the

DEIS. Refer to page 4-22 (top paragraph and Figures 4.4-5 and 4.4-7 of the DEIS) for references to this pumping rate. As suggested by the commenter, the FEIS (Section 4.4.3) evaluates impacts based on a pumping rate of 55,000 gpm, which is based on the expected cumulative pumping rate from both the Pipeline and South Pipeline pits for cumulative impacts.

RESPONSE TO COMMENT C-14

Both the FEIS and the new WMC hydrochemistry/geochemistry report (WMC 1995c) still discuss six main representative rock types. See also Response to Comment J-13.

RESPONSE TO COMMENT C-15

The anticipated radius of effect of 5 to 7 miles was based on the range of pumping rates modeled (i.e. 25,600 to 56,500 gpm). The predicted drawdown contours and associated pumping rates are shown on Figures 4.4-3, 4.4-4, and 4.4-5 of the DEIS. The expanded groundwater model results presented in the FEIS indicate a less extensive radial drawdown effect because of refined model inputs, including a 55,000 gpm pumping rate and the distribution of reinfiltrated mine water to an array of seven infiltration sites.

RESPONSE TO COMMENT C-16

Refer to changes to Section 4.4 in the FEIS.

Please note that the impact analysis for Cooks Creek and the springs identified on pages 4-35 and 4-36 of the DEIS is based on the pumping rate of 56,500 gpm and infiltration at only two sites. Refer to the FEIS for a discussion of the expanded groundwater model (Section 4.4.3), infiltration system (Section 2.2.2), and updated discussion of impacts to springs (Section 4.4.2).

Table 3.5-4 in the FEIS summarizes the acreage of jurisdictional wetlands associated with each seep or spring.

As stated on page 4-36 of the DEIS (first full paragraph), the analysis for potential impacts to riparian areas and springs was based on a pumping rate of 56,500 gpm and only two infiltration sites located approximately 5 miles northwest and west of the proposed pit. Of the 226 riparian areas in the study area, only Cooks Creek and Indian Creek are in areas that were predicted by the model to be affected by water table drawdown (see page 4-35 of the DEIS). It was stated in the DEIS that Indian Creek did not appear likely to be impacted, but Cooks Creek could be significantly impacted (page 4-35 of the DEIS). Expanded modeling results presented in the FEIS account for seven infiltration sites located in a band surrounding the proposed pit that would reduce the potential impacts in the vicinity of Cooks Creek to less than significant levels.

RESPONSE TO COMMENT C-17

Pit lake water quality is discussed on page 4-39 of the DEIS. Please refer to Section 4.4.4 of the FEIS for an updated pit water quality impacts discussion.

RESPONSE TO COMMENT C-18

As stated on page 5-22 of the DEIS, an additional pit would be constructed for the South Pipeline project. However, until the applicant proposes the South Pipeline expansion and is able to submit a Plan of Operations, the details of pit configuration are unknown. Cumulative hydrologic impacts, which include the potential South Pipeline expansion, are addressed in Section 5.3.4 of the FEIS. The estimated net annual evaporation losses from both the Pipeline and South Pipeline pits is approximately 722 acre-feet per year (448 gpm). The commenter is correct in that the amount of evaporative losses presented in Section 4.4 of the FEIS is for the proposed Pipeline Pit alone.

RESPONSE TO COMMENT C-19

Additional mitigation for the seeps and springs (Sections 4.4 and 4.5 of the FEIS) would augment or replace flows to maintain the wetlands and associated vegetation communities. The mitigation plan provides for wells and/or pipelines to deliver water to any affected seep or spring that cannot be mitigated by reinfiltrated water. See the summary of mitigation in Sections 4.4.5 and 4.5.3 of the FEIS.

As discussed in Response to Comment C-16, refer to the FEIS for discussion of the expanded groundwater model and predicted impacts to seeps and springs.

RESPONSE TO COMMENT C-20

For a discussion of pit backfilling please refer to Response to Comment C-10 and Section 2.4.2 of the FEIS. Cortez currently holds certificated water rights, which are more than adequate for the quantity of water that would be potentially lost to evaporation from the creation of a lake in the Pipeline Pit; however, this water right determination would be under the jurisdiction and authority of the Nevada State Engineer.

RESPONSE TO COMMENT C-21

See Response to Comment C-19.

Refer to Responses to Comments C-16 and C-20 and the revised FEIS regarding the issues of infiltration and impacts to seeps and springs. Additional mitigation for reduced flow in springs is proposed in the summary of mitigation in Sections 4.4.5 and 4.5.3 of the FEIS.

COMMENT LETTER D – U.S. ENVIRONMENTAL PROTECTION AGENCY

Comment Letter D

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, Ca. 94105-3901

October 26, 1994

Dave Davis
Bureau of Land Management
50 Bastian Road
P.O. Box 1420
Battle Mountain, NV 89820

Dear Mr. Davis:

The U.S. Environmental Protection Agency (EPA) has reviewed the **Cortez Pipeline Gold Deposit Draft Environmental Impact Statement (DEIS), Lander County, Nevada.** Our comments are provided pursuant to the National Environmental Policy Act (NEPA), the Council on Environmental Quality's NEPA Implementation Regulations at 40 CFR 1500-1508, and §309 of the Clean Air Act.

The DEIS evaluates alternatives to develop and operate a new gold mine and processing facility. The proposed action includes developing a new open pit mine with dewatering system, waste rock dumps, a combined heap leach/tailings impoundment facility, a new ore processing facility with appurtenances, and continued exploration drilling. The proposed project would disturb a total of 1,880 acres.

The hydrogeologic analysis in the DEIS is insufficient, and we recommend that BLM consider preparing a revised DEIS. The proposed project's potential impacts to groundwater and surface water quality and quantity are vague in the DEIS, as are the proposed mitigation measures and their effectiveness in offsetting project impacts.

We have rated this DEIS as EO-2 -- "Environmental Objections-Insufficient Information" (see enclosed "Summary of Rating Definitions and Follow-Up Action"). Our rating is based on our objections to the project's potential impacts to surface water quality and quantity. Our rating also reflects the need for additional information in the revised DEIS or Final Environmental Impact Statement (FEIS) regarding hydrogeology, potential impacts to groundwater, surface water and habitat; mitigation and contingency measures; facilities designs; and closure of the heap leach pad/tailings impoundment facility.

We appreciate the opportunity to review this DEIS. Please send a copy of the revised DEIS or FEIS to Mr. David Farrel, Acting Chief, Office of Federal Activities (E-3) at the same time it is officially filed with our Washington, D.C. office. If you have any questions, please contact Mr. Farrel at (415) 744-1574.

Sincerely,

Deanna Wieman

Deanna Wieman, Director
Office of External Affairs

001778/94-351

Enclosures

cc: Dick Reavis, NDEP
Doug Zimmerman, NDEP
Elaine Soriano, HQ OFA

SUMMARY OF RATING DEFINITIONS AND FOLLOW-UP ACTION

Environmental Impact of the Action

LO-Lack of Objections

The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC-Environmental Concerns

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA would like to work with the lead agency to reduce these impacts.

EO-Environmental Objections

The EPA review has identified significant environmental impacts that must be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU-Environmentally Unsatisfactory

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of environmental quality, public health or welfare. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommend for referral to the Council on Environmental Quality (CEQ).

Adequacy of the Impact Statement

Category 1-Adequate

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2-Insufficient Information

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

Category 3-Inadequate

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

*From: EPA Manual 1640, "Policy and Procedures for the Review of Federal Actions Impacting the Environment."

General Comments

We understand that the hydrogeologic modeling for the Cortez Pipeline Gold Deposit project is being conducted again and that BLM intends to present the new analysis in the FEIS. The hydrogeologic analysis in the DEIS is insufficient, and we recommend that BLM consider preparing a revised DEIS. The proposed project's potential impacts to groundwater and surface water quality and quantity are vague in the DEIS, as are the proposed mitigation measures and their effectiveness in offsetting project impacts. We respectfully request a copy of the hydrogeologic analyses as soon as they become available so that we may review them prior to receipt of the revised DEIS or FEIS.

According to page 5-21 of the 1992 Cortez Gold Mine Expansion Project DEIS, no changes to the present groundwater pumping rate were expected. However BLM had the draft Plan of Operations for the Pipeline Deposit project in 1992. It is unclear why BLM did not predict the need for groundwater pumping for the Pipeline project at that time. Nor is it clear why BLM did not prepare a comprehensive EIS for both projects at that time. We recommend that for future projects with similar timing BLM evaluate all related projects in a comprehensive EIS. D-1

The revised DEIS or FEIS should discuss whether animal unit months in the project area would be reduced consistent with the number of acres taken out of forage production for the duration of the project. D-2

Water Resources

The DEIS does not clearly describe the extent of the potential impacts to creeks, springs, and seeps (e.g., specific flow reductions, acreages affected, seasonal effects, number of decades the effects would occur). D-3 Furthermore, it appears in the DEIS that groundwater monitoring is proposed only for the life of the project (p. D-4). D-4 It is unclear what the potential impacts to groundwater/surface water quantity would be during the 12-year life of the project with and without infiltration. It is also unclear what the impacts would be following cessation of dewatering (at the end of the 12-year operation) when infiltration is no longer recharging the aquifer(s). D-5 EPA objects to reduced surface flows that may adversely affect beneficial uses and/or habitat.

The revised DEIS or FEIS should discuss avoidance, minimization, and mitigation of losses or modification of surface waters,

habitat, and plant and animal species composition. The revised DEIS or FEIS should include a comprehensive plan for mitigation of all adverse impacts to surface waters and associated habitat. The plan should describe: (a) the acreage and habitat types that would be created or restored, (b) water sources to maintain riparian and wetland mitigation areas for the duration of the impacts, (c) the revegetation plans including the percentages of species to be planted, (d) maintenance and monitoring plans, (e) the size and location of mitigation area buffer zones, (f) the parties that would be ultimately responsible for the plan's success, (g) success criteria, and (h) contingency plans that would be implemented if the original plan fails. D-6

The DEIS (pp. 4-35,36) indicates that groundwater drawdown, even with reinfiltration, would significantly affect flow in several springs and seeps as well as in Cooks Creek and Indian Creek. Elsewhere, however, it is stated that it "is not expected that any local streams or springs will be impacted by the mining operation" (DEIS, p. D-6). The FEIS should clarify this discrepancy. D-7

The specific reinfiltration proposal is vague. For example, figure 4.4-2 depicts a semi-circular "potential infiltration band." However, reinfiltration basins are only proposed at the two o'clock and three o'clock positions. Groundwater mounding at these sites apparently would partially offset groundwater drawdown, but it is unclear how much the mounding would contribute to the offset and how it would contribute over time. The revised DEIS or FEIS should provide additional information regarding the reinfiltration proposal and its effectiveness over time and space. The potential need for reinfiltration to the south of the pit should be discussed. D-8

It is unclear from the DEIS why the 20-foot drawdown contour represents the threshold of significance for reduction of flows in springs, seeps, and creeks. Could waters outside of the 20-foot contour (e.g., 10-foot drawdown contour) be significantly affected as well? Although the 20-foot contour is the minimum drawdown discernable by the regional groundwater model (DEIS, p.4-33), the revised DEIS or FEIS should discuss potential impacts to surface waters outside of that contour. D-9

The DEIS indicates that riparian areas in the project vicinity are already in poor condition due to grazing activities (p. 3-35). The revised DEIS or FEIS should discuss the cumulative impacts of grazing and groundwater drawdown in riparian areas, springs, and seeps. We recommend that BLM consider modifying grazing activities as part of the mitigation/enhancement measures to be taken at areas affected by the proposed project. D-10a

The DEIS states that if monitoring indicates degradation of waters of the State, NDEP would be notified (DEIS, p. E-8). However, the DEIS does not specify contingency measures to be taken in this event. The revised DEIS or FEIS should specify contingency measures that would be taken should water quantity or quality be degraded. D-10b

According to the DEIS (p. 4-29), if water rights users' wells are adversely affected by dewatering, their water supply would be supplemented with water from the dewatering system before reinfiltration. The revised DEIS or FEIS should indicate how this would be managed after dewatering ceases. D-11

According to the DEIS (p. xi), a pumpback system is currently in operation for cleanup of contamination at the Cortez mine. The revised DEIS or FEIS should describe the existing contamination problems, their cause(s), and how the project proponent would prevent similar contaminant problems from the proposed project. D-12

The DEIS does not provide information regarding the NEV permit which would be needed for reinfiltration activities associated with the project. The revised DEIS or FEIS should specify the permit provisions and standards as well as monitoring requirements and contingency measures should standards be exceeded. D-13

The revised DEIS or FEIS should provide additional information regarding design of the tailings impoundment/heap leach pad facility. For example, describe how high the ultimate leach heaps would be, how the facility would be lined, the permeability of the liner, and the permeability of the cover. D-14

The revised DEIS or FEIS should specify the requirements for testing the adequacy of leach heap rinsing. Recirculation of the leach solution and rinse solution may result in accumulation of other metals and constituents besides cyanide if gold is the only metal removed from the pregnant and rinse solutions. This appears to be the case based on testing of the Old Gold Acres heap leach material (DEIS, p. 2-13). After neutralization/ treatment of leach heaps has been conducted and effluent standards have been met, subsequent testing of heaps may reveal increased concentrations of cyanide and other constituents caused by snowmelt or periods of rain. We recommend that, after neutralization/detoxification standards have been met, subsequent sampling of the heaps be conducted following periods of rain before the heap material is deemed "clean." D-15

In addition, it is unclear that the leach heap would be effectively rinsed. Incomplete neutralization or treatment of

cyanide in heaps can be caused by blind-offs, less permeable lenses or isolated areas of a heap, which affect percolation and fluid flow through the heap. Research suggests that preferential flow paths and blind-offs increase with time and volume of liquid. If the heap leach material is of relatively fine size, it could require a long rinsing period. Preferential flow paths can limit the effectiveness of treatment and may leave pockets of contaminants behind in the heap. The revised DEIS or FEIS should specify the particle size of the heap leach material, how the heaps would be sampled, what other constituents besides cyanide would be analyzed, when heaps would be sampled, and the specific standards that would need to be met. D-16

According to the DEIS (p. 2-37), a plan to characterize conditions and model the potential pit lake would be submitted to Nevada Division of Environmental Protection. It is unclear when this would occur. In order to assess, for the purposes of this EIS, the environmental impacts of the proposed project on pit water quality and any necessary mitigation, the revised DEIS or FEIS should describe projected pit water quality. If mitigation would be necessary, the revised DEIS or FEIS should describe the measures that would be required of the project proponent. D-17

It appears from the DEIS that the project proponent would maintain erosion and sediment control facilities until reclamation is complete. The revised DEIS or FEIS should indicate who would be responsible for any necessary maintenance of these facilities after reclamation is complete. D-18

Air Quality

According to the DEIS (p. 4-9), a baghouse used on the lime silo would have a control efficiency of 80 percent. The control efficiency of the baghouse should be at least 98 percent. We recommend that you reevaluate the efficiency of the lime silo baghouse. D-19

RESPONSE TO COMMENT D-1

The referenced section in the Expansion EIS referred to the Proposed Action. A cumulative impact analysis analyzes what impact the Proposed Action will have from a cumulative impact standpoint. Since the Proposed Action, i.e., the Cortez Expansion, had no proposed dewatering, the Proposed Action could not be causing a cumulative dewatering impact when added to past, present, and reasonably foreseeable developments.

If the reader would direct their attention further in the same chapter of the Expansion EIS, you will find a description of the reasonably foreseeable development of the Pipeline scenario. A full cumulative impact analysis of the proposed action, including the Pipeline scenario, was completed in this chapter of the Expansion EIS.

It is important to note several policy and court ruling related issues are raised by the EPA in this comment.

The BLM may only, by its 43 CFR Surface Management Regulations, request information from a proponent on the specifics of a submitted Plan of Operations. Theoretical developments, which the Pipeline was at the writing of the Expansion EIS, are outside of the BLM's purview to require information on. The BLM's only recourse in such a scenario as the Expansion EIS and the Pipeline is to advise the public through the use of reasonably foreseeable development scenarios in a cumulative impact analysis. The BLM has no authority to require Cortez to submit information on a project that was in the feasibility stages such as the Pipeline was during the Expansion EIS. Since Cortez had announced the Pipeline discovery, the BLM was obligated to disclose the Pipeline as a reasonably foreseeable future development scenario, with the best information available at the time.

The courts have ruled in numerous cases that a federal agency need not "crystal ball" future developments. Rather, they may project only what is "reasonable." The Expansion EIS complies with this court direction, as the ruling would apply to the Pipeline project. As a point of interest, this "crystal ball" discussion applies to the South Pipeline project as it appears in both the Draft and Final EISs.

RESPONSE TO COMMENT D-2

Refer to changes made to Section 4.10.3.1 of the FEIS.

RESPONSE TO COMMENT D-3

Section 4.4.5 of the DEIS qualitatively identifies which surface drainages and springs could be affected as a result of lowering the water table. Identification of these potential impacts was based on whether the surface drainages and springs are situated within the estimated zone of influence resulting from the proposed dewatering operations. This section has been revised in the FEIS based on the expanded groundwater modeling. Prediction of impacts such as specific flow reductions, acreages affected, seasonal effects, and number of years the effects would occur is speculative, if not impossible, prior to implementation of dewatering operations. As a result, only qualitative statements can be made at this time as to the possible impacts that could occur. These effects would be identified by monitoring of the surface drainages and springs during actual dewatering operations, as well as post-closure, which the applicant is committed to do. Mitigation measures are based on the specific impacts that would be identified by monitoring.

RESPONSE TO COMMENT D-4

To clarify the concern regarding the duration of groundwater monitoring:

> Monitoring of groundwater conditions under the dewatering permits issued by the Nevada Division of Water Resources would be conducted beyond cessation of dewatering operations until it can be demonstrated that no adverse impacts on existing

rights would occur. The approved permits stipulate that modifications to the proposed monitoring plan may be required as conditions warrant.

Closure monitoring under the Water Pollution Control Permits issued by the Nevada Division of Environmental Protection may be required for up to 30 years beyond cessation of operations depending upon the conditions demonstrated to exist during the operational compliance monitoring period. In addition, a long-term contingency fund has been committed by the applicant (refer to Section 2.2 of Volume I). This fund would provide for all costs relating to monitoring or mitigation/remediation arising from activities of Cortez. The fund would be in effect for 30 years after closure and for an additional period of 250 years following the end of the 30-year period.

RESPONSE TO COMMENT D-5

Hydrologic impacts would certainly be more severe without reinfiltration. The effects of dewatering without infiltration are not pertinent because this scenario is not consistent with the proposed action or alternatives. Furthermore, it is difficult to conceive of a practical mine dewatering scenario that would not include some form of reinfiltration.

The residual drawdown effects for 100 years after the period of active dewatering and reinfiltration have been evaluated with the expanded groundwater model. The results indicate no significant drawdown effects beyond the zone of reinfiltration. This appears to result from the dissipation of groundwater mounds beneath the infiltration area. Reduced flows to springs, streams, and seeps would be mitigated primarily by selective location and flow routing to infiltration areas, and secondarily by augmentation as described in Sections 4.4.5 and 4.5.3 of the FEIS.

RESPONSE TO COMMENT D-6

Refer to mitigation measure 4.4.5-1 in the revised FEIS for discussions of mitigation to replace potential reduced springflow. Also refer to Section 3.0.1 of Appendix D in the Integrated

Monitoring Plan (WMC 1995b). Please note that restoration of habitat is not a proposed mitigation measure.

RESPONSE TO COMMENT D-7

The FEIS has been revised to clarify that none of the 68 springs in the study area, Cooks Creek, and Indian Creek are in the area of modeled water table drawdown. The expanded groundwater model used for the FEIS indicates that distribution of reinfiltrated groundwater should effectively prevent these streams and springs from being significantly impacted. Monitoring and contingent mitigation are provided in Section 4.4.5 of the FEIS in the event any perennial drainage spring is impacted.

RESPONSE TO COMMENT D-8

Please refer to the revised project description section entitled" Water Management" found in Section 2.2.2 of the FEIS. The groundwater model was expanded in the FEIS to evaluate the effectiveness of infiltration distributed in a band surrounding the proposed pit to the north, east, and south.

The proposed location for initial discharge and infiltration operations is located in Section 22 T28N,R47E, about 3 miles northeast of the proposed pit. Three additional locations are identified within the infiltration band as possible sites; one 320 acre private parcel owned by Cortez shown directly east of the pit area; and, two public land locations of approximately 40 acres each situated to the southeast and southwest. Other sites within the infiltration band may also be selected during operational dewatering to achieve the most effective distribution of infiltration recharge. Two private parcels owned by Cortez are located to the east and northeast outside the delineated infiltration band; however, these properties are also considered potential infiltration sites should operating conditions warrant using them as such.

Regarding infiltration to the south, refer to C-16.

RESPONSE TO COMMENT D-9

See revised significance criteria in Sections 4.4.1 and 4.4.3 of the FEIS, and the Response to Comment C-12.

RESPONSE TO COMMENT D-10a

As stated in the comment, riparian areas are already in poor condition. This was taken into account as part of the impact analysis in Section 4.5.2 of Volume I of the FEIS. Mitigation measures discussed in Section 4.5.3.1 of the FEIS would be combined with monitoring to protect riparian resources.

RESPONSE TO COMMENT D-10b

A range of mitigation measures for seep and spring and riparian zones is described in Sections 4.4.5 and 4.5.3 of the FEIS.

RESPONSE TO COMMENT D-11

As dewatering operations proceed, extensive monitoring and modeling of aquifer response would allow reliable prediction of the onset of conditions which might result in impairment. Corrective action would be taken by any necessary combination of the following: modification of the operation; replacement or supplementation of the deficient water supply with dewatering system discharge; replacement of the impaired well with a deeper well completion of equivalent production capacity. Installation of deeper replacement wells and compensation for additional pumping power would be applicable in the case of post-dewatering impairment.

RESPONSE TO COMMENT D-12

The existing groundwater contamination at Cortez resulted from prior operations constructed in compliance with regulatory and industry standards in place at those times. These standards were not as stringent as those now governing current and proposed operations. Future impacts to

groundwater will be prevented by instituting those environmental protection measures described throughout the FEIS and required by NDEP regulations and permit requirements (specifically Water Pollution Control Permit NEV93109). These measures include such things as a zero-discharge facility, full secondary containment of all major process components, emergency response plans, and an extensive groundwater monitoring program.

RESPONSE TO COMMENT D-13

Preliminary guidance from NDEP indicates the required discharge permit would be issued under the Nevada Administrative Code for Underground Injection Control (UIC). The permit application will be based on the NDEP guidance document for Rapid Infiltration Basins (RIBs) as well as the official application procedure established for UIC.

In addition to the permitting options discussed above, NDEP could permit the infiltration discharge system using the Groundwater Protection Permit format. In order to obtain a Groundwater Protection Permit, sufficient information must be provided regarding the mining and dewatering operation, area of review, existing wells and water resources, geology, hydrogeology, discharge and receiving water chemistry, engineering plans and specifications for water distribution and re-infiltration system, operating and maintenance plan, monitoring plan, closure plan, and financial responsibility. Nondegradation of water quality is the principal basis for establishing specific standards and conditions in the permit. Regardless of the type of discharge permit issued, effective monitoring is prescribed as a condition which must be met in both plan form in the permit application as well as demonstrated in the implementation and operation of discharge activities. The operating plan would describe contingency measures for corrective action should monitoring indicate such consideration necessary.

RESPONSE TO COMMENT D-14

A full discussion of this topic can be found in the BLM Plan of Operations and Reclamation Permit Application submitted for the proposed action. Additional details with respect to engineered containment can be found in the NDEP Water Pollution Control Permit (WPCP)

Application for the project. NDEP issued WPCP NEV93109 for the Project effective February 1994.

A summary of the design described in these documents is provided below.

Heap leach material would be placed in individual lifts of approximately 20 ft. or less to a maximum height of 100 ft or less. Heap leaching and tailing storage would take place within the engineered containment area formed by a single continuous pad. The pad would consist of a composite liner system: a 24-inch thick secondary liner of compacted soil material (permeability spec = 1 x 10^{-6} cm/sec); and, a primary liner of 60 mil HDPE geomembrane. Solution channel liner would be composite construction using 80 mil HDPE. Solution collection pond liner construction would include double geosynthetic membranes of 60 mil and 40 mil thickness with an intervening geofabric drainage layer for hydraulic relief. Internal and sub-grade leak detection and collection is specified per NDEP facility design criteria. Piezometric monitoring of pore pressure is specified in the tailing impoundment cells. A permeability value is not prescribed for the alluvial cover material to be placed over each cell at closure; however, permeabilities in the range of 1 x 10^{-4} cm/sec are expected for selected types of this material. With proper crown grading, this material is adequate for preventing significant infiltration of incident precipitation to the tailing mass as the site is located in an area of net evaporation (42 inches/yr). The material is also expected to serve as growth medium for revegetation of the facility surface.

RESPONSE TO COMMENT D-15

The requirements for testing the efficacy of heap rinsing are specified in detail in NDEP regulations and closure guidance documents. NDEP guidance documents include: "Evaluations for Closure", October 29, 1990, "Monitoring and Analysis of Post-Closure Heap Discharge", July 14, 1994; "Land Application of Heap Rinsate and/or Drain-Down Solution", July 14, 1994. The specific goals to be achieved for all constituents of concern will be stipulated in the NDEP approved closure plan for the heaps. Post-closure monitoring will be required by NDEP and implemented by Cortez to monitor constituents levels. Additional closure plan details can be found in the Heap Leach/Tailing HELP model report. See Response to Comment C-3 also.

Copies of the guidance documents follow the responses to this comment letter.

RESPONSE TO COMMENT D-16

Sampling of rinsed heaps is specified in detail in NDEP regulations and policy documents referenced in Response to Comment D-15. The sampling protocols/methodologies, timing, analytical requirements and final constituent levels will be included in the NDEP approved closure plan.

RESPONSE TO COMMENT D-17

The FEIS includes an evaluation of pit water quality by means of laboratory testing, geochemical modeling, and conservative assumptions based on empirical data. Because of the reasonably foreseeable possibility of degraded pit water quality, mitigation measures and long-term monetary contingency fund requirements are included in Sections 2.2.8 and 4.4.5-5 of the FEIS.

RESPONSE TO COMMENT D-18

Stabilization of erosive areas is a requirement which must be met by the applicant prior to bond release. Runoff from the reclaimed areas associated with mine disturbance would result from incident precipitation only; upstream runoff would be diverted by permanent structures. Maintenance of erosion and sediment control features would be the responsibility of the proponent until reclamation and closure requirements have been met and a release from such liability is authorized. At that time the land manager (BLM, on Public Lands) would be responsible and has the authority to go back to the project proponent for corrective action.

RESPONSE TO COMMENT D-19

The minimum required control efficiency estimated for the silo vent by the DEIS analyst is 80 percent; however, the practical control commonly used for dry lime silo vent emissions is bag

filtration, which has a much higher control efficiency. Published control efficiencies for bag filters are 99 percent or greater.

BOB MILLER, *Governor*

STATE OF NEVADA

Administration (702) 687-4670
Air Quality 687-5065
Mining Regulation and Reclamation 687-4670
Waste Management (702) 687-5872

Water Permits and Compliance 687-4670
Water Quality Planning 687-4670
Wastewater Treatment Services 687-5870

DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL PROTECTION
123 W. Nye Lane
Carson City, Nevada 89710

October 29, 1990

EVALUATIONS FOR CLOSURE

NAC 445.24234 - Permanent closure means that time in the operating life of a facility when activities for final stabilization, removal or mitigation of sources are initiated.

NAC 445.24258 - Stabilization means the condition which results when contaminants in a material (waste) are bound or contained so as to prevent them from degrading the waters of the state under the environmental conditions that may reasonably be expected to exist at a site.

How does one determine or show material has been stabilized?

I. The final required configuration of the site and material must first be established, ie, reclamation requirements -will material be left in place, regraded, recontoured, removed to another location, etc.

II. The final Closure plan must include a detailed sampling plan to document the changes occurring in the material or rinsate quality during stabilization activities.
For materials which have been processed with cyanide both Free and WAD analysis should be conducted. Other parameters such as quantity of flow, pH and conductivity, which are easily tracked by field monitoring procedures can provide useful information as indicator parameters for identifying appropriate times for collecting samples for more comprehensive analysis.

III. Spent Ore on Leach Pads

1. Can the material be rinsed such that rinsate water quality meets all drinking water, potentially affected surface water quality standards and cyanide discharge limitations established in regulation? If this can be achieved then the rinsed material, as it sits, would be acceptable in almost any environment. The previous conditions assume the material will be left on the pads. Any material removed from a pad shall be representatively sampled and evaluated by the Meteoric Water Mobility Test.

2. Rinsing Options most frequently utilized

a. Once through fresh water rinse with rinsate used as make-up water within other portions of the facility which are still active.
b. Recycle fresh water rinsate.
c. Barren solution rinse until CN concentration low followed by fresh water rinse.
d. Alternative b. or c. with treatment to neutralize CN prior to recycle.
e. Addition of chemical solutions directly to spent ore to neutralize materials (CN) in place: includes complexation reactions which immobilize CN in heap.
f. Periods and resting alternated to take advantage of natural degradation.

Chemicals frequently used - Alkaline chlorination, peroxide, ferrous sulfate, acid - HCL, H_2SO_4. Alternatives may be limited by geochemistry of material.

3. The rate of application must be considered when evaluating water quality leaving spent materials. Initial rinse water quality, quality of rinsate after equilibrium - ie. minimal change in quality with additional rinsing - and quality of final drain down solution should be evaluated. The rate of rinsing relative to processing application rates should be considered. A higher rate of application of the rinsing solution compared to leaching rates may provide more complete rinsing due to a larger portion of the material becoming saturation and less possibility of short circuiting. However, for ores with a slow rate of diffusion of CN out of the saturated solids, analysis of rinsate quality may result in misleadingly low results due to dilution. An indication of this condition would be a significant increase in the concentration of contaminants in the final drain down solution. Sampling of final drain down solution quality is very important for these types of ores.

4. To what extent will chemically treating the material or rinse water effect the quality of the fluid leaving the spent ore? Lab scale, pilot or isolated portions of the heap should be tested to evaluate various treatment and rinsing options.

5. When water quality from rinsing does not meet the appropriate standards than site specific characteristics are considered.

a. Where are potentially impacted waters and what is their quality and how do they compare to the rinse water quality and MWM test water quality?

b. What type of geological conditions exist between the material in question and waters of the state?

c. How do site soils interact with the rinsate water, are contaminant concentrations increased or due they decrease due to attenuation?

d. How does the material respond to meteoric events at the site? To what extent and for how long does the material retain moisture? What size event is required to cause flow to leave the spent ore given various moisture conditions? How does that relate to events expected to occur at the site; the PMP, 500 year, 100 year, 25 year event, occurring on top of a peak snow accumulation during a spring thaw? Existing operational data may be of some value in defining these situations.
The following is an example of a methodology to simulate these conditions: 1) Immediately after irrigation measure moisture content with depth, 2) after a set period of idleness measure moisture content with depth, 3) apply 100-year storm event(s),measure change in moisture content with depth. Climatic conditions during evaluation must be documented.

e. Consideration may be given to the extent to which top soiling for reclamation my provide partial capping and diversion of meteoric waters, thus lessening the fluid available to mobilize contaminants which would then have the potential for migration.

e. Materials which are proposed to be removed from their containment as a result of reclamation requirements must be evaluated by the Meteoric Water Mobility Test, even at those sites where the rinsate water quality has been shown to meet standards. Rinsate water quality is representative of average conditions for the entire heap, MWM test is representative of specific material. When surface and ground water are not in close proximity, these materials, when removed, are not considered to be a significant source of pollutants if the results from the MWM test do not exceed the standards by more than an order of magnitude

IV. Tailings Impoundments

For tailings impoundment, determine the degree of saturation, and permeability of the tailings. For impoundments with underdrainage flow collection, the quantity and quality of this solution shall be defined. For facilities which do not have underdrainage solution collection systems, the tailings must be representatively cored and this material evaluated by Meteoric Water Mobility Test; The extent to which contaminants exist and can be mobilized will determine the extent of capping and/or methods proposed to inhibit or divert water from collecting on surface of impoundment.

V. Ponds

Pond sludge shall be evaluated by Meteoric Water Mobility Analysis. Ponds which have a history of liner integrity problems shall have samples of subsoils evaluated by MWM test. Liner material may be disposed onsite in an approved location, which may be in place.

VI. The extent to which the facility has had spills/releases and the level of information available relative to the clean up of those materials will determine the extent of additional site sampling required and post closure monitoring.

L. H. DODGION
Administrator

Administration:
(702) 687-4670
Fax 687-5856

Air Quality
Mining Regulation and Reclamation
Water Quality Planning
Water Pollution Control

STATE OF NEVADA
BOB MILLER
Governor

PETER G. MORROS
Director

Fax (702) 885-0868
TDD 687-4678

Waste Management
Corrective Actions
Federal Facilities

DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL PROTECTION
Capitol Complex
333 W. Nye Lane
Carson City, Nevada 89710

Bureau of Mining Regulation and Reclamation

MONITORING AND ANALYSIS OF POST-CLOSURE HEAP DISCHARGE

July 14, 1994

Purpose: The Division of Environmental Protection, Bureau of Mining Regulation and Reclamation (the Bureau) recognizes that for some closed, no longer active mining facility process components it is likely that solution discharge may continue for some indeterminant period of time following Bureau approval of stabilization. Any post-closure solution discharge must be appropriately managed. This must consist of at least one or more of the following: conveyance to a containment structure/facility for treatment and/or dispersal; monitoring of flow rate and volume; and sampling for analysis of solution quality.

Post-closure treatment and monitoring activities must remain in accordance with State regulation(s) relevant to stabilization as defined by the Nevada Administrative Code (NAC) 445.24354 such that waters of the State will not be degraded. The degree to which these activities are pursued for a post-closure solution discharge will be a function of the (a) final compliance sampling of heap effluent/rinsate (WAD cyanide and pH) and heap solids (Meteoric Water Mobility Procedure - MWMP, Profile I(I)) constituent concentrations, (b) attenuation characteristics of soil(s) proposed to receive discharged [land applied] solution, (c) Bureau approval for achieving stabilization and subsequent closure of mine waste component(s), and (d) the measures proposed and/or deemed necessary to eliminate the potential for this discharged solution to degrade waters of the State. These necessary measures could significantly reduce and

minimize any long-term liability of the property owner/operator regarding potential, future degradation. It must therefore be demonstrated over time that post-closure stabilization has been and will continue to be achieved. The installation of a post-closure fluid management system (FMS) could achieve this goal.

Relevant information must be presented that clearly demonstrates that "under the conditions that exist at the site" any future, post-closure solution discharge(s) from any Bureau-approved, stabilized process component(s) resulting from residual drain-down and/or meteoric event(s) will not degrade waters of the State. This "site specific" information should include at least, but not be limited to, existing geologic and hydrogeologic conditions, average annual precipitation and evaporation, depth to groundwater(s) and distance to surface water(s), and existing soil attenuation characteristics.

A proposal should therefore be submitted to the Bureau that provides the specific design and construction details for a post-closure containment and "treatment and/or dispersal" system.

Consider the following:

1. When installed, the FMS should allow for:

    a. monitoring the discharged solution flow rate and volume;
    b. solution sampling prior to and following its containment;
    c. passive (e.g., bioremediation) solution treatment, if applicable; and
    d. solution dispersal.

2. The FMS configuration (see figure 1) should consist of at least, but not be limited to, the following components:

    a. a collection tank that ties directly into the existing solution collection line(s) or channel(s) from the process component [heap] discharge point;
    b. two collection "sumps" which can be accessed as monitoring and sampling ports, both up- and down-gradient of and in-line with the collection tank, to (i) measure inflow and outflow rates, and (ii) collect solution samples for subsequent analysis;
    c. the collection tank, as applicable for passive treatment, should be filled with a media capable of attenuating potentially contaminating constituents from the discharged solution; and
    d. a manifold-like outflow port for conveying solution to and eventual dispersal through a conventional leach-field [septic] system located some distance down-gradient from the FMS collection/treatment tank and installed below the existing surface grade.

3. A monitoring program should be proposed and implemented for a period of at least five (5) years following Bureau approval for stabilization and closure of respective process components at the site. Unless analytical results suggest otherwise, monitoring and sampling of this FMS should be done on a quarterly basis for at least two (2) years and semi-annually for the following three (3) years. Samples of discharged solution should be collected and analyzed for pH, WAD cyanide, and other potentially problematic constituents identified as having the potential to degrade waters of the State. The need for additional monitoring beyond the initial two years will be based on a review of these quarterly data. Following an evaluation of the data, a request for a reduction in or modification to the monitoring program (i.e., monitoring and sampling frequency, analytical parameters) will be considered by the Bureau relevant to whether stabilization, as defined by [at least] NAC 445.24354, has been demonstrated.

4. A semi-annual report should be prepared to document the previous two quarters of monitoring data along with a summary description of monitoring activities, status of revegetation success, and related stability or sedimentation concerns for the property in and around the area of solution dispersal. Whenever possible, monitoring data should be presented as cumulative in a graphical format.

Document Prepared By: D.A. Jones, EMS III
Bureau of Mining Regulation and Reclamation
Document Finalized: July 14, 1994

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STATE OF NEVADA
BOB MILLER
Governor

L. H. DODGION
Administrator

Administration:
(702) 687-4670
Fax 687-5856

Air Quality
Mining Regulation and Reclamation
Water Quality Planning
Water Pollution Control

PETER G. MORROS
Director

Fax (702) 885-0868
TDD 687-4678

Waste Management
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DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES

DIVISION OF ENVIRONMENTAL PROTECTION

Capitol Complex

333 W. Nye Lane

Carson City, Nevada 89710

Bureau of Mining Regulation and Reclamation

LAND APPLICATION OF HEAP RINSATE AND/OR DRAIN-DOWN SOLUTION

July 14, 1994

Approval for the surface discharge of heap and/or pond rinsate and/or drain-down solution must be based at least on proposed test methods and existing solution constituent concentrations, e.g., evaluation of the data derived from native soil column attenuation tests, and the optimum rate of application within specified areas as determined by these test methods. The applicant must clearly demonstrate that the solution proposed for discharge does not have the potential to degrade waters of the State.

Authorization will be given to land apply heap and/or pond rinsate and/or drain-down solution at a specified area of a given mine site under at least the following conditions:

1. The operator/permittee must apply for and be granted a permit for one of two categories below based on the duration of land application activity prior to initiation of such activity:

   - if land application will not exceed 180 days then a temporary permit may be issued. A permit fee of $250.00 must be submitted before authorization is given to land apply any solution; or

   - if land application will exceed 180 days then a permit may be issued based on the proposed time frame. The permit fee will be subject to solution volume(s) proposed for discharge as described in Nevada Administrative Code (NAC) 445.144. Fees must be submitted before authorization is given to land apply any solution.

2. Bureau approval must first be provided prior to initiation of any surface discharge of heap and/or pond rinsate and/or drain-down solution. All discharge(s) must be in accordance with those procedures and specifications proposed and submitted by the operator which have been approved by the Bureau.

3. Submit a schedule clearly defining the time period(s) (frequency and duration) during which effluent discharge will occur, as well as estimated total volume(s) to be discharged during a given application period. For instance:

   - What will discharge method consist of?
   - Will discharge occur for 24 hours/day, 8 hours/day, only during daylight hours, etc.?
   - How many consecutive days will discharge occur for a given application session? Will application be continuous until solution is "eliminated"?
   - Indicate what the estimated maximum daily quantity of solution application will be, e.g., "... will not exceed [xxx] gallons per day" based on application period and the two application rates mentioned.
   - How will application rates be monitored? If gaging stations are to be used indicate such. For instance, "... gaging stations will be set up on a 200 x 200 ft. grid to monitor the application rate. These gaging stations will be used to monitor the rate of rinse solution to the discharge area. The daily inches of solution to each gaging area will be recorded and the data reported in the final report."

4. Submit a detailed, appropriately scaled plan map:

   - showing the area(s) to receive Bureau-approved rinsate and/or drain-down discharge;
   - showing the layout of solution lines, existing headers, etc., that will be part of the discharge system.

5. Notify the Bureau 48 hours prior to commencement of land surface discharge.

6. Accurate records shall be kept of the total volume of solution applied per day per pond and the area it is applied to. For example: document which pond (BPE or PPE) is being pumped and the duration of time that pumping occurs; the total effluent pumped/discharged per pond per discharge session; and, the area that effluent is discharged to.

7. Land application of rinsate and/or drain-down will cease during precipitation events.

8. Land application of rinsate and/or drain-down will stop if any runoff occurs or is anticipated.

9. Plan to update the Bureau periodically relevant to the progress of the land application activity. Propose a sampling and analysis program for monitoring solution quality throughout these activities, i.e., propose a monitoring and sampling plan based on proposed or anticipated duration of discharge activity. For example, representative samples should be taken of the solutions which are land applied and analyzed at least for pH, WAD cyanide, and TDS in addition to all other potential contaminants. A sampling schedule should be defined based on discharge frequency and duration, e.g., "... sample every four hours during pumping operations ... composited and analyzed as one sample which represents the total volume applied" during a discharge period.

10. Following termination of land application activities for the time specified, submit a brief but thorough synopsis of those activities, including:

- total effluent volume(s) applied;
- discharge duration per process pond per area;
- changes from activities and methodologies originally proposed for land application;
- sampling results from continued monitoring of discharged effluent;
- gaging station data by day;
- daily pond freeboard; and
- final solution analysis.

The report will be due 45 days following cessation of effluent discharge.

Document Prepared By: D.A. Jones, EMS III
Bureau of Mining Regulation and Reclamation
Document Finalized: July 14, 1994

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COMMENT LETTER E – NEVADA DIVISION OF WILDLIFE

Comment Letter E

STATE OF NEVADA
DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES

DIVISION OF WILDLIFE

1100 Valley Road
P.O. Box 10678
Reno, Nevada 89520-0022
(702) 688-1500 • Fax (702) 688-1595

BOB MILLER
Governor

PETER G. MORROS
Director
Department of Conservation and Natural Resources

WILLIAM A. MOLINI
Administrator

E16 10/27/94

October 17, 1994

Wayne King, Area Manager
Shoshone Eureka Resource Area
Bureau of Land Management
P.O. Box 1420
Battle Mountain, NV 89820

RE: Draft Environmental Impact Statement, Cortez Pipeline Gold Deposit, Cortez Mining Company, Placer Dome U.S. Inc., BLM

Dear Mr. King:

We appreciate the opportunity to review and provide comments on the subject document. The Draft Environmental Impact Statement for the Pipeline Gold Deposit documents the expected impacts to wildlife resources well. The wildlife protective measures discussed in the DEIS appear to be adequate to meet the stipulations of the Nevada Division of Wildlife's Industrial Artificial Pond Permit. It will be necessary for the Pipeline operation to obtain IAP Permits prior to the startup of the processing facilities. We look forward to hearing from Placer Dome concerning this matter. E-1

Our review of the Draft has identified the following comments. In the Summary, the document mentions that 11 springs (three at Rocky Pass and eight along the flank of the Cortez Range) have the potential for flow reductions. Later in the discussion on the impacts to Wildlife Resources, there is no mention of the potential loss of wildlife as a consequence of the reduction in flows at those eleven springs. The document states there will be no loss of critical wildlife habitat. Water is critical to wildlife and the loss or reduction of surface water resources will result in an equal loss of wildlife resources. E-2

In Section 2.2.2 Proposed Mining Operations, under the Heading of Water Management, the document discusses infiltration sites. We would suggest these ponds be designed so the sides are not too steep to prevent drownings by wildlife. The fences should be designed to ensure wildlife can pass freely through them and do not become entangled in them. E-3

In the same section, under the Heading of Revegetation, the document states, "Revegetation will be considered a success when the Disturbed Site Plant Community has achieved 50 percent of the perennial plant cover of the adjacent undisturbed communities." Does this meet the State's definition of revegetation success? The Bureau of Mining Regulation and Reclamation should be contacted to clarify this point. E-4

(O)-5386

The same section discusses the plan to erect a fence around reclaimed sites to protect them from livestock until the vegetation has become established. We support this concept. The fences should remain in place until the vegetative community can be self sustaining under grazing activity. E-5

In Section 3.6.2 Wildlife in the Study Area, the document discusses the species of birds and indicates habitat for shorebirds and waterfowl. It should be noted if the proposed action is approved, the numbers and species diversity of shorebirds and waterfowl will surely increase due to the construction of the infiltration system. Similar facilities have been heavily utilized by migrating shorebirds and waterfowl during the spring and fall migrations. This can be viewed as short term benefit to wildlife. In the same section, merlins and bald eagles may winter in the vicinity of the proposed project. E-6

Further down in the discussion on the pinyon pine habitat, the documents indicated chickadees eat pine nuts, Chickadees are primarily insectivorous and would not be expected to eat pine nuts. In the discussion on nongame diversity at springs, loggerhead shrikes, vesper sparrows, and sage sparrows are also commonly found. E-7

Under the heading Threatened and Endangered Species, it should be noted the Townsend's big-eared bat (*Plecotus townsendii townsendii*) is now a Category 2 species. In addition, bald eagles are winter residents to northeastern Nevada. Fifty to sixty bald eagles can be found in Region II during the winter months. Foraging by these eagles extends throughout the entire region. E-8

In Section 4.4.5, Potential Impacts to Surface Water, we would suggest a sum of funds be set aside to mitigate any unforeseen problems that may occur as a consequence of the dewatering program on surface waters. This concept has been used at other operations and is a proactive approach to preparing for issues that develop from the uncertainties surrounding the dewatering impacts to surface waters. This fund could be used to respond to situations that are not resolved by moving the reinfiltration sites. Surface water resources are critical to wildlife. Being able to ensure long term availability of surface water will be extremely important to wildlife resources. E-9

In Section 4.6.1, Wildlife Resources Impacts, the proposed disturbance would eliminate breeding habitat for many migratory songbirds pairs. Mitigation of the loss of breeding habitat could be designed to rehabilitate nearby degraded habitat to good or excellent condition to provide suitable sites for nesting to birds displaced by the proposed action. E-10

Under the section titled Exposure to Toxic Substances, the document discusses the acute toxic level of WAD cyanide. The text indicates the our agency has interpreted this level to be below 50 ppm. It should be noted our agency has never stated 50 ppm was the toxic level of WAD cyanide. Mortalities have been documented to occur at WAD cyanide concentrations less than 50 ppm. E-11

In the design of the waste rock dumps, we would like to suggest that consideration be given to constructing the dumps with as much topographic diversity as possible. By providing topographic diversity in the design, it will be easier and more efficient in the reclamation of the dumps to meet the post mining goal of wildlife habitat. We feel the greater the diversity of the planting sites, the greater the diversity of the vegetation. A diverse vegetative community would be the best site for wildlife once the mining activity ceases. E-12

As a matter of house cleaning, the name of our agency has changed from the Department of Wildlife to the Division of Wildlife. On Page 3 of Table 1.5-1, the document refers to the Department of Wildlife. The table should be modified to reflect this change. Please feel free to contact me for any additional information or comments concerning this input. E-13

Sincerely,

Rory E Lamp

Rory E. Lamp
Biologist
1375 Mountain City Highway
Elko, NV 89801
(702) 738-5332

RL

cc: Habitat Bureau
Doug Zimmerman, Chief, Bureau of Mining Regulation and Reclamation, NDEP
Mark List, Environmental Coordinator, Cortez Gold Mine
Larry Teske, Pete Bradley
File

RESPONSE TO COMMENT E-1

Comment noted. Permit applications will be coordinated with NDOW.

RESPONSE TO COMMENT E-2

The statement regarding no impacts to critical wildlife habitat (p. xii in the Summary) refers to designated critical ranges. The Summary in the FEIS has been modified to distinguish between designated critical range and water sources at seeps and springs. Section 4.4.1 of the DEIS notes that "Lowering of the water table resulting in impacts to other groundwater users or surface water features such as springs/seeps and rivers/creeks" would be considered a significant impact. The mitigation of potential impacts of spring flows to wildlife resources are discussed in Section 4.6.3.1 of the FEIS. The hydrologic analysis in Section 4.4.2 of the FEIS indicates a less extensive impact on springs because of refined modeling and better distribution of reinfiltration sites.

RESPONSE TO COMMENT E-3

The construction and management of the reinfiltration sites will be directed at maximizing the reintroduction of water into the Crescent Valley groundwater system in accordance with the requirements of the Nevada State Engineer's Office. The banks of the reinfiltration ponds will be composed of native materials that are not expected to contribute to wildlife drowning. The slopes of the ponds will need to allow for equipment access along a portion of their length. These sections of sloped bank will provide sufficient wildlife protection. The infiltration pond area will also be fenced to prevent livestock access but will be designed to prevent wildlife injury.

RESPONSE TO COMMENT E-4

The "Nevada Interim Standards for Successful Revegetation" include the following statements: The revegetation release criteria for reclaimed mine sites will be to achieve as close to 100 percent of the perennial plant cover of selected vegetation communities or reference areas as possible. Unless extreme site conditions exist at the mine site, the release criteria should not normally be lower than 50 percent and would normally be expected to be 100 percent of the perennial plant cover or the selected vegetation communities.

Because of the relatively low elevation and arid site characteristics (less than 8 inches annual precipitation) of the Proposed Action area, the 50 percent standard appears to be more appropriate for this project. Only the NDEP and BLM can make the determination of whether the project area qualifies for a reduction in standards for vegetative success.

RESPONSE TO COMMENT E-5

Comment noted.

RESPONSE TO COMMENT E-6

As noted by the commenter, a considerable variety of waterfowl and shorebirds, as well as other species attracted to the water source, have been recorded at other infiltration ponds or discharge areas in the region. Use of such habitats is particularly common during the migration seasons in the spring and fall, but some use may occur year round if waters remain open (unfrozen).

The prey base these avian species represent may in turn attract raptors, including wintering or migrating bald eagles, merlins and, potentially, peregrine falcons. (The bald eagle is currently a federally listed threatened species.) Terrestrial predators may be attracted to the ponds as well. During the warmer times of the year, bats may forage over these ponds (see the Response to Comment E-8).

RESPONSE TO COMMENT E-7

Chickadees feed primarily on insects. However, particularly during the winter, pine nuts may be used as a food source by chickadees (Ehrlich, P.R., D.S. Dobkin, and D. Wheye. 1988. The Birder's Handbook, A Field Guide to the Natural History of North American Birds. 785 pp.; Terres, J.K. 1956; 1980. The Audubon Society Encyclopedia of North American Birds. 1109 pp). The FEIS has been modified in Section 3.6.2 Important Wildlife Habitats.

RESPONSE TO COMMENT E-8

Please refer to revised Volume I of the FEIS for incorporation of the following comments.

Two subspecies of Townsend's big-eared bat are currently considered Candidate 2 (C-2) subspecies. *P. t. townsendii*, and *P. t. pallescens* are both considered C-2 species (Federal Register Vol. 59, No. 219, November 15, 1994, p. 58988). The Federal Register lists the subspecies occurring in Nevada as *P. t. townsendii*. Pierson et al. consider the subspecies of big-eared bat occurring in the Great Basin to be *P. t. pallescens* (Pierson, E.D., W.E. Rainey and D. M. Koontz. 1991. Bats and mines: Experimental mitigation for Townsend's big-eared bat at the McLaughlin Mine in California. Proceedings V: Issues and Technology in the Management of Impacted Wildlife. Thorne Ecological Institute. pp. 31-42). This subspecies is also included as a C-2 species in the November 15, 1994 Federal Register. Pete Bradley, NDOW Nongame Biologist, stated both subspecies have been found in northeastern Nevada (personal communication, January 1995). Revised text has been added to Section 3.6.2 of the FEIS.

The new candidate list also includes the western burrowing owl (*Athene cunicularia hypugea*). This small owl nests in burrows in the ground, often in sandy soils, and Herron et al. (1985) cite the Crescent Valley area as a location where these owls have been observed. The species may occur on the alluvial fans and sandy or gravelly flats in the cumulative assessment area. Recent specific surveys of the study area have not been conducted by resource agencies, but the NDOW did find burrowing owls in similar habitats in surrounding valleys in 1994 (personal communication, Pete Bradley, NDOW, Nongame Biologist, January 1995). Burrowing owl

surveys were conducted in the Pipeline project study area in May 1995. A burrowing owl was observed approximately 1/2 mile northwest of the project area, although none was observed within the project area itself. Gary Herron of the NDOW in Reno has information on structures that can be placed in the ground as burrowing owl nest sites. These structures are evidently adopted by burrowing owls fairly readily, and represent a relatively inexpensive mitigation for disturbance to burrowing owl nesting colonies, should such measures be required.

The DEIS includes the subspecies of loggerhead shrike in the list of candidate species which occur in the study area. The new candidate list considers only the subspecies *Lanius ludovicianus migrans* to be a candidate species. This subspecies does not occur in Nevada. The western snowy plover is now considered a 3-C species. A 3-C species is a species found to be more abundant or widespread than previously believed and/or one that is not subject to any identifiable threat. The long-billed curlew is not included in the new candidate list.

RESPONSE TO COMMENT E-9

Please refer to Mitigation Measure 4.6.3.1 for a description of mitigation that would be employed to ensure the availability of surface water. Also refer to Section 2.2.8 of Volume I for a description of the long-term monetary contingency fund that the applicant has committed to. This would be available for mitigation of unforeseen impacts that could occur during or after closure of proposed mining facilities.

RESPONSE TO COMMENT E-10

Additional mitigation has been proposed involving shrub and herbaceous cover. See Section 4.6.3 of the FEIS.

RESPONSE TO COMMENT E-11

Refer to changes in FEIS text, Section 4.6.2, subheading "Exposure to Toxic Substances at Tailings Facilities."

RESPONSE TO COMMENT E-12

Cortez will provide topographic diversity in the final waste dump configuration as described in Section 2.2.7 of the FEIS. The topographic diversity in the reclaimed waste rock dumps must be accomplished in a manner that does not negatively impact the stability of the dumps or their revegetation potential. The design of the waste dumps will be consistent with existing landscape features (to meet visual standards) and will also enhance the diversity of wildlife habitat.

RESPONSE TO COMMENT E-13

Volume I has been amended.

LASER, INC.

LEGAL AND SAFETY EMPLOYER RESEARCH

AN INDEPENDENT INCORPORATED DIVISION OF THE WESTERN STATES PIPE TRADES

670 Kentucky Street Gridley, CA 95948 (P) 916/846-6352 (F) 916/846-5274

Comment Letter F

BY FAX AND MAIL:
Bureau of Land Management
Battle Mountain, Nevada
November 4, 1994

Dear Mr. Davis:

I am the coordinator of Legal and Safety Employer Research (LASER). LASER studies the socio-economic, worker health and environmental impacts of selected construction projects. LASER has many constituents in the Western United States, including hundreds in Nevada, many of whom live in the area near the Cortez Pipeline mine. These workers have an economic and environmental stake in promoting fiscally sound, well planned developments. LASER is participating on their behalf in the review of the DEIS on the Cortez mine expansion. Please send copies of other comments received on the DEIS, to our consultant, whose address is below. Please also continue to send notices regarding Cortez Pipeline and other mines to Mr. Williams.

Yours,

Jim Wilson by fax

Jim Wilson

CC: John Williams
12770 SW Foothill Dr.
Portland, OR 97225
503-626-5736 Fax 641-2093

enclosures by mail under separate cover today

AIR QUALITY--PM 10

LASER believes there will be a cumulative adverse air quality impact on Air Basin air quality from the proposed Project. The DEIS Estimates PM10 emissions will exceed 2600 tons/year. The modelling indicated that the 24-hour average concentrations of PM10 will increase from the ambient background of 45.0 ug/m3 to 102 ug/m3. (4-86)

Recently published studies demonstrating that PM-10 and TSP are far more harmful that previously considered. In one study of the Seattle area, days of high particulate concentrations in the air were correlated with increased hospital visits for asthma.

In another series of similar studies, days of high particulate concentrations were correlated with days of high death rates in Santa Clara, California, Steubenville, Ohio, Birmingham, Alabama, and Philadelphia, Pennsylvania, among seven separate studies on this topic. Particulates have been recently, convincingly implicated in harm to pulmonary function.

Some important conclusions from these studies is that harmful health effects occur even when particulate concentrations ar far, far below the legal limits, there is no apparent particulate threshold for iverse health effects, and that harmful health effects are apparently aused by very minor increase in particulate concentrations.

The Pipeline mine may contribute to an 60 ug/m3 increase in PM 10 levels, to an abient concentration of over 100 ug/m3. But a study of Stuebenville, Ohio, showed that a 50 ug/m3 increase in PM10 may have contributed to a 4% increase in the death rate, with no threshold. In Philadelphia, a 50 ug/m3 increase in PM10 was linked to a 7% increase in the death rate. In Detroit, a 6% increase in the death rate was attributed in part to a 50 ug/m3 increase in PM10 levels.

It appears from these studies that any increase in PM-10 and TSP levels will cause an adverse health impact, since there is no threshold. This is a significant impact that should have been discussed in greater detail in the DEIS. The DEIS also failed to model 1-hr maximum concentration of PM-10, supplying 24-hr averages instead. We suggest 1-hr concentrations be modeled because of the serious implication of elevating PM-10 levels, as shown by these recent studies.[1]

F-1

F-2

FAILURE TO ESTIMATE GASEOUS POLLUTANTS

The DEIS does not appear to estimate emissions of gaseous pollutants from blasting, vehicle traffic, and equipment exhausts, although these sources could contribute significant amounts of pollution.

F-3

For instance, twice-daily blasts at one mine in the Western United States for 313 days per year, was estimated to produce annual emissions of 117 TPY of carbon monoxide, and 30 TPY of Nox (as well

as over 64 tons per year of PM 10).

Vehicle and equpimnet emissions at a large, hard rock Western U.S. metal mine have been estimated at about 250 tons/year of carbon monoxide, and nearly 300 tons/year of nitrogen oxides. [2]

This mine will consume 100,000 gallons of diesel per month in its trucks & generators and 650,000 lb. of gas per month. (p. 2-7, 2-27). F-3

DIESEL EMISSIONS

There is also a question about the amount of diesel fuel that the mine may consume. At page 2-27 the DEIS estimates that 30.5 million lb/yr of diesel fuel will be used by the mine. That may compute to about 400,000 gallons/month, which would exceed the 100,000 gallon/month figure given at page 2-7 for the mine's diesel use. F-4

In any event, there may be significant quantities of diesel and gasoline exhaust emissions from the mine, which should have been discussed in the DEIS. Diesel exhaust fumes have known, adverse health effect including carcinogenic and tumorigenic potential, especially in combination with particulate, which should have been described in the EIS. [3] F-5

Estimates for the emissions from Light-duty vehicle exhaust was ot listed, at all, as for either PM 10 or gaseous pollutants. However, these emission totals could be significant, if there are about 200 employee commuter trips each day over unpaved roads. (4-6) F-6

In other words, the omissions of gaseous air pollution from blasting and exhausts, and the omission of gaseous and particulate air emissions and dust from light vehicles and commuter traffic, may have underestimated the air quality impacts from this facility by over 700 tons/year of air pollution.

TOXIC AIR POLLUTANTS

Arsenic, Mercury, and antimony are present with the gold in this deposit, in elevated quantities. It is possible that these substances will be present in PM emissions from crushing, hauling, dumping and other mine activities. This could create a health risk that was inadequately discussed in the DEIS. F-7

As one EPA study pointed out:

> "Toxic metals can also be carried away from mining sites by high winds as particulates or contaminated dust ... (T)he wind may carry small particles of dust and toxic metals to populations living downwind ... The result is human exposure to toxic metals via inhalation, or the breathing of contaminated air. For certain metals ... this route of exposure can be particularly dangerous."
>
> "(T)he carcinogenic potency of arsenic is estimated by some to

be approximately one order of magnitude greater when the metal is inhaled than when it is ingested. Dust ... inhaled by individuals living nearby (mines) is therefore of paramount concern." [4]

The DEIS did model that the estimated mercury emissions could consume one-half the Nevada State increment for mercury emissions. This could cause or contribute to a cumulative adverse toxic air pollution impact. F-8

The area proposed for mining has a poor potential to provide thorough mixing and dilution of air pollution from the mine. (p. 3-4) This would increase any air quality problems. There are apparently families living near the mine who would suffer significant adverse effects. F-9

It is likely, as conceded in the DEIS that emissions of silica dust will exceed NDEP standards. Mine Safety and Health Administration testing onsite at the nearby Cortez mine has found that as high as 15.5% of the airborne TSP there is silica dust. Fifteen percent of the estimated PM10 impacts (102 ug/m3, cited at p. 4-86) from this development may exceed the Nevada standard of 2.38 ug/m3. F-10

Silica (quartz) dust was recently classified as a probable carcinogen by United Nations health study groups.

The Battle Mountain Basin is in non attainment, and may also receive increased in air pollution from this project, despite the area geography. F-11

The EIS figured that 36% of total particulate will be Pm 10. This is evidence that this 36% factor is not sufficiently conservative. the EPA AP-42 emission factors for Industrial wind erosion figure that pm 10 is 50% of (30 um) TSP. [5] F-12

The EPA AP-42 methods for calculating crusher emissions also calculate that about one-half of TSP emissions is PM 10, from certain types of crushing configurations. [6]

The EIS should use a factor that 50% of TSP is PM 10, to provide a more conservative estimate of possible health concerns.

SUGGESTED PROJECT ALTERNATIVES THAT PROVIDE MITIGATION OF AIR QUALITY IMPACTS

Alternative low-pollution fuels for vehicle and equipment engines, the alternative of using enclosed conveyors, rather than haul trucks to move materials, and road dust control measures should have been described in detail. F-13

ROAD PAVING

Surfacing of all roads on the project grounds, and of several

public and private unpaved roads and driveways within nearby Counties, would also mitigate the project's air impacts during mine construction, and also during the mine production phase.

Many industrial engineering sources recommend road paving as a practical dust control measure, despite its expense. For instance, one study prepared for the Federal Environmental Agency states:

> "At active sites ... bulldozers and dump trucks creates most fugitive dust emissions while loading and unloading and transporting the material over roads. Fugitive emissions from mining haul roads ... are most effectively controlled by paving these roads." [7]

The EPA's own publications state that: "Common (dust) control techniques for unpaved roads are paving."[8]

F-14

The need for road paving is recommended in this instance because of the additional possibility of crystalline silica and other toxic materials being suspended in the dust from the proposed mine site.

The EA for the Echo Bay/McCoy Mine in Nevada states that the mine has mitigated its particulate emissions by contributing to the paving of County Highway 4000S and is working to establish other offsets based on a 1.25 ton offset to 1 ton emission ratio. The Mine's 7.5 mile access road from State Highway 305 has been paved. (p 10, EA)

The Cortez mine should work to establish a similar PM 10 offsets program.

The cost and benefits of paving are worth a comprehensive analysis. The final EIS should discus road paving and alternative, less expensive measures of road dust control, and their relative dust control efficiencies. But if the project does not contain paved roads, or equivalent dust controls, then road dust and the entrained crystalline silica and other toxic emissions, during construction and the mine life, are a potentially significant adverse effect.

ADDITIONAL DUST CONTROL MEASURES

Dust emissions should be controlled with blast hole optimization and stemming, minimization of drop height during ore and waste rock removal and transfer, and restricted vehicle speeds on haul and access roads. The DEIS did mention limiting drop height but these other mitigation measures were not discussed in detail.

F-15

INFILTRATION PONDS

Infiltration ponds are suggested as a groundwater recharge method. But the existing McCoy mine infiltration ponds often became clogged with sediment which blinds off the infiltration system, and localized mounding of the water table occurred, reducing pond effectiveness. Mounding of the water table at McCoy, and by application at Cortez, may eventually produce surface seeps, which

F-16

F-17

would upset the plans for water balance of withdrawal/infiltration methods. (p.7)

THE DEIS LACKED SUFFICIENT DISCUSSION OF ALTERNATIVE GROUNDWATER RECHARGE SCHEMES

This mine will need a massive dewatering scheme, to keep 16 billion gallon/yr groundwater out of the pit and related mining areas. (p. 2-15) The suggested mitigation is to place the pumped groundwater in an infiltration pond, which would recharge the depleted aquifers.

However, this scheme would allow large evaporative losses. The DEIS listed several alternative groundwater recharge schemes, which were rejected. LASER is concerned that the vast majority of reasons for rejecting these alternative groundwater recharge plans, and even precluding further discussion of these alternative, was because of financial costs. F-18 F-19

Lacking an explicit description of how the financial costs of the alternatives would entirely preclude development of this mine, it is inappropriate to exclude alternatives largely on a financial basis. This mine will be hugely profitable. There is no showing that the added costs, if any, from alternative groundwater preservation plans, would make mining impossible at this location.

For instance, regarding Alternative 2, (preferred by LASER), five of the six cited reasons for rejecting further discussion of this alternative are related directly or indirectly to the potential additional costs. The sole claim of environmental drawbacks with Alternative 2 is the larger area of surface disturbance, but no evidenced is presented to actually prove that a significant amount of additional area would be disturbed. F-20

LASER has many concerns about the groundwater drawdown and recharge planned for this project. It may change the groundwater gradient, and move the contaminated water into the aquifer from the already contaminated Cortez mine. F-21

LASER also shares the ground water depletion concerns of the Western Shoshone Defense Project, and the entirety of their comments, which are enclosed.

Laser also is concerned that the EIS did not address many of The Defense Project's other concerns, related to treaty rights, lack of springs and seeps monitoring, recharging of different aquifers than the one(s) being depleted, and grazing. F-22

LASER incorporates by reference all the concerns about mining, dewatering, another issues raised in the Sierra Club and Defense Project documents.

LASER also urges the BLM to address, in a programmatic EIS, the

broad, basin wide issue of dewatering of the Humboldt River watershed by many mines in Nevada, as described in the enclosed Sierra Club document. F-23

LEAKS AND SPILLS

The DEIS describes the new leach pad and tailings impoundments as "0" discharge facilities. But over the last few years, many mines utilizing lined leach pads and lined tailings pits have experienced releases from these facilities to the environment.

In LASER's remarks on the Cortez mine EIS, (submitted under the name of our predecessor organization) LASER provides a list of many mines which have leaked process fluids from lined impoundments. The these facilities were also considered "zero" discharge units. In sum, it is a mischaracterization to describe a lined impoundment as a zero discharge facility, because some leakage is allowed, and is to be expected.

It is a quiet secret in the mining industry, that a certain amount of leakage from process facilities through synthetic or other liners is considered inevitable and in engineering terms, normal.

F-24

What is normal in mining engineering, however, can be a ignificant adverse environmental degradation that deserves to be escribed accurately in an EIS.

For instance, the AMAX Hayden Hill mine heap leach pad Cell 1A top liner, in its original water quality permit, was allowed leaks up to .177 gpm. The mine was unable to meet this limit, and the top liner leaked an average of 1.3 gallons per minute (gpm) of cyanide tainted solution since July, 1992.

Ultimately, the Water Board modified the AMAX permit, to legalize an increased amount of leakage through its liner, even though this mine was also a "zero" discharge facility. Apparently a "zero discharge" facility is still allowed to leak as high as 7.2 gpm (About 3.5 million gallons per year) and still remain within the industry accepted practices. [9]

There is some evidence that there are potentially toxic materials at the mine that would reach groundwater from leakage. The old tails exceed the iron limit, (11 ug/l vs 3 mg/l. This material also contains high levels of arsenic, (some samples are 2.87), mercury is also present. (2-13, 14)

F-25

The groundwater in this proposed mining area already show elevated concentrations of arsenic, cyanide, iron, sulfate, chloride, mercury, manganese, and total suspended solids. (p. 3-25)

The permit for the Cortez Mine also allows leaks from its process facilities, as long as water quality standards are not exceeded. This is not a zero leakage situation. There will be permitted leakages,

F-26

and degradation of waster quality from the Pipeline facility. This information should be presented openly and its implications discussed in the EIS. F-26

TANKING OF SOLUTIONS

One alternative is that the leach circuit processes should be tanked or contained in vats instead of using heap leach pads and process fluid ponds. This would greatly the chance of spills and releases, and would also reduce emissions of the various leaching agents and reagents. F-27

Vat leaching is an economically viable, more efficient and environmentally superior ore processing method compared to heap leaching. It yields a higher return of ore in a shorter time. It would also reduce potential harms to wildlife by containing leaching and process operations.[10]

SOCIO-ECONOMIC IMPACTS

The DEIS, at p 3-50, says that only 10% of skilled trades who will work at the mine will come from the local work force. The DEIS estimates at p. 4-64 that 248 non-local workers would be coming in to work at the mine.

These imported workers may bring many of their family members, including school aged children. But at page 3-52, the DEIS admits that the area's schools are over capacity. The socio-economic impact of an imported construction work crew may increasingly stress local schools, and mitigation payments from the mine to the schools should be required. F-28

Because of the large amounts of flammable materials used and stored at the mine, there is a danger of fire and explosion. But this area is serviced mostly by volunteer fire fighters. The mine should finance necessary upgrades of equipment and provide training to local fire departments. F-29

RECLAMATION

Crested wheatgrass may be planted on stored topsoil. This may not be a native species and alternative plantings should be described. (p. 2-31) F-30

WETLANDS

There are 68 seeps, and 40.4 acres of wetlands in and near the mine area. These areas should be avoided. As the EPA declared:

> "Certain regions are particularly ill-suited for the disposal of mineral resource solid wastes. These ... areas include ... wetlands. For new facilities, a site with an impervious mineral base or with an underlying aquifer sufficiently depressed (should be selected)."[11] F-31

1. Particulate Air Pollution and Hospital Emergency Room Visits for Asthma in Seattle. Am Rev Respir Dis. Schwartz, Slater, Larson, Pierson, and Koenig. V. 147, pp. 826-831, 1993.

Air Pollution and Daily Mortality in Birmingham, Alabama. American Journal of Epidemiology. Joel Schwartz. Vol. 137, No. 10, 1993. See particularly figure 6, page 1145 for an illustration of how any increase in PM10 correlates to increased deaths.

Air Pollution and Daily Mortality in Steubenville, Ohio. American Journal of Epidemiology. Joel Schwartz and Douglas Dockery. Vol. 135, No. 1. 1992.

Increased Mortality in Philadelphia Associated with Daily Air Pollution Concentrations. Am Rev Respir Dis. Schwartz & Dockery. 145:600-604. 1992.

Pulmonary Function and Ambient Particulate Matter. Archives of Environmental Health. Chestnut, Schwartz, Savitz, and Burchfiel. May/June 1991 (Vol. 46 (No.3) p 135-144.

Particulate Air Pollution and Daily Mortality: A Synthesis. Schwartz. Public Health Review 1991/92; 19:39-60/

2. Assumptions for this calculation are 2500 sq. ft. area per blast, 15 ft. depth, 2% moisture in rock. Engineering Evaluation of Hayden Hill Gold mine, by Lassen County (CA) Air Pollution Control District, November, 1991. Gaseous pollutants from mine traffic and equipment comes from a California Air Resources Board letter dated 6/21/91, published in the Final EIR/EIS, Volume II, for the Hayden Hill mine, lead agency was the BLM, Susanville, CA.

3. Diesel in Underground Mines: Measurement and Control of Particulate Emissions. Proceedings: Bureau of Mines Information and Technology Transfer Seminar, Minn. MN, 9/29-30/91. IC 9324.

4.United States Environmental Protection Agency. Mining Wastes in the West: Risks and Remedies. August, 1987. p. 4-6

5. Section 11.2.7-2, EPA AP-42 document, 9/90.

6. For instance, over 60% of TSP from tertiary crushing, over 90% of dry grinding, and 50% of material handling TSP emissions is assumed to be PM 10. (EPA AP-42, Table 8.23-1, 8/82)

7. Study of Adverse Effects of Solid Wastes From All Mining Activities on the Environment, PEDCO Environmental, Inc. (Prepared for the US EPA. 1979). Page 143 and 159. Corbitt,

Robert A. Standard Handbook of Environmental Engineering. McGraw-Hill, New York. 1990. P. 4.81-.85 for paving alternatives.

8.EPA AP-42 Factors, page 11.21-5. 1988.

9. Environmental Solutions report, April 1993, contained in AMAX Hayden Hill mine file, California Water Quality Control Board, Central Region, Redding, California.

10.Radian Corporation. Environmental Handbook for Cyanide Leaching Projects. Done for the National Park Service. June, 1986. Page 10. See also Copper Dump Leaching and Management Practices that Minimize the Potential for Environmental Releases. Done for the EPA by PEI. May, 1988. PB88-15514. Page 11.

11.PEDCO, page 113 and 180.

CUMULATIVE HYDROLOGIC EFFECTS OF OPEN PIT GOLD MINING IN THE HUMBOLDT RIVER DRAINAGE

A Report to the Sierra Club
March 10, 1994

By

Tom Myers
200 Bartlett St.
Reno, NV 89512

EXECUTIVE SUMMARY

This report assesses the cumulative effects of open pit gold mining in the Humboldt River basin of northern Nevada. Most available public information including USGS studies, agency EISs, agency sources and water rights permits were used to determine pit sizes, groundwater levels, and permitted pumping rates. Primary concerns were deficits due to evaporation and dewatering and pit and cone of depression refilling. This report compares the deficit created by mining to the water balance of subbasins and the overall basin. All numbers are based on existing and approved projects and do not include any future projects. The numbers represent a minimum of the overall possible effects. Primary conclusions are:

1. Flow in the Humboldt River may decrease by as much as 18 percent in the Valmy area while pits refill.

2. Total volume of deficit in the Humboldt River basin, including pit volume and drawdown cone will exceed 1,000,000 acre-feet at the end of current projects.

3. There will be no outflow from Maggie Creek or Boulder Creek for several years after the cessation of mining. There will be a brief period of increased surface flows during mining due to surface discharge and groundwater mounding below irrigated fields and reservoirs.

4. Evaporation from pit lake surfaces is a concern in the Maggie Creek and Boulder Creek basins, but not in the whole basin.

5. There is a large alluvial aquifer along the river downstream from Battle Mountain. This aquifer may serve as a buffer by storing increased flows early in the project lives and releasing the flows as the pits fill.

6. There is a great deal of model sensitivity due to aquifer properties including hydraulic conductivity and the degree of connection to the deep carbonate aquifer.

7. The most important conclusion is that nobody knows the true cumulative effect of mining in the Humboldt River basin. Estimates by different independent hydrologists will vary by orders of magnitude based upon modeling assumptions. Possible effects include decreased surface water rights, increased pumping lifts, dried riparian areas, wetlands and springs, and decreased fisheries.

The important recommendations of this report are that the mining companies should fund an independent detailed regionwide groundwater modeling study that considers the effects of

dewatering and pit refilling. After the regional study, individual studies of each subbasin should be performed to estimate specific local effects. Based on these effects, the mining companies should establish a process to compensate parties that may be affected in the future and to mitigate environmental losses.

Finally, it must be reiterated that there will be future projects and project expansions which are not included in this report. All numbers reported herein must be considered a low estimate of the effects.

Introduction

Cumulative effects of open pit gold mining in the Humboldt River basin of northern Nevada have never been analyzed by either the Bureau of Land Management (BLM) or the individual mining companies. The shear volume of some of these pits and the fact that some are below the historic groundwater table indicates that dewatering the pit during operations and the volume in and evaporation from the pits after operations may have effects on the surface water hydrology of the Humboldt River basin. The Sierra Club commissioned this preliminary, reconnaissance level report to address the following questions.

1. What is the deficit due to evaporation loss from the surface of water in pits after cessation of operations?

2. What is the deficit created by the filling of the pits after the cessation of operations?

3. What is the deficit created by surface discharge of dewatering discharge?

4. What is the deficit created by mounding of water and increased flow due to steeper gradient?

A draft copy of this report was sent to the BLM District Offices in Winnemucca, Battle Mountain and Elko, Nevada and the Nevada Mining Association. The purpose of the review was to allow these sources to provide missing information about existing and currently proposed mines, provide information about future projects, and to provide general comments. The Winnemucca and Battle Mountain District provided response (BLM, 1994a and b) which has been incorporated into this final report where appropriate[1]. I addressed some comments in footnotes and other comments in a letter directly to the signatory of the letter. I received no response from the Elko BLM or the Nevada Mining Association.

Methods

Because of the possibility that mine effects may seem small when considered over the entire Humboldt River, I chose to analyze subbasins originally determined by Eakin and Lamke (1966). I estimated total pit water volume, evaporation and dewatering pumping rates for comparison with published precipitation, evapotranspiration, inflow and outflow estimates

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[1] - My reference to Stonehouse Mine in the draft report is totally removed.

(Eakin and Lamke, 1966) for each subbasin and then the entire basin.

Total final pit size is calculated from the surface area and depth of the pit. Because depth-area curves are unavailable (excepting ENSR and Drever, 1991 and PTI Services, 1992), I used the formula for the volume of cones:

$$V = \frac{1}{3} AREA * H$$

Because this formula assumes no area at the deepest point, it is conservative. The volume of the pits below groundwater levels equals the total pit volume scaled down to the water level. The assumption is that the pits will fill to the level of groundwater that existed before mining. Eakin and Lamke (1966) and Thomas et al (1986) presented groundwater levels assumed to equal the preexisting levels. Mine environmental documents (ENSR and Drever, 1991; HCI, 1992; BLM, 1993) and permit application well logs provided additional documentation about groundwater levels. The area of the water after filling is a scaled down estimate of the total surface area.

Evaporation calculations are based on annual depths of evaporation of shallow lakes (Farnsworth et al, 1982). Because the pits, once filled, are not shallow lakes and will store far more heat than a shallow lake, I adjusted the evaporation downward by multiplying by 0.9. The total evaporation from a shallow lake in northeast Nevada is 30 inches per year (Farnsworth et al, 1982).

Total dewatering is the total amount of the mines pumping permits issued for dewatering. This amount should be considered an upper limit rather than the exact value, but many mines are constantly updating their temporary permits which means their permits represent an amount close to that actually pumped.

The use of pit dewatering water affects the current and future impact of the dewatering. As a part of this report, I determined the location and amount of discharge, the consumptive use when possible and whether the discharge will result in a deficit. Dewatering creates a deficit when discharged in a way that increases flow to the Humboldt River. This includes direct discharge and surface application that increases the gradient to the river.

Sources of Information

I decided that research on pit volumes and projected pumping rates would require much time, therefore I elected to quiz BLM

officials about the size and depth of the mines. They suggested that I write a letter[2] specifying the desired information about specific mines. I limited my query to the following specific questions:

"1. What will be the final size of the open pits associated with each mine? I hope this will include surface area and total depth. An area-elevation-storage graph would be ideal if available.

2. What is the project end of the project, including any expansions?

3. What is/was the projected rate of pumping for dewatering the pits? I realize that the actual pumped volumes may vary from the original projections, but I can easily obtain those values at the state engineers' office.

4. Where and for what is the pumped water for dewatering discharged? I understand that some mines may discharge into a surface water course, a reservoir or irrigated field."

Specific mines requested included Getchell, Lone Tree, Pinson, Florida Canyon, Chimney Creek, Marigold, Rabbit Creek, Fortitude, Echo Bay, Cortez, Big Springs, Dee Gold Mine, Jerritt Canyon Joint Venture, Barrick Goldstrike and Newmont's Genesis, Monarch and Gold Quarry mines. I also asked the agencies to add any additional mine missed in the original list. Answers by letter were received from the BLM in Winnemucca and Battle Mountain (BLM, 1993a and b) and by phone from Elko (Reiger, personal communication).

I researched actual pumping and the uses of the water at the NV State Engineer's office. Each mine has many permits for pumping on file; the mines which are dewatering have a long trail of permits as they file for constant changes and temporary permits. Therefore, the permitted value is very close to the actual value in most cases. I examined this information for the mines listed above which were actually dewatering. I neglected Florida Canyon, Getchell, Fortitude and Dee Gold. The mines also report the actual amounts pumped monthly or quarterly, but I did not have time to study this data.

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[2] - The letter was mailed October 27, 1993 and addressed to specific district or area managers, as appropriate with attention to the Supervisory Minerals Specialist.

Hydrologic Setting

The Humboldt River basin lies in the Great Basin of northern Nevada. It flows from east where it heads in the Ruby and Independence Mountains of northeastern Nevada to west where it ends in the Humboldt Sink. The basin is semi-arid with most precipitation occurring during the winter and spring months. The average annual precipitation is about 10.4 inches overall (Eakin and Lamke, 1966) with a maximum near 25 inches in the higher mountains. Spring floods and low summer baseflow characterizes the flow from the basin. The river surface water flow is overappropriated for irrigation and other uses. Additional details may be found in Eakin and Lamke (1966) and Plume and Stone (1992).

The river loses flow during baseflow downstream from Battle Mountain to evapotranspiration and groundwater storage. There is a large alluvial aquifer under the river downstream from Battle Mountain which contains almost 8,000,000 acre-feet of storage (Eakin and Lamke, 1966). A deep carbonate aquifer underlies much of the east half of the basin. Refer to Burbey and Prudic (1991) for a detailed discussion of the flow in this aquifer. As indicated by BLM (1994b), there are considerable questions concerning the connections between this aquifer and the overlying fill.

Results and Discussion

Tables 1 and 2 and Figure 1 summarize the results of this investigation. Table 1 summarizes the physical parameters of individual mines in the Humboldt River basin. Table 2 summarizes the basin water balance with cumulative effects of mines in each basin. Figure 1 provides a graphical analysis of the cumulative effects through the basin.

Mines that should have only minimal hydrologic effects are Marigold, Florida Canyon, Fortitude, Cortez, Big Spring and Jerritt Canyon. Marigold, Florida Canyon and Cortez are above the water table and any pumping is for milling and mining. Fortitude is minimal because of its small surface area and volume. Big Spring and Jerritt Canyon are in the Independence Mountains on Humboldt Forest Service land and have only pumped perched water (Reiger, personal communication). Hydrologic effects of pumping perched water would be local. The BLM provided no information on Crescent Valley Pipeline, Gold Acres and Mule Canyon in the original request, but did provide this information in the review (BLM, 1994b)

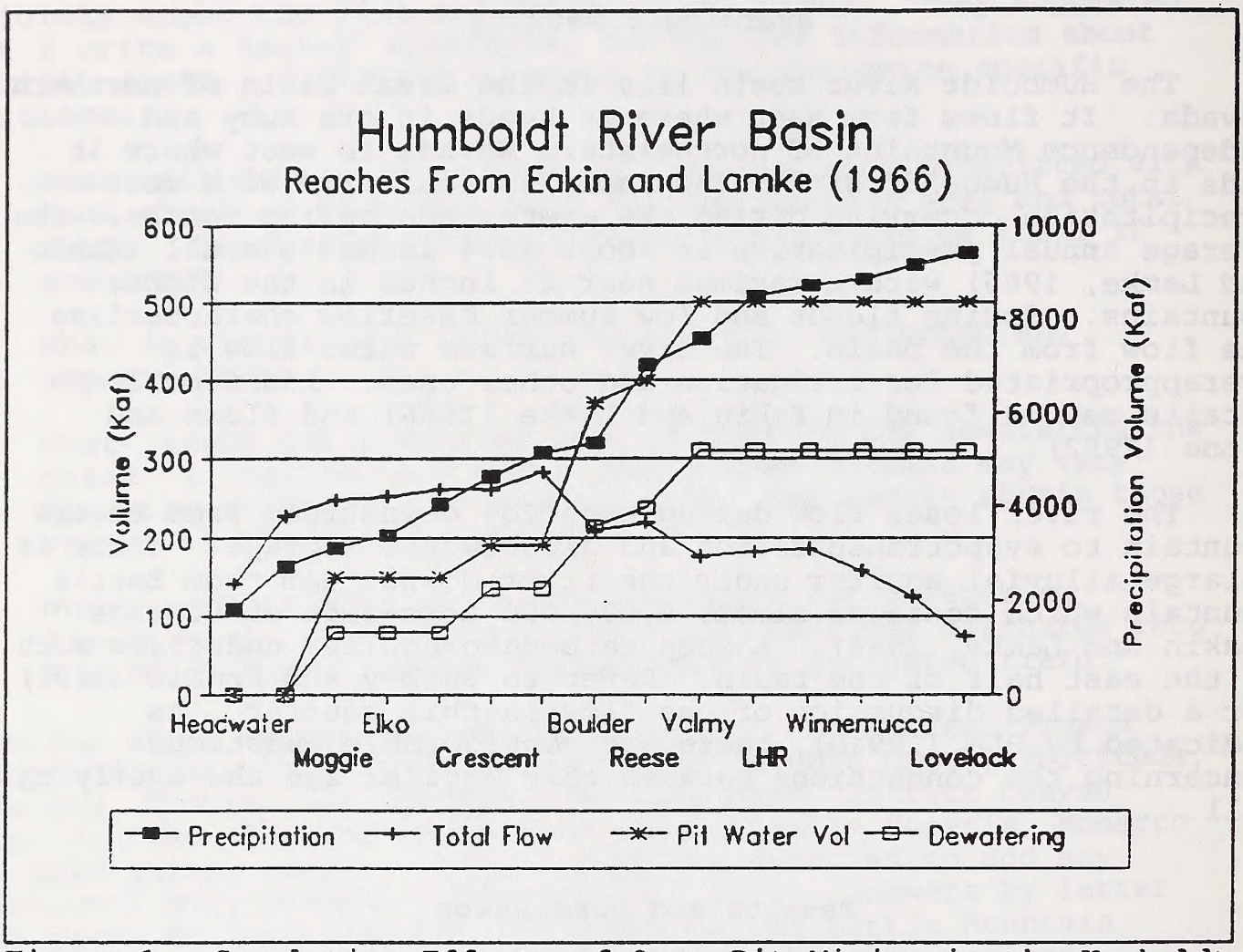

Figure 1 - Cumulative Effects of Open Pit Mining in the Humboldt River Basin.

Evaporation

Total evaporation from the surface of the pit lakes after filling will be about 3500 acre-feet per year. Annual evaporation from a shallow lake in this area is only about 2.5 feet (Farnsworth et al, 1982) which I adjusted to 2.25 feet due to the volume of the lake. Evapotranspiration averages about 0.85 feet over the entire basin which indicates the pit lakes will add an additional 1.4 feet over their area. Additional evaporative loss due to the pits is about 2200 acre-feet which is less than 0.03 percent of the annual precipitation. As correctly pointed out by BLM (1994a), the surface area in this calculation should be decreased to account for depth below ground. Because I generally do not have information to scale the area with, my estimate is an upper limit for the number of mines analyzed. Nevertheless, evaporation should not be considered a significant issue over the entire basin.

Additional evaporation on the Maggie/Susie Creek basin may be significant. Gold Quarry mine will cause an additional 900 acre-feet of evaporation (1.2 cfs over the year) when the pit fills. This is almost 5 percent of the annual outflow from the basin. Because evaporation is maximum in the summer when the outflow is least, evaporation from Gold Quarry may cause additional periods of no flow in Maggie Creek.

Additional evaporation may also affect the water yield from Boulder Creek basin, although the environmental effects are minimal because the stream is ephemeral. Eakin and Lamke (1966) did not estimate a budget specifically for Boulder Creek, but Plume and Stone (1992) estimate a natural groundwater outflow equal to 32400 acre-feet per year. Additional evaporation may be near 600 acre-feet which is only 1.8 percent of the outflow.

Dewatering

Effects of dewatering depend on the amount of water pumped and the use for that water. Water discharged to the surface water system will increase total yield for the life of the mines, but cause a long term deficit. Water discharged through infiltration or injection may not be lost to the basin, but in some cases may increase hydraulic gradients which will increase short term surface flow.

Dewatering in the Maggie/Susie Creek basin may approach 80000 acre-feet per year of which 10660 acre-feet may be consumptive use. Projected pumping was 42000 gpm (Reiger, personal communication) which was expected to be reached in the year 2001 (HCI, 1992), but new permits allow pumping to 110 cfs (49390 gpm)[3]. In other words, current pumping exceeds their projections. Potential deficits in the Maggie Creek basin are tremendous dependent on the quantity of water actually discharged to the surface water system and the amount reinjected. As an upper limit, discharging 70000 acre-feet per year to Maggie Creek (96 cfs, note that HCI (1992) estimates an increase in base flow on Maggie Creek exceeding 80 cfs (Figure 45) and an increase on the Humboldt River equalling 80 cfs) increases the outflow in the

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[3] - Permit 56831 and others were issued December 16, 1993 which allows a total 110 cfs pumping with a duty of 10660 acre-feet per year for mining and milling. This combines permits 40900, Certificate 13392, 47962, 48328, 48330, 48910-12, 49550, 49916, 49962, 51952, 52330-32, 52883, Certificate 13398, 52884, 53384-5, 54339-41, 54510, 55616-7, and 56831-39. Water must be used for mining and milling, followed by mitigating other water right holders. Excess water will be placed in Maggie Creek Reservoir for discharge to the surface water system after receipt of the proper permits from the Nevada Division of Environmental Protection.

basin by 350 percent and if continued for seven years equals 140 percent of the total basin precipitation for one year. Using the underestimated dewatering volumes, HCI (1992) estimated an additional 5600 acre-feet per year would be discharged to Maggie Creek (this does not correspond with their expected base flow increases). They indicated that most water discharged to Maggie Creek will become surface water due to low vertical hydraulic conductivity.

Similar dewatering rates apply in the Boulder Creek basin. The main difference is the lack of a developed surface water system in this basin and the fact that the mines will be using the water for irrigation and recharge. Barrick Goldstrike stores much of its dewatering water in a 20000 af reservoir which will be used for irrigation. Supposedly, water stored in this reservoir leaks into and therefore is recharge to the Boulder Flat basin. This water replaces current sources of irrigation water for the TS Ranch on 12160 acres[4]. Total irrigation permits equal the total dewatering permits. Actual pumping in 1991 equaled 18,650 acre-feet and the current amounts should be verified. The amount pumped for irrigation decreases with increased dewatering.

The lower Reese River Valley contains the Fortitude Complex and the Echo Bay McCoy Cove project. Total dewatering is about 24,200 acre-ft. The use is mining and milling with the excess being infiltrated. The long term deficit should be small and be caused by an increased downvalley gradient. The limits of consumptive use is 3000 acre-feet per year which is 37 percent of the total outflow from the Reese River basin. It is likely the additional consumptive use will cause additional portions of the Reese River to become ephemeral and increase the fraction of the year the river is dry[5].

The Valmy reach of the Humboldt River contains 5 major mines. Total pumping reaches 73,000 acre-feet per year. Pinson pumps almost 12,300 acre-feet and information on consumptive use is unavailable. However, they contain it on site for use in their milling operations or in their tailings ponds. Lone Tree has permits to pump 53,800 acre-feet per year with 3144 acre-feet of consumptive use allowed. Their excess discharge is to the Humboldt River through the newly constructed Iron Point Relief Canal at a point several miles downstream of the mine. Based on

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[4] - Acreage value from water rights permit 55272. This is apparently an update of the value from BLM, 1991.

[5] - The stream shows as perennial on maps near the Echo-Bay project. I doubt this is true as I also doubt that it only flows once every ten years (BLM, 1994b). This statement applies to the river east of the mine.

the location of Lone Tree Mine, it is likely that, due to drawdown and reversed gradient, some water pumped is being drawn from alluvium connected to the Humboldt River. However, the pit intersects bedrock at shallow depths and the average temperature of dewatering discharge is about 86 degrees F (Craig Drake, US BLM, Winnemucca, personal communication). There is no claim that there is not a connection with the river, but clearly the dewatering creates some deficit due to flow from the rock. In other words, they recirculate some water from the river and draw on some deep isolated groundwater which will cause a deficit. Available information is insufficient to assess the magnitude of the deficit.

Effects on the Humboldt River as a whole are difficult to assess. During operations, there should be excess flow in the upper part of the basin due to the deficit being created in Maggie Creek and from increased gradients from reinjection at some other mines. It is unlikely that this flow results in larger short term yield in the lower basin because the river is mostly a losing reach below Battle Mountain (Eakin and Lamke, 1966). The additional baseflow would probably increase depths in the river causing a large gradient change in the flat water table near the river. In the top 100 feet of basin fill near the river there is an estimated 8,000,000 acre-feet of groundwater in contact with the river (Eakin and Lamke, 1966). It is likely that actual storage can be increased by as much as 200,000 acre-feet (raising the water table by 2.5 feet) from the increased flows. In the long term, as upper basin outflow decreases because of refilling pits, the river level will decrease in the middle and lower basin. However, the decreased levels will probably increase gradients from middle river tributary basins drawing upon previously stored water which will partially make up the lack of flow from upstream. The short and long term effects of dewatering at downstream points is therefore probably buffered by storage but the actual magnitude of effects is unknown.

Pit Refilling

When dewatering ends, the assumption is that the pits will fill with water to the previous groundwater level. Because the pit no longer consists of low porosity rock, the water volume will exceed the pre-mining volume by 20 or 30 times. Because the drawdown exceeds hundreds of feet, the gradient toward the pit should be very high. The zone of capture of recharged water will be very wide and cause a direct deficit to individual subbasins and the whole river basin. This section addresses just the volume of rock removed below the water table. The estimates are very conservative because I ignore the volume of the cone of depression. The next section will address in more detail the dynamics (rate) of pit refilling and volume of the drawdown cone.

The Maggie Creek subbasin will have 150,000 acre-feet of rock removed from below the water table. This is the largest quantity of any subbasin. This equals almost one year of precipitation in the entire subbasin. HCI (1992) estimates that 95 percent of the pit will refill in 18 years which requires an average 8300 acre-feet per year. This amount exceeds 40 percent of the annual outflow from the basin. The estimate of refill time will be discussed in the next section. Clearly, refilling of the pit will have a major effect on Maggie Creek, especially considering that the basin will suffer a large deficit from dewatering surface water discharge. The bottom of the pit is about 800 feet below the level of the Humboldt River, therefore effects of refilling the pit will probably extend to the Humboldt River. The pit refilling will probably capture most of the outflow effectively drying Maggie Creek during base flow periods. The increased gradient from the river will have large effects on the Humboldt River. HCI (1992) predicted a variable 8 cfs decrease at baseflow for about 40 years. This average will cause about 232,000 acre-feet of loss to the main river or 6000 acre-feet per year. Due to the temporally variable gradient, expectations of losses should be near 20,000 acre-feet for the first few years.

The Boulder Creek subbasin will have 182,000 acre-feet of rock removed from below the water table. Estimates of refill time approach 100 years (ENSR and Drever, 1991). Due to the location in the basin away from the river, this is probably a good estimate. The bottom of the pits are about 500 feet below the Humboldt River and 15 miles away, therefore the increased gradient from the river is not huge. Much of the volume is above the river, therefore the longterm loss to the river may not be large. Because most filling will be from local recharge, a good estimate of loss is probably 40,000 acre-feet over 20 years. Some water will be withdrawn from the river and then return as the gradient reverses when the pit reaches the level of the river.

The volume of rock removed below the water table in the Reese River basin is 48,000 acre-feet. The location of Echo Bay is about 20 miles upstream and on the west side of the valley. Most of the recharge in this basin is from the east side in the Toiyabe Mountains. The bottom of the pit is about 150 feet below the level of the Reese River and 5 miles away. A small gradient will pull some water from the river, however it should be less annually than the consumptive use during operations. Some of the water for refilling will have been stored in the alluvium due to infiltration of dewatering excess.

The Valmy section of the Humboldt River will have more than 100,000 acre-feet of pits below the water table. The bottom of the Lone Tree mine is almost 800 feet below and only a few miles from the Humboldt River. A large gradient will draw from the

Humboldt River and fill these pits very quickly. The annual deficit to the flows of the Humboldt River will probably be about 12,000 acre-feet for a few years[6] before dropping as the pit water level stabilizes with the river level.

The current estimate of open pits below the groundwater table is near 500,000 acre-feet. Drawdown cones add probably an additional 100 percent (see below), therefore the total deficit in the Humboldt River basin due to actual pit and drawdown volume will exceed 1,000,000 acre-feet. Total losses to pit refilling may approach 50,000 acre-feet per year if operations cease at the same time. Projected end dates for those mines with the largest effect vary from 1998 for Echo Bay to 2004 for Lone Tree, 2001 for Gold Quarry and 2006 for Barrick Goldstrike (BLM, 1993a and b, and Reiger, personal communication). Based on these dates, the largest effect of pit refilling will occur between 2001 and 2008 as the three biggest pits causing the maximum gradient from the river cease operations. Because the maximum effects will not be additive due to the different time frames, the maximum annual loss to the river will probably be near 30,000 acre-feet. The annual flow at Valmy is near 176,000 acre-feet and at Winnemucca is near 158,000 acre-feet (Eakin and Lamke, 1966). Maximum loss is near 18 percent in these years. Because of the high volume and slow pit refilling time, the effects will probably last for more than a century. Also, it must be emphasized that there will be additional projects and expansions of unknown (to the public) magnitude.

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[6] - This is based on very simple Darcy's law calculation with a gradient of 800 feet in 4 miles, K = 2 ft/day (low?) and a capture zone of 20000 feet. However, personal communication with BLM personnel revealed that much of the pit is in rock near Lone Tree Hill but that no claims there is no surface connection. The actual hydraulic conductivity will therefore be a function of fractures.

Table 1 - Physical Parameters of Humboldt Drainage Gold Mines

No.	Mine	A (ac)	D (ft)	El (ft)	GW Elev (ft)	V (af)	VGW (af)	Proj Ppg (gpm)	Perm.[1] Ppg	Duty[2] (af)	To: (af)
1	Lone Tree[3]	366	520-920	4500	4450	112200	100000	40000	53800[8]	3144	Herrin Slough[8]
2	Marigold[4]	234	450-470	N/A[6]	N/A	35880	dry	dry	767		
3	Flor. Cany.[3]	134	400	N/A	N/A	17900	dry	dry	m[7]		
4	Getchell[3]	218[9]	700[9]	5500	4700	42690	dry	m	m		Milling, Excess
5	Pinson[3]	83[9]	480[9]	4900	4600	10000	1080	m	12312		Milling, Tailings
6	Twin Ck[4]	m	m	m	m	m	m	m	6122		Milling, Tailings
7	Fortitude[4]	5	600	m	m	10000	m	125	m		Milling
8	Echo Bay[4]	295	500	5000	4690	48000[10]	48000[18]	3500[19]	24218	3000	Infiltration ponds
9	Pipeline[20]	240	675[21]	N/A	N/A	N/A	40000[22]	35000			Infiltration ponds
10	Cortez[4]	156	50	N/A	N/A	2600	0	dry[11]	N/A		N/A
11	Genesis[5]	552	m	m	m	m	m	4000	6140		Milling
12	Gold Quarry[5]	1120	1755[12]	5700	5100	400000[17]	150000[13]	42000	79600[14]	10660	Maggie Ck[14]
13	Goldstrike[5]	550	1700	5800	5300	311600	197000	68500	72000[15]	6870	Reservoirs, Irr.
14	Dee Gold[5]	83	700	N/A	N/A	19400	10000	dry[16]	m		m
15	Big Spring[5]	m	m	N/A	N/A	m	N/A	dry[17]	N/A		N/A

1 - Current pumping allowed according to permits on file at the NV State Engineer's Office
2 - Consumptive use of the total current allowed pumping
3 - Winnemucca BLM: BLM, 1993b
4 - Battle Mountain BLM: BLM, 1993a
5 - Elko BLM: Personal Communication, Nick Rieger, Elko BLM, December 16, 1993
6 - Not applicable
7 - Missing, due to lack of information from BLM or neglect in searching State Engineers' records.
8 - Permit 59322T et al, approved 11/30/93. Discharge now to Iron Point Relief Canal to Humboldt River
9 - Sum of the area of 4 pits, depth is that of the deepest pit
10- Provided by BLM, 1993a
11- No pumping since 1974 (BLM, 1993a)
12- Depth may be 1600 ft (PTI Services,1992)
13- Calculated from Fig. 1.3 and 1.4, (PTI Services, 1992)
14- Water permit #56831, 12/14/93 stipulates water to be used for mining and milling, followed by mitigation to surface right holders, followed by discharge to Maggie Ck. Reservoir. Any discharge to surface waters must be approved by NDEP and is subject to the Humboldt Decree. Any irrigation will replace existing rights. The State Engineer reserves the right to require injection of excess water.
15- 58354-5, 58469-76, 58543-47, 58938T-45T, 58969T-73T
16- Dry pit due to drawdown by Barrick Goldstrike
17- Dewater perched water only.
18- BLM, 1993
19- The current infiltration pond EIS (BLM, 1993) states that 30000 gpm is the projection.
20- BLM, 1994b: The depth of 675 feet is depth below groundwater; 40000 af is a scaled down calculation with the cone formula.

Table 2 - Effect of Mines on Subbasin[1] Water Balance Variables[2]

Basin	Inflow[7]	Prec.	ET	Outflow[7]	Effects of Mines: Mines[6]	Pit Water[3]	Area (ac)	Evap[4]	Dewatering[5]
Humb. R									
Headwater	--	1828	1687	141	15	0	0	0	0
Huntington	--	903	816	87	---				
Maggie/Susie	--	396	376	20	11	150	700	1.5	79.6
Humb R., Elko	248	245	257	251					
Pine Valley	--	654	644	10	---				
Cres. Lake	--	602	601	1	9,10	40	240	0.5	56.0
Rock Ck. Vy.	--	489	448	21	---				
Humb. R, and Boulder Ck.	283	223	296	210	11,13,14	182	425	.9	78.
Reese River	--	1653	1645	8	7,8	28	112	.3	24.2
Humb. R, Valmy	218	557	599	176	1,2,4,5,6,9	101	364	.8	73.
L. Humboldt	--	910	904	6	---				
Grass Valley	--	250	246	4	---				
Humb. R, Winn.	186	137	165	158	---				
Imlay	158	302	335	125	3	0	0	0	0
Lovelock	125	262	326	74	---				
Total		9411	9348	74		501		3.8	310.8

1 - Original data and subbasins from Eakin and Lamke (1966)
2 - All flow volumes in thousands of acre-feet per year.
3 - Total volume of pits in subbasin below groundwater table.
4 - Evaporation due to pits in subbasin, when full, equals 30 inches * area * 0.9, (Farnsworth et al, 1982)
5 - Sum of permitted pumping in subbasin.
6 - Numbers refer to Table 1.
7 - Inflow and outflow includes surface and groundwater.

Dynamics of Pit Refilling

This issue is the most nebulous to address at this level of study, therefore I have chosen to use information provided on the Gold Quarry mine (HCI, 1992). There are two issues to address. First, what is the volume of deficit created by the drawdown cone? Second, what is the actual rate of refilling of the pit and where does the water come from?

The total volume of the Gold Quarry drawdown cone is 7,327,000 acre-feet based on planimetering various contours in the EIS. HCI (1992) provides information about specific yield, but not in the form necessary for determining exactly the appropriate value. If S=0.01, the volume of deficit equals 73270 acre-feet. If S=0.05, the volume of deficit equals 366400 acre-feet which is more that twice the estimate pit water volume. This volume will be restored when the pit is full, therefore, the drawdown cone represents an additional large deficit. Based on this example, an assumption of 100 percent of the pit water volume is reasonable. Pit water volumes reported in Tables 1 and 2 do not include the volume of the drawdown cone.

The rate of pit refilling also affects the magnitude and timing of the effects on the surface water system. HCI (1992) estimated 18 years to refill 95 percent of Gold Quarry. ENSR and Drevor (1991) estimated over 100 years to fill the Betze Pit. I decided to use Gold Quarry data to bracket their estimate with a cursory sensitivity analysis[7] of the refilling. This level of study precludes computer modeling, so I used the Dupuit-Forcheimer assumptions and a stratified aquifer (Bear, 1979). I performed calculations with a spreadsheet model using the following equation from Bear (1979).

$$Q = K_1 a \frac{h_0 - h_L}{L} + \frac{K_2}{2L}\left[(h_0 - a)^2 - (h_L - a)^2\right]$$

Here, K_1 is conductivity of the confined aquifer (deep carbonate), K_2 is conductivity of the overlying fill, h_0 is head at the boundary away from the pit (1000 feet), h_L is head in the lake (the lake level with the bottom as base), L is distance to the boundary (distance from HCI (1992) to the 10 foot drawdown contour, and a is the thickness of the confined aquifer. This equation violates Dupuit-Forcheimer by causing converging and vertical flow near the pit. Because the perimeter is about

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[7] - Sensitivity analysis is a standard modeling procedure used most often in research. The theory is to test how much the results of the model changes due to change in one or more parameters. I changed the value of K because of its typical high uncertainty and the thickness of the deep carbonate aquifer where it intersects the pit.

18,000 feet, this equation violates the Dupuit-Forcheimer assumptions less than standard well formulas.

Hydraulic conductivities in the fill near the pit vary from less than 0.1 ft/day to almost 60 ft/day. For the sensitivity analysis, I varied K in the alluvium between 0.1, 1 and 10 feet/day. A portion of the recovery will come from the deep carbonate aquifer which the pit intersects and is the lower portion of the stratified aquifer in the equation. I tested sensitivity of this thickness by varying the thickness between either 100 or 300 feet [8]where it intersects the pit and a hydraulic conductivity of 0.2 or 2 feet/day. Table 3 provides a summary of the results. Figure 2 shows rates of flow from the surface alluvium for six of the scenarios in Table 3.

The results show the sensitivity to various parameters. Estimates in the EISs could be off by an order of magnitude. The figure shows the initial rate of flow from the alluvium could be near 25,000 acre-feet/year, but may be only 1000 acre-feet/year. Ninety percent of the flow may come from the deep carbonate aquifer which would imply little effect to the surface hydrology of the basin. However, as much as 98 percent could be from the alluvium. Time to a full reservoir varies from 8 to more than 150 years.

Table 3 - Comparison of Various Pit Refilling Scenarios

Scenario	K1(ft/d)	K2(ft/d)	a(ft)	V1(%)	V2(%)	T(years)
1	2	.1	300	93.2	6.8	98
2	2	1.0	300	59.1	40.1	60
3	2	10.0	300	12.9	87.1	12
4	2	.1	100	75.0	25.0	>150
5	2	1.0	100	24.7	75.3	74
6	2	10.0	100	3.2	96.8	10
7	0.2	10.0	100	0.3	99.7	10
8	0.2	1.0	100	3.2	96.8	95

K1 - Conductivity of the deep carbonate layer.
K2 - Conductivity of the alluvium.
a - Thickness of the deep carbonate layer.
V1 - Volume of flow from the deep carbonate layer.
V2 - Volume of flow from the alluvium.
T - Time till the pit is 95 percent flow.

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[8] - BLM (1994b) correctly points out that the deep carbonate aquifer is several thousand feet thick. But, only a small portion intersects the pit. The EIS shows about 300 feet in one cross-section, but I believe the thickness may be less and tested the sensitivity to it. Much of the water for refilling may come from deep carbonate; it is essential to have better knowledge of it.

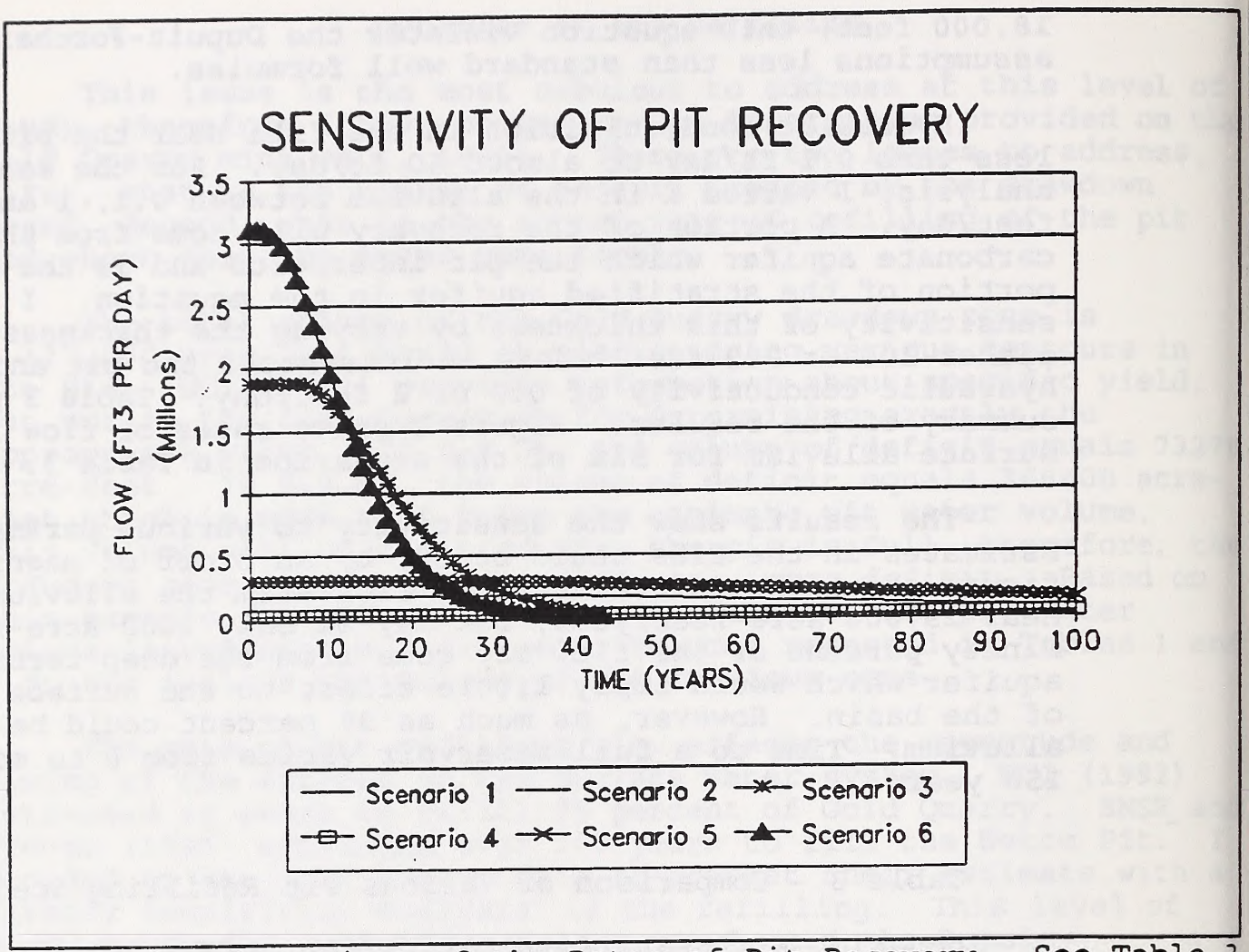

Figure 2 - Comparison of the Rates of Pit Recovery. See Table 3 for a description of the scenarios.

Conclusions

The largest hydrologic effect of open pit mining on the Humboldt River will occur when operations cease, pumping ends, and the pits and drawdown cones begin to refill. There is over 1,000,000 acre-feet of water required to fill this deficit based only on current and permitted projects. Refilling will essentially end all outflow from Maggie Creek and Boulder Creek basins. Because these basins contribute little flow to the Humboldt River, the main effect will be the gradient from the river to the pits. As the pits fill, the gradient will decrease and eventually reverse which will end the effects of pit refilling on the system. Local effects will be the drying up of most surface baseflow in the Maggie Creek and Boulder Creek basins, downstream of the mines. The river near Valmy will also be affected by the filling of Lone Tree and associated projects. The cumulative effect is potentially very large.

Pit dewatering causes deficits in the basin if discharged as surface water to the Humboldt River or if consumed in mining or milling operations. The major effect of this activity is in Maggie Creek basin. Up to 70000 acre-feet per year may be discharged to surface water for 7 years which creates a half million acre-feet deficit in the basin. Infiltration and irrigation projects cause a deficit by increasing the gradient toward the river which increases discharge from the basin and flow in the river. Precise assessment of this effect is difficult.

The effects on the downstream end of the Humboldt River are difficult to assess because of possible large groundwater storage which would buffer the flows. Buffering occurs by storing the increased flows during dewatering operations and returning it to the river during deficits caused by pit refilling. The upper limit to this storage is likely near 200,000 acre-feet and the total discharge is much higher than that. It is apparent there will be temporary increases downstream. The final deficit is near 1,000,000 acre-feet which also cannot be totally buffered by the storage.

Evaporation from the open surface of the pit lakes is not very important to the overall basin. However, in the Maggie Creek and Boulder Creek basin, additional evaporation may approach 5 percent of total flow. Initially, the other effects dwarf evaporation, but in the long run, an open pit lake will be like a large diameter well pumping several hundred to a thousand acre-feet per year.

Sensitivity analysis shows that local groundwater studies of drawdown near the mines are subject to a large assumption factor. Using baseline values from HCI (1992), a sensitivity analysis of Gold Quarry mine shows that refilling could vary from 8 to 150 years. The source of the water is also debatable with questions about contributions from the deep carbonate aquifer.

The final, and most important conclusion, is that we really do not know the cumulative effects of open pit mining and dewatering on the water balance of the Humboldt River basin. We do not know the effects on the riparian vegetation, wetlands or water rights. This report succeeds in demonstrating our lack of knowledge. Recommendations in the following section will help to fill our lack of knowledge.

Recommendations

The recommendations are for additional study of the cumulative effects of the open pit mining in the Humboldt River basin and potential remedial measures. The mining industry should fund the following:

1. An independent party should perform a regional groundwater modeling study on the entire basin. Until such a study is completed, the local studies done for individual mines are mere speculation. A regional study will provide the necessary boundary conditions for improving the local dewatering studies. The regional study should also assess the connectivity between the surface aquifers and the deep carbonate aquifer. As mentioned above, effects on the river are inversely correlated with the amount of water from deep carbonate.[9]

2. A regional study should also include each mine and set initial conditions, basinwide, for the effects of pit refilling.

3. Local studies on the dewatering effects of all pits should be accomplished after the regional study is complete. Boundary conditions will be set by the regional study thereby accounting for cumulative effects. This will allow estimation of the local effects that a regional study cannot provide.

4. Studies of the effect of drawdown cones on surface water sources should also be completed. Quantification of storage in alluvial aquifers and the buffering thus imparted should be completed. The cumulative effect on the Humboldt River basin should be estimated.

5. The mining companies should establish a procedure to compensate irrigators and municipalities for additional costs due to increased pumping lift and loss of surface rights. The cumulative groundwater model should establish an estimate of the losses.

6. All wetlands and riparian zones that may be affected by dewatering and recovery should be monitored. The groundwater modeling recommended above should locate potential problem sites. The monitoring should include funding of additional USGS gaging stations to adequately monitor the effects on surface flow.

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[9] - Comments from BLM, 1994a and b included reference to study currently underway by the US Geological Survey. I questioned several people and learned that the USGS is completing two reports. First, a water resources investigation of six basins near the Tuscarora Mountains will be completed in 1995. This report contains a conceptual groundwater model, but no computer analysis. The second report, expected in Fall, 1994, is a survey of existing mines and their volumes and dewatering rates compiled by hydrologic subbasin. It is not a computer model and will not be a predictive tool.

Finally, I emphasize one more time that the numbers in this report are an underestimate of the actual long-term mining impacts in the basin. Additional mines will be proposed and built and information about several mines was missing. A final recommendation is that the industry provide the public with details concerning future projects so that their effects may be included in the recommended studies.

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RESPONSE TO COMMENT F-1

Potential airborne concentrations of PM_{10} were modeled from point sources at the mill to evaluate significance of impacts. Significance of impacts was evaluated by comparing the modeled increase in PM_{10} associated with the Proposed Action, plus the background PM_{10} concentration, to national and state primary ambient air quality standards (which are the equal for PM_{10}). Primary ambient air quality standards are at levels that are specifically for the protection of human health, while the secondary standards (not used for significance determination) are at levels intended to protect property and vegetation. If any increase in PM_{10} emissions leads to ground-level concentrations that are below these ambient standards (significance criteria), then impacts are considered to be not significant. Maximum modeled cumulative concentrations were calculated to be below the standards and, therefore, were determined to be insignificant.

For PM_{10}, two primary standards exist: one for the 24-hour averaging period, and one for the annual average. One-hour concentrations of PM_{10} were not reported because there is no state or federal 1-hour ambient air quality standard for PM_{10}. However, 24-hour and annual concentrations of PM_{10} were modeled for comparison to the 24-hour and annual air quality standard. Model results show no exceedance of this standard. In addition, the background level used was the maximum monitored level found at the proposed project site, so the calculated total PM_{10} concentration was a conservative estimate.

Fugitive emissions of PM_{10} from mining and construction activities do not have a threshold because the NDEP does not regulate surface disturbances of PM_{10}. The NDEP requires that mitigation measures be used to minimize fugitive dust emissions. Mitigation measures discussed in Section 4.1.5 of the DEIS will be used to minimize fugitive dust emissions, as required by the NDEP.

RESPONSE TO COMMENT F-2

Refer to Response to Comment F-1.

RESPONSE TO COMMENT F-3

Gaseous emissions from vehicle traffic and equipment exhaust are summarized in Tables F-1 and F-2 at the end of these responses. (see Response to Comment F-5). Gaseous emissions from blasting are shown in Table F-3 at the end of these responses.

RESPONSE TO COMMENT F-4

According to the Pipeline Plan of Operations, diesel fuel to be used at the project site will average 4.2 million gallons per year. Dividing this figure by the fuel oil density of 7.25 pounds per gallon at 20° C amounts to slightly less than 30,500,000 pounds of fuel per year, as stated on page 2-27 of the FEIS. The correct average monthly usage is therefore 350,000 gallons. This is the expected fuel usage for the proposed action. The 100,000 gallon per month figure referred to on Page 2-7 of the DEIS is the fuel usage for the existing facility. Furthermore, air quality impacts from heavy duty diesel mining equipment were calculated based on hours of equipment use and not on fuel usage.

RESPONSE TO COMMENT F-5

Tables F-1 and F-2 at the end of these responses list the type, quantity, and hours of operation of equipment used in construction and operation, respectively. Emissions of particulate matter (PM), hydrocarbons (HC), carbon monoxide (CO), nitrogen dioxide (NO_2), and sulfur dioxide (SO_2) from construction and operational equipment exhaust are calculated and shown. These emission were calculated using emission factors for heavy-duty diesel-powered construction equipment contained in the EPA AP-42 Volume II.

The numbers of each type of heavy-duty vehicle are based on Table 3, page 24, of the 1992 Plan of Operations. Potential emissions shown in Table F-1, at the end of these responses, are based on annualized worst-case hours for the pre-production schedule. Potential emissions shown in Table F-2 are based on worst-case hours (out of a 12-year production schedule) for each equipment type.

Potential emissions of toxic compounds from diesel exhaust are summarized in Table F-4 at the end of these responses.. The compounds were obtained from the EPA particulate and organic speciation profiles for diesel fueled vehicles.

The NDEP does not regulate mobile sources associated with proposed projects as part of the permitting process for point sources of air pollution. As such, no evaluation of the significance of impacts is made for these emissions.

RESPONSE TO COMMENT F-6

Table F-5, at the end of these responses, shows the potential exhaust emissions from light-duty vehicles used in commuter trips. Based on the workforce and socioeconomics discussion in Section 2.9 of the 1992 Plan of Operations, the Pipeline gold deposit expansion will employ up to 70 additional employees. Increases in light-duty vehicular emissions would result from the additional employees working at the Pipeline project site. However, these emissions are not expected to be at the level shown in Table F-5 at the end of these responses (a conservative estimate), as 93 percent of the workforce will be brought by bus or van to the project site.

RESPONSE TO COMMENT F-7

Ground-level concentrations of mercury and arsenic were evaluated in the DEIS and found not to exceed Nevada ambient standards for those compounds. The Nevada ambient standards for toxics are intended for the protection of public health. Mercury and arsenic could be present in emissions from crushing and other milling and ore processing activities. Source tests conducted for the carbon reactivation kiln at the existing Cortez mill did not indicate the presence of

antimony. Fugitive dust from roads and overburden are not expected to contain elevated quantities of these toxics, as could the orebody itself.

RESPONSE TO COMMENT F-8

The DEIS shows that estimated mercury emissions were modeled as a fraction of the resulting PM_{10} ground-level concentrations, based on the percentage of mercury in the ore samples. The reported maximum modeled 8-hour concentration of mercury was 0.5 $\mu g/m^3$. This is less than half of the State air toxic ambient standard of 1.19 $\mu g/m^3$, , which is specifically for the protection of public health. The ambient standard for mercury is set so that any emissions below this level would not contribute to or cause any significant impact. The NDEP does not have an increment consumption for toxic air emissions. In general, increment consumption is characteristic of a PSD source of criteria pollutants.

RESPONSE TO COMMENT F-9

Section 3 of the DEIS discusses the type of atmospheric conditions that can be expected during the course of a year. Periods of unstable (good dispersion) and stable (poor dispersion) conditions are calculated by the model using actual meteorological parameters. The model calculates 1-hour, 24-hour, and annual calculations of PM_{10} for which periods of stable and unstable conditions exist. Model output concentrations are based on worst-case scenarios (poor dispersion) and comparison of the model outputs show that the proposed project impact concentrations would be below the 24-hour and annual ambient air quality standards for PM_{10} at the closest point of public access outside the property boundary. Modeled concentrations (including background) at a distance from the proposed Pipeline project site to about one mile southeast of the nearest residence are 9.7 $\mu g/m^3$ for an annual average and 53.1 $\mu g/m^3$ for a 24-hour average. The Nevada State Standards for PM_{10} are 50 $\mu g/m^3$ for an annual average and 150 $\mu g/m^3$ for a 24-hour average. These modeled concentrations are substantially lower than the state standards.

RESPONSE TO COMMENT F-10

At a point 1/2 mile southeast of the Proposed Action site (representing the nearest residence), the modeled 8-hour concentration of crystalline silica is 1.95 $\mu g/m^3$. This is below the former Nevada standard of 2.38 $\mu g/m^3$. Crystalline silica has not been conclusively classified by the EPA as a carcinogen; it is not on the EPA's list of Hazardous Air Pollutants and is no longer on the NDEP's list of toxic air pollutants for which standards exist.

RESPONSE TO COMMENT F-11

The Battle Mountain Air Basin is located 15 miles to the northwest of the Crescent Valley Air Basin and is separated by the Shoshone Mountain Range. Modeling results from the NDEP for existing sources at the Cortez facility show no pollutant impacts to the Battle Mountain Air Basin. Therefore, it is assumed that the Cortez facility would not have an effect on the air quality of the Battle Mountain Air Basin.

RESPONSE TO COMMENT F-12

Emissions of PM_{10} from mill processes, which were used in the modeling, were calculated directly from the given PM_{10} factor in AP-42 for the processes such as crushing, dry grinding, and material handling (Table 3.23-1). These were not calculated with the Total Particulate factor, then applying 36 percent to get PM_{10}.

The 36 percent figure was used to calculate PM_{10} emissions from fugitive dust factors for earthmoving, material transfer, and dirt road travel. The particle size multiplier for PM_{10} ranges from 22 percent (dirt road travel, AP-42 section 11.2.5) to 35 percent (material transfer, AP-42 section 11.2.3).

RESPONSE TO COMMENT F-13

The heavy-duty mining equipment that would be used at the Cortez Pipeline Project, and that is currently in use at the existing Cortez Gold Mine, is not designed to operate with low-pollution fuels. The use of enclosed conveyors to transport materials was considered as an operational alternative by Cortez in an early feasibility study. In-house evaluation determined that this

option did not meet the mine design criteria. However, exposed ore and overburden piles in haul trucks would be covered or water-sprayed to mitigate fugitive emissions. Road dust control measures include surface watering and/or chemical dust suppression. Watering is estimated to reduce dust emissions by 50 to 75 percent. Chemical dust suppression is through the use of dust palliatives (i.e., nontoxic, hydroscopic compounds such as $CaCl_2$ or $MgCl_2$) mixed with the water to increase moisture retention in the surface dust particles.

RESPONSE TO COMMENT F-14

Activities at the mine that would generate fugitive dust, such as travel over unpaved haul roads, are regulated under NDEP Surface Disturbance permits. The Surface Disturbance permit requires that fugitive dust from haul roads be controlled with water and chemical dust suppression (e.g., magnesium chloride). Both watering and chemical suppression would be applied in accordance with NDEP guidelines. These measures, discussed in Section 4.1.5 of the DEIS, are considered adequate to mitigate impacts, and paving of roads is not considered necessary.

RESPONSE TO COMMENT F-15

Blast hole drilling patterns would be designed to optimize production and cost. Holes would be stemmed with the aid of a stemming truck that would discharge gravel or crushed rock into the blastholes. Maximum vehicle speed is restricted to 45 mph. The use of dust control measures with a minimum control efficiency of 50 percent is proposed and will decrease the dust emissions from light vehicle use.

RESPONSE TO COMMENTS F-16 and F-17

The possibility of the infiltration ponds to become clogged with sediment with the subsequent creation of surface seeps is recognized. As stated in Section 2.2.2, page 2-19 of the DEIS, the infiltration system is designed to accommodate rotational operation. This method of operation incorporates a sufficiently large region that allows individual basins to be temporarily taken out of service for reconditioning and silt removal. If reconditioning and silt removal does not prove

to be beneficial in restoring the pond's original infiltration capacity, the method also allows for the pond to be altered or additional ponds to be created within this infiltration region, in order to maintain the required infiltration capacity and the planned water balance between withdrawal and infiltration.

RESPONSE TO COMMENT F-18

Refer to Response to Comment L-23.

The evaporative losses resulting from ponding of the pumped groundwater in the infiltration ponds will be relatively small. Using the proposed design area of 80 acres and applying an average evaporation rate of 44 inches/year from a free water surface for this region of Nevada (WMC 1995a), the annual evaporative loss from the infiltration pond areas would be approximately 300 acre-feet/year or would average about 186 gpm. This represents less than 1 percent of the total annual volume of groundwater to be infiltrated during the Proposed Action (48,300 acre-feet/year). As noted in the DEIS, infiltration tests suggested that only 20 acres were needed to handle the volume of water to be infiltrated under the Proposed Action.

RESPONSE TO COMMENT F-19

For further discussion of the infiltration plan and other infiltration alternatives that were considered, please refer to Section 2.4.2.2 of the FEIS.

RESPONSE TO COMMENT F-20

Please see revised text for additional details on size of area disturbed, reclamation requirements, and secondary discharge.

RESPONSE TO COMMENT F-21

This concern has been noted in Sections 4.4.2 and 4.4.3 of the DEIS. By optimizing the location of the infiltration ponds, a groundwater mound or divide would be effectively created.

This mound would minimize the lowering of the water table in the vicinity of the Cortez mine remediation pumps and would reduce the potential for inducing a hydraulic gradient that would cause contaminated groundwater to flow away from the mine. Monitoring of the water table elevation throughout dewatering operations will be required to evaluate the effectiveness of the proposed infiltration program on minimizing such an impact. For further clarification, refer to revised areas in Section 2 of Volume I of the FEIS.

RESPONSE TO COMMENT F-22

Refer to Response to Comments D-6, L-1, L-2, I-39, I-40, I-41, and M-8.

RESPONSE TO COMMENT F-23

With respect to the Pipeline Project, it is the BLM's position that the Pipeline Project will cause no direct or indirect impacts to the Humboldt River Basin. Therefore, the Pipeline Project will not cause any cumulative impacts to the Humboldt River Basin as a result of the project's dewatering program.

The BLM is in the process, in cooperation with the USGS and the mining industry, of preparing a second-phase study of the effects of mine dewatering on the Humboldt River Basin.

RESPONSE TO COMMENT F-24

The proposed leach pads and tailings impoundments will meet and/or exceed the NDEP statutory requirements for a "zero discharge" facility. These requirements were developed to ensure that waters of the state would not be degraded from industrial activities. The potential leakage of any process fluids will be detected by monitoring and reported to NDEP pursuant to the monitoring and reporting requirements stipulated by statute in the Water Pollution Control permit. Also, please refer to potential mitigation as described in Measure 4.4.5-3 of the FEIS.

RESPONSE TO COMMENT F-25

The materials mentioned in the comment consist of old Gold Acres solution pond liner materials that will be excavated and placed in the new lined tailings containment facility to prevent possible leaching of constituents into groundwater (see p. 2-14 of the DEIS). Other old mining wastes, including tailings material that would be removed during implementation of the Proposed Project, would be isolated from contact with surface water or infiltrating groundwater by selective placement within the new waste rock dump. These activities are clarified in Sections 2.0 and 4.4.4 of the FEIS. A table relating MWMT results of old waste deposits to their location and disposition that was inadvertently left out of the DEIS (Table 2.2-X referenced on page 2-13). These MWMT data are presented in Tables C-11 through C-16 in the FEIS.

It is acknowledged that baseline groundwater quality at the site does not meet drinking water standards in all samples. This condition could result from a number of potential reasons, including sample results from unfiltered borable samples that are not representative, naturally occurring water quality, or effects of past mining activities.

RESPONSE TO COMMENT F-26

See Response to Comments F-24 and D-12.

The term "zero-discharge" as it pertains to the discussion of potential leakage from the ore extraction and process facilities is somewhat misunderstood and has been clarified in the FEIS. As stated in Appendix E (pg. E-6) of the DEIS, while the composite liner system exceeds NDEP containment criteria for tailing impoundment, the system has finite permeability (usually on the order of 10^{-6} to 10^{-7} cm/sec), and considering the probability of standard defect occurrence and the time scale of the proposed operations, a small amount of leachate solution could be expected to leak through the liner. The applicant is committed to leak detection monitoring of the vadose zone at the interface of the composite liner and native soils, along with a plan for monitoring background groundwater quality around the proposed pit area and assessment of chemical stability of mined materials. If groundwater becomes impacted as a

result of leakage from these facilities, the applicant would be responsible for implementing a remedial program to abate the impacts.

RESPONSE TO COMMENT F-27

Leaching in tanks has no demonstrated environmental superiority to properly designed and operated heap leaching facilities. The design and operating plan for the proposed heap leaching facility provides primary and secondary containment of process materials with a leak detection and recovery system to monitor for leaks and prevent the buildup of hydraulic head above the secondary liner. When properly monitored, as proposed in Appendix E of the DEIS, these facilities adequately protect against releases of process materials to the environment at a much lower cost than would apply to leaching in tanks.

Vat leaching provides no advantage over heap leaching in controlling the emissions of substances currently regulated by the NDEP. Air emissions are a function of a substance's vapor pressure, solution temperature, solution flow and agitation, solution pH, control devices, and many other physical and chemical factors, not on whether the solution is in a tank or pond.

The proposed heap leaching facility includes properly designed and constructed fencing and netting over the solution ponds and collection ditches to exclude wildlife. The surface of the heap would be scarified to prevent the ponding of solutions, or drip emitters would be installed to distribute leach solutions below the heap surface away from wildlife. These measures are recognized by the NDOW as appropriate for the protection of wildlife.

RESPONSE TO COMMENT F-28

The socioeconomic impact analysis in the DEIS assumes that 10 percent of the project construction workers would be local. This is considered a worst-case analysis because under this assumption a large nonlocal construction workforce would immigrate to the region to fill the positions, and worst-case socioeconomic impacts associated with this large nonlocal workforce would occur. It is possible that the construction contract would be awarded to a local

construction contractor or contractors who would not bring a large number of nonlocal workers into the region.

Assuming 90 percent nonlocal construction workers, the DEIS analyzes the impact of school-aged students who would likely accompany these nonlocal workers, and notes that the increase would affect Elko County School District schools, which are already at capacity (page 4-66 of the DEIS). The applicant would assess the need for assistance as the project progresses. Under its current regulatory mandates, the BLM has no authority to require mitigation of a project's social or economic impacts to a region or city. The BLM may only identify those projected impacts and identify potential mitigation where possible. It is then up to the local governing entities and the proponent, brought together through the NEPA/EIS process, to work towards feasible mitigation of projected social and economic impacts.

RESPONSE TO COMMENT F-29

Cortez Gold Mines has an 18-person fire crew trained to State of Nevada Fire Fighting I standards. In addition, Cortez has coop agreements with the volunteer fire organizations in Crescent Valley and Beowawe. They can be activated through the 911 telephone system and be on site in 15 minutes and 35 minutes, respectively.

Cortez's fire equipment includes two fire-fighting trucks with respective capacities of 12,000 and 20,000 gallons, 14 sets of fire-fighting clothing, 6 self-contained breathing systems, thousands of feet of fire hose and nozzles; and fire-fighting foam is on site. The proposed Pipeline site will have an underground fire water system with fire hydrants in place at project start-up.

RESPONSE TO COMMENT F-30

The objectives of topsoil management include the prevention of erosion and the invasion of weeds. Although crested wheatgrass is not a native species, it has been used successfully in reclamation and range rehabilitation projects in many areas of the West, especially in low precipitation areas, to meet these objectives. Species such as crested wheatgrass typically

become established more rapidly than most native species, thereby competing with exotic weeds in a more timely fashion and holding the soil. Crested wheatgrass is an important forage plant that will establish very quickly, often under adverse conditions when other species will not. Species used to secure topsoil and maintain its biological viability are often different from those species used in final revegetation mixes (see Table 2.2-6).

RESPONSE TO COMMENT F-31

Potential impacts of the Pipeline project to riparian areas and wetlands could occur due to dewatering operations, not physical impacts due to the siting of the project. Mitigation measures for such potential dewatering impacts are discussed in Sections 4.4.5 and 4.5.3. In addition, see Response to Comment C-16.

TABLE F-1
EMISSIONS OF CRITERIA POLLUTANTS FROM DIESEL-POWERED CONSTRUCTION EQUIPMENT

Construction Phase

CONSTRUCTION EQUIPMENT			AP-42 VOL. II EMISSION FACTORS FOR SPECIFIC EQUIPMENT (Lb/Hr)					
Specific Equipment	Quantity	Equipment Usage Worst Case * (hours/year)	Equipment Classification	CO	Hydro-Carbons	NO2	SO2	articulate
13.0 CY FRONT LOADER	2	1,502	Wheeled Loader	0.572	0.250	1.890	0.182	0.172
25.0 CY HYDRAULIC SHOVEL	2	4,677	Wheeled Loader	0.572	0.250	1.890	0.182	0.172
HAUL TRUCKS (190 T)	15	92,897	Off-Highway Truc	1.794	0.192	4.166	0.454	0.256
BLASTHOLE DRILLS (50,000 l	5	27,112	Miscellaneous	0.675	0.152	1.691	0.143	0.139
TRACK DOZERS - D8N	2	17,690	Track-type Tractor	0.346	0.121	1.260	0.137	0.112
TRACK DOZERS - D10N	2	9,318	Track-type Tractor	0.346	0.121	1.260	0.137	0.112
RUBBER TIRE DOZER (450 hp)	1	6,813	Wheeled Loader	0.572	0.250	1.890	0.182	0.172
MOTOR GRADER (275 hp)	2	5,010	Motor Grader	0.151	0.040	0.713	0.086	0.061
WATER TRUCKS (50 T)	2	5,010	Off-Highway Truc	1.794	0.192	4.166	0.348	0.165

* Worst Case hours are based on the highest hours per year (annualized) from a 1.25 year pre-production construction schedule.

	CONSTRUCTION EXHAUST EMISSIONS (Tons/Year)						CONSTRUCTION EXHAUST EMISSIONS (Lbs/Day)				
	CO	ydro Carbons	NO2	SO2	articulate		CO	Hydro-Carbons	NO2	SO2	Particulate
13.0 CY FRONT LOADER	0.4	0.2	1.4	0.1	0.1		2.4	1.0	7.8	0.7	0.7
25.0 CY HYDRAULIC SHOVEL	1.3	0.6	4.4	0.4	0.4		7.3	3.2	24.2	2.3	2.2
HAUL TRUCKS (190 T)	83.3	8.9	193.5	21.1	11.9		456.6	48.9	1060.3	115.5	65.2
BLASTHOLE DRILLS (50,000 l	9.2	2.1	22.9	1.9	1.9		50.1	11.3	125.6	10.6	10.3
TRACK DOZERS - D8N	3.1	1.1	11.1	1.2	1.0		16.8	5.9	61.1	6.6	5.4
TRACK DOZERS - D10N	1.6	0.6	5.9	0.6	0.5		8.8	3.1	32.2	3.5	2.9
RUBBER TIRE DOZER (450 hp)	1.9	0.9	6.4	0.6	0.6		10.7	4.7	35.3	3.4	3.2
MOTOR GRADER (275 hp)	0.4	0.1	1.8	0.2	0.2		2.1	0.5	9.8	1.2	0.8
WATER TRUCKS (50 T)	4.5	0.5	10.4	0.9	0.4		24.6	2.6	57.2	4.8	2.3
Total:	105.7	14.8	257.9	27.1	17.0	Total:	579.4	81.2	1413.4	148.7	93.0

NOTES:

1) Daily emissions based on 365 days per year from the annual emissions
2) Emission factors obtained from AP-42, Volume II .

TABLE F-2
EMISSIONS OF CRITERIA POLLUTANTS FROM DIESEL-POWERED CONSTRUCTION EQUIPMENT

Production

CONSTRUCTION EQUIPMENT			AP-42 VOL. II EMISSION FACTORS FOR SPECIFIC EQUIPMENT (Lb/Hr -each)					
Specific Equipment	Quantity	Equipment Usage Worst Case * (hours/year)	Equipment Classification	CO	Hydro-Carbons	NO2	SO2	Particulate
13.0 CY FRONT LOADER	2	2,117	Wheeled Loader	0.572	0.250	1.890	0.182	0.172
25.0 CY HYDRAULIC SHOVELS	2	2,827	Wheeled Loader	0.572	0.250	1.890	0.182	0.172
HAUL TRUCKS (190 T)	15	73,201	Off-Highway Tru	1.794	0.192	4.166	0.454	0.256
BLASTHOLE DRILLS (50,000 lb)	5	20,638	Miscellaneous	0.675	0.152	1.691	0.143	0.139
TRACK DOZERS - D8N	2	11,912	Track-type Tracto	0.346	0.121	1.260	0.137	0.112
TRACK DOZERS - D10N	2	4,014	Track-type Tracto	0.346	0.121	1.260	0.137	0.112
RUBBER TIRE DOZER (450 hp)	1	5,458	Wheeled Loader	0.572	0.250	1.890	0.182	0.172
MOTOR GRADER (275 hp)	2	6,662	Motor Grader	0.151	0.040	0.713	0.086	0.061
WATER TRUCKS (50 T)	2	8,027	Off-Highway Tru	1.794	0.192	4.166	0.348	0.165

* Worst Case hours are based on the highest hours per year from a 12 year production schedule.

	PRODUCTION EXHAUST EMISSIONS (Tons/Year)						PRODUCTION EXHAUST EMISSIONS (Lbs/Day)				
	All Vehicles						All Vehicles				
	CO	ydro Carbons	NO2	SO2	articulate		CO	Hydro-Carbons	NO2	SO2	Particulate
13.0 CY FRONT LOADER	0.6	0.3	2.0	0.2	0.2		3.3	1.5	11.0	1.1	1.0
25.0 CY HYDRAULIC SHOVELS	0.8	0.4	2.7	0.3	0.2		4.4	1.9	14.6	1.4	1.3
HAUL TRUCKS (190 T)	65.7	7.0	152.5	16.6	9.4		359.8	38.5	835.5	91.1	51.3
BLASTHOLE DRILLS (50,000 lb)	7.0	1.6	17.4	1.5	1.4		38.2	8.6	95.6	8.1	7.9
TRACK DOZERS - D8N	2.1	0.7	7.5	0.8	0.7		11.3	3.9	41.1	4.5	3.7
TRACK DOZERS - D10N	0.7	0.2	2.5	0.3	0.2		3.8	1.3	13.9	1.5	1.2
RUBBER TIRE DOZER (450 hp)	1.6	0.7	5.2	0.5	0.5		8.6	3.7	28.3	2.7	2.6
MOTOR GRADER (275 hp)	0.5	0.1	2.4	0.3	0.2		2.8	0.7	13.0	1.6	1.1
WATER TRUCKS (50 T)	7.2	0.8	16.7	1.4	0.7		39.5	4.2	91.6	7.7	3.6
Total:	86.1	11.8	208.9	21.8	13.5	Total:	471.6	64.5	1144.6	119.5	73.7

NOTES:

1) Daily emissions based on 365 days per year from the annual emissions
2) Emission factors obtained from AP-42, Volume II .

TABLE F-3
Cortez Mine Pipeline Project
BLAST EMISSIONS

Pollutant	Emission Factor (lb/ton of explosive)	Explosive Usage (lb/ton rock)	Emissions (lb/ton of rock blasted)
CO	67	0.45	0.015
NOx	17	0.45	0.004

TABLE F-4
TOXIC EMISSIONS FROM DIESEL EXHAUST [a]

Pollutant	HC Emiss (lb/month)	PM Emiss (lb/mo)	% Wt. (/100)	% Wt.	Emissions (lb/month)
Aluminum		1222.28	0.00117	0.117	1.43
Silicon		1222.28	0.00245	0.245	2.99
Phosphorus		1222.28	0.00071	0.071	0.87
Chlorine		1222.28	0.00039	0.039	0.48
Chromium		1222.28	0.00002	0.002	0.02
Manganese		1222.28	0.00003	0.003	0.04
Iron		1222.28	0.00012	0.012	0.15
Nickel		1222.28	0.00001	0.001	0.01
Copper		1222.28	0.00006	0.006	0.07
Selenium		1222.28	0.00002	0.002	0.02
Bromine		1222.28	0.00005	0.005	0.06
Mercury		1222.28	0.00002	0.002	0.02
Lead		1222.28	0.00028	0.028	0.34
Formaldehyde	1191.2		0.0861	8.61	102.56
Acetaldehyde	1191.2		0.0291	2.91	34.66
Crotonaldehyde	1191.2		0.0101	1.01	12.03

[a] Estimated from particulate matter and hydrocarbon emissions, using EPA particulate and organic speciation profiles for diesel vehicles.

TABLE F-5
EXHAUST EMISSIONS OF CRITERIA POLLUTANTS FROM LIGHT DUTY VEHICLE COMMUTER TRIPS

Total New Vehicles = 70

Location	Percent Distribution of new Employees (%)	No. of Vehicles	Distance From Town (one way)	Total Round Trip per day (miles)	Equipment Classification	UNTAMPERED LIGHT DUTY VEHICLES (g/mile) CO	HC	NO2	SO2	PM
Elko	43	30	80	4,800	Light-Duty Vehicles	10.46	0.80	1.03	--	--
Carlin	18	13	50	1,300	Light-Duty Vehicles	10.46	0.80	1.03	--	--
Battle Mountain	8	6	55	660	Light-Duty Vehicles	10.46	0.80	1.03	--	--
Cresent Valley	31	22	6	264	Light-Duty Vehicles	10.46	0.80	1.03	--	--

Note: From AP-42 VOL. II EMISSION FACTORS Table 1.1.1A on page H-3 (g/ EPA AP-42 emission factors for SO2 and PM are not available
Assume vehicle mdel year 1985-89.

CORTEZ COMMUTER TRIP
LIGHT DUTY VEHICLE EXHAUST EMISSIONS (lbs/day)

	CO	HC	NO2	SO2	PM
Elko	110.6	8.5	10.9	--	--
Carlin	30.0	2.3	2.9	--	--
Battle Mountain	15.2	1.2	1.5	--	--
Cresent Valley	6.1	0.5	0.6	--	--
Total:	161.8	12.4	15.9	--	--

CORTEZ COMMUTER TRIP
LIGHT DUTY VEHICLE EXHAUST EMISSIONS (tons/

	CO	HC	NO2	SO2	PM
	20.2	1.5	2.0	--	--
	5.5	0.4	0.5	--	--
	2.8	0.2	0.3	--	--
	1.1	0.1	0.1	--	--
Total:	29.5	2.3	2.9	--	--

NOTES:

1) Annual emissions based on 365 days per

COMMENT LETTER G – HUMBOLDT RIVER BASIN WATER AUTHORITY

Comment Letter G

HUMBOLDT RIVER BASIN WATER AUTHORITY
C/O HUMBOLDT COUNTY COMMISSION
COUNTY COURTHOUSE
WINNEMUCCA, NEVADA 89445

November 4, 1994

Mr. Dave Davis
Bureau of Land Management
50 Bastian Road
P.O. Box 1420
Battle Mountain, NV 89820

RE: Comments to Cortez Pipeline Gold Deposit Environmental Impact Statement

Dear Mr. Davis:

On behalf of the Board of Directors of the Humboldt River Basin Water Authority (HRBWA), I am pleased to submit the following comments to the Cortez Pipeline Gold Deposit DEIS. The Authority's comments are limited primarily to the projects influence upon water resources within the Humboldt River basin.

Page 2-16, 2nd paragraph, 2nd and 3rd sentence - The text here indicates that Cortez intends to provide for a twenty-foot buffer in ground-water levels to protect against the potential for mine de-watering system shutdown in the event of power outages. Presumably, this twenty-foot buffer serves to exacerbate regional drawdown. The EIS however, does not indicate what incremental drawdown can be attributed to the twenty-foot safety margin. It does not appear that use of back-up power systems have been considered as an alternative to drawing down the water an additional twenty feet. Perhaps the cost of acquiring, operating and maintaining a back-up power system (ie. generators) may be less than the cost of de-watering to achieve the twenty-foot buffer, not to mention reducing effects of the cone-of-depression associated with the project. The EIS should consider the feasibility of using back-up power systems as an alternative to maintaining twenty feet of drawdown as a safety factor. Such an analysis should consider the regional impacts to hydrology and environmental conditions associated with the twenty-foot safety margin. Presumably, mine operations would benefit from the availability of a back-up power system. G-1

Page 4-21, 2nd paragraph - Here the text appropriately characterizes the large degree of uncertainty associated with predictions of regional hydrology under assumed conditions with and without the proposed action. It is not clear whether predictions of drawdown describe 25 percent or 100 percent (or any level in between) of predicted impacts. If the models are describing less than 100 percent G-2

of drawdown, than are proposed mitigation measures mitigating less than 100 percent of impacts. The EIS should make clear the degree of confidence placed upon estimates of drawdown. If less than 100 percent of impact is confidently predicted by the models than proposed mitigation measures should be over-designed to attempt to cover impacts likely to occur but not identified through the modelling system. Because of uncertainty associated with the hydrologic modeling system, the EIS should recognize the propensity for unanticipated impacts and include mitigation measures designed to minimize the consequences of such impacts. G-3

Page 4-29, 1st partial paragraph - The text here implies that mounding of groundwater is entirely a beneficial outcome of reinfiltration systems. However, an unanticipated outcome of mounding may be ponding of water on the land surface accompanied with evaporation losses of water. In addition, mounding may result in creation of wetland areas which result in unanticipated losses of water through evapotransporation. Creation of wetland habitats may also create institutional uncertainty and requirements for longterm commitments of water (to preserve created wetland areas) upon cessation of mine de-watering activities. Mounding of water should be viewed less desirably in the EIS. Reinfiltration resulting in mounding should be reconsidered as a potentially undesirable mitigation practice. G-4

Page 4-29, <u>Mitigation</u> - This section should include a commitment to provide the Nevada State Engineer with funding necessary to collect and analyze groundwater monitoring data. Data collection and analysis should not be left to project proponents, with simple reporting of results to the State Engineer. Because water resources are administered by, and protection of existing water right holders is the responsibility of the Nevada State Engineer, provision of funding to facilitate operation and maintenance of an effective monitoring system by the State should be included as a component of mitigation. Information collected by the State could be shared with BLM to enable protection of environmental conditions in the impacted area. G-5

Page 4-29, <u>Mitigation</u> - The proposal to offset existing water right holder water losses with water from de-watering operations may be institutionally infeasible. Mine de-watering is a temporary use, tied only to the life of the project. Once de-watering pumps are shut-down recovery of groundwater to pre-project levels would take many years (a precise estimate of recovery time was not apparent in the EIS, yet should be clearly stated). During this time existing water right holders would not have access to groundwater in a manner consistent with pre-project conditions (ie. pumping from greater depths) nor would project supplied de-watered water be available. G-6

The EIS does not consider the temporal consequences of impacts upon existing water right holders. The EIS does not provide sufficient mechanisms for mitigating post-project impacts to existing water right holders. Without a back-up power system supporting the project, how would existing water right holders be provided de-watered water under conditions of extended power outage and suspended de-watering operations? G-7

Pages 4-30, 4-31 and 4-46, Pit Water Quality Mitigation - While the proposed system for removing contaminated water and using it as make-up water for mining process operations should suffice during mine operations, how would potentially contaminated waters be dealt with following cessation of mining and de-watering activities? It is very probable that any concentrations of toxics in pit water might not occur until after cessation of mining operations. The EIS should provide a plan for intermediate to longterm (beyond the life of the mine) monitoring and remediation of unacceptable concentrations of toxics in pit water. G-8

Page 4-43, Mitigation of Effects of Lowering Water Table Upon Springs - The EIS should include consideration of improvement of other springs in the area to enhance flow reliability and availability for livestock and wildlife as a means to offset losses along Cooks Creek and springs at Rocky Pass. G-9

I trust these comments will serve to aide in improving the Cortez Pipeline Gold Project.

Sincerely,

Paul Miller

Paul Miller
Chairman

cc: Board of Directors, HRBWA

RESPONSE TO COMMENT G-1

Regardless of the provision for backup power during main system outage or failure, an engineering safety factor must be allowed for in planning any mine dewatering operation to reduce exposure of the open pit workforce and mine equipment to conditions of unexpected geotechnical instability. Until operational monitoring allows the pit wall stability conditions to be precisely known, it is contended that a 20-foot drawdown safety margin along the alluvial bedrock contact at the eastern perimeter of the pit is reasonable for planning purposes.

The 20-foot safety margin has its maximum effect on the groundwater level in the alluvial aquifer at the eastern margin of the open pit. A slight increase in the pumping rate (about 3 percent) is required to impose the vertical safety margin. Technically, any increase in pumping would also increase the drawdown observed at any point within the zone of depression as the radius of pumping influence expands to the recharge boundary, which satisfies the increased discharge rate. However, drawdown decreases from a maximum at the pumping center to zero at the recharge boundary. Therefore, there is no reason to analyze the effect of the safety margin established for this dewatering project on regional water resources. Infiltration is proposed as a means of controlling the radius of pumping influence by selectively introducing recharge and creating an artificial boundary, which prevents regional scale adverse drawdown effects.

RESPONSE TO COMMENT G-2

The paragraph referenced at page 4-21 discusses, very generally, the application and reliability of current techniques (analytical and numerical modeling) in evaluating mine dewatering requirements and related effects on hydrologic systems given reasonably obtainable data. No specific quantification of certainty is presented for the predictive models used to describe the proposed action, existing environment, or expected impacts. This is the reason for analyzing a

range of pumping stresses around the probable value of 30,000 gpm. Expanded model results presented in the FEIS assess impacts from a 55,000 gpm pumping rate. This is one of a number of conservative assumptions, since this pumping rate is 183 percent of the anticipated rate. The suggestion that a quantified relationship may exist between certainty of predicted pumping rates, aquifer response, and impact mitigation overly simplifies a complex system and is not meaningful. With the proposed reinfiltration program in place, a wide range of mine dewatering rates could be imposed with only slight variation in the resulting impacts on the hydrologic system.

A sensitivity analysis has been performed as part of the expanded modeling effort. Please refer to Section 4.4.2 of the revised FEIS for a summary of this expanded model. By individually changing the variables in the model while keeping the other variables unchanged, one can assess the relative impacts each variable has on the model output (i.e., the amount of drawdown) and, therefore, the relative confidence in the results. See related response I-49.

RESPONSE TO COMMENT G-3

The possibility of unanticipated impacts is generally recognized in the DEIS and is conservatively designed for in the mitigation measures proposed. In the case of potential drawdown impacts estimated by the hydrologic modeling, the applicant has recognized the potential uncertainties in the model results and has committed to monitoring the effectiveness of the infiltration system and ongoing evaluation of drawdown effects using a regional groundwater/surface water monitoring program. If regional monitoring shows impacts on water quantity or quality, the applicant has developed plans to mitigate the impacts, as described in Section 4.4.5 of the FEIS.

RESPONSE TO COMMENT G-4

As with any mitigation measure, there is always the possibility of some unanticipated outcomes, such as ponding of water on the land surface and subsequent evaporation, or the creation of wetlands areas. However, the flexibility inherent in the design and operation of the

infiltration areas will allow the infiltration system to be managed to minimize excessive evaporation and seepage at the ground surface. See related response F-17.

RESPONSE TO COMMENT G-5

Cortez will conduct monitoring as required by NDEP for a period of up to 30 years after closure. The NDEP may randomly sample the site at any time in an effort to verify Cortez's results. The cost of such random testing may be charged to Cortez.

Plans for a monitoring fund supplied by Cortez for the State of Nevada Engineer's office, as suggested by the comment, would have to be negotiated between Cortez and the Engineer's office. The BLM has no authority to mandate such an arrangement.

RESPONSE TO COMMENT G-6

Refer to Response to Comment D-11. Regarding predicted aquifer recovery and post-dewatering conditions, simulations from the expanded groundwater model are summarized in Section 4.4.3, subheading "Lowering of the Water Table Due to Pit Dewatering" in the FEIS.

RESPONSE TO COMMENT G-7

Refer to Responses to Comments G-1 and G-6.

In addition to the explanation provided in Responses G-1, G-6, and D-11, it should be noted that any power requirements associated with mitigation of water supply impairment would be the responsibility of the proponent. Related to the power availability issue:

> Temporary power outage - First, emergency backup power will be available during the operational phase of the project but there can be no guarantee on how this temporary power would be distributed (dewatering, fire water supply, milling operations, etc.) unless the circumstances creating the emergency situation are defined. Second, power service failures do not generally last more than 24 hours. Power service failures that

affect Cortez and its neighbors are the responsibility of the utility company. Therefore, Cortez would mitigate only to the extent practicable.

Post-Closure scenario - Although there are no indications from the impact analysis that a definite condition of impairment would exist prior to or after closure, any legitimate case of impairment would be mitigated by Cortez. If dewatering discharge was in use as a source of mitigation or replacement water supply and became unavailable, other means of supplying water to the impaired user would be provided by the proponent. Depending on the actual circumstances, measures such as well deepening or replacement (including pump and power supply) would be the responsibility of the proponent.

RESPONSE TO COMMENT G-8

Intermediate to long-term water quality degradation in the pit lake is a reasonably foreseeable impact addressed in the FEIS. Cortez has committed to funding a long-term monetary contingency and monitoring fund. See FEIS Section 4.4.5 for a discussion of mitigation measures.

RESPONSE TO COMMENT G-9

Impacts to Cooks Creek and springs at Rocky Pass are not expected to occur based upon the revised analysis as discussed in Section 4.4.2 of the FEIS. However, monitoring effects on spring flows and potential mitigation, including supplementing affected spring flows, are provided as described in Section 4.4.5 of the FEIS.

COMMENT LETTER H – NEVADA DEPARTMENT OF TRANSPORTATION

BOB MILLER
Governor

STATE OF NEVADA

JOHN P. COMEAUX
Director

Comment Letter H

DEPARTMENT OF ADMINISTRATION

Capitol Complex
Carson City, Nevada 89710
Fax (702) 687-3983
(702) 687-4065

November 2, 1994

Dave Davis
Pipeline Project EIS Team Leader
Bureau of Land Management
Battle Mountain District Office
50 Bastian Way
P O Box 1420
Battle Mountain NV 89820

Re: SAI NV# 95300032 Project: DEIS--Cortez Pipeline Gold Deposit

Dear Mr. Davis:

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

Sincerely,

Julie Butler, Coordinator
Nevada State Clearinghouse/SPOC

JB/jbw
Enclosure

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION
1263 S. Stewart Street
Carson City, Nevada 89712

BOB MILLER, Governor

GARTH F. DULL, P.E., Director

October 26, 1994

In Reply Refer to:

Julie Butler, Coordinator
Nevada State Clearinghouse
Department of Administration
Budget Division
Blasdel Building, Room 204
Carson City, Nevada 89701

PSD 7.02

Dear Ms. Butler:

The Nevada Department of Transportation has reviewed the project titled Cortez Pipeline Gold Deposit Draft Environmental Impact Statement, SAI #95300032.

Based on the information submitted we have the following comments on the proposed project.

Cortez has requested abandonment of a portion of SR 306 through NDOT. It is alluded to on Page 4-70 and the map on Page 2-69. Although operations will shift from the east side of the valley to the west side, we do not believe the impacts will be significant, once the construction is completed. H-

Thank you for the opportunity to review this project.

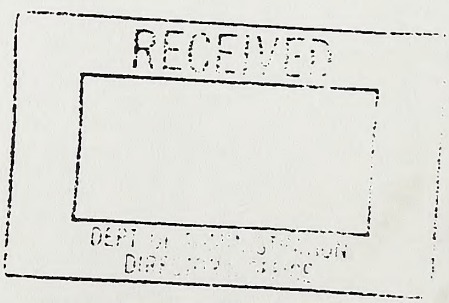
Sincerely,

Thomas J. Fronapfel

Thomas J. Fronapfel, P.E.
Assistant Director - Planning

TJF:JWC:nc

cc: Don Callahan
Don Pray



RESPONSE TO COMMENT H-1

Comment noted.

Comment Letter I

The Toiyabe Chapter of the Sierra Club

Nevada and Eastern California
PO Box 8096, Reno, NV 89507

RECEIVED
MAIL ROOM
1994 NOV -7 P 3:11
BUREAU OF LAND MANAGEMENT
BATTLE MOUNTAIN DISTRICT

One Earth, One Chance.

Nov. 3, 1994

Bureau of Land Management
Attn: Dave Davis
50 Bastian Road
P.O. Box 1420
Battle Mountain, NV 89820

RE: CORTEZ PIPELINE GOLD DEPOSIT DRAFT ENVIRONMENTAL IMPACT STATEMENT

Dear Mr. Davis:

The following comments are submitted on behalf of the Toiyabe Chapter of the Sierra Club, the Citizen Alert Native American Program and Mr. Maynard Alves, a rancher in Crescent Valley. These groups and individuals have substantial concerns regarding the adequacy of the Pipeline Draft Environmental Impact Statement and offer the following comments.

I. Compliance with the National Environmental Policy Act

The Draft Environmental Impact Statement (DEIS) for the Pipeline project of Placer Dome does not meet the intent or requirements of the National Environmental Policy Act (NEPA). It also contains numerous errors and misinterpretations of the data that render the document insufficient to meet the standards required for assessing the impacts of this proposal and alternatives to the proposal.

1. The EIS does not consider in detail any alternatives, as required in NEPA. Section 102(2) (E) of NEPA requires federal agencies to

> "study, develop and describe appropriate alternatives to recommended courses of action in any proposal which involved unresolved conflicts concerning alternative uses of available resources." 42 U.S.C. 4332 (2) (E).

I-1

The CEQ regulations (40 CFR 1502.14) refer to this requirement as the "heart of the environmental impact statement" and demand that agencies "rigorously explore and

objectively evaluate all reasonable alternatives" and "devote substantial treatment to each alternative considered. . . so that reviewers may evaluate their comparative merits." This EIS considers only the proposed action in detail, and includes the strawman "no action" alternative. Eleven alternatives were mentioned, but discarded after less than one page of discussion each. I-1

This project will have a substantial impact on the surrounding groundwater system. Alternatives to the proposed project include a mixture of reinjection wells and surface infiltration systems, substitution of the mine water for agricultural water, or purchase and retirement of other water rights to compensate for the loss of the water from the pit.

Refilling the pit was not given serious attention. That alternative, although costly, is credible. Refilling some of the other pits in the area is also a potential alternative. Refilling to the water line would reduce the water deficit created by the pit and should have been considered. Because of groundwater problems, this alternative may ultimately be required. I-2

The major alternative not considered is the option of the South Pipeline expansion. It appears that this alternative will ultimately be selected. It should be analyzed in the EIS. If Placer Dome chooses not to continue with that expansion, then the alternative presented as the only viable alternative in the DEIS would still have received a full analysis, but if they choose the option of expansion south, then the option would have already have gone through the NEPA analyses. I-3

Because no analysis of alternatives was conducted, the BLM is left with no decision to make. This document violates NEPA and should be rewritten from the beginning. In this regard, the summary section (pages v-vix) is misleading, in that the alternatives presented were not considered. I-4

2. The overall analysis is written as an apologetic for the mining proponent, rather than as an analysis of the impacts. For example, the Water Management Consultant studies (WMC 1992b and WMC 1993) appear to have been the primary, if not exclusive, source of information for the EIS. These studies were conducted prior to the BLM decision to produce an EIS for the mine, and were almost certainly directed and paid for by the mine proponent. This method of developing the most critical data for the major impact of the mine is fraught with conflict of interest, since the consultant's continuing financial success is based on the acceptance of the report by the mine proponent. We recognize that consultants are critically important to the production of an analysis of this type, and the wildlife and surface impact analysis is generally good. However, the tone of the document regarding the critical issues of water quality and water quantity does not give the reviewer any confidence that a critical analysis was performed by an unbiased writer. Because the Nevada BLM lacks appropriately trained staff able to review the chemistry and hydrology of a complicated problem like this, the public is left to trust a study bought and directed by the company. Evidence for this lack of review is presented below, and consists of errors, I-5

omissions and poor data interpretation. As part of a rewrite of the DEIS, the BLM should require a complete review, and recommendations for correction of those studies. I-5

3. The BLM has not performed a cumulative impact analysis of this and past, present and likely future actions, as required by NEPA. Two major deficiencies exist in this regard. This mine is within the Humboldt River Basin, and has an impact on the total water budget of the Humboldt Basin. The impacts of this mine on the Humboldt River need to be assessed in relation to other mines in the Basin. Until this analysis has been completed, no additional mines should be permitted, including this mine. I-6 Second, the South Pipeline project is a mine that is really part of the present Pipeline mine. It is the same pit, and will be mined at essentially the same time (beginning 1995-98). The lack of an analysis of this mine as it relates to the present Pipeline project is a major deficiency of the EIS. How will it affect pumping rates? How will it affect the pit water quality since it is a sulfide ore (p. 5-12). How much water volume will this expansion add to the total Pipeline pit. It appears to effectively double the size and may, in total, contain on the order of 150,000 acre-feet of water, which is an additional impact on the groundwater basin. I-7 The DEIS only very briefly discusses this expansion, but it should be considered as part of this EIS. Dewatering from other projects in the valley are also not considered as part of this analysis, particularly the Cortez expansion. We are very concerned that the Battle Mountain District will issue a decision on the present Pipeline Pit, and then do a brief EA on the South Pipeline pit, and state that all of the issues were effectively analyzed in the present EIS. During the rewrite of the DEIS, the entire operation needs to be considered as a total mine.

II. **Cultural Resources**

The document inadequately addresses cultural resources. The cultural inventory is not even summarized. The statement that the EIS consultation identified no areas of traditional or religious importance to Native Americans is unsubstantiated. I-8

III. **Threatened, Endangered and Sensitive Species**

This mine will impact many springs in the surrounding area. Northern Nevada has a large diversity of endemic species of snails, according to Dr. Gary Vinyard at the Department of Biology, University of Nevada, Reno. Although many, if not most, of these snails have not been characterized in detail, they should be examined in the springs potentially impacted by this mine. I-9 This impact could be substantial and result in loss of species that have not even been described. Other organisms in these springs may be similarly impacted. No discussion was presented on spring wildlife, other than for those larger organisms that use the springs for watering.

With this mine, significant acreage of wetlands will potentially be impacted, both by direct removal of springs, but also by removal of water resulting in loss of those springs. What I-10

mitigation is being proposed for this loss? A 404 permit from the Army Corps of Engineers should be required, but no mention is made of this permit. I-10

IV. **Heap Leach and Tailings Closure**

The most significant problem of the previous three years regarding heap leach decommissioning is the potential for release of contaminants other than WAD cyanide. These include arsenic, selenium, fluoride, sulfate, mercury and other heavy metals. No discussion was made of any of these substances. Although cyanide can be oxidized efficiently, these other contaminants are elements, and are not easily removed. Yet, they pose a substantial long-term risk because the heaps are a potential source of large tonnage of some of these contaminants. Because the heaps will be on public lands, the BLM will then be required to pay for long-term management of a contaminated site and the public will pay the bill. I-11

The EIS should specify what concentrations of each of these contaminants will be allowed in drainage water from the heaps. It is insufficient to state that the state regulates these contaminants. The decision is a federal decision, and the BLM must take responsibility for ensuring that the closure of these operations does not pose a long-term risk. If those regulations are not yet in place, the BLM should take a conservative approach and use drinking water standards, or aquatic habitat standards for setting the water quality that will be required prior to closure.

The document attempts to delegate to the state the regulatory responsibility of protecting the environment. For example on page 2-32, second paragraph, the statement is made that "The heap leach cell would be decommissioned in accordance with NDEP regulations and guidance for closure." That statement is not an analysis of impacts nor does it reveal what the impacts of the proposed action are. It simply turns over responsibility to the state, and is inconsistent with NEPA. Those regulations should clearly be stated, as well as the impacts and a plan for closure which includes standards for decommissioning. I-12

On the bottom of the second paragraph, the statement is made that ponds will be allowed to rest undisturbed so that WAD and free cyanide will degrade naturally. What happens to the cyanide. Does it volatilize? What about the more stable metal cyanide complexes? What about the other contaminants that do not degrade? I-13

One of the most glaring problems with this discussion (p 2-32) is the statement on the last line of the third paragraph which suggests that "alternative" decommissioning procedures would be discussed with NDEP. This statement appears to suggest leaving the heap as is. The statement should be removed, and replaced with a statement that "Failure to meet the specified standards for contaminants in the heap rinses will result in revocation of the reclamation bond, followed by further action to recover the costs for ultimate decontamination of the heaps." I-14

The residue at the bottom of the ponds is likely to contain a large amount of contaminants that have either precipitated (i.e., metal cyanide complexes) or result from evaporation of the water. The document should clearly specify what will be done with those materials. They potentially would be classified as hazardous wastes, and should be handled as such. If they are to be handled as per NDEP regulations, the document should clearly state what those regulations are. If the material is to be removed and hauled to a disposal site, that site should be specified. Will the Elko landfill accept a very large tonnage of sludge that contains fluoride, cyanide complexes, mercury, arsenic and other contaminants? Or will the material be disposed on site? The discussion is vague and gives no basis for estimating the impact. The reader is left the uncomfortable feeling that Placer Dome wants to be able to negotiate the issue down the road when the mine is closing. Newmont, a major owner of the Dawn mine in Washington, has problems closing that site and currently is threatening bankruptcy of the separate corporation if they are required to complete an adequate reclamation of the site. Unless those decommissioning procedures are clearly specified, this Canadian mining company may do exactly the same thing. The Fury Mine on the Toiyabe Forest was owned by a Canadian company that left a heap that was never rinsed. They skipped on an inadequate bond and are unwilling to come back to clean up their mess. I-15

The document on page 2-33 and 2-34 indicates again that monitoring and closure of wells is left to the discretion of NDEP or the State Engineer. Again, that is not an analysis, but an abdication of responsibility. The EIS should clearly indicate what those procedures and standards will be. In several places in the DEIS, statements are made that NDEP requirements will be followed. Each of those should be specified, as well as the enforcement action that will be taken if these are violated. Designs for meeting those requirements should also be described. I-16

As stated on page 2-37, NDEP prohibits creation of an impoundment (open pit) which has the potential to degrade groundwater. This pit is almost certain to degrade groundwater, if for no other reason than it will mix good water with bad, and the contaminants in the impounded water will increase in concentration due to evapoconcentration. Thus, this pit cannot be legally permitted. I-17

The slope stability discussion on page 2-37 is not convincing, for two reasons. First, the Berkeley pit in Montana has over 90 feet of fill at the bottom, which indicates a high degree of instability. Second, reactions in the rock and water movement through the pit potentially can weaken the walls and allow substantial sloughing. The experience of Placer Dome at the Golden Sunlight mine is not good. They had substantial earth movement that was not predicted. I-18

V. Reclamation

1. The standards for reclamation are weak and have no basis in federal law. This company has a good record at the Bald Mountain mine, and has clearly demonstrated that over 100 percent of the adjacent land productivity and diversity can be obtained. Why has I-19

the BLM gone for the low 50 percent standard? The Federal Land Policy and Management Act requires the agency to prevent "undue and unnecessary degradation" of the public land. Accepting anything less than 100 percent is unnecessary, since the 100 percent standard can be easily obtained. The company should be required to bring the land back to near that of the ecological potential. I-19

2. No discussion is presented on how the reclamation bond was calculated. This vague discussion is entirely unsatisfactory. Although the State of Nevada cannot require a bond for heap decommissioning, the BLM is required to bond for complete reclamation. The one-sentence statement on the cost estimate does not provide any indication of what that bond covers or how it will be administered, and it is unlikely that it will be sufficient for heap decommissioning if rinsing is required. How will the bond be held? Since the state does not bond for heap rinsing, the BLM needs to establish a separate bond, which should be a full bond for the costs and not allow for the "corporate guarantee" allowed by the state. The BLM should use standard federal methods for bonding. A clear and detailed discussion of how the bond was developed, who will hold the bond and what are the release criteria must be provided. This is central to assessing impacts. I-20

VI. **Water Quality**

1. The statements that the reinjection water quality will be good are not supported. Data from test wells in the pit area (presumably) are shown in Appendix C. However, we were unable to locate a map that indicates where those wells are located. It is also entirely I-21

unclear how the assessment was made that "The potential for impacts to groundwater quality in reinfiltration areas is low because reinfiltration water quality is expected to be good." This is in direct contrast to the data presented in Appendix C, which clearly show that EPA National Drinking Water Standards are exceeded in several of the wells, and marginal in the rest. For example, (page C-32) Hole PL49 at 680 feet exceeds standards for mercury, selenium, fluoride, nitrate-nitrogen, TDS, sulfate and iron. A potential error exists in these data since the analyses listed for this sample are identical to Hole PL45 at 680 feet. Also, the detection limit for mercury in Hole PL49 at 960 feet is greater than the national drinking water standard. No units are included on that table. We are surprised that such a strong statement on the reinjected water quality is made with data that contains I-22

errors and omissions. But in general, drinking water standards are exceeded for fluoride and TDS. Selenium standards are nearly exceeded, as are mercury concentrations in several cases. If one assumes a 10 percent evapoconcentration factor, i.e. 10 percent of the water evaporates from the infiltration ponds, the concentration of mercury and selenium is increased in the water that actually enters the groundwater and violates drinking water standards in some cases. I-23

Table C-5 shows that the NDEP standard for nickel is 0.0134 mg/L, but the limit of detection for nickel in most of the data presented is 0.015 mg/L. The drinking water standard for thallium is 0.013 mg/L, but the limit of detection is 0.15 mg/L. The data are thus insufficient to make a determination of whether the water quality for these two I-24

elements will meet the standards. Nickel clearly violated drinking water standards for PL-45 at 800". It was not even measured in several of the water samples. I-24

Table C-3 is very difficult to interpret, since the location of the wells is not given and the method for reporting the data are unclear. But if one assumes that the data represent concentrations of each analyte, the "Pipeline Water Quality" is extremely poor for nearly every water sample examined for arsenic and manganese, and a large number of wells for mercury, cadmium, lead and nickel. Each of these contaminants is quite toxic and mercury, cadmium and lead, in particular, are known to bioaccumulate. I-25

The tables in this appendix lack any uniform method of reporting the data, errors exist and, at a minimum, fail to support any statements that the reinjection water quality will be good. Based on a harsher interpretation of those tables, the "good water quality" statement is a gross distortion. I-26

Because drinking water standards are violated in wells that would presumably be at the level of the dewatering wells, direct reinfiltration of that water is illegal, since NAC 445.221 (Sec. 39) requires that "A facility, regardless of size or type, may not degrade the water of the state to the extent that . . . . For ground water: (a) the quality is lowered below a state or federal regulation prescribing standards for drinking water." I-27

It is unclear how the discussion on page 4-26 could be based on the data in the EIS. Much of the water that will be taken from deep wells is poor quality, so the statements indicating no impact must be based on a different set of data. I-28

The fracturing of the rock in the pit area is likely to increase the contaminants in the water. Table C-6 indicates that water held in association with rock from the well borings shows increased concentrations of fluoride, arsenic, iron, mercury and selenium. I-29

Finally, the DEIS recognizes that the potential for groundwater quality problems exist in the reinfiltration area, particularly with TDS (fluoride is not mentioned). If the monitoring results show that "reinfiltration water is of sufficiently poor quality to degrade groundwater . . . , then mitigation measures would include chemical pretreatment (if natural precipitation of dissolved compounds is insufficient) such as flocculation basins to reduce TDS in water flowing into infiltration areas." This statement is unsupported and probably wrong. Does the mining company really propose to treat 30,000 gallons/minute with a flocculating agent? How do they think that "natural precipitation" will work, since the water is in equilibrium with solid phases in the ground? This use of jargon clouds a very difficult and expensive treatment problem. I-30

Groundwater in the area of the mine receives only very minor recharge from present surface infiltration. During geologic time, evaporation of water from those areas has concentrated salts in the soils. When water is infiltrated through those soils, the salts will be dissolved and transported to the groundwater. Thus, the activity of reinfiltration of water from the dewatering operation is likely to significantly increase the salinity (TDS) of I-31

the groundwater, and is another potential violation of Nevada water law. This issue will require an assessment of the salinity of the soils in the reinfiltration of the soils, and an assessment of the tonnage of salts that will be delivered to groundwater. How will this increase in salinity affect agricultural use of the water. The alternative of reinjection wells into deep groundwater systems needs to be assessed as a very legitimate option. I-31

The DEIS should simply state that the law will be followed. Water cannot be discharged to groundwater that will degrade that groundwater. If they cannot economically treat the water, they do not have a mine. The very serious problem that exists in this discussion, as in other parts of the EIS, is that vague statements are made regarding enviromental protection, without any real quantitative enforcement standards. The BLM in this case has released a document for a project that is likely to violate state and federal law. I-32

2. No substantive analysis is provided for assessing pit water quality. The EIS states that "NDEP regulations prohibit creation of an impoundment which has the potential to degrade groundwater as a result of mining below the water table." But the rest of the discussion on Pit Lake Water Quality (4-39 and 4-40) appears to be no more than a hope that the water quality will somehow not be degraded. The DEIS indicates that PHREEQE was used to model the pit water quality, but gave no specifics on how that was accomplished. The inference is that this model successfully can model pit water quality, which is a distortion of what it can do. PHREEQE is simply an equilibrium model that calculates ionic species in solution. Mixing two types of water with different chemistry will produce a new water quality. PHREEQE can model a large number of cations, anions and associated mineral phases. But it does not do well with the trace minerals, many of which are the toxic contaminants of greatest concern. It is thus helpful, but in no way will it model post-closure pit water quality with any reliability. It has no ability to model evaporation, biological activity, and interactions with rock walls. I-33

The pit lake is likely to be stratified, as are most of the pits of this depth. Stratification is likely to produce anoxic portions of the pits which will have a substantial impact on arsenic and iron species in the pit lake. Recent work on Canadian uranium mines has also shown that salinity gradients can be established in pit lakes which do not mix. There is a very great possibility that this pit will become a major source of contamination downgradient from the pit. A full assessment of the pit lake water quality should include an assessment of the inflow water quality, evapoconcentration of salts, wall-rock interactions, limnology of the lake, redox state of the stratified/unstratifed lake, and the contaminants which will (potentially) violate drinking water standards. I-34

Based on the data in appendix C, the water quality in the pits is likely to be poor. Simply allowing for evapoconcentration of contaminants, water that is already poor will be made worse, and will be a source of contamination to groundwater downgradient. Fluoride and TDS standards will almost certainly be violated, and far exceed the "potential degradation" standard. It is thus illegal to allow this pit to remain as a lake, based on the data in the EIS. The bond should thus include sufficient funds for refilling the pit, and remediating any groundwater contamination that is likely to occur. Finally, the pit water quality can I-35

only be assessed in relation to the total pit, and must include the water in the South Pipeline project. This expansion contains a higher level of sulfides and is likely to contribute significantly to the contaminants in the lake. I-35

The EIS implies that acid mine drainage (AMD) is the only problem. However, several other water quality parameters are important, which have nothing to do with AMD. Fluoride, TDS and the oxyanions of arsenic and selenium are not directly dependent on AMD production. It is also worth noting that the samples that were tested for acid production were obtained from the higher (and presumably more oxidized) rock. The deep ore is generally less oxidized and AMD production is more likely. Also, it is worth noting the South Pipeline ore is predominantly sulfide ore, which suggests that all may not be well when the expansion is developed. The acid base accounting results did not evaluate the acid potential of this expansion, or for that matter, rock in the deepest portion of the Pipeline pit, where the potential for sulfides (generally) is higher than in the unoxidized rock. We do not argue that the Pipeline Pit will be acidic; however, it appears probable that the water quality will be degraded. I-36

VII. Water Quantity

The comments in this section pertain both to the DEIS and the summary provided by the BLM which was referenced on page 3-14 of the DEIS. The summary supposedly provides the background to the final results presented in the DEIS, therefore the comments necessarily overlap. Unfortunately, inadequate information was made available to completely review the summary report, since it relied heavily on other reports. Many statements are made referring simply to tables in other reports, which were not available to the reviewer.

However, a general comment is that the connection between the DEIS and summary is not immediately clear, and figures in the DEIS are not developed in the summary. For example, the analysis leading to drawdown cones on Fig. 4.4-4,4, and 5 of the DEIS is not discussed in the summary. Figure 4.1 of the summary is a general representation of the same data, but the DEIS figures do not include drawdown in the bedrock and the summary does not include multiple pumping rates. Specific comments follow: I-37a

1. Both the DEIS and summary state that impacts on local water rights holders, riparian areas, springs and the Humboldt River are minimal because all of the water will be reinfiltrated in the basin. Therefore, the efficacy of the infiltration basins is most important. The testing performed and reported in the summary (Chapter 5) states that all of the water from the pump tests was successfully discharged into the borrow pit. Assuming that 2300 gpm infiltrated without ponding in a 40,000 square foot pit, the maximum rate is about 11 feet/day. The DEIS reports 7 feet/ day. At the beginning of recharge, before the water reaches the water table, the rate is approximately equal to the vertical hydraulic conductivity. Either value is extremely high, especially compared to the reported conductivities of 0.1 to 10 feet/day. Vertical conductivity is usually much less than horizontal in alluvial material. The summary does not report how much ponding occurred (thus leading to additional head) or how much lateral flow occurred (thus I-37b

reducing the observed vertical conductivity substantially). The test pit was 15 feet deep, therefore substantial ponding could have occurred. There also were no observation wells nearby to determine the extent of horizontal flow. We therefore question the adequacy of the test performed to design the infiltration basins. The infiltration ponds at Echo Bay were sized far too small initially, and we question whether the same result will be found for this project. I-37b

The investigation of the infiltration basins also does not include any discussion of layers of lower conductivity near the proposed ponds. Most groundwater textbooks recommend substantial drilling programs at these locations to assess whether the initial rates can be maintained. A layer of low conductivity, such as clay, will cause the infiltrating water to back up. This causes a mound to form which will eventually flood into the basin. The studies performed for these ponds are totally inadequate for assessing whether the extremely high rates may be maintained. The presence of observation wells near the pit would have allowed the designers to assess whether mounding occurred near the test. I-38

In general, infiltration basins should be upgradient from the pit rather than between the pit and the Humboldt River (HR). Pumping water from the pit and infiltrating five miles closer to the HR seems to just shorten the flow time to the river, since it will increase the gradient of flow toward the HR. If infiltration is to be used, it should be upgradient south of the proposed project, not one quarter of the distance to the river. I-39

The BLM should evaluate a variety of options which minimize salinity introduction into the groundwater, which maximize the uses by the nearby agricultural users and have a minimum disturbance to the groundwater system. This will logically require pumping some of the water for irrigation to replace agricultural water which can be left in the ground, reinjection of water through deep wells, and other facilities appropriately placed to minimize the change in groundwater flows. I-40

The analyses does not provide any level of confidence that agricultural rights in the valley will be protected. If the water level in wells drops, or if artesian wells cease to flow, who will have the burden to prove the cause of these impacts. As implied in the DEIS (we believe incorrectly), impacts on agricultural users are expected to be small. If those impacts occur, as we believe, how will the BLM establish who should shoulder that impact. A clear test well plan should be in place prior to pumping so that the cause for impacts on water resources can be established. The mitigation measures should include an agreement by Placer Dome to replace the water of a similar quality and quantity if loss of water occurs to any water rights holder or critical wildlife habitat. I-41

2. The DEIS states there will be no effect on the Humboldt River because: (a) the pit is so far from the river and (b), the infiltration basins, as required by the state engineer, are designed so that all pumped water will stay in the basin. However, (a) the volume of the mound beneath the infiltration basin is only about 20% of the drawdown cone and only about 10% of the sum of the drawdown cone and the volume of the pit (based on planimetering the contours of Fig. 4.4-4 of the DEIS); so where is the water being stored in the basin? In other words, the results of the models indicate the water is not being retained. How can the accompanying discussion claim that it is retained? (b) The GW model is only run for 12 years (as stated in the DEIS, but the summary talks about 10 years) but there is no estimate of the pit refilling time, which is the time of impact on the I-42

Humboldt River. Which model time is correct, the DEIS or summary? How can the claim be made that there will be no effect on the river when the model is not run long enough? It should be extended for several decades, and include the effects of evaporation and other cumulative withdrawals in the valley. I-42

The infiltration basins also cause a substantial amount of water to be lost to the basin by wetting previously dry, unsaturated zone soil. In simple terms, the soil between the infiltration basins and the water table is very dry. When infiltration begins, the soil will become wet. A substantial amount of water will become bound to soil particles and will not be available to any of the users in the basin. There will be thousands of acre-feet of water lost to users in this fashion. The DEIS should provide an estimate of this loss. I-43

3. The DEIS defines the zone of impact as the 20 foot drawdown contours, thereby stating that impacts occur only to about 5 to 7 miles from the pit. Experience shows that the 10-foot contour will extend several more miles. A 10-foot drawdown will dry springs as much as a 20-foot drawdown. Other EISs (for Barrick's Goldstrike and Newmont's Gold Quarry) presented the 10-foot line. These should also be modeled over a much longer time period. I-44

4. The pump tests, reported in the summary, are totally inadequate. First, there were only two tests performed. The pumping periods overlapped which, as admitted in the summary, confused the interpretation of the results. Second, tests were not performed to determine transmissivities near the Humboldt River. The summary states that conductivities near the pit are much higher than in nearby areas. There is a substantial likelihood that values vary greatly across the valley. Yet, only two tests of different layers of aquifer were performed, and these overlapped. Pump tests should be completed throughout the valley to better model flow conditions. Variation of conductivity should substantially affect the water levels and flow from the basin. I-45

5. There is almost no information on the GW model presented in the DEIS, other than the final contours for three scenarios and a gross model of the finite difference grid. No discussion of boundary conditions, grid thickness, number of layers, maps of hydraulic conductivity, bedrock/alluvial connections are provided. No maps of transient conditions were presented, which would describe contours at several time periods into the project. The DEIS states that 30,000 gpm will be reached in 2 years and continue for the duration (this does not match the summary). We have trouble conceiving of the aquifer conditions which would allow such rapid stabilization of pumping, especially when the drawdown becomes deeper. There is no discussion of how the pit is modeled, that is, how the grid elements are removed from the model. I-46

The summary provides only a little information about the groundwater model, called the subregional model. The grid spacing and thickness appears adequate for this valley. But nothing else is adequate. As discussed above, the hydraulic conductivities or transmissivities, as appropriate, are based on improperly completed pump tests. Calibration is performed by running a steady state model (that is a model without simulating pumping or a model assuming pumping has occurred for an infinite time period) I-47

to match the observed groundwater elevations. The summary does not state which variables were adjusted to minimize the errors. Were they conductivities, recharge rates, boundary conditions or what? A sensitivity analysis for the steady state condition showed very little sensitivity of groundwater elevations to changed aquifer conditions. This is no surprise since elevations are fixed at several points, such as the river, and the gradient is extremely small. The summary does not report the amount of change in the discharge to the Humboldt River, as it should, which is probably substantial. The calibration of this model is therefore inadequate. The reporting of the sensitivity of the aquifer to various parameters is also inadequate.

I-47

The transient analysis used aquifer conditions determined by the steady state calibration (and, presumably, the pump tests). Time steps varied from one day to six months for the first year and were yearly afterwards. For a project like this, where pumping rates are so high, there is no reason for such high time steps. Recharge and ET vary throughout the year. The model should use much smaller time steps.

The model is run for only 10 years (or is it 12 as reported in the DEIS?) which is far from sufficient for determining whether there will be effects on the Humboldt River. There will be, on the order of, 150,000 acre-feet of pit volume below the water table which will refill once pumping ceases. There is no estimate of refill time in either the DEIS or summary. The total outflow from Crescent Valley, according to previous state reports, is less than 1000 acre/feet year. Thus, evapotranspiration almost balances precipitation. Where will the water to refill the pit come from? Even if the volume of the groundwater mounds created by infiltration ponds equals the drawdown cone, the pit is one large void. Prior to mining, the pit was less than 1 percent water, after mining ceases, the pit will be 100 percent water. As stated, this is 150,000 acre-feet of new water, and not water that was pumped during the dewatering operation allegedly stored in the basin by infiltration.

I-48

There is no sensitivity analysis performed in the transient state. In these conditions, the choice of aquifer properties is much more important. Therefore, designers, and the public, need to know the probabilities that given drawdowns will occur. A sensitivity analysis should be used to provide confidence limits around the predicted pumping rates and drawdown cones. The best way to perform a sensitivity analysis is by statistically altering the parameters in each cell according a given probability distribution. The model is then run many times to determine a series of predictions from which confidence limits may be determined. Without this, the public is forced to accept the modelers judgment.

I-49

The hydraulic conductivity used in the model, as discussed in the summary, is much higher than reported in the DEIS and its variability across the modeled area. The DEIS reports that conductivity varies from 0.15 to 110 ft/day for the carbonate aquifer and from 0.1 to 10 ft/day for the older alluvium. The model used 11.6 ft/day for a substantial portion of layer 2 near the center of the valley and 3.8 feet/day near edges. Values used for layer 3 are mostly much less than 0.15 feet/day. Why do the modeled conductivity's differ so much from the values reported in DEIS? The skewed parameters would cause a much smaller drawdown cone in the model and generate a substantial bias in the final results.

I-50

Because of the small amount of alluvium near the pit, it also underpredicts the pumping rates.

The same holds for aquifer thicknesses (which seem based on limited holes which exhibit wide variation). The thickness of alluvium at the pit is reportedly quite small; but accurate knowledge is very important for the estimate of dewatering (and refill) rates. The thickness is quite large in the center of the valley. Neither the DEIS or the summary provide information on the modeled thicknesses. I-51

The results of the model are basically just a contour map of drawdowns. We request that future discussion provide a hydrograph of flows across the northern boundary, in order to better understand the effect on the Humboldt River. This should be done also for the sensitivity analysis so that the public can see just how little is known about flow from the basin. I-52

Basically, the groundwater modeling in the EIS and summary is just "trust us". It does not consider pit refilling which is when the largest impact on the Humboldt River will occur. Very little information is supplied. The DEIS just provides a few maps of the final results.

6. Cumulative dewatering in the basin is not addressed other than to acknowledge that expansion of the existing Cortez mine may go below the water table, thereby requiring dewatering. The same is true for the South Pipeline deposit which is apparently quite large. The proposed pit is about 150,000 acre-feet below the water table; with drawdown the total volume will be about 300,000 acre-feet. With additional projects, it appears that the total volumes will approach 750,000 acre-feet or more in just the Crescent Valley. This valley may be impacted much more than Maggie Creek or Boulder Valley to the north. This is especially true considering the low groundwater recharge and bounded conditions in Crescent Valley. I-53

7. In the entire section on groundwater recharge in the DEIS, there is no statement of annual recharge. The summary reports that 8,000 M Gallons recharge from precipitation each year. This equals 24500 acre-feet and if applied to the entire basin (say 240 square miles) equals 0.15 feet/year or 4x10-4 feet/day. This is much larger than reported in Figure 3.12. Which is correct? I-54

8. This basin is clearly a case where long-term pit evaporation is a major concern. With a surface area near 240-400+ acres and an evaporation rate of 3 feet/year, evaporation equals 3-6% percent of annual recharge. The cumulative effect of other projects evaporation will approach 10 percent of the total recharge. The new evaporation exceeds outflow since the outflow from the basin is less than 1000 acre-feet/year. I-55

The EIS states that precipitation on the water surface counters some of the evaporation. This contribution, however, is negligible, since the pit is in the low precipitation zone where almost no water recharges by infiltration. Most water just wets the unsaturated zone to be eventually transpired. The only significant recharge in the valley will come from heavy showers that result in Hortonian overland flow to the ephemeral washes. The I-56

amount of water in washes allows significant recharge in some cases. Also, water stored in an aquifer is generally protected from evapotranspiration; a large open pit is a direct link between the aquifer and atmosphere. It is likely that the pit will be a significant region for loss of groundwater over the long term. I-56

Neither the DEIS nor the summary report address effects to water rights and local riparian and aquatic resources adequately. The DEIS states that the maximum permitted pumpage is 49,000 acre-feet/year with a duty of 22,000 acre-feet/year. It then goes on to say that no rights will be affected. I-57

Actually, water rights will be affected in several ways. First, dewatering and reinfiltration will increase gradients from the basin and, regardless of the assurances in the DEIS, some water will be lost to the basin. Second, in the long run, the volume in the pit will be filled which will decrease basin storage. This will occur even if infiltration basins work perfectly. Third, there will be an amount of water lost due to wetting the unsaturated zone beneath the infiltration basins. The volume depends on the lateral flow from the basins, but could approach the volume of the pit. Fourth, evaporation from a full pit will be a long-term loss to water storage in the basin. The cumulative effect of all mines in the basin will probably exceed 3000 acre-feet/year which is 14 percent of the annual duty. This will occur regardless of mitigation procedures. I-58

Neither report adequately addresses effects on the flow of the Humboldt River. The current flow from the basin to the river is less than 1000 acre-feet/year. This project is likely to reduce this substantially. However, the potential exists for the project to cause the flow to reverse such that the Humboldt River begins to recharge Crescent Valley. The pit bottom is below elevation 4250 and the river near Beowawe is at 4600. Thus, a gradient of 350 feet in 24 miles is conceivable as the pit refills. Even if reinfiltration refills the drawdown cone, there is still 150,000 acre-feet which will be recharged from somewhere. The summary claimed that boundaries on the west, south and east, excepting Rocky Pass, are impermeable, so the flow will come from somewhere. Our best guess is that it will be the Humboldt River. I-59

This raises the question of cumulative effects of mining on the Humboldt River in general. Too little is known about the cumulative effects of mining on the complex geology in the Humboldt River basin. How much overlap of drawdown cones is there between nearby mines? How much flow to refill all of the mines in the basin will come from the river? Too much is unknown to allow the permitting of any new mines until the questions are answered. Based on the hydrologic and geologic uncertainties, new mines should not be permitted until studies are completed answering these questions. I-60

IX. page 4-58 What are "strategic location techniques"? With all due respect, this sounds like bureaucratic double talk. The entire section on mitigation of visual impacts should be removed, or replaced with quantifiable and enforceable standards. Otherwise, this section is a waste of paper and only empty promises. Where in the plan of operations or the DEIS does there exist an example of when these methods are to be employed? Will I-61

the BLM require concurrent reclamation to test various methods for reducing visual impacts and demonstrating reclamation success?

In conclusion we feel that the DEIS for the Pipeline Project does not adequately assess impacts, does not provide for appropriate mitigation, will potentially violate Nevada laws, and potentially has a serious impact on people and the environment in the surrounding area. The DEIS needs to be rewritten with additional new data, and an alternative selected which does not violate laws or seriously impact other users of the public lands.

Thank you for the opportunity to provide these comments.

Sincerely,

Lois Snedden, Chair
Toiyabe Chapter of the Sierra Club

cc: Maynard Alves
Citizen Alert Native American Program
Sierra Club Legal Defense Fund

RESPONSE TO COMMENT I-1

Please refer to Responses to Comments C-10, I-4, and Table 2.2-9 of Volume I of the FEIS for a discussion of the alternatives considered and those eliminated from detailed evaluation.

RESPONSE TO COMMENT I-2

Please refer to Response to Comment C-10 and Section 2.4.2.3 of Volume I of the FEIS for a discussion of pit backfilling. In addition, the technical support document documenting the engineering and cost analysis for pit backfilling is available for review as described in Section 3.02.

RESPONSE TO COMMENT I-3

The South Pipeline Expansion is not an alternative to the present proposal but is a reasonably foreseeable development as presented in Chapter 5.0. The cumulative impacts resulting from the South Pipeline Expansion are presented in Chapter 5.0 at a level of detail that is possible based on conceptual information. If detailed engineering is submitted to the BLM in the form of a Plan of Operations for South Pipeline, additional environmental documentation would be required.

RESPONSE TO COMMENT I-4

The BLM does not agree with the Sierra Club's position presented in this comment. It is the BLM's position that extensive reviews were carried out and several alternatives were considered in the development of the Pipeline EIS and project, as noted in Section 2.0 of both the Draft and Final EISs. As noted in several other comment responses, the BLM maintains that with respect to alternative formulation, this agency has followed all established procedures

from the Council on Environmental Quality (CEQ), the Department of Interior, and its own NEPA guidelines.

In alternative formulation, an agency must first consider the proponent's purpose and need for the proposal. In the case of the Pipeline Project, the development of a new open pit mine immediately limits the number of true alternatives (as defined and discussed by CEQ in its Forty Most Asked Questions brochure) that would meet the purpose and need of the proponent. Cortez, through engineering and economic analysis, immediately limited certain possible sub-alternatives to the proposed action. These included various mill scenarios, underground mining, etc.

Facility location scenarios were limited for a number of reasons. These reasons included:

(1) The homogeneity of the soils and vegetation. Impact analysis, with the exception of minor variations in air quality and economic considerations, would vary little if at all due to the location of the Pipeline ore body in Crescent Valley. Relocating the mill, waste dumps, or tailings/heap facility would have similar impacts, except as noted above, no matter where the location occurred.

(2) The State of Nevada imposes geotechnical and hydrological constraints on certain facilities in their pollution control permits; those laws also mandate certain criteria for location of facilities. Depth to groundwater, proximity to known geologic faults, depth of soils, etc., all contribute to narrowing the available site location possibilities.

(3) As per BLM, CEQ, and Departmental guidelines, the BLM is charged with working with all proponents of projects on Public Lands to actively pursue input into proposals so as to limit environmental impacts. The Battle Mountain BLM and Cortez worked closely together, within all the other constraining factors, in developing the Pipeline Project.

(4) Finally, the location of the ore body is fixed. It cannot be moved, as can, for example, a highway or power plant. Considering that the proposal is an economic venture, and

CEQ specifically directs (again see CEQ's Forty Most Asked Questions brochure) that the economics of a proponent's proposal must be considered in alternative formulation, viable alternatives, due to the fixed location of the ore body, are limited.

When all these factors are considered, keeping in mind the purpose and need of the proponent's proposal, the number of true alternatives available for analysis were limited.

Please see the earlier Commenter I responses with respect to the Sierra Club's concerns related to backfilling the Pipeline open pit, as well as responses to the comments by the U.S. EPA (Commenter D) on alternative formulation and analysis.

RESPONSE TO COMMENT I-5

With respect to the DEIS: The BLM recognized the lack of expertise needed for review of the baseline data and administrative DEIS early on in developing the Pipeline EIS. Lacking a BLM employee with expertise in the requisite fields, the Battle Mountain BLM Office approached a number of respected scientists in the consulting business as well as recognized academia to fulfill a peer review of Cortez's baseline data. Requisites for selection included: knowledge or expertise in open-pit mining; experience and expertise in major dewatering projects; knowledge of hydrochemistry and geochemistry issues and interactions; knowledge of and expertise in hydrological computer modeling; and experience in fractured rock flow modeling. Great Basin experience was also needed.

The Pipeline Project manager interviewed several candidates for the position. Ultimately, Drs. Leland Mink of the University of Idaho's Water Resources Institute (the Director of the Institute), Dale Ralston of the University of Idaho's College of Mines and Earth Resources, and David Allman, retired from the University of Idaho, were selected. These three Ph.Ds have a combined experience of over 50 years in the above-mentioned fields. Their biographical sketches were included in the DEIS, Section 6.0.

Thus, the BLM *did* have the expertise to prepare and review all aspects of the information submitted by Cortez and its consultants.

With respect to the FEIS: The comments generated by the public's review of the DEIS raised a number of issues with respect to the analysis presented on hydrology in the DEIS.

In response to the public comments on the DEIS, the BLM: (1) assigned Dr. Tom Olsen of the BLM's Denver Service Center to serve as the interdisciplinary team member for all hydrology issues (hydrogeology and geochemistry issues), (2) re-evaluated all aspects of the hydrology resources presented in the DEIS. The results of these efforts may be found in the water resources section, Chapter 4.0 of the FEIS.

RESPONSE TO COMMENT I-6

The cumulative impact analysis is presented in Section 5.0 of the DEIS. Hydrologic analyses in the DEIS and the expanded groundwater model summarized in Volume I of the FEIS show no effect on the Humboldt River. This is because the Humboldt River is on the opposite end of Crescent Valley from the Proposed Project, hydrologic effects are attenuated by the presence of a natural groundwater discharge area in the central part of the valley, and because of the reinfiltration of most of the groundwater pumped to dewater the mine. Therefore, the Pipeline Project would not contribute to cumulative impacts to the Humboldt River.

RESPONSE TO COMMENT I-7

The Sierra Club has raised a number of questions in this comment. The responses are presented in the same order that the Sierra Club posed the questions.

First, refer to the BLM's response to a similar comment from the EPA, Comment Letter D.

The South Pipeline deposit is an ore body discovered by Cortez during step-out drilling around the Pipeline Deposit. The discovery of the South Pipeline deposit was announced during the course of preparation of the Pipeline Project DEIS. Extensive work is required by Cortez related to any development of the South Pipeline. While the potential for the South Pipeline is categorized by Cortez as favorable, there has been no Plan of Operations for development for

that deposit. Since there is no development plan before the BLM for the South Pipeline, the BLM's only recourse is to present the public with what may be "reasonably foreseeable" for development. The analysis presented in Chapter 5.0 of the DEIS was and remains at this writing the best information the BLM had or has on the South Pipeline. Numerous court rulings have directed federal agencies that they need not "crystal ball" the future; rather they need only submit for analysis what is "reasonably foreseeable." In that context, the cumulative analysis that was presented in the Pipeline Project DEIS and now in the FEIS meets all BLM and court-mandated procedural guidelines.

Should Cortez decide, through extensive engineering, economic, and feasibility studies that the South Pipeline is a viable economic venture, the BLM and Nevada Department of Environmental Protection will require a Plan of Operations for that development. The BLM will also require an adequate environmental analysis before considering approval of that operation. The level of that analysis will be determined after review of the submitted Plan of Operations.

According to information supplied by Cortez, the South Pipeline is NOT the same ore body as the Pipeline. The South Pipeline is located on the same mineral "trend" as is the Pipeline. The two deposits (caveated with the understanding that Cortez and the BLM have currently) indicate that if the South Pipeline becomes a viable open pit, there will be a common high wall between the two pits. Our understanding at this time also indicates that the high wall will be mined to an elevation below its current surface elevation. This does imply that one large pit lake would form after closure should both pits be mined.

The groundwater pumping rate of 55,000 gpm was used for analysis of the Pipeline Pit. As noted in Volume I of the FEIS, this is expected to be the highest pumping rate (based on pump tests and modeling) that could be expected if both mines were put into production at the same time.

The reader has confused the South Pipeline reasonably foreseeable development scenario (pages 5-9 and -10 of the DEIS) with what was known about the Mule Canyon project (represented by the large mine scenario on page 5-12). The mine on page 5-12 represents the

Santa Fe Pacific Gold Corporation's Mule Canyon Development, located on the Argenta Rim, several miles to the north of the proposed Pipeline Project. At the writing of the DEIS, Santa Fe had not submitted a Plan of Operations for the Mule Canyon Project. The presentation on page 5-12 of the DEIS was the best information the BLM had on the project at the time.

As stated above, the 55,000 gpm figure was used to account for dewatering both the Pipeline and South Pipeline Pits.

The Cortez Expansion did not propose any dewatering; therefore, it could not be contributing to any direct or indirect impacts, and thus no cumulative impacts from dewatering in Crescent Valley.

The only other known mine dewatering in Crescent Valley occurred at the old Cortez Pit. That dewatering effort shut down several years ago.

RESPONSE TO COMMENT I-8

In Section 3.11 of the DEIS for the Cortez Pipeline Gold Deposit project, reference is made to the Class III cultural resources inventory for 3,454 acres which encompass an area that includes the lands identified for the Proposed Project area. It is noted that no National Register eligible properties were found in conjunction with the inventory. These findings are further discussed in Section 3.11.1 of the same document. The reader is also directed to Section 3.11 of the Cortez Expansion DEIS, to which the Pipeline Gold Deposit DEIS is tiered, for a more detailed discussion of general cultural resources baseline conditions in the area.

In accordance with BLM Native American consultation guidelines set forth in BLM Manual 8160 and Handbook H-8160-1, a comprehensive Native American consultation program was conducted from March through May 1995 specifically for the Cortez Pipeline Gold Deposit FEIS. The results of this consultation effort are described in Sections 3.11.3 and 4.11 of Volume I of this FEIS. The consultation by the project ethnographer involved direct discussion with approximately 30 Western Shoshone or Newe people. A site visit for tribal elders was

conducted in April 1995 to provide an opportunity for individuals to identify specific locations that might be of traditional or religious significance.

RESPONSE TO COMMENT I-9

An endemic snail survey was conducted in cooperation with Mark Ports of the Western Nevada Community College in Elko, in late 1994. The genus *Pyrgulopsis*, the springsnails, which includes endemic Great Basin snails, was only found at a single location in the mountainous portion of the cumulative assessment area, outside the area potentially affected by drawdown. Other snail genera found in the study area are common and widespread. The details of these surveys are presented in the Seep and Spring Snail Survey Report (JBR 1995) and in Section 3.6 of the FEIS.

While extensive wetland habitats do not currently occur in or near the project area, the reinfiltration ponds proposed for this project may attract various shorebird species, including the candidate, category 2 white-faced ibis. The endangered bald eagle could also be attracted to these ponds during the winter and/or during migration. Refer to Appendix H of the FEIS for further information on wildlife observations.

RESPONSE TO COMMENT I-10

No springs will be directly removed. See Section 4.5.2 of the FEIS for further clarification of indirect impacts and discussion of a 404 permit.

RESPONSE TO COMMENT I-11

Decommissioning of heap leach pads includes repeated rinsing and monitoring. The leachate is contained and treated to prevent releases to waters of the state and exposure to wildlife. Concentrations of metals including arsenic, selenium, fluoride, sulfate, and mercury would be specified by NDEP in the final closure plan based on local background and MWMT tests of the spent ore to prevent degradation of waters of the state. The concentration standards would be

based on drinking water MCLs, background, and/or existing or potential beneficial water uses. See related response C-3.

In addition, Section 3.3 of the "Pipeline Gold Project Use of the HELP Model to Predict Seepage from the Reclaimed Heap Leach/Tailing Storage Facility" describes the proposed tentative closure plan submitted to NDEP.

RESPONSE TO COMMENT I-12

Refer to Responses to Comments C-3, C-4, and C-5.

RESPONSE TO COMMENT I-13

The natural degradation of cyanide primarily occurs by volatilization of HCN. HCN is ultimately oxidized in the atmosphere to carbon dioxide (CO_2) and ammonia (NH_3) by hydroxyl radicals. Endemic bacteria in the heap also break down cyanide through metabolism. Other constituents that do not naturally degrade will be addressed through rinsing and/or alternative treatment methods, as dictated by the conditions existing at the time of closure (see Response to Comment C-4 for alternate methods). The more stable cyanide complexes, such as those with iron, do not disassociate under most ambient heap conditions and hence will not release cyanide into the environment due to their chemical stability.

RESPONSE TO COMMENT I-14

Refer to Response to Comment C-4.

RESPONSE TO COMMENT I-15

Process pond residue will be sampled as specified in EPA guidance document SW-846 (Methods for the Sampling and Analysis of Wastes) and analyzed by the TCLP (Toxicity Characteristic Leaching Procedure) method for RCRA constituents. If the materials are determined to be RCRA hazardous wastes, they will be properly disposed of in a permitted

RCRA TSDF (Treatment, Storage and Disposal Facility). If the materials are not RCRA hazardous wastes, they will be managed on site pond sludge in permitted engineered containment facilities. Cortez has properly closed one heap leach solution pond and found the sludge material to be low in volume (less that one cubic yard) and of suitable chemical characteristic to permit final storage in waste units located on-site (tailing impoundment). Also refer to Response to Comment C-6.

If materials do not meet NDEP standards, a company may attempt to show that contaminated draindown solutions will not degrade waters of the State. For example, this could be done by showing the distance to groundwater or degree of attenuation achieved in the intervening materials. If it can be shown that waters will not be degraded, then the site may be closed without removing such materials.

RESPONSE TO COMMENT I-16

The discussion in Chapter 2.0 (Project Description) of the DEIS is not meant to be an analysis of impacts. Impacts associated with the project are addressed in the FEIS Section 4.0. Monitoring requirements and closure of wells are clearly spelled out in the appropriate permit applications and will be expanded upon in the closure plan. It should be noted that CEQ regulations specifically state that a Federal Agency's EIS not reproduce material such as Federal or State statute, or regulations that are readily available to the general public. The NDEP regulations fall under these guidelines. The reader may obtain copies of these regulations/statutes from the NDEP.

RESPONSE TO COMMENT I-17

Additional hydrochemical modeling has been performed since the completion of the DEIS. (See Section 4.4.4 of Volume I of the FEIS.) Predictions of near-term and long-term pit lake water quality indicate that some pit lake water constituents are likely to increase relative to baseline conditions. The pit lake would be a water of the State of Nevada, and applicable water quality standards would depend on the present and potential beneficial uses of the lake. Access to the pit by humans and livestock would be restricted. The lake is not intended to be a

drinking water source for humans or livestock or to be used for recreational purposes. Therefore, standards to protect these present beneficial uses are not applicable. Aquatic standards are also not applicable since the pit lake will not be stocked with fish.

Although it is concluded that present beneficial uses described above would not apply to the pit lake, Nevada law prohibits the creation of pit lakes that have potential to degrade waters of the state (Nevada Administrative Code 445.2435). Therefore, since there is some potential for degradation to future beneficial uses, the impact is considered potentially significant. In the event future beneficial uses are threatened, a surety fund has been established to provide for future monitoring and corrective actions. This fund is discussed in Section 2.2.8 of Volume I of the FEIS.

RESPONSE TO COMMENT I-18

The Berkeley pit located at the old Anaconda Company's Butte Operations is not analogous to the proposed Pipeline pit due to significant variations in rock types, major geologic structure and stratigraphy, failure plane orientation, geotechnical considerations in pit design and excavation, and groundwater conditions. Wall erosion resulting from undiverted surface drainage and percolating waters have contributed to the eroded material accumulated in the Berkeley pit.

Citing the occurrence of unpredicted ground movement at the Golden Sunlight Mine is inappropriate because that particular geologic foundation stability condition has little or no practical relationship to the analysis of ultimate open pit wall stability for the Pipeline project. The geologic conditions found at the Golden Sunlight Mine are not the same as those existing in the Pipeline area.

Safety factors are imposed on the design of the open pit to ensure wall stability during operations. Operational monitoring allows the actual wall stability conditions to be precisely known.

RESPONSE TO COMMENT I-19

The Nevada Interim Standards for Successful Revegetation include the following statements: "The revegetation release criteria for reclaimed mine sites will be to achieve as close to 100 percent of the perennial plant cover of selected vegetation communities or reference areas as possible. Unless extreme site conditions exist at the mine site, the release criteria should not normally be lower than 50 percent and would normally be expected to be 100 percent of the perennial plant cover or the selected vegetation communities." The BLM will expect Cortez to make a reasonable effort to achieve a good perennial plant cover. The final success criteria will be up to the NDEP and BLM. The BLM can ask Cortez to repeat their efforts if seeding does not achieve success criteria as stipulated by the BLM and NDEP. Cereal rye, which responds quickly to moisture, will be seeded along with crested wheatgrass as a temporary cover crop. The stubble of temporary cover crops provides protection and a firm seedbed for the grasses. Winter grains seeded late in spring or spring grains seeded early in summer fail to produce a grain crop, but grow fast and densely enough to offer good protection for seedlings of perennial seeded species.

According to the BLM Manual Supplement, Nevada State Office, a reclamation plan should include the following reclamation criteria: Reclamation plans should reflect the objectives of the land use plan and the requirement of the regulations to prevent unnecessary or undue degradation and provide for reasonable reclamation.

The reclamation success at the Bald Mountain mine is not directly comparable to the Cortez mine. The former is in a higher precipitation zone, and therefore it is not appropriate to assume that the revegetation success achieved at the Bald Mountain mine can be obtained at the Cortez mine simply because they are under common ownership. However, the corporate philosophy for both of these mines is that state-of-the-art reclamation techniques will be used to ensure the best possible results.

RESPONSE TO COMMENT I-20

The State of Nevada and the BLM both require bonding for heap closure. Cyanide facilities, located on public lands managed by the BLM, are required to be bonded for 100 percent of the estimated reclamation costs, including neutralization and detoxification. The bond amounts for all disturbances are arrived at by developing detailed cost estimates for each closure activity. The estimates are based on a third-party conducting the work and require approval of the NDEP and/or BLM. The bond will be held by the State of Nevada and/or the BLM. The release criteria will be stipulated in the NDEP approved closure plans for all process components. Refer to Section 2.2.7, Heap Leach and Tailings Facility Closure. Also, see Response to Comment L-35.

RESPONSE TO COMMENT I-21

A map of well locations is included with those data in the baseline chemistry support document (WMC 1995c). Also, the source of water is noted since many of the sample results are from exploration holes and may not be representative of water to be reinfiltrated; see related response I-35.

RESPONSE TO COMMENT I-22

Reinfiltrated water will primarily be derived from the alluvial aquifer which may not always meet state or federal drinking water standards. The FEIS presents an analysis of reinfiltration water quality based on mixing appropriate proportions of alluvial and bedrock waters. Inconsistencies, errors, and omissions of data presented in Table C-3 are corrected in the FEIS. Because there is a reasonably foreseeable impact to ground water quality resulting from reinfiltration, a program to monitor the impacts and take any necessary mitigating actions is incorporated into Section 4.0 of the FEIS.

RESPONSE TO COMMENT I-23

A 10 percent evapoconcentration factor is not a valid assumption. Please see related responses I-27 regarding applicability of drinking water standards, I-30 regarding mitigation, and I-35 regarding representative ground water analyses.

RESPONSE TO COMMENT I-24

The drinking water MCL for nickel is actually 0.1 mg/l. The standard shown on Table C-5 of the DEIS for nickel (0.0134 mg/l) is from the EPA "Gold Book," 1986. Apparently the table was published before an MCL for nickel was established. This table has been modified in the FEIS to reflect the correct standard. It is correct that some determinations for nickel and thallium were inadvertently made using detection limits that were above the NDEP standard. It is also correct that some analyses inadvertently failed to include nickel determination. Future monitoring will correct these oversights. While the PL-45 sample from 800 feet does report 0.03 mg/L nickel, this represents an unfiltered sample from an uncased borehole, and thus may not indicate the dissolved nickel concentration.

RESPONSE TO COMMENT I-25

See related responses I-21 and I-22.

RESPONSE TO COMMENT I-26

See related responses I-21 and I-22.

RESPONSE TO COMMENT I-27

The commenter has pointed out that baseline ground water quality does not in all instances meet drinking water standards. The commenter's quotation of NAC 445.221 is apparently misreferenced. In this situation, Nevada law (NAC 445.24342(1)(c)) prohibits water quality degradation, whereby, "The quality of those waters of the state which already exceed the criteria

established by Subsection 2 is lowered to a level that the department finds would render those waters unsuitable for the existing or potential municipal industrial, domestic, or agricultural use." Therefore, it is not necessarily illegal to reinfiltrate water that does not meet drinking water standards. Monitoring and mitigation measures are specified in the FEIS to protect beneficial water uses.

RESPONSE TO COMMENT I-28

See related responses I-22 and I-35.

RESPONSE TO COMMENT I-29

Table C-6 in the DEIS has become Table C-8 in the FEIS. It is true that some samples in Table C-8 had fluoride, arsenic, iron, mercury, and selenium concentrations that exceeded the Nevada drinking water standards, but in most cases they did not exceed the NDEP guidelines of 10 times the drinking water standard that is used to evaluate MWMT soil samples for the protection of groundwater quality.

Comparison of these MWMT results directly to drinking water standards is an extremely conservative means of comparison. This comparison shows that there is a potential for several parameters to be dissolved at concentrations exceeding drinking water standards during MWMT tests (at a pH of approximately 5.0) and possibly in the water in the mine pit. Based on a conservative method of evaluation, there would be a reasonably foreseeable potential impact to water quality, and appropriate monitoring and mitigation measures are described in Section 4.0 of the FEIS.

RESPONSE TO COMMENT I-30

During operations, monitoring of groundwater flowing to the dewatering well field as well as that produced by the individual wells will be conducted. Monitoring of the aggregate discharge quality at the infiltration ponds as well as the quality of infiltration percolate and receiving water will be required to demonstrate water quality compliance. The data presented show

naturally occurring groundwater with marginal TDS and fluoride values in the basin. Within the same water quality regime, displacement of this water from one location to another does not constitute degradation.

It has been demonstrated that large split flow discharge streams have been successfully treated using flocculation process reactions such as co-precipitation. Regarding "natural precipitation", this process commonly occurs as formation water containing low concentrations of dissolved oxygen is withdrawn by pumping and becomes enriched with dissolved oxygen when subject to turbulence and exposed to surface conditions. Among other precipitation reactions, some degree of metal hydroxide formation typically results. The DEIS analyst has merely identified this process as having the potential to reduce the concentration of many dissolved constituents in pumped groundwater.

Treatment of 30,000 gpm of reinfiltration water is certainly expensive and several other mitigation options would also be available, including segregation of poor quality water for mine process make up, alternate infiltration locations, and use of vertical drains rather than infiltration basins. These mitigation measures are described in Section 4.4.4 and 4.4.5 of the FEIS.

RESPONSE TO COMMENT I-31

Increased salinity from reinfiltration is evaluated as a potential impact in the FEIS. Monitoring and mitigation measures are included in Section 4.0 of the FEIS. See related responses I-22 and I-30.

RESPONSE TO COMMENT I-32

Revised significance criteria, monitoring, and mitigation measures have been incorporated into Section 4.0 of the FEIS to address applicable water quality standards. See related responses I-27 and I-35.

RESPONSE TO COMMENT I-33

The geochemical equilibrium model PHREEQE was chosen for use in the preliminary pit lake analysis (DEIS) because of its ability to simulate both the mixing of aqueous solutions and evaluate the thermodynamics of a solid/aqueous interface. This model allows the equilibrium concentrations of dissolved constituents to be calculated for a given aqueous solution in the presence of solid phase minerals.

For the FEIS a revised model of water quality in the Final Pipeline pit was conducted (WMC 1995c). Initial water chemistry composition was based on the expected mixing of valley margin and valley center water quality types which would be the source of inflow to the pit at the cessation of dewatering. The model was used to bring the initial inflow solution into equilibrium with the predominant mineral species available for dissolution reaction in the pit wall. Pyrite was then introduced at a calculated worst case concentration to evaluate the equilibrium concentration of dissolved species which may occur if all sulfidic minerals below the water table and within one (1) foot of the pit wall were reactive. Due to the overwhelming presence of carbonates and high buffering capacity of the system, the model predicted that acid conditions would not occur. The results from the PHREEQE model were then considered in relation to the additional factors which would act to effect long term pit lake water quality. Biological processes, evaporative concentration of non-volatile dissolved constituents, and hydrodynamic effects were included to complete the overall predictive assessment on which the impact analysis is based.

The commenter has pointed out some of the limitations in using the PHREEQE model to predict pit water quality. The processes that are not considered by the model for long-term water quality (such as interaction with the pit rock wall, temperature, biological activity, and evapoconcentration) are mentioned on page 4-40 of the DEIS and these limitations are more fully described in the FEIS (Section 4.4.4). It is correct that such geochemical modeling is not demonstrated to be very accurate or precise when predicting trace constituent concentrations. Hence, for those factors that are not reliably predicted using PHREEQE or other geochemical models, the FEIS uses empirical data from other similar mines and a conservative methodology to identify potential water quality impacts. The FEIS is also revised to clarify mitigation

measures that may become necessary and distinguishes these measures from monitoring requirements. The resulting evaluation suggests that a reasonably foreseeable significant water quality impact is possible and appropriate monitoring, mitigation measures, and a long-term monetary contingency fund are required.

Please see related response G-8.

RESPONSE TO COMMENT I-34

As discussed in response to comment I-33, a conservative methodology to evaluate pit lake water quality is presented in the FEIS. Potential ground water contamination downgradient from the pit is expected to be limited because the pit will act as a hydraulic sink, due to evaporation, which will create a gradient towards the pit lake during most of the typical hydrologic season as discussed in the FEIS, Section 4.4.4.

RESPONSE TO COMMENT I-35

Data included in Appendix C of the DEIS (Table C-3) reflect the baseline ground water quality before mining of the Pipeline pit begins. It should be noted that some of the samples analyzed are from uncased exploration holes and the samples were unfiltered. Comparison of total metals from these samples to drinking water standards that apply to water delivered in a public water system is misleading. Refilling of the pit with natural ground water that does not meet drinking water standards is not necessarily illegal as the commenter states (see related response I-27). The South Pipeline pit is not addressed as part of the Proposed Project, but is addressed in the Cumulative Impacts, Section 5.0 of the FEIS.

RESPONSE TO COMMENT I-36

It is correct, as noted, that AMD is not the only potential water quality problem. The FEIS reflects the commenter's concerns for constituents potentially mobile at alkaline pHs (See Section 4.4.4).

Figure 4.4-5 shows a diagrammatic representation of the vertical distribution of geochemical sampling at Pipeline. This conceptual figure summarizes data on geochemical sampling locations from several different cross sections through the pit (see WMC 1995e). The acid-base accounting data and the actual intervals sampled are summarized in Tables C-6 and C-7. While it is true that most of the ABA samples were collected from the more oxidized zones, that is because almost all of the rock to be mined is oxidized. The data presented are representative of the entire suite of rocks to be mined in the pit. It is possible that some future sampling will discover potentially acid generating rock at depths within the proposed pit. Based on all of the available data, however, there is very little likelihood that the pit lake will ever contain acidic water. It is likely that the post-mining pit lake water quality will be degraded, as is discussed in Section 4.4.4 (See Table 4.4-4).

RESPONSE TO COMMENT I-37a

Please refer to the revised Section 4.4 of the FEIS. The technical basis for this analysis is provided in the technical report entitled "Results of the Expanded Groundwater Model and Support Documentation" (WMC 1995a).

RESPONSE TO COMMENT I-37b

The commenter's concerns regarding design of the infiltration system appear to result from a misunderstanding of information presented in the DEIS. To clarify, page 2-18 states that about 28,000 gpm of the estimated 30,000 gpm would be returned to groundwater via reinfiltration, not "all of the water" as stated by the comments. A 6-week trial infiltration test indicated an observed average infiltration rate of 7 feet/day and small scale infiltration tests indicated vertical hydraulic conductivities ranging from 2 to 50 feet/day (DEIS p. 2-18). Four times the acreage for the average values was the basis for designing an 80 acre infiltration area. This additional area will allow for natural variabilities in infiltration rates, operational flexibility, and rotation between individual infiltration sites during maintenance. The commenter has assumed a maximum infiltration rate of 11 feet/day and has cited a range of 0.1 to 10 feet/day (i.e. the hydraulic conductivity of older alluvium stated on p. 3-20 of the DEIS, which is lower than that of younger alluvium). Lateral flow, mounding, and variation in hydraulic conductivity have

been considered in the proposed infiltration system design (p. 2-18, 2-19) and adjustments are expected to occur during operation which will be consistent with the flexible design. This information is also presented in Section 2.2.2 of the FEIS.

RESPONSE TO COMMENT I-38

It is acknowledged that horizontal layers of lower hydraulic conductivity will be an important factor to the reinfiltration system. Investigations have included aquifer tests, observation wells, evaluation of boring logs, infiltration tests, and geophysical investigations (WMC 1995a). Based on these data, a flexible infiltration system is proposed that would be adjusted for potential areas of mounding and variability in infiltration capacity.

RESPONSE TO COMMENT I-39

Refer to Response to Comment C-10.

RESPONSE TO COMMENT I-40

As noted in the Responses to Comments I-22, I-30 and I-31, salinity levels (as measured by TDS concentrations) will be monitored during reinfiltration, and possible mitigation measures are discussed in Section 4.4.4, subheading Groundwater Quality in the Reinfiltration Area, and Section 4.4.5, Mitigation Measure 4.4.5-3, of the FEIS. Modeling results indicate that the proposed infiltration program should reduce impacts to nearby ground water users by controlling the amount of drawdown in the alluvial aquifer around the pit area. Direct use of the mine dewatering flow for agricultural use would not be permissible under existing water rights and would create additional adverse environmental impacts. Mitigation measures discussed in response to comment D-11 will be instituted should impacts to neighboring water users be observed. These measures could include supplementing the affected users with ground water from the dewatering operation, providing deeper wells, or replacing the affected water rights of the user if a user's well is significantly impacted.

RESPONSE TO COMMENT I-41

The BLM is confident that the applicant has demonstrated an effective engineered solution to reducing the impacts to groundwater users in the valley. Applicable mitigation measures are described in Section 4.4.5 of the FEIS. Impacts to other water users will be administered by the Nevada State Engineer under the existing watering rights permits. Similar concerns about whether nearby water users will be impacted, establishing a monitoring plan for assessing the cause of the potential impacts, and how the impacts will be mitigated and by whom have been presented and discussed in previous responses D-11, G-3, and I-40.

RESPONSE TO COMMENT I-42

Please see related responses I-6, I-53, and M-9.

The method of planimetered contours mentioned does not appear to be a valid means of estimating the volumes of the pit or groundwater in storage.

RESPONSE TO COMMENT I-43

The reviewer is correct, in that there will be some groundwater stored within the unsaturated zone as a result of a portion of the infiltrate water being retained within the pore structure of the alluvial soil. Assuming a total saturated porosity of 0.30 for the silty, gravelly sand that comprises the younger alluvial deposits beneath the proposed infiltration pond area(s) and a specific yield of 0.25 for this same material, the specific retention is approximately 0.05. For a collective infiltration design area of 80 acres (about 3,485,000 ft^2), a depth to groundwater of 300 feet in the area, and the estimated specific retention of 0.05, approximately 52,272,000 ft^3 (or 1,200 acre-feet). will be retained after gravity drainage of the soil occurs. This represents about 2.5 percent of the estimated 48,300 acre-feet per year of water to be pumped during the first year of dewatering. After the initial saturation of soils underlying infiltration areas, there would be no additional volume of water retained in the unsaturated zone. The volume in storage will increase with the number of infiltration sites used and the depth to groundwater; however, each individual infiltration site would be less than 80 acres. The expanded model

accounts for this retention in the unsaturated zone and evaporative losses by conservatively assuming reinfiltration of less than 90 percent of the pumped volume, while the actual reinfiltration rate is expected to be close to 97 percent of the dewatering rate.

RESPONSE TO COMMENT I-44

Significance criteria in the FEIS have been changed from 20 feet to 10 feet of drawdown. See related response C-12. The expanded groundwater model has also been used to evaluate residual drawdown effects for up to 100 years after mine closure.

RESPONSE TO COMMENT I-45

In addition to the two long-term pump tests, infiltration tests, geologic logs, geophysical investigations, regional hydrologic data, and calibration of a groundwater model were used to evaluate and interpret aquifer hydraulic characteristics. Additional pump tests near the Humboldt River do not appear to be warranted because of the large distance between the mine and the river. Variations in aquifer characteristics have been considered in the model. Since it is not practical to discuss all of these data in detail within this response or in the FEIS, the commenter is referred to reports by WMC (1992a, 1992b, 1993, 1995) which are referenced in the FEIS. The WMC reports are available at the BLM offices in Battle Mountain, Elko, and Reno, and the public libraries in Elko and Beowarve, Nevada.

RESPONSE TO COMMENT I-46

The intent of discussing the groundwater modeling effort in the DEIS was to focus on the results, so that the average reader was not overwhelmed with technical details, such as the model grid setup boundary conditions, transient calibrations, etc. To this end, the summary report of the supporting data was produced to assist the reviewer in understanding the modeling effort and results. Furthermore, as noted in the DEIS (Appendix C), additional information on the groundwater modeling was presented in the detailed reports produced by Water Management Consultants (1992b, 1993). In response to comments, WMC has expanded the groundwater flow model to provide better resolution of the drawdown effects and to assess the

model sensitivities. WMC has issued a final report on the groundwater modeling effort which summarizes the overall modeling effort (WMC 1995a). This report is referenced and model results are summarized in Section 4.4.3 of the FEIS. The WMC reports are available at the BLM offices in Battle Mountain, Elko, and Reno, and the public libraries in Beowawe and Elko, Nevada.

RESPONSE TO COMMENT I-47

See responses I-45 and I-46.

RESPONSES TO COMMENT I-48

The results of expanded groundwater modeling indicate the effects of 10 years of active dewatering and 100 years of post-mining water level recovery. The volume of water in the pit lake (estimated to be about 44,000 acre-feet) will be made up from a combination of water in storage as groundwater mounds beneath infiltration areas and a reduction in evapotranspiration from the playa areas in central Crescent Valley. Also, a residual drawdown of about 5 feet will surround the pit which will occur due to long-term evaporation losses from the pit.

RESPONSE TO COMMENT I-49

In order to estimate uncertainty, the expanded model was run for a base case and four sensitivity cases. The four sensitivity cases were selected for parameters that are the most uncertain and the most critical to assess the impact of the proposed dewatering operation. Although the sensitivity analysis is not exhaustive in a statistical sense, it can be used to provide an approximate estimate of the uncertainty for predicted drawdowns. The uncertainty of modeled drawdowns can be quantified as 0.3-1.0 ft in the northern part of Crescent Valley, and 5-10 ft in the vicinity of the proposed pit. Theoretically, an exhaustive sensitivity study can be conducted by statistically altering the parameters in each cell according to a given probability distribution. This, however, would imply 10 or more runs for each of the 40,000 cells, thus more than 400,000 model runs. Given current groundwater modeling standards, this is not a

feasible option. The more subjective method of selecting a number of sensitivity cases is a common (and widely accepted) practice for groundwater modeling.

RESPONSE TO COMMENT I-50

The ranges of hydraulic conductivity described in the DEIS are based on regional geologic and hydrologic data in addition to results of aquifer pumping tests. Investigations have indicated areas of relatively high hydraulic conductivity that correspond to the Gold Acres window in the bedrock aquifer and paleochannels in the alluvial aquifer. The hydraulic conductivities used in the model reflect the localized differences in hydraulic characteristics, where possible, but the regional-scale aquifer characteristics used in the model must also correspond to the basin-wide hydraulic characteristics and satisfy the model calibration conditions. Further discussion of the expanded groundwater model, including model grid distribution of aquifer characteristics is included in WMC (1995a). For example, the expanded model uses a hydraulic conductivity of 10 ft/day for layer 3 (bedrock) within the Gold Acres window, and values ranging from 0.041 to 0.12 ft/day for those portions of layer 3 that do not represent the carbonate windows. Model calibration runs indicate that the model assumptions tend to be conservative, that is, the pumping rates are over-predicted.

RESPONSE TO COMMENT I-51

The aquifer thickness used in the expanded groundwater model (WMC 1995a) is 5,000 feet for layer 3 (bedrock). Layer 2 (alluvium) is calculated by the model as the difference in elevation between the top of layer 3 and the water table elevation or the base of layer 1 (playa) in the center of the basin. For example, the modeled saturated thickness of layer 2 immediately east of the proposed pit is less than 300 feet and increases to a maximum of over 9,000 feet in the central part of Crescent Valley.

RESPONSE TO COMMENT I-52

The FEIS presents water balances for baseline conditions (Figure 3.4-4) and operational conditions (Figure 4.4-7) that show resulting modeled inflow and outflow from Crescent Valley

to the Humboldt River. As shown, there is no significant change in groundwater flows to the Humboldt River. The sensitivity model runs also indicate no effect on the Humboldt River (WMC 1995a), however, similar water balances have not been prepared specifically for the FEIS.

RESPONSE TO COMMENT I-53

The dewatering volumes presented by the reviewer grossly overestimate the potential volumes involved. The commenter makes reference to a volume of 150,000 ac/ft to refill the pit. Based on the pit dimensions and water table elevations presented in Sections 2.0 and 3.0 of the DEIS, this volume is about 44,000 acre-feet. To reiterate what was presented in the DEIS, a projected pumping rate of 30,000 gpm would be needed to dewater the proposed pit area. As noted on page 5-22 of the DEIS, the cumulative effect of the South Pipeline Expansion could involve an increase in the dewatering rate. Based on the conceptual plans (and modeling), the rate of pumping needed to dewater the combined pit areas might increase to 55,000 gpm. Expanded modeling in the FEIS uses this combined dewatering rate (55,000 gpm) as a conservative pumping rate to evaluate the proposed project. When evaporative and retention losses are accounted for, approximately 97 to 98 percent of the water will be returned to the valley. The model accounts for these losses. Current groundwater withdrawal in the valley is estimated at about 16,000 acre-feet per year (page 3-24 of the DEIS), of which a large percentage is probably returned to the basin since most of the water is used for agricultural purposes. No dewatering is planned for the Cortez pit. Please refer to the revised text in Section 5.5.5 (subheading Cortez Area) of Volume I of the FEIS for an explanation of the Cortez pit foreseeable development. According to USGS (1995) the potential hydrologic effects of mining in Crescent Valley are less severe than in the Maggie Creek and Boulder Valleys.

RESPONSE TO COMMENT I-54

Recharge from precipitation to the entire Crescent Valley basin is estimated to be 24,500 acre-feet per year. Over the entire basin area of 481,000 acres, this equals an average recharge of 0.05 feet per year. The commenter's assumption of total basin area of 240 miles^2 (153,600 acres) appears to be wrong. It should be recognized that precipitation and recharge vary

substantially with elevation. The amount of recharge has been clarified and a water balance has been presented on Figures 3.4-6 and 4.4-4 of the FEIS.

RESPONSE TO COMMENT I-55

The evaporative loss concern is presented on p. 4-41 of the DEIS and is clarified further in the FEIS. With respect to the quantities of pit lake evaporation and outflow total quoted by the reviewer, these values appear to be incorrect. See related response I-56.

RESPONSE TO COMMENT I-56

Based on estimates from WMC (1995a), annual contribution of precipitation to the pit lake surface and pit walls after full water level recovery would be approximately 121 acre-feet per year, while the annual evaporative loss would be about 488 acre-feet per year. This represents a net loss of about 361 acre-feet per year or a 25 percent offset to the evaporative loss, which is hardly negligible. It is agreed that almost no water recharges by infiltration in this precipitation zone in the context of discussing recharge to the aquifer, but the precipitation would fall directly on the pit lake surface, rather than wetting and/or flowing through the unsaturated zone as suggested. It is recognized that one of the most significant contributions to recharge in the basin could come from overland flow during heavy precipitation events, which was pointed out in the DEIS. With respect to the pit lake being a significant region for loss of groundwater through evaporation, this is consistent with the findings of environmental consequences presented in the DEIS, page 4-41.

RESPONSE TO COMMENT I-57

Effects to riparian, seep and spring areas are addressed in Response to Comments C-11 and C-19. As discussed in the response to the NDOW comment E-2, the reinfiltration plan is designed to reduce the lateral extent of drawdown. Please refer to revised text in Section 2.0 of the FEIS.

Also as discussed in that response, Cortez has committed to a regional groundwater level monitoring plan. Should this monitoring show impacts on water users other than the applicant (Cortez), "impacts should be mitigated by optimizing dewatering well pumping rates and relocation or addition of reinfiltration ponds". The mitigation plan further states that "in the unlikely event that drawdown effects on water rights users other than the applicant cannot be mitigated using applicable Nevada water laws and regulations, the applicant would supplement the user's needs with water from the dewatering system before reinfiltration. With proposed monitoring, implementation of the above mitigation measures would reduce potential impacts to less than significant levels". Under this plan, if water sources were lost due to the dewatering operation and not recovered or replaced by changes in pumping or reinfiltration, Cortez would deliver water to these sites and maintain these water sources. As noted in the Response to Comment E-2, this mitigation commitment would apply to all affected waters, regardless of land ownership (public or private) or political boundaries (personal communication, Mark List, Senior Environmental Engineer, Cortez Gold Mines, February 1995). The statement that water rights will not be affected refers to this commitment to mitigate losses which do occur. The figures of 49,000 acre-feet/year maximum permitted pumpage and annual duty of 22,000 acre-feet/year pertain to the entire Crescent Valley hydrographic basin. (The annual duty represents the maximum permitted volume of water which may be pumped - by all users - from a designated hydrographic basin.) Cortez's consumptive use allowance is 2,367 acre-feet/year (1,467 gpm). Applications on file with the State Engineer could raise this total to 2,000 gpm. However, these additional water rights represent transfers of existing water rights. No new water withdrawals are proposed, other than those for dewatering.

Water withdrawn in excess of Cortez's permitted consumptive use would be reinfiltrated. The Nevada State Engineer has approved Cortez's request to transfer Point of Diversion, Manner of Use and Place of Use for a number of Cortez's existing water rights/applications, such that the proposed action will result in no net additional consumption of groundwater beyond that which was already appropriated in the Crescent Valley Basin prior to the approval by the State Engineer (personal communication, Mark List, Senior Environmental Engineer, Cortez Gold Mines, February 1995). Regarding water pumped from dewatering wells, Cortez has stated that "about 90 percent of the water produced during pit dewatering will be reinfiltrated to return it to the Crescent Valley groundwater system and to reduce the effects of drawdown on surface

water infiltration and springs". Any groundwater produced during the dewatering program in excess of Cortez's 2,367 acre-feet/year consumptive use allowance is to be returned to the Crescent Valley groundwater basin by shallow infiltration.

RESPONSE TO COMMENT I-58

The potential affects on water rights and water losses in the basin are acknowledged. These are addressed in Section 4.4 of the DEIS. Each of the issues of increased gradients, volume to refill the pit, wetting the unsaturated zone, pit evaporation and cumulative effects are clarified in Section 4.4.3 of the FEIS and the expanded groundwater model report (WMC 1995a).

RESPONSE TO COMMENT I-59

Current outflow from the basin to the Humboldt River is estimated to be as much as 2,700 gpm (4,400 acre-feet per year) (page 3-24 of the DEIS). Again, the Humboldt River is not expected to be impacted from dewatering and/or infiltration activities (see Response to Comments I-6 and I-53). The reviewer's concern that the regional hydraulic gradient could be reversed such that the Humboldt River either loses flow or receives more flow from the Crescent Valley aquifer is not likely to occur. There is a natural groundwater discharge area within the playa which is located between the Project site and the river that will limit the extent of dewatering impacts. Also, a groundwater mound will be created between the proposed pit and the Humboldt River, as a result of the reinfiltration activities. Groundwater modeling estimated that the mound should be about 20 to 80 feet higher in elevation than the surrounding water table (i.e. about 4,770 to 4,830 ft. MSL). Pit refilling is expected to be aided by the dissipation of the groundwater mound after mine closure. Additional water to refill the pit would be derived from precipitation, flow from the surrounding aquifer, and reduced evapotranspiration from the playa.

RESPONSE TO COMMENT I-60

Please see responses I-6, I-7, and I-53 regarding cumulative impacts to the Humboldt River.

RESPONSE TO COMMENT I-61

Refer to revised text in Section 4.8.3. The term "strategic location techniques" was too vague, and we have substituted the term "consolidation of disturbance." An example of consolidation of disturbance is the design whereby heap leaching and tailings facilities are combined into cells that occupy the same area. Refer to Section 2.2.7 for a discussion of reclamation activities and how concurrent reclamation would be employed to test methods for reducing visual impacts and demonstrating reclamation success. Specifically refer to Heap Leach and Tailings Facility Closure and Waste Rock Dumps Reclamation in Section 2.2.7 for a discussion of concurrent reclamation during the mining sequence.

COMMENT LETTER J – MINERAL POLICY CENTER

Comment Letter J

MINERAL POLICY CENTER

• P. O. BOX 369 • BOZEMAN • MONTANA • 59771 • 406-585-9009 •

1 November 1994

Dave Davis
Pipeline Project EIS Team Leader
Bureau of Land Management
Battle Mountain District Office
50 Bastian Way, P.O. Box 1420
Battle Mountain, Nevada 89820

Dear Mr. Davis:

Please accept the following comments and questions regarding the Cortez Pipeline Gold Deposit Draft EIS on behalf of the Mineral Policy Center.

Scope and Alternatives

This EIS is being prepared for the proposed project because significant and complex impacts are expected to result if the project is permitted. The EIS details numerous significant impacts to ground and surface waters, wildlife, and other resources that will result if the proposed action is permitted. However, the EIS lacks full and careful analysis of impacts to cultural resources, cumulative effects to the Humboldt River Basin ground and surface water flows, potential for contaminants seeping into te ground waters, and many other long term impacts to the region and the life it sustains.

Despite these many significant impacts, the EIS fails to examine any meaningful alternatives to the proposed action, including the No Action alternative. The purpose of the No Action alternative is to help the public assess whether, given the impacts of the proposed project, No Action has merit. NEPA requires that the merits of No Action be evaluated as a viable alternative to the proposed action.

J-1

A listing of alternatives is not equivalent to an analysis of alternatives. But the EIS plainly states that "no feasible alternatives were retained for detailed analysis". The only discussion of alternatives is why they were rejected. There is no discussion of alternatives in the DEIS sufficient to justify fully analyzing only the proposed action, yet such analysis and justification is explicitly required by NEPA.

Moreover, the public is being asked to comment on a draft EIS which is incomplete because it lacks discussion of a meaningful range of alternatives to the proposed action. It is inappropriate for the BLM to ask the public to comment on a document which

lacks this basic analysis. This undermines the entire purpose of the NEPA process. The BLM has, under NEPA, an obligation to inform the public adequately to ensure meaningful participation in decision making processes which have profound effects on their environments, quality of life, and human health. J-1

Public Involvement

The EIS states that "no issues of significant concern were expressed by Native Americans with regard to the proposed project area for the ('92 Cortez) expansion EIS". The assumption is made that the 1992 Cortez Expansion EIS covers all relevant issues, because the new project "falls within the same area". This ignores long-time Western Shoshone involvement and concern with mining issues generally and with the Cortez projects particularly. It also ignores new concerns that have arisen recently about the impacts of chemical process mining technology generally and its impacts on surface and groundwater resources. J-2

Mineral Policy Center feels that agencies should make an effort to meet the needs of communities most impacted by agency decisions. It is worthwhile to note that in a survey of area residents conducted for the Newmont Gold Quarry Project EIS, residents reported that power lies with state and county government and with large corporations, especially mining companies (p. 3-56). Were a survey of Native Americans, specifically Western Shoshone conducted, it would likely reveal that feelings of powerlessness in the face of large, multinational mining corporations are even greater among Native Americans than among the population as a whole.

The Nevada BLM must make special efforts to ensure that Native American concerns are adequately addressed-- particularly cultural and sacred sites issues. The fact that this EIS dismisses Native American concerns about this project when many Native Americans have very real concerns about the impacts of the project is indicative of lack of concern by BLM officials about these important issues.

Groundwater Issues

Cumulative effects of dewatering have not been adequately described, especially in light of reasonably foreseeable expansion of operations to mine the South Pipeline deposit. The combined effects of the two projects are significant and worthy of comprehensive study. J-3

In fact, in the cumulative impacts discussion, groundwater impacts were acknowledged to be "significant". Therefore, impacts to groundwater of the proposed Pipeline Project and likely South Pipeline Project dewatering may be assumed to be very significant. But impacts of expansion are not included in the dewatering discussion (or in assessing other impacts). What degree of significance must be shown before comprehensive studies on the cumulative impacts of dewatering are conducted and the conclusions and recommendations of these studies implemented? J-3

Plans for recharging the aquifer/ reinfiltration of ground water into the aquifer are not adequately described. The mining company's consultant claims that 90% of pumped water will be returned to the ground. But this figure appears to be based on an untested reinfiltration plan. In particular, the "preliminary" location of reinfiltration basins is inadequate for a document and project of this scope. Rather than detailing back-up plans if the untested, preliminary reinfiltration scheme fails, the EIS gives vague assurances that if it fails, the proposed reinfiltration site will be "enhanced or relocated". J-4

Also, the mining company's consultant concludes that the reinfiltrating plan would have "no significant" impact on surrounding springs and seeps. But the report only accounts for ten years of operations, whereas the EIS explicitly states that the proposed Pipeline Project would operate for at least 12 years. Also, it does not account for reasonably foreseeable expansions and additional dewatering and impacts to nearby springs and seeps associated with mining the South Pipeline deposit. J-5

The draft EIS assumes that the projected pumping rate is accurate. Yet American Barrick predicted a dewatering rate of 10,000 gpm for the Goldstrike mine in 1993 and the actual rate pumped was 68,000 gpm. Pumping rates, their implications, and the assumptions on which they are based, must be better described. J-6

Due to the demonstrated, significant cumulative impacts of 15 already-operating dewatering projects in the Humboldt River Basin, it is imperative that full and meaningful involvement from an appropriate range of resource disciplines be sought and incorporated by the BLM into the decision making process for the proposed project. Further, comprehensive studies of the cumulative effects of drawdown on the entire Humboldt River Basin are urgently needed before any new mining projects are permitted. J-7

Water Quality Issues

More specific numbers on probable concentration of cyanide in the tailings/ heap leach facility need to be determined. Statements such as, "concentrations of WAD cyanide would be maintained well below 50 ppm and generally below 20 ppm" are inadequate and vague. Also, relative to potential toxicity, these are not "low concentrations" as the EIS contends. J-8

A comprehensive surface and groundwater monitoring plan for the Pipeline operation must be discussed in detail. Monitoring must be long term, performed regularly, and not left to the operator. If regulatory agencies permit this mine, they must have the resources and will to monitor it effectively. Contingency plans to confront problems must be described. J-9

The EIS does not adequately assess the potential for leaching of heavy metals through the pit walls into the groundwater. J-10

There are repeated references to "preliminary acid base accounting" which apparently show that the pit rock should neutralize any acids generated in the pits (p.4-37). For example, "preliminary data indicate that the Pipeline deposit ore appears to have excess AMD neutralization capacity". Relying on such "preliminary" data to dismiss the need for any further mitigation or treatment of pit waters is unacceptable for a project of this size. Predictions of acid mine drainage have proven difficult and unreliable. Detailed action plans to solve potential AMD problems must be part of the EIS. Many operations that were not supposed to have AMD problems do, and remedial efforts to correct these unforeseen problems are costly and complicated. J-11

The assumptions continue. At one point, the quality of water in the pit lakes is expected to be similar to the natural groundwater quality in the area (4-19)-- but later, the draft EIS acknowledges that quality of pit water is "difficult to predict" (p. 4-39). J-12

The buffering effects of carbonates in the pit rock are assumed to mitigate for the acid-generating potential of pit rock, but buffering does not function indefinitely. No analysis of this is included in the draft EIS. How was this determination reached? Has it been shown that this plan for mitigating AMD and metals leaching will work? And if it fails, how will neutralization be accomplished? J-13

Contingency plans in case of contamination are nonexistent. The draft EIS states that monitoring lake water quality "would reduce

potential impacts to less than significant levels". How? The following sentence says that "no mitigation beyond monitoring pit water quality is required." Monitoring is not equivalent to mitigation. If problems are detected, how and by whom will they be corrected, and what will be the time table for correction of any problems? J-14

Similarly, long term treatment of pit waters is not addressed in the draft EIS. Since the DEIS does not include any explanation of how reclamation bonds were calculated, it is impossible to understand how and if costs of mitigation in case of contamination will be covered. J-15

The potential for subsidence must be more carefully examined. Subsidence increases the risk of the plastic liner in the tailings pond ripping, releasing cyanide and heavy metals into the aquifer. J-16

Significant "if"s concerning impacts to water quality are not resolved in the DEIS (IF buffering is ineffective, reinfiltration fails). J-17

Compliance, Reclamation Issues

The EIS needs to include a meaningful review of the track record of previous reclamation efforts at present Cortez operations. Statements such as "natural revegetation was successful to some degree" at nearby Cortez Joint Venture operations indicate that there is the potential for real obstacles to reclaiming areas disturbed by the Pipeline project. What specifically are the plans for capping the tailings/ heap leach facility (capping is mentioned vaguely, but no time table is included)? J-18

It also needs to include a review of the current compliance status of Cortez with the Clean Water Act, FLPMA, and other relevant statutes. J-19

Wildlife

The draft EIS acknowledges the potential for chronic toxicity as a result of this project alone or by cumulative impact of multiple exposures from other projects in the region. Yet it states that the "potential for chronic toxicity from WAD cyanide in the tailings pond is uncertain". More comprehensive understanding of this potentially significant impact to wildlife is needed before the project is permitted, especially impacts to raptors, song- J-20

birds, and waterfowl who live in or travel through the area. Alternatively, birds and other wildlife must be protected from exposure to any toxic impoundments through complete fencing and netting. J-20

Dewatering will result in reduction or elimination of some springs and seeps. The reinfiltration ponds are cited as mitigation for drawdown of springs, but the ponds are fenced and not accessible to non-avian, medium and large species. J-21

Loss of habitat is another significant issue that is inadequately addressed. The draft EIS states that "successful reclamation would again restore habitat suitable for many current resident species". Yet a low probability of successful reclamation is acknowledged elsewhere in the draft EIS. Again, the track record of already-operating Cortez mine must be examined before assuming that reclamation will succeed on the Pipeline project. J-22

Conclusions

The draft EIS for the proposed Pipeline Project fails to explain how numerous significant impacts will be mitigated. A project proposal of this scope requires a more thorough examination of alternatives which mitigate these impacts. Significant aspects of the proposal are vague or based on unsubstantiated assumptions. Public involvement needs to be increased and cumulative effects need more consideration. In sum, the EIS is woefully inadequate.

Thank you for accepting these comments and addressing the concerns and questions raised by Mineral Policy Center regarding the proposed Cortez Joint Venture Pipeline Project EIS.

Please keep Mineral Policy Center informed of all decisions, announcements, tours, meetings, public notices, etc., relating to the proposed Cortez Joint Venture Pipeline Project and potential South Pipeline project.

We look forward to your consideration and response to these concerns and requests.

Sincerely,

Jeannie Heltzel

RESPONSE TO COMMENT J-1

The No Action Alternative is summarized in the Summary of Volume I of the FEIS. Other alternatives not retained for detailed analysis are discussed in Section 2.4 with the environmental and engineering reasons they were not retained. Section 2.4 has been revised to contain a discussion of pit backfilling. Also refer to Response to Comments C-4, C-10, and J-4 for discussion of additional alternatives.

RESPONSE TO COMMENT J-2

See the earlier response on this subject, Response I-8.

RESPONSE TO COMMENT J-3

Similar concerns were expressed and addressed in responses C-10, I-6, I-7, I-43 and I-53. The text in Section 5.3.4 of the FEIS is revised to reflect more clearly the potential groundwater impacts that could result from the South Pipeline expansion as a reasonably foreseeable project in the evaluation of Cumulative Impacts.

RESPONSE TO COMMENT J-4

The reader is directed to Section 2.2 of the FEIS for a revised description of the infiltration system. Also refer to Responses to Comments C-10, I-37, I-43, and K-4.

RESPONSE TO COMMENT J-5

Please see related response M-9 regarding 10 years versus 12 years of dewatering. Please see related response I-7 regarding cumulative impacts of the South Pipeline deposit.

RESPONSE TO COMMENT J-6

The assumptions on which the pumping rates and the uncertainties or implications that are involved with predicting these rates have been addressed on page 4-21 of the DEIS. As noted, the pumping rate estimates have been developed for the known conditions of hydrogeology, mine schedule, and mine geometry at the site. The discussion also recognizes that geologic and hydrogeologic conditions vary significantly between mines in Nevada. Uncertainty of the anticipated design dewatering rate of 30,000 gpm was effectively evaluated in the DEIS by assessing impacts based on a significantly higher pumping rate of up to 56,500 gpm. As noted in the Response to Comment G-3 and I-49, an expanded modeling effort has been performed to evaluate the sensitivity of the model results on uncertainty in the input parameters to the model. These results are incorporated into Section 4.4.3 of the FEIS as appropriate to qualify the reliability of the results.

RESPONSE TO COMMENT J-7

The range of discipline specialists is presented in Section 6.0 of the DEIS. Please refer to response J-3 regarding cumulative hydrologic impacts. A recent publication by USGS, 1995 provides further information regarding the Proposed Project's hydrologic relationships to the Humboldt River Basin, as referenced in the FEIS.

RESPONSE TO COMMENT J-8

The pond permit required by the Nevada Division of Wildlife requires cyanide levels in ponds accessible to wildlife be maintained "below lethal levels." The NDOW has chosen this wording expressly because "safe" levels of cyanide concentration are difficult to determine. Cyanide levels below 50 ppm, for example have been nonlethal to wildlife generally, but have caused mortality in some species. The NDOW permit stipulation is designed to prevent mortality, and the mine would have to comply with this stipulation. According to Rory Lamp, NDOW Mining Biologist, the section of pond permits pertaining to cyanide has the following three stipulations as standard language:

(1) The pond must be fenced (8 foot fence);

(2) The pond must be covered or contained to preclude access; or,

(3) If the pond is too large to cover or contain such as to preclude access, then cyanide concentrations must be maintained at below lethal levels.

The permits also state that:

> Additionally, the mine should have a system available, in place or planned, that can reduce the concentration of cyanide in the pond should lethal levels be reached or exceeded.

All wildlife mortalities must be reported within 24 hours, and a quarterly report of mortalities must also be submitted.

Any change in ownership/operator must be reported within 30 days.

NDOW reserves the right to change the permit based on new information.

RESPONSE TO COMMENT J-9

Please refer to the Integrated Monitoring Plan (WMC 1995b) as well as responses to comments G-8 and D-4. The program requirements which demonstrate effective monitoring are prescribed by the regulatory agency with authority over the specific activity to be undertaken. The regulatory authority(s) also reviews and approves monitoring plans prior to implementation. The operator conducts the monitoring program in accordance with the standards and guidelines established by the authorizing agency. The current standards for methodology and Quality Control/Quality Assurance in sampling, analysis, and reporting of monitoring data serve to ensure the effectiveness of the compliance monitoring system.

RESPONSE TO COMMENT J-10

See related responses I-33 and I-34.

RESPONSE TO COMMENT J-11

The use of the term "preliminary" in regard to the acid base accounting results presented in the DEIS is misleading. The test results presented in Tables C-6 through C-9 were conducted in accordance with accepted methodology and illustrate the lack of acid-generating potential for a range of rock types and depths to be mined. These data are preliminary only from a perspective that additional exploration and ABA sampling and analyses are ongoing. This issue is clarified in Section 4.4.4 of the FEIS. See also the Responses to Comments J-13 and L-24.

All available geochemical data substantiate the conclusion that the pit lake will be alkaline. These data are summarized in Tables C-6 through C-9 in Appendix C of the FEIS, and are discussed in detail in WMC's summary document (WMC 1995c).

In addition, the presence of potentially acid-generating rocks will be closely monitored during operations (see WMC 1995b). The proposed rock monitoring will identify materials in amounts which would present a concern to the success of the reclamation plan or have the potential to impact waters of the state.

In the unlikely event potentially acid generating materials were encountered in quantities requiring special management they would be segregated and encapsulated to restrict contact with air and water thereby limiting acid production. The encapsulating waste rock would have excess neutralizing potential sufficient to neutralize any acid generated.

RESPONSE TO COMMENT J-12

The FEIS is revised to include a conservative analysis in Section 4.4.4 regarding pit lake water quality. Mitigation measures are included to address reasonably foreseeable water quality impacts (see related response I-33).

RESPONSE TO COMMENT J-13

Table 4.4-1 in the DEIS has been revised and is presented in the FEIS as Table C-6. These data are summarized in Table C-7 in the FEIS. Data in Tables C-6 and C-7, together with the predictions of post-mining pit water quality (Section 4.4.4, Table 4.4-4), substantiate the conclusion that the pit lake will be alkaline. Also, natural playa lakes encountered in the desert portions of the western U.S. are generally strongly alkaline (see Table 4.4-5). It is possible that future sampling may encounter individual zones of rock, presently undiscovered, that have the potential to generate net acidity. Nevertheless, all available data indicates that the future pit lake water will be alkaline. If any such potentially acid-producing rock was excavated, it could ultimately be stored as processed tailings or as waste rock. Tailings will be stored in a zero-discharge, lined impoundment. Waste rock will be placed on clean, unlined sediments. Since both waste rock and tailings will be stored roughly 250 feet above the water table, there is a very low potential for groundwater contamination in this arid environment.

RESPONSE TO COMMENT J-14

See related responses G-8, I-33, and J-12.

RESPONSE TO COMMENT J-15

Applicant commitments for a long-term monetary contingency fund, monitoring, and for mitigation of possible pit water quality impacts are included Section 2.2.8 and Applicant-Committed Measure 4.4.5-5 of the FEIS.

RESPONSE TO COMMENT J-16

The potential effects of surface subsidence on the containment integrity of the Tailing Heap Leach Facility were analyzed and presented in the Applications for Water Pollution Control Permit NEV93109 (SHB Agra, Inc. E92-8098, April 1993). NDEP reviewed this application and issued a permit for the construction, operation, and closure of the proposed facility based, in

part, on the adequacy of the geotechnical analysis submitted. It was determined from the subsidence analysis that the maximum surface settlement would be in the range of 20 to 30 inches; however, the settlement profile (ranging from no surface deflection to the calculated maximum) would be distributed over a large area and the differential movement (or gradient) would be relatively minor. The average settlement profile would yield a gradient of 0.05 percent and the steepest gradient would be about 0.3 percent. It was determined that this settlement profile would result in relatively low horizontal strain values, well below the values which would induce yielding in the HDPE geomembrane material proposed as a primary liner. The secondary liner is composed of 24 inches of compacted clay material. This clay liner would also remain competent under the expected conditions resulting from subsidence. To ensure that the predicted settlement would not result in depressions which prevent complete drainage of solution retained above the primary liner, the facility grading plan was designed to compensate for the predicted surface deflection. Refer to Section 2.2.3 for a further description of the facility liner system.

RESPONSE TO COMMENT J-17

See related responses G-8, I-33, J-12, and J-15.

RESPONSE TO COMMENT J-18

Most of the waste rock dumps that have been reclaimed since 1974 were pre-existing from old operations. There were no reclamation requirements or standards for these dumps, but they were reclaimed voluntarily by Cortez. Many of these reclaimed sites were then redisturbed as a result of later investigation which revealed that many of these dumps could be profitably heap leached or milled. No formal revegetation monitoring has been performed on the remnants of the reclaimed areas. Natural revegetation was successful to some degree on these areas.

Study plots were established at several areas in the 1980s and are being monitored today to establish a successful program for the future.

As stated in the DEIS: If standard revegetation efforts are unsuccessful, additional measures may also include supplemental irrigation as well as additional seedbed preparation and reseeding.

As described in the heap leach/tailings facility closure Section 2.2.7 of the FEIS and the technical report entitled "Pipeline Gold Project Use of the HELP Model to Predict Seepage from the Reclaimed Heap Leach/Tailing Storage Facility": The conceptual method for closing cells in which tailings material is impounded would involve placement of low-permeability cover material graded to minimize infiltration. The sludge in the bottoms of the solution ponds would be allowed to dry out, and representative samples would be obtained to determine the chemical characteristics of the sludges. Depending on the characteristics of the sludges, they would either be left in the ponds and buried in place, removed and placed on top of the leach facilities, or removed and placed in a permitted landfill. If it can be shown that leachate from a sludge will not access state waters, the sludge will be allowed to remain at the site.

Topsoil would be provided to a depth of 12 inches for shallow-rooted seeded vegetation.

RESPONSE TO COMMENT J-19

Cortez Gold Mine has developed and is implementing a program to remediate ground water that has been weakly contaminated by cyanide from a leaking tailings facility impoundment built in the 1970s. Cortez continues to refine the remediation program in order to make the program more efficient and to bring closure to this problem.

Cortez Gold mine's Crescent Valley operations are in compliance with all current, applicable state and federal regulations for mining. Cortez Gold Mines is also aggressively designing and constructing modern environmental controls so that all aspects of their operation exceed current regulatory requirements.

Details of the groundwater remediation program and descriptions of environmental controls being constructed are documented in the BLM's case file N64-81-001P.

RESPONSE TO COMMENT J-20

Based on its experience with leaching operations, Cortez does not expect high cyanide concentrations in the proposed tailings pond. Even though treatment of the proposed pond would be activated if cyanide levels reach 50 ppm, it is more likely the cyanide concentration will not exceed 20 ppm. Decanted solutions from the existing tailings impoundments at Cortez facilities average between 5 and 10 ppm cyanide. Cortez has no history of cyanide-related mortality. Please refer to additional mitigation in the FEIS Section 4.6.3.4 (Exclusion Balls). These would effectively prevent chronic or acute exposures. Also, as discussed in Section 4.6.2 (Exposure to Toxic Substances at Tailings Facilities), chronic toxicity is unlikely due to the rapid detoxification of cyanide in animals. The existing stipulation that cyanide concentrations be maintained below lethal levels continues to apply. Further, as noted in Response to Comment J-8, the NDOW reserves the right to change pond permits based on new information.

RESPONSE TO COMMENT J-21

Cortez has committed to providing water at impacted seeps and springs, i.e., at the sites of traditional water sources in the area. Few large wildlife species occur on the shadscale/budsage valley floor flats where the ponds would be located. Antelope is the principal wildlife species which may benefit from altered fencing design at the sites. The use of fencing to accommodate larger wildlife will be considered. Wildlife fencing includes an unbarbed bottom strand, strung at least 18 inches above the ground. [See Journal of Wildlife Management 41(3):560-571] Other medium-to-large animals in these habitats (coyotes and badgers) could pass under (if not dig under) a four-strand fence.

RESPONSE TO COMMENT J-22

The DEIS states: The environmental consequences to most wildlife resulting from direct disturbance as described in the Proposed Action are low to minimal, largely because the majority of direct disturbance would occur either adjacent to existing disturbance or in habitats not used by a wide variety of species. Mule deer seldom use the dry, open flats of the valley floor, and antelope numbers in the area are low. The nearest identified antelope-use area is east

of the Cortez Mountains, though recently antelope seem to be expanding their range in southern Crescent Valley. Similarly, areas which would be directly disturbed are not generally used by game bird species, with the exception of mourning doves. Impacts to nongame species are also predicted to be minimal.

The recommended seed mixture for reclamation reflects the goals of the post-mining land use of wildlife habitat by providing forage and cover species similar to the pre-disturbance conditions. Also refer to Response to Comment J-18.

If standard revegetation efforts are unsuccessful, additional measures may also include supplemental irrigation as well as additional seedbed preparation and reseeding. Also see Response to Comment J-18.

COMMENT LETTER K – NORTHWEST NEVADA CHAPTER PEOPLE FOR THE WEST

Comment Letter K

Northwest Nevada Chapter *People for the West!*
P. O. Box 20216
Reno, NV. 89515-0216

31 October 1994

Dave Davis
Bureau of Land Management
Battle Mountain District Office
50 Bastian Way
P. O. Box 1420
Battle Mountain, NV. 89820

RE: Cortez Pipeline Gold Deposit Draft Environmental Impact Statement

The Northwest Nevada Chapter of *People for the West!* would like to take this opportunity to thank the Battle Mountain District of the BLM for providing us with copies of the Cortez Pipeline Gold deposit Draft Environmental Impact Statement and for providing not only the earlier Reno and Elko public comment forums but the additional Battle Mountain and Crescent Valley meetings. All too often there are not enough convenient opportunities for the community (local Nevadans) to have input on projects or proposals that directly impact their lives and communities.

The Northwest Nevada Chapter of *People for the West!* feels that development of the Pipeline Deposit will have an overwhelmingly positive effect on the rural communities, peoples and economy of north-central Nevada. As anyone familiar with this part of Nevada knows mining, ranching, agriculture and gaming are the life blood of the economies of this area. The DEIS appears to have correctly identified the major impacts of this project and have honestly weighed them accordingly with respect to the negative impacts the project may produce. K-1

The current alternative considered by the DEIS seems to be the most logical. The DEIS has correctly assessed that no reduction in surface and subsurface disturbance impacts will occur with alternatives 1, 2, 3 and 4 it does recognize that a far greater risk of ground water impacts are likely if milling and leach operations are conducted at the Cortez site. Additionally, impacts to air quality from dust and vehicle emissions would be increased if ore was hauled to Cortez, not to mention added road and vehicle maintenance costs. Alternative 5 would be a reasonable option if only a high-grade core of mineralization was economically attainable. Pipeline's low-grade ore is of a much higher tenor than most mines low-grade and is thus quit profitable to mine by open-pit K-2

method. Alternative 5, while resulting in significantly less surface disturbance, is not economically feasible from the stand point of the company's investment and today's modern mining technology and may not be feasible from an underground engineering aspect either. A No Action alternative, considering the sites location, past mining history and minimal impact on the land is an unacceptable alternative.

Quite obviously dewatering of the pit in a semi-confined hydrologic basin such as Crescent Valley is going to be a major issue of concern. While the selected course of action is to dewater and reintroduce the pumped water using infiltration ponds back into the subsurface there is justifiable concern as to the projected success of such a plan. Apparently, a similar system is in use at Echo Bay's Cove-McCoy mine area. A thorough investigation of that systems problems, capabilities and proficiency would seem warranted. It would also seem appropriate that some system of monitoring of ground water infiltration should be on-going through the life of the mine to assure proper infiltration, to make seasonal adjustments and to compensate for possible unforeseen circumstances. It may also be wise to hold in reserve the option (as in alternatives 1 and 2 for discharge of the pumped water) require re-injection well-fields to mitigate unanticipated problems.

K-3

K-4

Gene (sp?) and Maynard Alves, of the Dean Ranch, both voiced concerns as to the potential problems, as it applies to their ranching enterprise, that may result from the dewatering and reinfiltration of ground water. We feel it is important for Placer to maintain a good neighbor policy with not only the Deans but with all of their neighbors and to this end urge that a constant monitoring of wells and surface water be conducted throughout the life of the mine. Such monitoring should be done on a relatively frequent basis initially, perhaps every 2 to 3 months during the early stages of pumping and then less frequently after several years once the ground water regime between the various areas is understood and there is confidence that problems will not arise. Possibly additional monitoring could be scheduled to coincide with periods of increased pumping at the various ranches most likely to be affected by the project. Monitoring should not only consist of measuring water levels but also quality of water and results should be kept by the BM BLM. Above all we feel it is vital for mining to work in close cooperation with ranching in rural Nevada so that both industries profit, grow and continue to provide stable economies for the communities.

K-5

The DEIS sites 68 seeps and springs supporting 40.5 acres of "wetlands" within the study area that may be impacted by the pit dewatering. Of primary concern to us are those seeps and springs detailed in the report and the impact they may have on ranching, game for hunters (deer and upland bird) and riparian areas should they be impacted by pumping. The flow to these springs is believed to be from higher elevations and should not be impacted by the pumping. If it is determined, at a later date, that pumping has adversely affected these areas and that this may impact recreational opportunities, such as hunting, we would like to see some sort of solution worked out for this problem so that populations of recreational game are not severely impacted. Perhaps small amounts of ground water could be diverted via water lines to the various springs to ensure continued flow.

K-6

Refilling of the pit was projected, at the Battle Mountain hearing, to take approximately 10 years (90% after 10 years). Tom Myers, member and author of the Sierra Club's commissioned Cumulative Hydrologic Effects of Open Pit Mining in the Humboldt River Drainage, suggests that the back filling of the pit, with water, after mining has ceased will cause a significant lowering of the ground water level in Crescent Valley due to the fact that water will now have to fill open space rather than pore or fracture space. We do recognize this as an unavoidable consequence to mining, however, we feel that a fair amount of this volume might be filled with rock again if carefully planned explosive charges were to be set along the abandoned pit walls just above the water table. If charges could further weaken walls, fractured by mining and faulting, to cause controlled catastrophic failure of the pit walls into the pit then considerable volume below the water table might be displaced. K-7

Since refilling of the pit with water is an unavoidable consequence then we further suggest that the BLM and Placer consider making the best out of the situation and develop a recreational lake of the site. Placer could engineer a safe access route into the pit lake and perhaps "beach / shoreline" about a portion of the pit lake. Placer would have to be released of all liability for accidents and the BLM could cooperate with the Nevada Division of Fish and Game to stock the lake. This would be a far better alternative to just abandoning the pit and letting it stand idle. K-8

The following are comments about statements, of public record, made by Elysa Rosen and Tom Myers, of the Sierra Club, at the public meeting in Battle Mountain made on October 26, 1994:

Action Alternatives: While it is true that less than one page of consideration is given per alternative there is sufficient information given to logically disallow the various alternatives. Such as: no reduced environmental impact, increased potential for groundwater impacts, increased fugitive dust and vehicle emissions, expanded heap leach operations requiring additional reclamation and increasing the opportunity of ground water contamination. Not to mention impacts to the company, which the Sierra Club is insensitive to, such as: extra start-up and operating costs, logistical operating inefficiencies which could impact the life of the mine (risk to employment and tax base) and pose a potential risk to safe operating procedures (risk to employee and environmental safety) and as in alternative 3 may result in a 12 - 15 month shutdown undoubtedly adversely impacting laid-off workers. K-9

All of the groundwater discharge alternatives have numerous reasons listed that disqualify them as legitimate alternatives. As before none of the alternative limit the scope or degree of impact, for example: larger area of long-term surface disturbance, no effective change to drawdown impact on basin, secondary discharge areas, high energy costs (ie. increased emissions from power plant - Valmi ?), unacceptance by State Engineer, and increased evaporation rates. Not to mention the increased financial impacts to the company. K-10

The explanations provided by the DEIS is sufficient, in our mind, to recognize the proposed course of action as being the best win-win scenario between allowing the project to proceed and minimizing environmental impacts.

Backfilling: The Sierra Club's suggestion that "refilling" of the pit should be given serious consideration is ludicrous. Mines operate on a shoe string thin line of processing ore into a commodity of value just below the world market price, such that if they had to expend one-third to one-half of their total mining budget on backfilling they would not show any profit. Additionally, from an environmental point of view, backfilling would require the release of additional vehicle emissions and fugitive dust into Crescent Valley. K-11

Baseline Studies (WMC): Baseline studies initiated prior to the development of a DEIS is a wise business decision which offsets the delay time in conducting an EIS study. It is also our understanding that early baseline studies on promising projects is encouraged by all lead agencies (BLM, USFS and State) because it provides data early on that can assist in focussing more attention later on at recognized problem areas. Baseline studies also allow for investigation of seasonally-sensitive flora, fauna, and seasonal variations in air quality, water quality and a variety of other parameters. It is also our understanding that baseline studies, as well as, the EIS study are to be funded by the applicant (ie. Placer) and not to be funded by the BLM (ie. taxpayer). We trust that in the rewrite of the EIS, the BLM or an outside disinterested third party will review the data and conclusions drawn from that data for accuracy or soundness. K-12

If the Sierra Club would have taken the time to investigate the Reference section of the DEIS they would have seen that a wide and diverse source of information was called upon to provide data for the DEIS; WMC was not the exclusive source of information.

Threatened, Endangered and Sensitive Species: The DEIS does address the issue of impact from drying up seeps and springs, as a result of dewatering, on threatened, endangered and sensitive species. No threatened, endangered or sensitive plant or animal was found in the study area. Only the Loggerhead shrike, a migratory species common in the Great Basin, was found in the area that would qualify as a sensitive species.

The Sierra Club suggests that there may be snail and other "organism"- communities living within the riparian areas in the study area. The source of water for all or most of the seeps and springs in the study area has been determined, to the best of the researchers ability, to originate from the surrounding highlands and would thus not be affected by dewatering. Further study on the impacts on these communities would be a waste of time, funding and energy and of no consequence to understanding any impacts dewatering may have on the study area. K-13

If wetland acreage is to be adversely affected by this project, as hypothesized by the Sierra Club, and certain Army Corp of Engineer permits are required then Placer should have to obtain the proper permits. K-14

Reclamation Surety: We are certain that the BLM is fully aware of the costs required for full reclamation of an abandoned site and has criteria set in place to determine the level of bonding. The BLM already requires a fair market value for bonding on exploration projects and so would most certainly have a reasonable idea of what it takes to reclaim a project of this size. Furthermore, Placer-Dome is a large company with many other projects in operation throughout Nevada and the rest of the U.S. and could not afford to allow a property to be abandoned, thus jeopardizing all of their other projects and investments. K-15

Water Quality: Pumped groundwater will not be reintroduced into "another groundwater system" but into the same groundwater system.

We doubt that Placer and or the BLM would not permit a facility that they know deliberately violates state or federal law. Reintroduction of pumped ground water back into the aquifer that exceeds fluoride and TDS content or evapoconcentrated selenium and mercury levels would likely result in Placer having to pay substantial fines; and we do not believe that a company of Placers stature would engineer a world-class deposit such as Pipeline to be less than a state-of-the-art facility. Echo Bay is conducting a similar style of groundwater reintroduction in a physiographicly and climaticly similar area. Detailed study of their evapoconcentration problems and mitigation procedures should prove to be helpful and informative. K-16

Pit Water: Modelling of pit water or for that fact groundwater modelling of any type is at best an approximation, and more properly described as an art not grounded by strict scientific facts. Groundwater models can not incorporate and do not have the capacity to deal with the infinite variability of a true life open model system. Therefore, it is proper to use the best possible modelling program available to study the situation. We trust that BLM reviewers will study the modelled system and determine if a proper modelling was conducted. The used models inadequacies, we suspect, may not be with how the model works with trace metals but with how much the final results disagree with the Sierra Club's desired answers. K-17

Dewatering : The Sierra Club's contention that this project should not proceed until a full study of the impacts of mine dewatering within the Humboldt River Basin is completed is nothing more than delaying tactics. The Sierra Club is notoriously famous for crying "wolf" over a suspected environmental nightmare, pointing out a culprit once the public has been whipped into a frenzied panic and then showing a pathway to solving the problem that serves their own narrow-minded interest. Example the Northern spotted owl which was used to stop logging in the Northwest. Hundreds of thousands of people have lost their jobs or have been tragically impacted and the cost of lumber has risen so high as to now add an additional $5000 to an average house. Only now do further studies reveal that the spotted owl was not endangered by the logging of old-growth forest but actually thrived in young secondary growth forest.

Regardless, the Sierra Club has based their reasoning on requiring a study of the whole Humboldt River Basin solely upon a sophomoric study of the hydrology of the basin by

Sierra Club member Tom Myers. The same individual that questions the ability of the WMC hydrologists to be impartial and to be qualified to conduct modelling studies. Seems if you apply the same litmus test to Mr. Myers one must questions his study commissioned by the same organization he is a member of and to wonder about his qualifications, based solely upon peer reviewed publications. Anyone in a professional occupation knows that there is a lot of highly questionable published material in professional journals and that conversely there are a lot of highly qualified individuals that do outstanding work yet do not care to publish.

Mr. Myers doubts the usefulness of mitigating dewatering by reinfiltration, again it is suggested that the operating Echo Bay system be studied to determine workability. Myers contends that flow from Crescent Valley must increase out of the basin due to mounding. It would seem more logical that the discharge flow of groundwater would not change appreciably due to mounding as the effects are distributed over a nearly 30 mile distance to the basins discharge point. Instead, the more localized affect of mounding immediately adjacent to, if not within, the dewatering cone of depression would establish a localized system of recirculating water. Again, these are concerns that may be more easily documented following an investigation of the Echo Bay system. K-18

In summary, the Northwest Nevada Chapter of *People for the West!* would like to see this project permitted with all efforts given to protect the environment, the people and their property most directly affected by this project and the economies of the communities, counties and the state. While a number of concerns need to be addressed in greater detail we believe that they will be worked out to everyones satisfaction. K-19

RESPONSE TO COMMENT K-1

Comment noted.

RESPONSE TO COMMENT K-2

Comment noted.

RESPONSE TO COMMENT K-3

The problems cited at Echo Bay's reinfiltration system resulted because the system was not designed based on detailed field investigations, but rather the system was modified based on observed performance of an initial series of ponds and refined as dewatering progressed. The Echo Bay reinfiltration system is currently performing well and Echo Bay's experiences have been considered in design of the Proposed Project reinfiltration system. The applicant appears to have shown appropriate characterization of the site-specific geologic and hydrogeologic conditions which could effect the reinfiltration operation, as well as demonstrating the possible success of the system by conducting small-scale and pilot-scale infiltration testing in the proposed reinfiltration areas. Furthermore, the applicant has over-designed the needed capacity of the infiltration ponds to account for variations in the geologic conditions at the proposed sites and provided for flexibility to enhance infiltration if necessary (DEIS p. 4-43 and 4-44).

RESPONSE TO COMMENT K-4

Although the exact monitoring program to be undertaken for the infiltration system will be determined based on NDEP review of the discharge permit application, a general description of proposed infiltration monitoring activities is given in the FEIS. Due to the absolute nature of the compliance requirements found in the water appropriation permits approved for this project

by the Nevada State Engineer, any practical means of preventing water right impairment would be considered for implementation should monitoring indicate the onset of possible adverse drawdown conditions. Passive vertical drains (deep gravel-backfilled borings) would be an option for corrective action.

RESPONSE TO COMMENT K-5

Beyond permit compliance monitoring requirements, surveillance monitoring would be implemented which allows collection and interpretation of all reasonably obtainable data which represent conditions occurring in the surface and groundwater systems within the area of potential effect. Cortez would undertake a reasonable intensity of water level and quality monitoring for any individual party allowing access to monitoring points. The suggestion regarding additional monitoring during seasonally high irrigation pumping periods is a good one. It should be noted that intensive operational monitoring of the hydraulic response to dewatering stress is planned which would involve an initial period of groundwater measurement and sampling on a daily basis from the start-up of the dewatering well field as it is progressively constructed. For this project, the optimum dewatering system is one which gives the desired open pit conditions while minimizing both the volume of water pumped and the depth from which potential groundwater inflow to the mine is intercepted. This would require installation of numerous observation and monitoring wells as the dewatering well field goes into production in addition to making use of all available existing wells. There is every reason to believe that this approach would allow the earliest indication of the onset of unexpected conditions in the aquifer system effected by pumping. Reporting would be required by Nevada Division of Water Resources and Nevada Division of Environmental Protection.

RESPONSE TO COMMENT K-6

Refer to Response to Comments C-16, C-19, and E-2.

RESPONSE TO COMMENT K-7

The commenter suggests backfilling through the use of explosives. The remark that significant lowering of the groundwater table will occur is of questionable foundation when analyzed in the site-specific context of the Pipeline project. This is not to say that suppressed groundwater levels will not persist for a period of time during aquifer recovery and pit lake formation. At the time pumping ceases, initial inflow to the pit will not exceed the pumping rate previously required to dewater the pit. The inflow rate will then decline as aquifer recovery progresses. Discharge will no longer flow to the infiltration system and the artificial recharge from this activity will decline as mounding subsides. It is possible that a minor depression of the local water table will exist at that time. This depression will continue to recover as natural recharge restores groundwater levels to the point where evapotranspiration again controls the water balance. It should be noted that the volume of water required to replace the rock mass in the pit excavation is minute in comparison to the volume of water stored in the basin. It should also be noted that the evaporative loss from the pit lake will create a draw on the aquifer system; but this loss will be comparable to the loss experienced by placing a quarter section parcel (approximately 160 acres) under irrigation. This is a minor loss in terms of the basin scale hydrologic balance.

RESPONSE TO COMMENT K-8

In reference to stocking the pit lake: the People for the West are directed to Section 4.6.3.5 of the FEIS, where it is noted that due to possible future metals concentrations, the BLM will require as mitigation that stocking of the pit lake be prohibited.

There are no plans to develop the pit lake as a recreational facility, since the overhanging pit wall, expected to be 250+ feet above the lake surface, cannot be guaranteed to be safely stabilized for the general public's use.

Finally, although there are no current plans to patent the Pipeline Open Pit, Cortez, under the present mining law and regulations, retains the right, and thus the possibility, of patenting the

open pit. Should Cortez do so, the BLM would not have the final say as to the use of that property.

RESPONSE TO COMMENT K-9

Comment noted.

RESPONSE TO COMMENT K-10

Comment noted.

RESPONSE TO COMMENT K-11

Refer to Section 2.4.2.3 of the FEIS.

RESPONSE TO COMMENT K-12

Comment noted.

RESPONSE TO COMMENT K-13

The occurrence of candidate species has been investigated to address the potential listing of one or more of these species. As noted in the response to the Nevada Division of Wildlife comment E-8, the November 15, 1994 candidate list indicates that the subspecies of loggerhead shrike occurring in the Great Basin is no longer considered a candidate species (Federal Register Vol. 59, No. 219, November 15, 1994, p. 58992). However, several species which may occur in the area have been added to the candidate list, also as noted in the Response to Comment E-8. Surveys for endemic snails were conducted in late 1994 to address the potential occurrence, and potential listing, of a local species. As noted in the Response to Comment I-9, snails of the genus *Pyrgulopsis*, the genus which tends toward endemism in Great Basin springs, were only found below a spring in the Cortez Mountains. This location is, however, outside the area which modeling suggests may be impacted by dewatering.

RESPONSE TO COMMENT K-14

Refer to Section 4.5.2 of the FEIS.

RESPONSE TO COMMENT K-15

The Nevada Division of Environmental Protection, Reclamation Bureau and the BLM have implemented joint bonding procedures through a memorandum of understanding. The Plan of Operations for the Pipeline Project has been reviewed by both the NDEP and BLM. The reclamation bond calculated in this review must be deemed adequate by both agencies prior to approval of the project. The Final EIS provides a figure of $7,573,024 as the most recent reclamation costs estimate for the project.

RESPONSE TO COMMENT K-16

BLM is responsible for permitting any proposed mining project on public range lands, and as such is bound by state and federal environmental laws to reasonably assure that the proposed mining operation does not knowingly violate these laws. With respect to reinfiltration of pumped groundwater that exceeds drinking water standards, consideration must be given to the natural baseline concentrations for these constituents in the groundwater. If the constituents are already in excess of these standards, the applicant must be able to show that the operations will not further degrade the water quality to a point which renders the water unfit for beneficial use, or causes the water to exceed other less stringent use standards (e.g. agricultural or industrial water standards). As stated in earlier responses, evapoconcentration effects probably will not be a concern to infiltrating water, because the rate of replenishment to and the rate of infiltration from the evaporation pond(s) should far exceed the evaporation rate from the pond(s), and thus provide a dilutional mechanism. Please see related response K-3 regarding experiences of the Echo Bay reinfiltration system.

Please see related response I-27 regarding compliance with state and federal laws pertaining to reinfiltration water quality. Similar reinfiltration of mine water at the Echo Bay Mine has been

successful in terms of infiltration capacity and no problems regarding evapoconcentration have been encountered.

RESPONSE TO COMMENT K-17

The FEIS has been revised to address pit water quality modeling. The BLM has reviewed this model and finds it adequate for impact assessment in the FEIS.

RESPONSE TO COMMENT K-18

The comment has been noted and previously addressed in the Response to Comment I-59. It is noted that experience gained at Echo Bay may be of interest, but site-specific geologic variations, the location of a playa, and the longer distance to the Humboldt River in Crescent Valley make a direct comparison of the two mine sites difficult. Please see related response K-3.

RESPONSE TO COMMENT K-19

Comment noted.

COMMENT LETTER L – WESTERN SHOSHONE RESOURCES INC.

Comment Letter L

Western Shoshone Resources Inc.

October 15, 1994

Mr. Dave Davis
Bureau of Land Management
Battle Mountain District Office
PO Box 1420
Battle Mountain, Nevada 89820

RE: Comments Regarding the "Cortez Pipeline Gold Deposit" Draft EIS

The people of the Western Shoshone Nation and their government, the Western Shoshone National Council (W.S.N.C.), as a sovereign reserves unto itself the right as a nation to exercise its dominion over its lands, waters, and other resources.

The Western Shoshone Nation's government as stated before, also reinforces the rights and obligations of the 1863 Treaty of Ruby Valley, and as such must make and protest by comment and response the "Cortez Pipeline Gold Deposit."

The 1863 Treaty of Ruby Valley is a treaty of "Peace and Friendship" and was an agreement between sovereign nations, the Western Shoshone and the United States. Nothing in this Treaty mentions the cessation of land title, thus the Western Shoshone retain a legal and moral right to their aboriginal territory, the ICC and the Supreme Court decisions notwithstanding. Because the Constitution recognizes treaties as the supreme law of the land, the U.S. has the legal responsibility to deal with the Western Shoshone on a nation-to-nation basis. Until a good faith effort is made by the Executive Branch of the government to negotiate with the Western Shoshone government, the activities of Federal agencies such as the BLM and the USDA Forest Service regarding lands within Western Shoshone territory are nothing more than a continuing usurpation and violation of Western Shoshone sovereignty. L-1

The proposed Pipeline Project has been developed without the permission or involvement of the Western Shoshone government. As a Federal agency you have a mandate to uphold the U.S. Constitution. I quote the BLM Manual of Native American Consultation H-8160-1, Chapter IV, page 9: "Indian tribes are not 'just another public' whose interests ought to be considered. In their relations with Federal agencies, Indian tribes have special rights as sovereign governments."

Another important issue relating to the Treaty of Ruby Valley is its interpretation. The Supreme Court has developed a set of rules governing the interpretation of treaties known as the "canons of treaty construction." According to these rules, treaties must be interpreted as the Indians understood them at the time of signing, ambiguities must be resolved in favor of the Indians, and in general treaties must be construed liberally in favor of the Indians. Article IV of the Treaty of Ruby Valley grants the U.S. the right to prospect and develop ore bodies such as gold and silver. At the time of signing the nature of gold mining involved the development of visible deposits conducted on a human scale. The current process of gold mining through large-scale open pits and cyanide heap leaching was not envisioned or permitted by the Treaty. Nowhere in the Treaty of Ruby Valley is water mentioned, thus the Western Shoshone people's aboriginal rights to these waters have not been extinguished. The dewatering proposed by the Cortez Joint Venture violates these water rights. L-2

While we have significant concerns that need to be addressed on an international level, we also believe the DEIS has not lived up to the requirements of U.S. law including the National Environmental Policy Act and should be redone to *fully* assess the impacts of this project. The DEIS Summary of Impacts is deceptive and calls into question the role of the BLM as an objective, uninterested administrator of "public" lands. After reading the Summary one could easily conclude that the proposed Pipeline Project would have no significant impacts to the environment, a conclusion that is not supported by the contents of the EIS. The following comments will demonstrate that this DEIS contains contradictory statements and claims that are not supported by available data. The document has also failed to examine any alternatives to the proposed project. As such the EIS has failed to provide a full and fair discussion of the significant impacts of this project as required under the National Environmental Policy Act. L-3

Water Resources

The information describing the hydrology and addressing the effects of dewatering is inadequate. It appears that all information regarding the hydrology came from the studies of Water Management Consultants, a firm hired by the Cortez Joint Venture. To have the most critical information of the EIS supplied completely by a private company employed by the project proponent is simply wrong, especially when the BLM lacks the expertise to review it. Despite the supposed availability of a summary of their report, it was never sent to the Western Shoshone after repeated requests. The water resources appendix adds little or no new information to better assess the project. In fact most of the information is duplicated from the earlier water resources data in the DEIS. The groundwater resources study area is defined by a series of straight lines. Because the full extent of drawdown will not be known until the pumping is occurring, it would seem prudent to have the entire hydrographic basin be included in the groundwater resources study area. It is disturbing to see so many conclusions made upon the results of a computer model. Because groundwater hydrology is so complex and dependent on local geology, such a model on a large scale is a simplification of the hydrology of Crescent Valley. The DEIS does not accurately describe the effects of drawdown on the higher elevation areas within the cone of effect. L-4 L-5

Baseline data concerning the hydrology is deficient. For example it is admitted that there is little information on groundwater elevations within the carbonate system around Crescent Valley. The nature of inflow from Carico Lake Valley is unclear demonstrated by phrases such as "been estimated to be," and "thought to recharge." While surface flow into Crescent Valley is estimated there are no figures for underground flow. At the opposite end of the valley, groundwater flow into the Humboldt River was only measured in October 1992, a drought year. It recognized this data was not conclusive because of the existence of irrigation ditches in the area. To state that "potential reductions in groundwater flow into the Humboldt are not anticipated" when the baseline information is inadequate is simply bad science. More comprehensive research is clearly necessary to be able to accurately measure the amount of flow into the Humboldt River. L-6

The information regarding evapotranspiration appears to be underestimated. The DEIS states that the bulk of this would occur in the playa areas where roots tap into a shallow water table. It would also occur along the many drainages of the mountains surrounding the valley as well as along the mountain slopes where shallow alluvial layers exist over bedrock. L-7

The relationship between the different aquifer layers (alluvial, carbonate, etc.) is not described, especially the rates of recharge between the different layers. The DEIS states that 60-75% of the dewatering wells will be located in the carbonate layer (shallow and deep), but this water is being infiltrated through the alluvial aquifer at a different location. Such a condition would have the potential to deplete the carbonate layer on a wider scale while not necessarily refilling it, depending upon the interactions at the point(s) of reinfiltration. The effects of the two paleo-channels are not assessed. L-8

The scale and length of dewatering modeling is inappropriate. The initial life of the mine is described as being at least twelve years but the modeling was done only for a ten year period. It is also apparent that the South Pipeline deposit will be developed, especially if the Pipeline Project is permitted. The portion of the deposit that exists above the water table is already being developed as the Crescent Pit. The existence of at least 3.68 million ounces of gold in the South Pipeline and the intent to develop it has been announced in the *International California Mining Journal*. Thus it seems highly deceitful for the BLM to not assess the greater impacts from dewatering caused by this expansion. The inclusion of this analysis would indicate much greater impacts including increased drawdown and permanent loss of groundwater through evaporation in a larger pit lake. The potential of future dewatering at the Cortez pit should also be analyzed. The combined evaporation rates from these impacts will have a severe impact on groundwater quantities in Crescent Valley Hydrographic Basin. L-9 L-10

In the Summary of Impacts the effects of pit dewatering on the water table and associated components such as surface water and springs, etc. "would be lessened substantially by a reinfiltration system designed to return an estimated 90% or more of the pumped water to the groundwater system." In the entire DEIS only approximately 2-1/2 pages are devoted to the analysis and description of the system which will supposedly mitigate the most serious and widespread effects of dewatering. Nowhere is there evidence presented to support this conclusion. The success of mitigation depends largely on groundwater mounding beneath the facilities to create a reverse gradient, yet this crucial action may or may not occur according to the document. In fact, the DEIS reads: L-11

> "Over time, the actual effectiveness of infiltration in recharging the alluvial aquifer as simulated will depend, in part, on local hydraulic characteristics of the intervening soil sequences between the individual infiltration site and the aquifer area targeted for recharge."

No information is provided on these local hydraulic characteristics so it is impossible to assess the potential success of such measures. This statement and others indicate that the overall success of this mitigation strategy is unknown and represents a large-scale experiment.

Regarding mounding, if this process is successful in creating a reverse gradient in the groundwater which will effectively mitigate the effects of drawdown, is it not possible that the reverse gradient would interrupt the flow of groundwater from Carico Lake Valley, and southern Crescent Valley, thereby reducing the amount of groundwater flowing into the Humboldt River? On the other hand it is quite possible that the infiltration and mounding of water in the alluvial aquifer would increase the flow of groundwater into the Humboldt River to be lost downstream, especially since the reinfiltration point is five miles closer the Humboldt. L-12

The specific details of reinfiltration sites are contradictory and unclear. The DEIS states that the entire reinfiltration set-up will not disturb more than 126 acres, but on the maps, the proposed Robertson reinfiltration is larger than that. Also the preferred initial reinfiltration site (Altenburg) is located in such a way that it would not mitigate dewatering (if it operated as planned to which no evidence has been provided suggesting it would) to the east, southeast, south, southwest, and westerly directions, the location of many springs, surface water (Cooks Creek), and the polluted aquifer beneath the Cortez Mine. Have reinfiltration schemes such as this been constructed at other mines and what havebeen the results? L-13

The monitoring and mitigation of drawdown is insufficient. Only 24 of approximately 70 springs in the area will be monitored and all eight of the monitored springs in the eastern section are clustered in the same location. The unique wetland community at Hot Springs Point would not be monitored despite its ecological significance. The use of the 20-ft. drawdown contour to indicate significant impact is unfair, as the actual extent of drawdown is not known and certain springs and seeps could be affected by a lesser drawdown. According to the monitoring plans even reduced flow in a spring would not be considered significant unless wells demonstrated a drop of 10 feet or more. If this were to occur, then a detailed hydrologic investigation would occur. This suggests a long period of time before the conclusion that dewatering was affecting any particular spring. A longer period would then be needed to create anew reinfiltration pond. This indicates that springs and seeps could dry up before any effective mitigation happens. It is also not clear what effects have to occur to compel the mine to construct additional reinfiltration facilities. L-14 L-15

The information regarding springs was insufficient and inaccurate. The DEIS states that two spring systems in Crescent Valley are thermal. This is incorrect; there are three thermal spring systems, the third located west of Hand-Me-Down Creek near the Dann Ranch. The flow from the largest most complex spring/wetlands complex at Hot Springs Point has not been measured. The estimated total discharge for all the springs is far too low, waters emanating on Dean Ranch lands could account for 150-200 gpm. The amount of wetlands supported by these springs is also too low. There has been no localized hydrological study of individual springs to determine their sources in relation to the aquifer. The document frequently uses phrases such as "which may issue from... the alluvium," and "source is believed to be," but lacks concrete scientific analysis to back these claims. Furthermore, the DEIS reads: L-16

> "Modeling suggests those seeps and springs located below the bedrock-alluvium contact have the highest probability of being affected, but some springs above this contact may be affected as well depending upon local groundwater hydrology." L-17

This directly contradicts the statement in the Summary of Impacts that "there would be no impacts to riparian areas or wetlands directly or indirectly due to the drawdown of aquifers."

Other baseline data regarding surface waters and riparian/wetlands areas is inadequate or not available. Which areas are considered jurisdictional wetlands? Waters, and adjoining wetland/meadow areas around the Dean Ranch were omitted. Stream surveys were completed in 1991 on less than half of the drainages in the study area. This information is not up to date. Fisheries information is also inaccurate. Brock Canyon is known to support dace populations. Frenchie and Duff Canyons most certainly contain trout. It is possible dace populations exist in other streams as well. There is no hard data on the use of the specific wetlands in Crescent Valley, just generalized statements regarding wildlife use. Why isn't there specific information regarding the use of these areas, and how can one assess the impacts of the loss of these areas if this information is not available. The DEIS makes the claim that "no cumulative impacts to perennial streams are anticipated because no perennial drainages are located in the vicinity of the Proposed Action area." Yet this is contradicted by the potential effects to Cook and Indian Creeks which are both within the drawdown zone. L-18

What is extremely disconcerting is the fact that the document does not analyze the effects of pit refilling. While the infiltration may mitigate some effects of drawdown, what happens when pumping is completed and the pit begins to refill? The cumulative impacts to the entire Humboldt River basin must be addressed. The period of refilling for the Proposed Action combined with the refilling of numerous other open pits within the basin will cause a deficit, and could have enormous environmental and economic consequences. L-19

The impacts to water quality due to the Proposed Action have not been adequately addressed. Facilities such as this have a history of chemical leaks and spills. It is especially an issue here, as there exist numerous faults and fractures within the carbonate layer which provide subsurface pathways for migration of releases. This can amplify the effects of a leak and make remediation such as the pumpback wells at Cortez ineffective. The information on earthquake activity would seem to indicate the possibility of a significant earthquake in the not too distant future. It is impossible to interpret the probability of this from the data presented. Also of concern is the statement "rupturing of a liner may be possible; however the facility has been designed according to appropriate design criteria." This implies a recognition that a future earthquake can damage the heap leach/tailings facility but the mine feels no responsibility to take precautions beyond those required by law. The subsidence of land beneath the tailings heap leach facility also increases the chance of ripping the liners. The clay liner could easily be cracked by this subsidence, and the single plastic liner is also subject to penetration by the engineered dikes constructed on top of it. L-20 L-21 L-22

Water quality at the reinfiltration facilities and the pit will be subject to degradation through evaporation. This process will concentrate minerals and other solids in the water, which already are present at high levels. Proposed mitiga-

tion such as chemical pre-treatment of reinfiltrated waters is simply not feasible at such a scale (this would be extremely expensive). While it is believed that enough neutralizing material is present to prevent the creation of acid mine drainage, how long do these neutralizing materials work? Fifty years from now will they still be neutralizing? This has not been discussed. While cyanide has been an issue, other potential water contaminates such as arsenic, selenium, and fluoride all have the potential of concentrating in the groundwater. The DEIS does not address the eventual degradation of pit lake water. Mitigation is offered in the form of monitoring which under current NDEP regulations can only continue for a thirty-year period. Perhaps the BLM needs to be reminded that under CEQNEPA regulations, "monitoring" is not considered adequate mitigation. This is especially true when water quality will invariably be degraded over the course of time. This pit will be permanent, therefore the impacts of this pit one-hundred-plus years from now must be examined. L-23 L-24 L-25

Vegetation and Wildlife

The DEIS lacks definitive information regarding both vegetation and wildlife populations and use patterns in the areas to be potentially affected. This is especially true regarding the wetland/riparian areas around the springs/seeps. Because of the increased biological diversity around these areas, it is especially important to know what is at stake. Data that is presented is either general or out of date. For example, out of four sage hen leks in the general areas, only one had been checked in the last five years, the others verified 20 or more years ago. There is no information on plant species present at the springs. There is no information on the presence of snail species in these locations. While valley floor wetlands described as potential northern harrier and long-billed curlew forage and nesting habitats are mentioned, actual information regarding present use by these species is nonexistent. Without this information no assessment of impacts can be made. L-26 L-27 L-28

The indirect and cumulative effects on game populations are not explained in the document. Because of the increase in both temporary and permanent populations associated with this and other projects there would also be an increase in demand for hunting and fishing. What are the game population levels in Crescent Valley and how will they respond to increased hunting pressures? It is admitted that road building associated with mineral development has negatively impacted mule deer; how will this be exacerbated by the Proposed Action? L-29

Reclamation

The DEIS inadequately deals with many aspects regarding reclamation. Poor soil quality combined with loss of nutrient cycling ability and water holding capacity due to disturbance, stockpiling and erosion calls into question the probability of reclamation success. The DEIS reads "due to the inherent low annual precipitation in the proposed action area, standard revegetation efforts may be unsuccessful except in years of above normal precipitation." This would seem to contradict the claims of being able to replace all AUMs lost due to the project. How is the anticipated difficulty in reclamation accounted for in the reclamation bond? The DEIS states that previous reclamation has been done at the current Cortez Mine but does not examine the results of this reclamation. It is also unclear on whether there will be sufficient soil to accomplish reclamation. The waste rock dumps will be reclaimed with "available soil." What measures will be taken if there is not enough soil? It is unclear what will be done with toxic wastes remaining in the heap leach/tailings facility after closure. Which landfill will it be deposited in, and what are the impacts of this procedure? There is no discussion on how the reclamation bond was calculated, so it is impossible for the reader to assess if this bond is sufficient to fully reclaim the site. There is also no discussion of pit refilling as part of mine closure/reclamation. There must be a complete guarantee by the mine for full reclamation including the possibility of complications due to high contaminant levels in the heap leach/tailings facility. L-30 L-31 L-32 L-33 L-34 L-35 L-35a

Air Quality

The Summary of Impacts states that "there would be no significant contributions to cumulative 24-hour or annual emissions..." With a project of this size and considering its future expansion how could there not be an increase in emissions? Calculations concerning the amount of particulate matter are suspect because of the high variability caused by atmospheric conditions. The possibility of exceeding the toxic standards in relation to crystalline silica exists. If it is possible that limits may be exceeded, pollution control devices such as a wet scrubber should be installed prior to operation. How long would toxic releases of crystalline silica continue until technology was installed? These issues are especially important because two different families live downwind of the Proposed Action; the Alves family and the Dann family. These people will be exposed to the majority of emissions from this facility and calculations based on average and current models do not accurately reflect the risks experienced by these families. Dispersion modeling was completed using data from only one year of meteorological information from two different locations, both over 50 miles from Crescent Valley. This calls into question the accuracy of modeling results. L-36 L-37 L-38

The monitoring of air quality is also of concern. Currently this is being done by the Cortez Mine, at the present facility. Because the mine is located at the base of a mountain, southeast of the Pipeline site, it is quite possible that this facility will not get accurate data concerning the effects of the Proposed Action. There is also a question of the fox guard- L-39

ing the hen house by having this information collected by Cortez. Because data could potentially affect mine operations there is conflict of interest apparent. An independent state or federal monitoring site located in the eastern portion of Crescent Valley would better monitor conditions and protect permanent residents in the area. L-39

Livestock Grazing

Information regarding the use of the South Buckhorn Allotment by the Dann family and the Western Shoshone Nation was entirely omitted. L-40

Cultural Resources

The Summary of Impacts section regarding Cultural Resources reads: "The Cortez Expansion EIS Native American consultation identified no sites of traditional or religious importance to Native Americans that would be significantly affected. The Proposed Action falls within the same area as that analyzed for the expansion EIS; therefore, the findings with regard to Native American concerns remain the same."

The Bureau of Land Management has not lived up to its responsibility to consult with Native Americans regarding the Proposed Action. This responsibility is described in detail with BLM Manual Section 8160 and Handbook H-8160-1. The Pipeline Project would occur on Western Shoshone lands as recognized in the Treaty of Ruby Valley and would be located approximately 15 miles southwest of the Dann Ranch. This ranch is the home of an extended Western Shoshone family who have occupied the general area since pre-settlement times. No effort was made to consult with the family or any other Western Shoshone. The explanation that consultation was done for the earlier Cortez Mine Expansion EIS and thus was not needed for the Pipeline Project is ridiculous. The Cortez Mine Expansion involved additions to the previously existing mine which did not require groundwater pumping. The Pipeline Project is an entirely new mine which requires massive groundwater pumping with the potential to affect springs throughout Crescent Valley. Even if the Cortez Mine Expansion EIS Cultural Resource findings were the only basis on which to judge the Pipeline Project (which they decidedly are not) careful reading would discover that: L-41 L-42

> "Prayers are especially important in connection with places and spirits that live there. Prayers are made to the spirits of plants and animals to the "Little Men"; and to the spirits of places that are regarded as power places...Power spots are always on mountains or on tops of prominent isolated rock formations or in springs."

This alone would suggest significant impacts to traditional cultural resources due to the Pipeline Project.

The aforestated comments are in no way to be construed as condonement of the Cortez Pipeline Gold Deposit Project or to be assumed as giving permission or consent for this project's existence. The Western Shoshone National Council and its environmental agency, Western Shoshone Resources, Incorporated, vehemently oppose this project.

Jack C. Orr

Jack C. Orr, Chairman
W.S.R.I.

Text researched and prepared by the "Western Shoshone Defense Project" in conjunction with and for Western Shoshone Resources, Inc. The Western Shoshone Defense Project office is located in Crescent Valley and has firsthand knowledge of the area's fragile ecosystem and Western Shoshone concerns in the region. The Defense Project will be a constant protagonist of the Western Shoshone and will be a vigilant monitor of the Cortez project. WESTERN SHOSHONE DEFENSE PROJECT, GENERAL DELIVERY, CRESCENT VALLEY, NV 89821, (702) 468-0230, FAX (702) 468-0237.

RESPONSE TO COMMENT L-1

Negotiations between the Secretary of Interior's office and the Western Shoshone were ongoing as of the time of the preparation of this FEIS.

The NEPA process, specifically this FEIS, is not the proper format for further discussions related to the 1863 Treaty of Ruby Valley. The purpose of the FEIS is to analyze and disclose the impacts of Cortez's proposed Pipeline project and any decisions the Nevada State Director of the BLM must make related to permitting this project.

The BLM, working under the Executive branch of the U.S. government, under the President of the United States, has no options but to follow directions provided by the Judicial branch. Since the Indian Claims Commission and the Supreme Court have ruled on the issues raised in this comment, i.e. rulings related to the Dann's and Western Shoshone sovereignty claims under the Ruby Valley Treaty, the BLM is obligated to follow that direction.

The BLM is fully cognizant of its obligations to treat all Native American groups as sovereign nations. This includes the Western Shoshones. The BLM believes it has complied with all of the appropriate laws pertaining to consultation with Native American groups, as well as requisite religious and cultural concerns. Please refer to Section 3.11.4 of Volume I of the FEIS for the discussion related to these issues.

RESPONSE TO COMMENT L-2

Refer to response to comment L-1.

RESPONSE TO COMMENT L-3

Please note the summary of the FEIS has been revised to reflect all changes to sections of the FEIS. The summary is consistent with these changes.

Eleven different alternatives were addressed relating to project components and discharge of pumped water. In accordance with NEPA regulations a combination of technical, environmental, and economic factors was considered in this evaluation. Based on this analysis, no feasible alternatives were retained for detailed analysis. Refer to Response to Comment C-10 for further discussion of alternatives related to pit backfilling, reinjection of water, and alternative locations for waste rock dumps and tailings facilities. Also refer to revised Section 2.4 of Volume I of the FEIS for analysis of a pit backfilling alternative.

RESPONSE TO COMMENT L-4

Refer to response I-5, which reflects the participation of Dr. Leland Mink et al., for interdisciplinary team responsibilities on hydrology issues for the Pipeline Draft EIS.

CEQ regulations, 40 CFR 1506.5 (a) specifically provide any federal agency the opportunity to use environmental information provided by an applicant, providing the agency reviews and determines the adequacy of that data. Response I-5 reflects Dr. Mink's et al. responsibilities in the preparations of the DEIS, thus complying with 40 CFR 1506.5.

The public comments generated on the Draft EIS necessitated that the BLM obtain the services of Dr. Tom Olsen of the BLM's Denver Service Center. Dr. Olsen's role was to guide the preparation and completion of the hydrology portions of the FEIS.

With respect to requests for any and all reports requested by any Native American groups: to the best of the Battle Mountain BLM Office's knowledge, any and all requests made for information have been complied with in a timely manner. The only requests from any Native American group the BLM is aware of came from the Western Shoshone Defense Project. There was a delay in receiving one particular document that apparently was lost in the mail.

When informed of this, the BLM's Pipeline Project Manager immediately sent another copy to the Western Shoshone Defense Project. Mr. Chris Sewall of the Defense Project confirmed receipt of that second mailing (by telephone conversation) 2 days later.

RESPONSE TO COMMENT L-5

As noted in Section 3.4.1 of the DEIS, the groundwater resources study area corresponds to the area identified as potentially impacted by drawdown of the groundwater table during pit dewatering. The groundwater model domain for these studies was established to include a large enough area around the proposed mine so that the model boundaries would not influence the estimation of groundwater table drawdown in the vicinity of the proposed mine. The model domain generally conforms to the boundaries of the Crescent Valley Hydrographic Basin and also includes a small area in the northeastern portion of Carico Lake Valley. The expanded model includes an area north to the Humboldt River (WMC, 1995). While the reviewer is correct that the model is a simplification of the hydrology of Crescent Valley, it must also be recognized that the model is based on the local hydrologic conditions which are based on the data acquired by field investigations to establish an adequate definition of the aquifer system and its hydraulic properties. The model can therefore, provide a reasonable determination of drawdown effects in the region. The presence of numerous boundaries (i.e., faults and contacts with lower permeability formations) to flow in the bedrock aquifers indicates that drawdown effects are not expected for the higher elevation regions.

RESPONSE TO COMMENT L-6

The reason that there is little information on groundwater levels in the carbonate aquifer in Crescent Valley is that most of the existing wells in the valley are completed in the alluvial aquifer. The applicant has supplemented this lack of information by installing seven permanent monitoring wells into the carbonate aquifer in the vicinity of the proposed pit and measuring water levels in over 180 other wells and exploration holes. The reviewer's comment that the use of phrases like "been estimated to be" and "thought to recharge" suggests that the nature of inflow from Carico Lake Valley is unclear has been noted. Such descriptions are qualified in the FEIS where possible to avoid ambiguities which may be suggested. Estimates of

groundwater inflow to the Humboldt River were made in October 1992 to evaluate the amount of baseflow contribution to the river. Baseflow is defined as stream flow during the low-flow period when irrigation diversions and evapotranspiration are minimized and groundwater contributions to stream flow are not influenced by seasonal runoff. The recognition of irrigation ditches in the area qualifies the possible diversion of some of the river water (though unlikely at this time of year), which could serve to underestimate the contribution of groundwater. Estimates of baseflow for this portion of the river by Newmont Gold Company in the DEIS for the South Operation Area Project indicated a baseflow of about 1 cfs (450 gpm). Zones (1961) reported a baseflow estimate of about 1.5 cfs (675 gpm). These estimates are less than but comparable to the estimate of 2,700 gpm. Concerns that dewatering will impact the amount of baseflow to the river have been previously noted and are addressed in the Response to Comment I-59.

RESPONSE TO COMMENT L-7

Evapotranspiration was accounted for at higher elevations and along drainages in the DEIS. In Appendix C of the DEIS, page C-11, it was stated that evapotranspiration which occurs in the upland and higher elevation is accounted for indirectly in the method (i.e. the Maxey-Eakin method) used to estimate recharge to basin storage. This method averages out the differences in evapotranspiration between drainages and upland areas and assumes that the amount of recharge decreases and the amount of evapotranspiration increases from higher elevation zones to lower elevation zones within the basin.

RESPONSE TO COMMENT L-8

The relationship between the different aquifer units was presented in Section 3.4.3 and Appendix C of the DEIS. As noted in Section C.2.1.2 of the DEIS, groundwater levels within the alluvium are generally continuous with those in the underlying Roberts Mountain Formation (i.e. carbonate aquifer), which suggests hydraulic connection between these two units under existing conditions. The dewatering system is designed so that the carbonate system is depleted locally to a condition where the groundwater surface is maintained below the pit bottom. Refilling of the carbonate aquifer in the region of the pit is expected to proceed

quickly at first due to the large water level difference (i.e. gradient) created between this aquifer and the overlying alluvial aquifer during dewatering. The rate of infilling the pit (and the depleted portion of the carbonate aquifer) will decrease with time as the gradient declines. Paleochannels are expected to occur in the alluvial fan deposits and are accounted in the range of hydraulic parameters for the alluvial aquifer. The locations and continuity of paleochannels is difficult to predict, however where they are known to occur, these locations will be identified as optimum locations for dewatering wells and infiltration sites.

RESPONSE TO COMMENT L-9

A similar concern was expressed and is addressed in Comment M-9. The FEIS text has been clarified in Section 2.2.2, subheading Dewatering of the Open Pit Mine.

RESPONSE TO COMMENT L-10

The relationship of the Proposed Project to cumulative impacts is addressed in responses I-3 and I-7.

RESPONSE TO COMMENT L-11

Refer to Section 2.2.2 "Water Management" in revised FEIS.

RESPONSE TO COMMENT L-12

The comment has been noted and previously addressed in the Response to Comment I-59.

RESPONSE TO COMMENT L-13

Refer to Section 2.2.2 "Water Management" in revised FEIS. The DEIS describes the proposed reinfiltration system on p. 2-19 and Figure 2.2-3 as a number of individual sites located within a 1 mile wide semi-circular band located 3.5 miles from the pit. The total area of conveyance pipes access and infiltration sites is estimated to require 126 acres. Two parcels of land have

been identified as potential infiltration sites, although the entire area of the parcels is not needed for infiltration facilities. Actual infiltration sites will be located throughout the 1 mile wide semi-circular band, and will be operated in a rotational fashion to optimize infiltration and to counter any identified impacts to springs, surface water, or groundwater users. For further clarification, refer to Volume I, Section 2.0, of the FEIS.

RESPONSE TO COMMENT L-14

A total of 68 springs have been identified for monitoring. Please refer to the Integrated Monitoring Plan (WMC 1995b) which is summarized in the FEIS, Appendix D of Volume I. The complete Plan is available in limited quantities for review from the BLM District office in Battle Mountain, Nevada. As shown on Figure D-1 of the DEIS, well number 16 near Hot Springs Point will be monitored to detect potential regional groundwater effects.

RESPONSE TO COMMENT L-15

The 20-foot drawdown contour was not intended as the criteria for determination of a significant impact to springs. Any reduction in flow is considered significant, as stated in Section 4.4.4 of the DEIS. This criterion is clarified in Section 4.4.1 of the FEIS and the groundwater model has been enhanced to use the 10-foot drawdown as an indication of potential impact to springs. Appendix D of the FEIS includes a summary of the Integrated Monitoring Plan (WMC 1995b). This Plan clarifies monitoring methods, frequency, action thresholds, and mitigation of potential impacts to springs. Spring flow and water levels in nearby monitoring wells will be monitored quarterly and semi-annually. See Table D-1 of the FEIS. There may in fact be delays between the time that an impact occurs at a spring, is detected by monitoring, the cause is determined, and mitigation is implemented. The Nevada State Engineer has authority to regulate the mine's dewatering and infiltration systems to protect existing water rights. However, the applicant-committed design, monitoring, and mitigation measures are established to prevent the reduction of spring flows or adverse effects on existing water uses.

RESPONSE TO COMMENT L-16

The comment is noted and the text on p. 3-23 of the DEIS is corrected in the FEIS to indicate three thermal spring systems. The spring mentioned west of Hand-Me-Down Creek is included on Table 3.5-2, Figure 3.4-4, and the JBR (1993) Report as spring number 28/49-10, 12. A field survey was conducted for Cortez by JBR to identify and measure spring flows. The springs on the Dean ranch mentioned by the commenter may also include flows from several flowing wells on this property. These wells are located outside the area of expected drawdown. Please see related response EL-11. It is acknowledged that even with the substantial amount of information collected for local hydrologic studies it cannot always be determined exactly what geologic condition is responsible for a given spring.

RESPONSE TO COMMENT L-17

The referenced statement does not contradict the Summary of Impacts section because the effects of reinfiltration, monitoring, and possible replacement of affected riparian on wetland areas would support the no impact conclusion. Please refer to the FEIS (Section 4.4.2) for a revised discussion of impacts to springs and seeps.

RESPONSE TO COMMENT L-18

Jurisdictional wetlands are identified in Table 3.5-2. Please refer to response to comments L-16 and EL-11 for a discussion of wetlands and water sources on the Dean ranch. Refer to Responses to Comments A-1 and A-2 for a discussion of the 1991 stream surveys.

Refer to revised text in Section 3.6.2 of the FEIS regarding fisheries information. No additional fisheries have been found in streams within the cumulative impact assessment area. Modeling indicates that none of these streams would be impacted by dewatering. The statement regarding perennial streams in the vicinity of the Proposed Action may be confusing. No perennial streams exist within areas directly affected by mine construction activities (i.e., within the footprint of the mine and mine facilities). The expanded groundwater modeling performed for

the FEIS indicates that Cooks Creek would not be affected by drawdown after reinfiltration is considered.

The springs which form the principal sources of Indian Creek originate from aquifers which modeling suggests would not be impacted by the proposed dewatering. Accordingly, significant impacts to Indian Creek are not anticipated.

Specific information regarding wildlife use of seeps and springs is provided in the Seep and Spring Report (JBR 1993). This report is available for review at the locations noted at the beginning of Sections 3 and 4 of the FEIS. This report, and Appendix H of the FEIS also review habitat and wildlife either observed or expected at seeps and springs. The presence of suitable habitat within a species' range can be used to assess the potential occurrence of that species, even if the species was not present during a site-specific survey. This approach avoids discounting the presence of species, even if they were not actually observed at a specific site during site surveys.

RESPONSE TO COMMENT L-19

The effect of pit refilling is analyzed in the expanded groundwater model (WMC 1995a) and discussed in Section 4.4.3 of the FEIS. Because of the mounding associated with reinfiltration, the time and areal extent of residual drawdown are limited. The model indicates about 93 percent recovery of water levels near the pit within 10 years after dewatering is stopped. See related responses I-6 and I-59 regarding cumulative effects on the Humboldt River.

RESPONSE TO COMMENT L-20

Additional discussion regarding impacts to water quality have been added in Section 4.4.4 of the FEIS.

RESPONSE TO COMMENT L-21

The investigation of the geophysical setting to determine the appropriate design criteria for the facilities revealed that a magnitude 6.25 earthquake would be expected to occur every 1,736 years within each 1,000 square kilometer area in the site region (Sergent, Hauskins, and Beckwith 1993). The site region was defined by a 200-kilometer radius around the proposed facility. The occurrence of an earthquake of magnitude 7 or greater would be less likely (less frequent) than that for an event of magnitude 6.25.

The Seismology Laboratory at the University of Nevada-Reno was consulted for information on relationships between recent newsworthy seismic activity reported in western Nevada and California and on earthquake potential in the area of the Proposed Action. Personnel at this office stated that seismic activity centered in western Nevada and California occasionally appears related to later increased seismic activity further to the east within the western United States. However, data are not available to conclude that increased seismic activity would be expected in the area of the Proposed Action as a result of seismic events further to the west (D. DePolo 1995). In addition, staff at the National Geophysical Data stated that although there are several examples of such related occurrences in the western United States, the area of the Proposed Action is expected to be relatively quiet (seismically) over the next several years, based on available data (L. Whiteside 1995).

The FEIS text in Section 3.2.3 has been updated with this information.

RESPONSE TO COMMENT L-22

Refer to Response to Comment J-16 regarding surface subsidence and liner integrity. Seismic event probability and magnitude analysis as well as appropriate design criteria were given lengthy consideration in the detailed geotechnical design report provided to NDEP in the permitting process for the Pipeline facilities. All Pipeline facilities are designed to withstand the effects of the expected seismic event and remain competent. Although it is possible for an earthquake to occur which exceeds the design magnitude, the very low probability of this occurrence results in a risk level that is acceptable.

RESPONSE TO COMMENT L-23

Refer to Response to Comment I-33 regarding pit lake quality and Response to Comment I-30 regarding infiltration water quality effects. Evaporation will have no appreciable effect on the quality of water flowing through the infiltration system. For the Pipeline site, net evaporation is approximately 44 inches per year, or about 0.01 foot per day. Testwork at the site has shown that infiltration rates can be expected to vary between 1 foot per day to 10 feet per day. An infiltration test of 6 weeks duration at 2,300 gallons per minute indicates that during full-scale operations, discharge water would still infiltrate at a rate more than 100 times greater than it would evaporate. The residence time for which water would be exposed to the full effects of surface evaporation is not long enough for evaporative concentration of dissolved salts to be of concern.

RESPONSE TO COMMENT L-24

The geochemical testing data presented in Tables C-6 and C-7 show that the rock to be mined has a great excess of neutralization potential (NP) when compared to acid-generating potential (AP). Practical experience has shown that when rock to be mined has an NP/AP ratio of 3.0 or greater, or a net neutralization potential (AP - NP) of greater than 20 (see Table 4.4-2 of the FEIS), it has a low potential for generation of acidity. These generalizations are discussed in Section 4.4.4, subheading. Water Quality Degradation Due to Drainage from Ore Stockpiles, Waste Rock, Leach Pads, and Tailings. Geochemical modeling of the Pipeline pit indicates that the waters will be alkaline immediately after filling of the pit, and will become progressively more alkaline. These results are consistent with the predicted water quality for several other Nevada pit lakes that have been modeled. Also, as shown in Table 4.4-6, data from actual Nevada gold pit lakes indicate that such lakes tend to be alkaline. The exceptions are sites that have been mined into sulfide-rich rock, or where waste rock or tailings ARD was allowed to flow into the pit. Pit water quality will degrade with time, as discussed in Section 4.4.4, but those chemical changes are likely to involve a great increase in total alkalinity (see Table 4.4-4) which would neutralize the relatively minor amounts of acidity potentially produced.

RESPONSE TO COMMENT L-25

See related responses I-33, I-35, and L-24. Table 4.4-5 summarizes predicted pit water quality for 250 years post-mining.

RESPONSE TO COMMENTS L-26, L-27, AND L-28

See the Response to Comment L-18. Specific details on vegetation and, specifically, jurisdictional wetlands recorded at seeps and springs and wildlife observed or expected at these sites is presented in Table 3.5-2 and Appendix H in the FEIS, and in the Seep and Spring Report (JBR 1993). In addition, Section 3.6.3 of the FEIS has been revised to report the results of a springsnail survey.

Aerial surveys conducted by the NDOW in the spring of 1994 found no activity at any of the four sage grouse leks mentioned in the DEIS. However, a new lek was found farther north, near Grouse Creek, within the cumulative assessment area. Another lek is believed to exist near the Utah Mine, also within the cumulative assessment area (personal communication, Larry Teske, Game Biologist, NDOW, January 1995).

Please refer to Section 3.6.3 in Volume I of the FEIS for a description of springsnail surveys completed after the DEIS was released. Wildlife use recorded in the study area is identified in Table 3.6-2 of Volume I of the FEIS.

RESPONSE TO COMMENT L-29

The NDOW does not attempt to count all deer in an area or management unit. Instead, hunting quotas are set based on trends in buck-to-doe and adult-to-fawn ratios. Trends in big game populations are discussed in Section 3.6.2 of the DEIS and FEIS. Impacts to game species are addressed in Section 4.6.2 of the FEIS. The project (including upgraded haul roads) would not affect lands identified as big game range, though, as noted, small numbers of deer and antelope may occasionally occur in the area. Cover on the valley floor habitats of the project area is sparse, resulting in little deer use. Antelope numbers in the area are low, and would not suffer

significant displacement due to the proposed project. Legal hunting would continue to be regulated by the Nevada Division of Wildlife, and hunting quotas for the area would continue to be set such that the game populations are not jeopardized. There may, instead, be fewer hunters awarded big game tags on a per capita basis, and game bird seasons could be shortened if hunting pressure increased significantly. The increased number of people in the area which could occur as a result of the Proposed Action could, however, result in increased poaching.

RESPONSE TO COMMENT L-30

If standard revegetation efforts are unsuccessful because of poor soil quality and low moisture, additional measures will include supplemental irrigation as well as additional seedbed preparation and reseeding. Also, because of the potential for loss of nutrient cycling and water-holding capacity, topsoil piles will be reseeded. The goal is to prevent erosion and maintain organics and microbial activity in the soil. The recommended seed mixture reflects the goals of the post-mining land uses of grazing and wildlife habitat by providing forage and cover species similar to the pre-disturbance conditions.

The cumulative loss of AUMs related to existing, proposed, and foreseeable future mining activities in the study area would be 613 (98 AUMs would be lost as a result of the proposed Pipeline project). Refer to Section 4.10.3.1 of the FEIS for discussion of mitigation.

RESPONSE TO COMMENT L-31

Revegetation costs in the reclamation bond are based on historic seeding and fertilizing costs at Cortez Gold Mines and Bald Mountain Mine, another Placer Dome U.S. Inc. operating mine. Reclamation at the Bald Mountain Mine has been successful, as indicated by this mine's recent receipt of the Nevada State Reclamation award. Cortez may be required to make several reasonable efforts to achieve good revegetation. The bond will not be released until revegetation efforts are considered acceptable.

Previous reclamation is discussed in Response to Comment J-18.

RESPONSE TO COMMENT L-32

Although the revegetation at Cortez has had only moderate success due to the comparatively more arid precipitation zone, the reclamation approach for both of these mines is that state-of-the-art reclamation techniques will be used to ensure the best possible results.

RESPONSE TO COMMENT L-33

According to the topsoil balance analysis in the EIS, 5.2 million cubic yards of growth medium would be available for salvage. A volume of 3.2 million cubic yards of growth medium would be required to topsoil the 1,639 acres of reclaimed sites, leaving an excess of 2.0 million cubic yards of growth medium. [Note: 235 acres of open pit would remain as a permanently disturbed site.] Approximately 46,000 cubic yards of the excess topsoil materials would be hauled to the Cortez Mine Expansion reclamation project.

RESPONSE TO COMMENT L-34

Cortez would be required to show one of the following: (1) That the materials meet NDEP guidelines for detoxification success. If this is not achieved, (2) That the materials will be stored in such a fashion that solute will not degrade waters of the state. The second demonstration usually requires showing that the material rests on a liner, is capped to limit percolation from precipitation, and that surface and groundwater are reasonably far from the site.

Also, refer to Response to Comments C-3, C-4, and C-6.

RESPONSE TO COMMENT L-35

The bond amounts for all disturbances are arrived at by developing detailed cost estimates for each closure activity. The estimates are based on a third party conducting the work, and require approval of the NDEP and/or BLM. The BLM, without exception, requires that all areas of the mine containing cyanide located on public lands be bonded for 100 percent of the estimated

reclamation costs, including neutralization and detoxification. Cortez Gold Mines has requested a bond reduction for non-cyanide use areas. Bond calculations are included within the Cortez Gold Mines Pipeline Project Reclamation Permit Application which has been submitted to NDEP.

	Acres	Cost	Cost/Acre
Non-Cyanide Use Areas	1,307	$3,689,284	$2,822.71
Cyanide Use Areas	520	$1,705,002	$3,278.85
Administration Cost		$1,186,518	
Total	1,827	$6,580,804	$3,601.97

Cortez Gold Mines has requested a bond reduction for non-cyanide use areas from $2,822.71/acre to $2,000/acre. The reduction would amount to $1,075,282 as shown below:

1,307 acres X ($2,822.71/acre - $2,000/acre) = $1,075,282

The reduced bond amount equals:

Total Bond	$6,580,804
Bond Reduction	$1,075,282
Requested Amount	$5,505,522

The bond calculations were approved by an initial review, but the bond has not been posted or approved by final review. Although Cortez would be responsible for the entire amount of the bond, if they show a financially stable status according to NDEP standards, they may be allowed to bond for a part of the total reclamation cost. This amount can be reevaluated in the future at the BLM's or NDEP's discretion.

The open pit will fill with water after mine closure to form a lake as described on p. 2-36 of the DEIS and in Section 2.2.7 of the FEIS. The heap leach and tailing facilities closures are described on p. 2-32 of the DEIS and in Section 2.2.7 of the FEIS and the reclamation surety is presented on p. 2-41 of the DEIS and in Section 2.2.7 of the FEIS.

RESPONSE TO COMMENT L-35A

Refer to Response to Comment C-10 and revised FEIS Section 2.4.2.2 for a discussion of pit backfilling.

Cyanide residues that will remain in the heap after final closure pursuant to NDEP requirements will be at levels which will not cause potential degradation to waters of the State. Sampling of rinsed heaps is specified in detail in NDEP regulations and policy documents. Other constituents that do not naturally degrade will be addressed through rinsing and/or alternative treatment methods, as dictated by the conditions existing at the time of closure. Refer to Response to Comments C-3 and C-4.

RESPONSE TO COMMENT L-36

Under the Summary of Impacts section (Summary) the statement "There would not be significant contributions to cumulative 24-hour or annual emissions in the Crescent Valley Air Basin" has been revised to "There would be contributions to cumulative 24-hour or annual emissions in the Crescent Valley Air Basin, but such contributions would not lead to a significant impact".

Both the 24-hour and annual concentrations were modeled to determine if the proposed impact would be considered significant. The air dispersion modeling incorporates actual meteorological data into the algorithm to account for varying atmospheric conditions that occur throughout the year. Therefore periods of both stability and instability are accounted for in the resulting concentrations.

RESPONSE TO COMMENT L-37

As discussed in Section 4.1.4, page 4-9, of the DEIS, the following controls are planned for point sources at the mill: a wet scrubber for the carbon reactivation kiln, which is estimated to provide 80 percent control; a baghouse for the lime silo, which is estimated to provide 80 percent control; and a wet spray system for the crushing circuit, which is estimated to provide 70 percent control. At a distance from the proposed Pipeline site to about 1/2 mile southeast of the nearest residence, the modeled 8-hour concentration of crystalline silica is 1.95 $\mu g/m^3$. This is below the former Nevada standard of 2.38 $\mu g/m^3$. Crystalline silica has not been conclusively classified by EPA as a carcinogen; it is not on the EPA's list of Hazardous Air Pollutants and is no longer on the NDEP's list of toxic air pollutants for which standards exist.

RESPONSE TO COMMENT L-38

Modeling is performed to calculate projected ambient concentrations from identified sources of emissions. Inputs to the model include physical parameters, meteorological data, and calculated emissions data from each identified source. The specific model, meteorological data, and the procedures used are consistent with NDEP modeling procedures. The data requirements and these procedures authorize the use of meteorological data from representative locations. The ambient air quality standards for PM_{10}, mercury, and arsenic, which are specifically for the protection of public health, are not exceeded by the modeled concentrations outside the property boundary.

RESPONSE TO COMMENT L-39

The concern about the existing on-site PM_{10} air monitoring station not being able to measure impacts from the Proposed Action is addressed via modeling. Although there are no state or federal requirements to perform ambient air monitoring, the assessment of impacts of the Proposed Action was performed by modeling the calculated potential emissions from sources at the proposed mill and adding the calculated impacts to the monitored background PM_{10} concentration.

No independent state or federal monitoring site used for the background PM_{10} concentration exists in the Crescent Valley Air Basin. Cortez has contracted with an independent consultant to operate, maintain, and report data from the existing monitors in accordance with NDEP procedures. It is standard procedure for companies to pay for their own monitoring programs, as long as the monitoring procedures are reviewed by NDEP. State agencies do not have the resources to operate monitoring programs for each and every proposed project.

RESPONSE TO COMMENT L-40

Use by the Dann Family and the Shoshone Nation was omitted primarily because their use is on the South Buckhorn Allotment, whereas the project would affect the Carico Lake Allotment.

RESPONSE TO COMMENT L-41

Native American consultation in accordance with BLM Manual 8160 is discussed in Response to Comment I-8.

RESPONSE TO COMMENT L-42

Ethnographic research does indicate that certain springs are considered by Western Shoshone (Newe) to be power spots. However, during the Native American consultation program carried out for this project (please refer to Response to Comment I-8) knowledgeable individuals declined to identify them. Accordingly, absent site-specific information, no further action can be taken regarding potential impacts or mitigation.

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WESTERN SHOSHONE DEFENSE PROJECT

P. O. BOX 211106 . CRESCENT VALLEY . NEVADA 89821 . Tel:(702)468-0230 FAX:(702)468-0237

Date: October 15th, 1994
To: Dave Davis, Pipeline Project EIS Team Leader
From: Newe Segobia Inc. and Western Shoshone Defense Project
Re: Comments Regarding the "Cortez Pipeline Gold Deposit" Draft EIS

This first point we would like to make concerns the 1863 Treaty of Ruby Valley. This treaty of "Peace and Friendship" was an agreement between sovereign nations, the Western Shoshone and the United States. Nothing in this Treaty mentions the cessation of land title, thus the Western Shoshone retain a legal and moral right to their aboriginal territory, the ICC and Supreme Court decisions notwithstanding. Because the Constitution recognizes treaties as the supreme law of the land the U.S. has the legal responsibility to deal with the Western Shoshone on a nation to nation basis. Until a good faith effort is made by the executive branch of the government to negotiate with the Western Shoshone people, the activities of Federal agencies such as the BLM and the USDA Forest Service regarding lands within Western Shoshone territory are nothing more than a continuing usurpation and violation of Western Shoshone sovereignty. The proposed Pipeline Project has been developed without the permission or involvement of the Western Shoshone government. As a Federal agency you have a mandate to uphold the U.S. Constitution. I quote the BLM Manual of Native American Consultation H-8160-1, Chapter IV, page 9: " Indian tribes are not "just another public" whose interests ought to be considered. In their relations with Federal agencies, Indian tribes have special rights as sovereign governments."

Another important issue relating to the Treaty is its interpretation. The Supreme Court has developed a set of rules governing the interpretation of treaties known as the "canons of treaty construction." According to these rules, treaties must be interpreted as the Indians understood them at the time of signing, ambiguities must be resolved in favor of the Indians, and in general treaties must be construed liberally in favor of the Indians. Article IV of the Treaty of Ruby Valley grants the U.S. the right to prospect and develop ore bodies such as gold and silver. At the time of signing the nature of gold mining involved the development of visible deposits conducted on a human scale. The current process of gold mining through large scale open pits and cyanide heap leach processing was not envisioned or permitted by the Treaty. Nowhere in the Treaty of Ruby Valley is water mentioned, thus the Western Shoshone people's aboriginal rights to these waters have not been extinguished. The dewatering proposed by the Cortez Joint Venture violates these water rights.

While we have significant concerns that need to be addressed on an international level, we also feel the DEIS has not lived up to the requirements of U.S. law including the National Environmental Policy Act and should be completely redone to better assess the impacts of this Project. The DEIS Summary of Impacts is very deceptive and calls into question the role of the BLM as an objective, uninterested administrator of 'public' lands. After reading the summary one could easily conclude that the proposed Pipeline Project would have no significant impacts to the environment, a conclusion that is not supported by the contents of the EIS. The following comments will demonstrate that this DEIS is full of contradictory statements and claims that are not supported by the available data. The document has also failed to examine any alternatives to the said project. As such the EIS has failed to provide a full and fair discussion of the significant impacts of this project as required under the National Environmental Policy Act.

Water Resources

The information describing the hydrology and addressing the effects of dewatering is inadequate. It seems as though all information in regards to the hydrology came from the studies of Water Management Consultants, a firm hired by the Cortez Joint Venture. To have the most critical information to the entire EIS completely supplied by a private company employed by the project proponent is simply wrong, especially when the BLM lacks the expertise to review it. Despite the supposed availability of a summary of their report , it was never sent to us after repeated requests. The water resources appendix adds little or no new information to better assess the project. In fact most of the information is duplicated almost word for word from the earlier water resources data in the DEIS. The groundwater resources study area is defined by a series of straight lines. Because the full extent of drawdown will not be known until the pumping is occurring, it would seem prudent to have the entire hydrographic basin be included in the groundwater resources study area. It is disturbing to see so many conclusions made upon the results of a computer model. Because groundwater hydrology is so complex and dependent on local geology, such a model on a large scale is surely a simplification of the hydrology in Crescent Valley. The DEIS does not accurately describe the effects of drawdown on the higher elevation areas within the cone of effect.

Baseline data concerning the hydrology is deficient. For example it is admitted that there is little information on groundwater elevations within the carbonate system around Crescent Valley. The nature of inflow from Carico Lake Valley is unclear demonstrated by phrases such as "been estimated to be", and "thought to recharge." While surface flow into Crescent Valley is estimated there are no figures for underground flow. At the opposite end of the Valley, groundwater flow into the Humboldt River was only measured in October 1992, a drought year. It recognizes this data was not conclusive because of the existence of irrigation ditches in the area. To state that "potential reductions in

groundwater flow into the Humboldt are not anticipated" when the baseline information is inadequate is simply bad science. More comprehensive research is obviously necessary to be able to accurately measure the amount of flow into the Humboldt River.

The information regarding evapotranspiration appears to be underestimated. The DEIS states that the bulk of this would occur in the playa areas where roots tap into a shallow water table. In would also occur along the many drainages of the mountains surrounding the valley as well as along the mountain slopes where shallow alluvial layers exist over bedrock.

The relationship between the different aquifer layers (alluvial, carbonate etc.) is not described, especially the rates of recharge between the different layers. The DEIS states that 60-75% of the dewatering wells will be located in the carbonate layer (shallow and deep), but this water is being infiltrated through the alluvial aquifer at a different location. This would seem to have the potential to deplete the carbonate layer on a wider scale while not necessarily refilling it depending upon the interactions at the point(s) of reinfiltration. The effects of the two paleo-channels are not assessed.

The scale and length of dewatering modeling is inappropriate. The initial life of the mine is described as being at least twelve years but the modeling was done only for a ten year period. It is also very apparent that the South Pipeline deposit will de developed, especially if the Pipeline Project is permitted. The portion of the deposit that exists above the water table is already being developed as the Crescent Pit. The existence of at least 3.68 million ounces of gold in the South Pipeline and the intent to develop it has been announced in the International California Mining Journal. Thus it seems very deceitful for the BLM to not assess the greater impacts from dewatering caused by this expansion. The inclusion of this analysis would indicate much greater impacts including increased drawdown and permanent loss of groundwater through evaporation in a larger pit lake. The potential of future dewatering at the Cortez pit should also be analyzed. The combined evaporation rates from these impacts will have a severe impact on groundwater quantities in Crescent Valley Hydrographic Basin.

In the Summary of Impacts the effects of pit dewatering on the water table and associated components such as surface water and springs etc. "would be lessened substantially by a reinfiltration system designed to return an estimated 90% or more of the pumped water to the groundwater system." In the entire DEIS only approximately 2 1/2 pages are devoted to the analysis and description of the system which will supposedly mitigate the most serious and widespread effects of dewatering. Nowhere is there evidence presented to support this conclusion. The success of mitigation depends largely on groundwater mounding beneath the facilities to create a reverse gradient, yet this crucial action may or may not occur according to the document. In fact the DEIS reads

> "Over time, the actual effectiveness of infiltration in recharging the alluvial aquifer as simulated will depend, in part, on local hydraulic characteristics of the intervening soil sequences between the individual infiltration site and the aquifer area targeted for recharge."

No information is provided on these local hydraulic characteristics so it is impossible to assess the potential success of such measures. This statement and others indicate that the overall success of this mitigation strategy is unknown and represents a large scale experiment.

Regarding mounding, if this process is successful in creating a reverse gradient in the groundwater which will effectively mitigate the effects of drawdown, is it not possible that this reverse gradient would interrupt the flow of groundwater from Carico Lake Valley, and southern Crescent Valley, thereby reducing the amount of groundwater flowing into the Humboldt River? On the other hand it is quite possible that the infiltration and mounding of water in the alluvial aquifer would increase the flow of groundwater into the Humboldt River to be lost downstream, especially since the reinfiltration point is five miles closer the Humboldt.

The specific details of reinfiltration sites are contradictory and unclear. The DEIS states that the entire reinfiltration set-up will not disturb more than 126 acres, but on the maps, the proposed Robertson reinfiltration is larger than that. Also the preferred initial reinfiltration site (Altenburg) is located in such a way that it would not mitigate dewatering (if it operated as planned to which no evidence has been provided suggesting it would) to the east, southeast, south, southwest and westerly directions, the location of many springs, surface water (Cooks Creek), and the polluted aquifer beneath the Cortez Mine. Have reinfiltration schemes such as this been constructed at other mines and what have been the results?

The monitoring and mitigation of drawdown is insufficient. Only 24 of approximately 70 springs in the area will be monitored and all eight of the monitored springs in the eastern section are clustered in the same location. The very unique wetland community at Hot Springs Point would not be monitored despite its ecological significance. The use of the 20ft drawdown contour to indicate significant impact is unfair because the actual extent of drawdown is not known and certain springs and seeps could be affected by a lesser drawdown. According to the monitoring plans even reduced flow in a spring would not be considered significant unless wells demonstrated a drop of 10 ft or more. If this where to occur then a detailed hydrologic investigation would occur. This suggests a long period of time before the conclusion that dewatering was affecting any particular spring. A longer period would then be needed to create a new reinfiltration pond. This indicates that springs and seeps could dry up before any effective mitigation happens. It is also not clear what effects have to occur to compel the mine to construct additional reinfiltration facilities.

The information regarding springs was insufficient and inaccurate. The DEIS states that 2 spring systems in Crescent Valley are thermal. This is incorrect, there are three thermal spring systems, the third located west of Hand-Me-Down Creek near the Dann Ranch. The flow from the largest most complex spring/wetlands complex at Hot Springs Point has not been measured. The estimated total discharge for all the springs is far too low, waters emanating on

Dean Ranch lands could account for 150-200 gpm. The amount of wetlands supported by these springs is also too low. There has been no localized hydrological study of individual springs to determine their sources in relation to the aquifer. The document frequently uses phrases like "which may issue from...the alluvium, and "source is believed to be", but lacks concrete scientific analysis to back these claims. Furthermore the DEIS reads

> "Modeling suggests those seeps and springs located below the bedrock-alluvium contact have the highest probability of being affected, but some springs above this contact may be affected as well depending upon local groundwater hydrology."

This directly contradicts the statement in the Summary of Impacts that "there would no impacts to riparian areas or wetlands directly or indirectly due to the drawdown of aquifers."

Other baseline data regarding surface waters and riparian/wetlands areas is inadequate or not available. Which areas are considered jurisdictional wetlands? Waters, and adjoining wetland/meadow areas around the Dean Ranch were omitted. Stream surveys were completed in 1991 on less than half of the drainages in the study area. This information is not up to date. Fisheries information is also inaccurate. Brock Canyon is known to support dace populations. Frenchie and Duff Canyons most certainly contain trout. It is possible dace populations exist in other streams as well. There is no hard data on the use of the specific wetlands in Crescent Valley, just generalized statements regarding wildlife use. Why isn't there specific information regarding the use of these areas, and how can one assess the impacts of the loss of these areas if this information is not available. The DEIS makes the claim that "no cumulative impacts to perennial streams are anticipated because no perennial drainages are located in the vicinity of the Proposed Action area." Yet this is contradicted by the potential effects to Cook and Indian Creeks which are both within the drawdown zone.

What is very disconcerting is the fact that the document does not analyze the effects of pit refilling. While the infiltration may mitigate some effects of drawdown, what happens when pumping is completed and the pit begins to refill. The cumulative impacts to the entire Humboldt River basin must be addressed. The period of refilling for the Proposed Action combined with the refilling of numerous other open pits within the basin will cause a deficit, and could have enormous environmental and economic consequences.

The impacts to water quality due to the Proposed Action have not been adequately addressed. Facilities such as this have a history of chemical leaks and spills. It is especially an issue here because of the numerous faults and fractures within the carbonate layer which provide subsurface pathways for migration of releases. This can amplify the effects of a leak and make remediation such as the pumpback wells at Cortez ineffective. The information on earthquake activity would seem to indicate the possibility of a significant earthquake in the not too distant future. It is impossible to interpret the probability of this from the data presented. Also of concern is the statement "rupturing of a liner may be possible;

however the facility has been designed according to appropriate design criteria." This implies a recognition that a future earthquake can damage the heap leach/ tailings facility but the mine feels no responsibility to take precautions beyond those required by law. The subsidence of land beneath the tailings heap leach facility also increases the chance of ripping the liners. The clay liner could easily be cracked by this subsidence, and the single plastic liner is also subject to penetration by the engineered dikes constructed on top of it.

Water quality at the reinfiltration facilities and the pit will be subject to degradation through evaporation. This process will concentrate minerals and other solids in the water which already are present at high levels. Proposed mitigation such as chemical pre treatment of reinfiltrated waters is simply not feasible at such a scale (this would be extremely expensive). While it is believed that enough neutralizing material is present to prevent the creation of acid mine drainage, how long do these neutralizing materials work. Fifty years down the road will they still be neutralizing? This has not been discussed. While cyanide has been an issue, other potential water contaminants such as arsenic, selenium, and fluoride all have the potential of concentrating in the groundwater. The DEIS does not address the eventual degradation of pit lake water. Mitigation is offered in the form of monitoring which under current NDEP regulations can only continue for a thirty year period. Perhaps the BLM needs to be reminded that under CEQ NEPA regulations "monitoring" is not considered adequate mitigation. This is especially true when water quality will invariably be degraded over the course of time. This pit will be permanent, therefore the impacts of this pit one hundred+ years down the road must be examined.

Vegetation and Wildlife

The DEIS lacks definitive information regarding both vegetation and wildlife populations and use patterns in the areas to be potentially affected. This is especially true regarding the wetland/riparian areas around the springs/seeps. Because of the increased biological diversity around these areas, it is especially important to know what is at stake. Data that is presented is either general or out of date. For example out of four sage hen leks in the general area, only one had been checked in the last five years, the others last verified 20 or more years ago. The is no information on plant species present in the springs. There is no information on the presence of snail species in these locations. While valley floor wetlands described as potential northern harrier and long billed curlew forage and nesting habitat are mentioned, actual information regarding present use by these species is nonexistent. Without this information no assessment of impacts can be made.

The indirect and cumulative effects on game populations are not explained in the document. Because of the increase in both temporary and permanent populations associated with this and other projects there would also be an increase in demand for hunting and fishing. What are the game population levels in Crescent Valley, and how will they respond to increased hunting

pressures. It is admitted that road building associated with mineral development has negatively impacted mule deer, how will this be exacerbated by the Proposed Action?

Reclamation

The DEIS inadequately deals with many aspects regarding reclamation. Poor soil quality combined with the loss of nutrient cycling ability and water holding capacity due to disturbance, stockpiling and erosion calls into the question the probability of reclamation success. The DEIS reads " due to the inherent low annual precipitation in the proposed action area, standard revegetation efforts may be unsuccessful except in years of above normal precipitation." This would seem to contradict the claims of being able to replace all AUMs lost due to the project. How is the anticipated difficulty in reclamation accounted for in the reclamation bond? The DEIS states that previous reclamation has been done at the current Cortez Mine but does not examine the results of this reclamation. It is also unclear on whether their will be sufficient soil to accomplish reclamation. The waste rock dumps will be reclaimed with "available soil". What measures will be taken if there is not enough soil. It is unclear what will be done with toxic wastes remaining in the heap leach/tailings facility after closure. Which landfill will it be deposited in, and what are the impacts of this procedure? There is no discussion on how the reclamation bond was calculated, so it impossible for the reader to assess if this bond is sufficient to fully reclaim this site. There is also no discussion of pit refilling as part of mine closure/reclamation. There must be a complete guarantee by the mine for full reclamation including the possibility of complications due to high contaminant levels in the heap leach/tailings facility.

Air Quality

The Summary of Impacts states that " there would be no significant contributions to cumulative 24 hour or annual emissions..." With a project of this size and considering its future expansion how could their not be an increase in emissions? Calculations concerning the amount of particulate matter are suspect because of the high variability caused by atmospheric conditions. The possibility of exceeding the toxic standards in relation to crystalline silica exists. If it is possible that limits may be exceeded, pollution control devices such as a wet scrubber should be installed prior to operation. How long would toxic releases of crystalline silica continue until such technology was installed? These issues are especially important because two different families live downwind of the Proposed Action; the Alves family and the Dann family. These people will be

exposed to the majority of emissions from this facility, and calculations based on averages and current models do not accurately reflect the degree of risk experienced by these families. Dispersion modeling was completed using data from only one year of meteorological information from two different locations, both over 50 miles from Crescent Valley. This calls into question the accuracy of modeling results.

The monitoring of air quality is also of concern. Currently this is being done by the Cortez mine, at the present facility. Because the mine is located at the base of Mt Tenabo, southeast of the Pipeline site, it is quite possible that this facility will not get accurate data concerning the effects of the Proposed Action. There is also the question of the fox guarding the hen house by having this information collected by Cortez. Because data could potentially effect mine operations there is a conflict of interest apparent. An independent state or federal air monitoring station located in the eastern portion of Crescent Valley would better monitor conditions and protect permanent residents of the area.

Livestock Grazing

Information regarding the use of the South Buckhorn Allotment by the Dann family and the Western Shoshone Nation was entirely omitted.

Cultural Resources

The Summary of Impacts section regarding Cultural Resources reads

> "The Cortez Expansion EIS Native American consultation identified no areas of traditional or religious importance to Native Americans that would be significantly affected. The Proposed Action falls within the same area as that analyzed for the expansion EIS; therefore, the findings with regard to Native American concerns remain the same."

The Bureau of Land Management has not lived up to its responsibility to consult with Native Americans regarding the 'Proposed Action.' This responsibility is described in detail within BLM Manual Section 8160 "Native American Coordination and Consultation" and Handbook H-8160-1 "General Procedural Guidance For Native American Consultation." The Pipeline Project would occur on Western Shoshone lands as recognized in the Treaty of Ruby Valley, and would be located approximately 15 miles southwest of the Dann Ranch. This ranch is the home of an extended Western Shoshone family who have occupied the general area since pre-settlement times. No effort was made to consult with this family or any other Western Shoshone. The explanation that consultation was done for the earlier Cortez Mine Expansion EIS and thus was not needed for the Pipeline Project is ridiculous. The Cortez Mine Expansion involved additions to the previously existing mine which did not require ground water pumping. The Pipeline Project is an entirely new mine which requires massive groundwater pumping with the potential to effect springs throughout Crescent Valley. Even if the Cortez Mine Expansion EIS Cultural Resource findings were

the only basis on which to judge the Pipeline Project (which they decidedly are not!), a careful reading would discover that

> " Prayers are especially important in connection with places and spirits that live there. Prayers are made to the spirits of plants and animals; to the 'Little Men'; and to the spirits of places that are regarded as power places....Power spots are always on mountains or on tops of prominent, isolated rock formations or in *springs*." (emphasis added)

This alone would suggest potentially significant impacts to traditional cultural resources due to the Pipeline Project.

CITIZEN ALERT

Comment Letter M

3680 Grant Drive, Suite J
P.O. BOX 5339
RENO, NV 89513
702-827-8611
FAX 702-827-4299

NATIVE AMERICAN PROGRAM

November 3, 1994

To: Dave Davis, Pipeline Project EIS Coordinator

Fr: Heidi Blackeye, Organizer, Citizen Alert Native American Program

Re: Comments on the Cortez Pipeline Gold Deposit draft Environmental Impact Statement.

The Citizen Alert Native American Program fully opposes the draft Environmental Impact Statement (DEIS) for Placer Dome's pipeline project. After reviewing the DEIS the program finds the document to be environmentally unacceptable for three reasons: 1) it lacks sufficient information throughout the document to support their findings; 2) many crucial elements for conducting studies were omitted; and, 3) other methods to address potential problems that may originate after the project has been permitted were not considered.

For example, the DEIS fails to address and implement the requirements of the National Environmental Policy Act of 1969. This act regulates the environmental-related issues to ensure all facets of the project are taken into consideration thus enforcing environmental safety concerning the project. The BLM did not address the mandate in Section 102 (2) (E) of NEPA which requires federal agencies to "study", develop and describe appropriate alternatives to recommended courses of action in any proposal which involved unresolved conflicts concerning alternative uses of available resources." 42 U.S. C. 4332 (2) (E). M-1

Furthermore, in reference to the CEQ regulations (40 CFR 1502.14) which requires that agencies rigorously explore and objectively evaluate all reasonable alternatives and that agencies devote substantial treatment to each alternative considered so that the reviewer may evaluate the comparative merits."

Although, the DEIS mentions detailed information on the "proposed action" it neglects to give the same detail where the other "no action" alternatives are concerned. By doing this, it is gross negligence on their part to complete a draft EIS without addressing the most crucial of regulations that were strictly made to ensure accountability to the public where their livelihood is concerned. They deserve to be informed on all potential impacts to the environment, wildlife, water resources, and the air quality that the Pipeline project will possibly cause. M-2

Water Resources

The DEIS does not address the fact that the Treaty did not grant water rights to the United States or its citizens. Nowhere in the treaty is there any mention of water. Also, let it be understood that the Treaty did not give rights to Native Americans, they grant rights to the United States and its citizens. Those rights not specifically ceded in the Treaty remain intact. Thus the expropriation, exploitation, and removal of these waters as proposed by the Pipeline Project and other mines is in violation of the Treaty of Ruby Valley and an infringement upon Western Shoshone sovereignty. M-3

Water Concerns

After reviewing the information describing the hydrology and studies on mine dewatering the DEIS has not supplied sufficient data that proves these methods have the best results. Unfortunately, there was no information that could be used for comparison for other alternatives to make this decision. For example, the baseline data concerning the hydrology admitted that there is very little information on groundwater elevations within the carbonate system around Crescent Valley. M-4

Also, unclearly demonstrated in the DEIS in reference to the nature of inflow from Carico Valley by phrases such as "been estimated to be", and "thought to recharge". The Crescent Valley surface flow was estimated, however, there are no figures for underground flow. M-5

The DEIS states that "no cumulative impacts to perennial streams are anticipated because no perennial drainages are located in the vicinity of the Proposed Action area." Yet this is a contradiction by the potential impacts to the two creeks: Indian, and Cook that are both in the drawdown zone that were omitted. This needs to be addressed. M-6

On the northwest side of the valley the groundwater flow into the Humboldt was measured during a drought year in 1992, this data was acknowledged inconclusive because of the existence of ditches within the area. It is important that when conducting a hydrological study of this nature it is relevant to use groundwater, and surface water flow as baseline data to determine the M-7

entire impacts of the project. In retrospect, detecting potential impacts of the project, baseline data was not used because there wasn't any data to base their study on for determining any impacts to the water. It states that "potential reductions in groundwater flow into the Humboldt are not anticipated." It is essential that a thorough study be conducted to accurately measure the amount of flow into the Humboldt River. M-7

The DEIS states that 60-75% of the dewatering wells will be located in the carbonate layer (shallow and deep), but this water is being infiltrated through the alluvial aquifer at a different location. This seems to present potential depletion of carbonate layer while not necessarily refilling depending upon the interactions at the point(s) of reinfiltration. The rates of recharge and the relationship between the different aquifer layers (alluvial, carbonate etc.) need to be described. Also, the effects of the two paleo channels are not assessed. M-8

The modeling for the dewatering is inadequate concerning the scale and length because the model was made for only a 10 year period. Also, the initial life of the mine is twelve years, however, it is clear from the document that the dewatering will continue for an additional 14 years. This will occur as a result from the southward expansions. M-9

The DEIS states the entire reinfiltration set-up will not disturb more than 126 acres, but on the maps, the proposed Robertson reinfiltration is larger than that. This information seems to be a contradiction and unclear on potential impacts of the sites. Also, the preferred initial reinfiltration site Altenburg, is located in such a way that it would not mitigate dewatering (if it operated as planned to which no evidence has been provided suggesting it would) to the east, southeast, south, southwest and westerly directions, the location of many springs, surface water (Cooks Creek), and the polluted aquifer beneath the Cortez Mine. Have the other reinfiltration projects such as this been constructed at other mines and if so, what were the results? M-10

There are 24 out of approximately 70 springs in the area that will be monitored and all eight of the monitored springs in the eastern section are clustered in the same location. The Hot Springs Point would not be monitored despite its ecological significance. The information regarding the springs is insufficient and inaccurate because in the DEIS it states there are only two thermal spring systems in Crescent Valley which is incorrect, there are three thermal springs. The third spring is located west of Hand-Me Down Creek near the Dann Ranch. M-11

Vegetation & Wildlife

The fish and wildlife concerning the DEIS supplied inadequate information on potential impacts from dewatering. Not mentioned in the DEIS was the trout which are located within the canyons: M-12

Frenchie, and Duff. Also, Brock Canyon is known to support dace populations. Other baseline data regarding surface waters, and riparian/wetland areas are inadequate or not available. The waters, and adjoining wetland/meadow areas around the Dean Ranch were omitted from the DEIS. Regarding the stream surveys that were completed in 1991, they addressed less than half of the drainages in the study area. The information needs to be updated to make an accurate analysis. There is no sufficient data on the use of the specific wetlands in Crescent Valley, only general statements concerning wildlife use. And more specifically, the Native Americans, who have had an inter-relationship with the environment including wildlife were not consulted. If they were consulted they would have been able to tell what kinds of wildlife would be affected. If this information is not available concerning the use of these areas then how can one assess the impacts of the loss of these areas if this information is not available?

M-13

M-14

M-15

Wildlife that will be impacted by the construction and utilization of the pipeline project in the wet meadows and riparian areas are used by sage hen and chukars to rear their broods. Also, the raptors and red-tailed hawks, northern harriers, and golden eagles frequently hunt at these locations. Other wildlife including mule deer, kit fox, gray fox, coyote, bobcat, badger, meadowlarks, mourning doves, burrowing owls, Brewer's sparrows and various rodents rely on these water resources. If Native American consultation was conducted this information would have been supplied.

M-16

Air Quality

In the DEIS it states there will be no increase of emissions with a project of this size and considering its future expansion how could there not be an increase? The calculations concerning the amount of particulate matter are suspect because of the high variability caused by atmospheric conditions. There is the potential for increasing the crystalline silica that exists and possible limits such as pollution control devices should be installed prior to operation. How would the crystalline silica toxic releases continue until such technology is installed? This is an important concern especially because there are two families that live downwind of the Proposed Action; the Alves, and the Dann family. Based upon the averages and current models the information is insufficient because the dispersion modeling was completed using data from only one year of meteorological information from two different locations, both over 50 miles from Crescent Valley. Also, the present monitoring of the air quality is being conducted located at the southeast side of the pipeline project. It is possible that this facility will not get accurate data concerning the effects of the Proposed Action?

M-17

M-18

M-19

M-20

Livestock Grazing

The information concerning the use of the South Buckhorn Allotment by the Dann family and the Western Shoshone Nation was entirely omitted. It is very important to add this information because they are using the Allotment. M-21

Cultural Resources

The most disconcerting factor of this project was support by the Battle Mountain BLM for this totally inadequate DEIS. The strong support given by the BLM for the DEIS indicates a lack of concern for the people who live near the proposed project. For example, if there was concern for their welfare there would of been more information supplied on potential impacts to the environment and Native American consultation would have been conducted. Additionally, the Dann family, a traditional Western Shoshone family which has lived in this region for generations prior to Euro-American invasion into NEWE lands, lives approximately 15 miles southwest of the proposed mining project. They will be mostly affected and were not consulted concerning this project. On page 3-62 listed under "Native American Consultation" it reads " A comprehensive Native American consultation program was undertaken for the Cortez Expansion EIS pursuant to the requirements of the American Indian Religious Freedom Act. No issues of significant concern were expressed by Native Americans with regard to the proposed project area for the Expansion EIS (BLM 1993:3-57 to 3-62). The Native American consultation study area for that EIS encompasses an area essentially identical to that of the Pipeline Project EIS. The comments from Native Americans received in conjunction with the Expansion EIS are therefore applicable to this EIS. For specific information regarding Native American concerns, refer to the Expansion EIS."

Is this considered viable consultation? By not implementing the above policies and regulations with regard to Native consultation, the DEIS violates federal law pursuant to the requirements of the American Indian Religious Freedom Act and violates BLM policy concerning Native American consultation. There was no Native American consultation that was conducted concerning this project and will need to be addressed. There is a BLM manuel H-8160-1 "General Procedural Guidance for Native American Consultation" that gives information on how to conduct the consultation. We would like to request that training be provided for all federal agencies on how to conduct consultation with Native people. As a federal agency you have a mandate to address this matter. Under the BLM manuel H-8160-1, Chapter IV, page 9: "Indian tribes are not "just another public" whose interests ought to be considered. In their relations with Federal agencies, Indian tribes have special rights as sovereign government." Another important counterpart to the Native consultation is the 1863 Treaty of Ruby Valley that was not M-22

addressed. The 1872 mining law does not override the Supreme Law, which is the Treaty. The Western Shoshone Nation did in fact grant the United States government the rights to mine on their lands, however, the type of mining was totally different. The U.S. Supreme Court has ruled that treaties are to be interpreted as the native people understood them at the time of the signing. The Western Shoshone in no way agreed to the scale, intensity or form of modern open pit heap leach gold mining that is done today. In 1863, mining was conducted by the construction of shafts extracting visible veins of gold, or by panning visible granules found in steambeds. As stated in the following below:

Treaty of Ruby Valley

Article IV

M-23

"It is further agreed by the parties hereto, that the Shoshonee country may be explored and prospected for gold and silver, or other minerals; and when mines are discovered, they may be worked, and mining and agricultural settlements formed, and ranches established whenever they may be required. Mills may be erected and timer taken for their use, as also for building or other purposes in any part of the country claimed by said bands."

At this time, the Department of Interior has addressed the Treaty and is presently attending meetings with the Western Shoshone negotiating team to acknowledge the land rights issue but this, by no means, justifies or gives the United States Government nor agencies the authority to permit the type of mining activity that is currently being conducted on Western Shoshone lands. A moratorium should be implemented ceasing all activities on Western Shoshone land until the Treaty of Ruby Valley has negotiated an agreement to administer lands today.

RESPONSE TO COMMENT M-1

Refer to Response to Comment L-3.

RESPONSE TO COMMENT M-2

NEPA regulations as implemented by the Bureau of Land Management stipulate that "the no action alternative should describe what would occur if the proposed action were not implemented... no action would mean not allowing the proposed action." The Summary and Section 2.4 of Volume I state that the No Action Alternative would result in continuation of impacts associated with the expansion of existing Cortez facilities. This expansion is evaluated in detail in the Cortez Expansion EIS referenced throughout Volume I of the FEIS.

RESPONSE TO COMMENT M-3

Please refer to Response to Comment L-1.

RESPONSE TO COMMENTS M-4 to M-5

Please refer to Response to Comment L-6.

RESPONSE TO COMMENT M-6

Potential impacts to Indian Creek and Cooks Creek are addressed on page 4-35 of the DEIS. These streams are perennial only in the reaches immediately upstream from where they enter the alluvial basin of Crescent Valley. Selective location of infiltration areas would mitigate impacts of the proposed project. Similarly, cumulative impacts to these streams are not predicted. The reaches of Indian Creek and Cook Creek that may be considered as perennial

are not hydraulically connected to the aquifer affected by dewatering. This is clarified in Section 4.4.2 of the FEIS and in the Response to Comment L-18.

RESPONSE TO COMMENT M-7

The USGS has an ongoing monitoring program on the Humboldt River. In addition, please refer to response L-6.

RESPONSE TO COMMENT M-8

To paraphrase what is stated in the project description on page 2-16, the planned approach is for 60-75 percent of the water to be pumped from bedrock dewatering wells. Over the term of dewatering operations, a large component of the water pumped from bedrock wells will have originated from the overlying basin fill (alluvial) aquifer, where most of the water in the basin is stored. The carbonate bedrock sequence, in which the pit excavation would occur, dips rapidly to the east beneath the saturated alluvium and is bounded by other less permeable geologic units. Pumping tests show that, if dewatering were undertaken, the bounding bedrock units would yield substantially less recharge to the carbonate sequence than would the alluvial aquifer. Faults, joints, and fracture zones exposed at the carbonate bedrock/alluvial contact surface would provide pathways for groundwater stored in the basin fill aquifer to flow through the carbonate bedrock formation into the open pit as the excavation is advanced below the water table and the natural groundwater gradient is temporarily reversed by local pumping. By discharging to the basin fill aquifer through the proposed infiltration system, only a temporary displacement of water stored in the carbonate sequence would occur. Recharge from the alluvial aquifer will restore groundwater conditions in the carbonate sequence when dewatering ceases.

The presence of paleochannel features is of potential importance to the dewatering well field design and efficiency of operation. These features represent optimal locations for alluvial dewatering wells and infiltration areas. It is acknowledged that proper characterization of the paloeochannels may prove beneficial in minimizing overall groundwater control costs. These

hydrogeologic conditions and potential impacts are discussed in Sections 3.4 and 4.4 of the FEIS.

RESPONSE TO COMMENT M-9

The dewatering of the pit for the Proposed Project will continue for 10 years, although the life of the mine is 12 years. The model is run for a period of 100 years after mine dewatering stops, to evaluate the water level recovery. This is clarified in Section 2.2.2 of the FEIS. Extended mining and dewatering for the South Pipeline Expansion is considered under the assessment of cumulative impacts, Section 5.0 of the FEIS.

A specific time frame for dewatering of the South Pipeline expansion is not known; however, the Reasonably Foreseeable Scenario (Section 5.2.2 of the FEIS) assumes an additional 3 years.

RESPONSE TO COMMENT M-10

Please see response L-13.

RESPONSE TO COMMENT M-11

Please see responses L-14 and L-16.

RESPONSE TO COMMENTS M-12 to 14

See the Response to Comment L-18 regarding fisheries in the area. See the Response to Comments L-27 and 28 for a discussion of the seep and spring data. Springs and wetlands located on the Dean Ranch are on private land and were not surveyed. However, wetlands created by agricultural activities are not considered jurisdictional by the Corps of Engineers. Available data as well as field surveys were used in compiling a description of the environment for the study area, and assessing potential impacts to the study area. The stream surveys which had been conducted in the area, including surveys conducted in both 1980 and 1991, were utilized. Field visits were made to these and other drainages within the assessment area during

the preparation of the DEIS. The BLM surveys focused on perennial streams in the area. Drainages with ephemeral streams are not usually surveyed during fisheries-related assessments, since these drainages would not support fish populations. During field surveys, particularly the seep and spring survey, most or all these ephemeral drainages which contain water sources were visited. Information from the Seep and Spring Survey Report (JBR 1993) is summarized in Table 3.5-2 in Volume I of the FEIS.

RESPONSE TO COMMENT M-15

Refer to Response to Comment I-8.

RESPONSE TO COMMENT M-16

No wet meadows or riparian areas occur within the Proposed Action area (the actual footprint area of the mine and mine facilities). No direct impacts to these habitats would result from the Proposed Action. Wildlife use of wetland and riparian habitats within the cumulative assessment area is described in the DEIS (e.g., pp. 3-37 to 3-43). The BLM, NDOW and U.S. Fish and Wildlife Service were contacted to obtain information on wildlife use of the area, and field surveys were conducted. One purpose of the EIS process (including public hearings and the public comment period) is to obtain additional information on the area, particularly site-specific information. Anyone with such information is encouraged to provide their data. See also Response to Comment I-8 for a summary of Native American Consultation.

See also Section 3.6.2 (subheading Important Wildlife Habitats) of the FEIS.

RESPONSE TO COMMENT M-17, 18, 19, and 20

These comments are repeated from L-36, 37, 38, and 39 - see comment responses L-36 to L-39.

RESPONSE TO COMMENT M-21

See Response to Comment L-40.

RESPONSE TO COMMENT M-22

Refer to Response to Comment I-8.

RESPONSE TO COMMENT M-23

Refer to Response to Comment L-1.

Comment Letter N

E. WILSON
917-A VILLAGE DR., EAST
NORTH BRUNSWICK, N.J.
08902

10-2-94

QUESTIONS & COMMENTS RE:

CORTEZ PIPELINE GOLD DEPOSIT
DRAFT E.I.S - JULY 1994

Summary - Page V - PARA. 1

a- UNPATENTED MINING CLAIMS OR PRIVATELY OWNED PROPERTY NOT STATED CLEARLY AS TO LOCATION, SIZE AND OWNERSHIP. THE TRUTH BEING IT IS U.S. PUBLIC LAND WHICH BELONGS TO ME. N-1

b- WHAT ELSE IS INCLUDED IN 1992 PLAN OF OPERATION THAT YOU INDICATE AS THE PROPOSED ACTION, WHICH LEADS PEOPLE TO BELIEVE THAT YOUR PROPOSED ACTION IS WHAT YOU DESCRIBE AS A NEW GOLD MINE AND PROCESSING FACILITY. YOUR TIE-IN WITH THE EXISTING CORTEZ MINE IS NOT STATED CLEARLY. ALSO YOUR WASTE DUMPS AT THE NEW SITE ARE NOT GIVEN A TOTAL, AS TO HOW MANY, WHAT SIZE AND LOCATION. ALSO THE AMOUNT OF ORE HAULED TO EXISTING CORTEZ FROM NEW FACILITY, IS NOT STATED. THE OVERBURDEN FROM NEW PIT IS SAID TO BE TAKEN TO WASTE ROCK DUMPS NEAR PIT. WHAT OF OVERBURDEN FROM EXISTING CORTEZ? WILL NEW DUMP SITES BE NEEDED? YOU BETCHA! AND WHERE ARE N-2 N-3 N-4 N-5

PLANS, PERMITS AND SPECS. FOR THOSE? HOW MANY DIESEL FUELED EARTH MOVERS AND OTHER EQUIPMENT WILL BE USED AND WHO WILL MONITOR AIR POLLUTION FROM ADDITIONAL EQUIPMENT? TRUCKS AND BUSES OF NORMAL SIZE ARE THE LEADING POLLUTER OF NORMAL PETROLEUM-BASED FUEL OPERATED VEHICLES, AND YOU HAVE AN INCREASE OF AN UNKNOWN NUMBER OF VEHICLES BOTH TRUCKS AND WHAT I BELIEVE YOU CALL IN-LOADS (THE LIFT USED TO CARRY ROCK FROM BLAST TO EARTHMOVERS). THE FEDERAL REGULATIONS STATE STANDARDS OF SAFETY AND EMISSIONS ON EQUIPMENT AND ANY INCREASE OF EQUIPMENT, ESPECIALLY WITH THIS SIZE ENGINE, WILL CAUSE CONSIDERABLE AMOUNT OF INCREASE IN AIR POLLUTION, SUBSTATIALLY. ALSO MINES IN SAME OR NEIGHBORING VALLEYS DOING ANY EXPANSION WILL INVOLVE THE SAME INCREASE AS FAR AS DIESEL POWERED VEHICLES AND INCREASING AIR POLLUTION. THERE SHOULD BE AIR, GROUND AND WATER MONITORS WITH BI-ANNUAL INSPECTION OF ALL EQUIPMENT AS A MINIMUM REQUIREMENT. N-6

(C) ALSO AIR, WATER, AND GROUND MONITORS SHOULD BE IN PLACE AROUND ALL AREAS OF OPERATIONS (AS WELL AS MONITORING WELLS) FROM GROUND ZERO FOR AT LEAST A MINIMUM OF TWENTY FIVE AIR MILES WITH A MINIMUM N-7

OF TWICE DAILY READINGS. THIS IS FOR POLLUTION. THE MONITORING WELLS FOR DRAWDOWN BEING A SEPARATE MONITORING SYSTEM. N-7

(2) EXPLORATION DRILLING SHOULD NOT BE ALLOWED UNTIL NEW SITE IS DRIED UP, 7 TO 12-15 YRS. AS DISCOVERY AND EVALUATION WAS DONE IN 1991 AND 1992. ANY FURTHER EXPLORATION SUCH AS THAT THAT IS GOING ON AT THIS TIME SHOULD BE HALTED IMMEDIATELY, AS IT IS NEEDLESS AT PRESENT TIME. D.E.I.S. IS UNCLEAR AS TO TIMETABLE, HOWEVER AS IT DOES STATE A SIGNIFICANT INCREASE IN TOTAL CORTEZ WORKFORCE THERE IS NO NEED, EXCEPT GREED, TO GO FORWARD WITH EXPLORATION AT THIS TIME DESTROYING PLANT LIFE AND TERRAIN THAT WILL NOT BE PUT TO USE FOR (AGAIN YOUR FIGURES) A MINIMUM PERIOD OF TWELVE TO FIFTEEN YEARS N-8

DESCRIPTION OF THE PROPOSED ACTION - P. VI

YOU SPOKE OF RECLAMATION THAT WOULD SUPPORT LAND USES IDENTIFIED IN THE SHOSHONE-EUREKA RESOURCE MANAGEMENT PLAN WITHOUT SAYING WHAT MANAGEMENT PLAN DETAILED. N-9

ALTERNATIVES - P VI

ALL ALTERNATIVES ARE UNACCEPTABLE, FOR OBVIOUS REASONS. THE NO ACTION ALTERNATIVE IS THE ONLY ACTION AT THIS TIME. THERE IS NO REASON FOR ANY CLOSURE OF PRESENT MINE AS THERE IS STILL ALOT OF MINING TO BE DONE. AND DURING THIS TIME PERIOD A PROPER DRAFT CAN N-10

BE COMPILED THAT WILL GIVE THE ENGINEERS TIME TO MAKE THE CHANGES TO MEET THE NEW CLEAN WATER ACT AND THE REFORM BILL TO THE 1872 MINING ACT. N-10

ENVIRONMENTAL CONSEQUENCES 4.0

THIS MORE THAN ANYTHING ELSE STATES WHY A- THIS PROJECT SHOULD BE HALTED

B- THIS DRAFT EIS IS NULL AND VOID AND DOES NOT NOW, NOR DID IT EVER EXIST.

☆ PARA. 2 - 4.0 AND I QUOTE DIRECTLY FROM DRAFT EIS. "THIS EIS IS TIERED TO THE EXPANSION EIS (BLM 1992b, 1993c). IN SOME INSTANCES, DATA UTILIZED AND CONCLUSIONS DERIVED FROM ANALYSIS OF SUCH DATA IN THE EXPANSION E.I.S. WILL BE INCORPORATED BY REFERENCE." THIS MEANS ONE PLAN IS DOVETAILED INTO THE OTHER WITHOUT ANY FURTHER RESEARCH BEING DONE FOR THE DRAFT EIS (YOUR PROPOSED). THE DRAFT WAS NEVER DONE. YOU ARE ALLOWING A NEW MINE WITH [redacted] ASSOCIATED DEWATERING SYSTEM, AND WASTE DUMPS, CONSTRUCTING A NEW COMBINED HEAP LEACH/TAILING IMPOUNDMENT FACILITY, AND CONSTRUCTING A NEW 5,000-TON-A-DAY ORE PROCESSING FACILITY COMPLETE N-11

WITH APPURTENANT FACILITIES. YOUR DESCRIPTION ON 1-1 OF DRAFT. ALL THE AFORE IS BEING DONE ON THE EXPANSION PROJECT WHICH I BELIEVE WAS PROPOSED BACK IN THE 1970's. AM I RIGHT? N-11

PARA 3, 4-1 - ON THE LAST SENTENCE I WOULD ASK WHAT ENGINEERING COMPANY WAS USED FOR PROFESSIONAL JUDGEMENT? WHOEVER IT WAS, I WANT MY MONEY BACK AS I HELPED PAY FOR IT. N-12

PARA 5 - 4-1

THE MITIGATION MEASURES ARE INADEQUATE. ALL YOU HAVE TO DO IS CHECK ANY OLD MINE SITE AND YOU WILL FIND TOTALLY DESTROYED AREAS WHERE ABSOLUTELY NOTHING GROWS, AND WHERE WIND, RAIN, AND STORM HAVE EXPOSED POLLUTANTS TO DIRECT AIR CONTACT. I SURE WANT TO SEE HOW YOU TRY TO FIX THIS ONE IN THE FINAL E.I.S. AS THERE IS ABSOLUTELY NO REASON TO ALLOW A PROJECT TO RUN KNOWING FULL-WELL THERE WILL BE TOTAL DEVASTATION WITH ABSOLUTELY NO CHANCE OF RECLAMATION AT ALL. THERE IS NO SUCH THING AS "UNAVOIDABLE" ADVERSE IMPACTS. IF YOU KNOW SOMETHING IS GOING TO BE UNAVOIDABLE YOU SIMPLY AVOID DOING IT. N-13

SEISMIC EVENTS - 4-14

PAR. 1 - THERE IS NO SUCH THING AS A NO-DISCHARGE SYSTEM. (N-14)

PARA.2 - THERE IS NO DESIGN MARKED 2.8-3 IN D.E.I.S. WHAT IS THE REASON FOR THIS? PLEASE SEND ME A COPY. I FIND IT DIFFICULT TO BELIEVE THAT WE HAVE TECHNOLOGY AVAILABLE THAT WILL GUARD WASTE DUMPS DURING AN EARTHQUAKE OR A 100YR. - 24 HR. STORM. THE GROUND OPENING UP BENEATH WOULD CAUSE ALL TO AVALANCHE. PUT THAT THROUGH YOUR COMPUTER AGAIN PLEASE. (N-15)

4-15 LAND SUBSIDENCE

A COMPUTER IS ONLY AS GOOD AS THE INFORMATION PUT INTO. I THINK YOU SHOULD CHECK YOUR DATA ENTERED, AND THE SOURCE OF THAT DATA. WOULD YOU BE SO KIND AS TO EXPLAIN WHERE THIS DATA CAME FROM, AND THE YEAR. N-16

4-14 SEISMIC EVENTS

TABLE 3-2-1 MARCH 1872 - JANUARY 1993 DATES NOT GIVEN. WHAT IS THE POSSIBILITY OF A 7+ MAGNITUDE WHEN YOU CONSIDER RECENT SEISMIC ACTIVITY IN RENO AND ALONG THE WEST COAST WHICH SEEM TO BE HAPENING AT A MORE RAPID RATE RECENTLY, I WOULD THINK THE CHANCES OF A SERIOUS EARTHQUAKE WOULD BE INCREASING. WHAT WOULD BE YOUR REPLY? N-17

4-16 - 4.2.3 PALEONTOLOGY IMPACTS

HAS ANYONE WALKED THRU THIS AREA (AND ACTUALLY LOOKED)? ANYONE SUCH AS AN ANTHROPOLOGIST? AND IF NOT, WHY NOT. WHAT INVENTORIES ARE YOU SPEAKING OF, AND HOW OBTAINED? N-18

4.2.3 (FIGURE) PAGE 2-71

WHAT IS THE DISTANCE FROM THE OUTER BAND OF POTENTIAL INFILTRATION BAND AND WHAT YOU SHOW AS "CORTEZ PARCELS, ALSO A POTENTIAL DEWATERING SITE"? WHO IN NEVADA WATER CONSERVATION SAW THIS? AND WHEN DID IT BECOME INCLUDED? N-19

P. 4-16

4.3.2 - I WAS NOT AWARE THAT PRIME FARMLAND WAS EXPENDABLE ANYWHERE IN THE CONTINENTAL U.S., WHETHER THIS 7 ACRES IS, OR EVER WAS USED FOR SUCH IS NOT THE ISSUE. THIS SEVEN ACRES IS A NATURAL RESOURCE NOT TO BE FORFEITED TO ETERNITY, WHEN IT CAN BE IRRIGATED AND USED FOR MORE THAN LIKELY THE REST OF THE TIME ON EARTH WHILE THE PROCESS THAT WOULD DESTROY IT FOREVER IS JUST A WINK OF THE EYE ~~TO THE~~ TO FATHER TIME, AND THE PRODUCT THAT IS PRODUCED BY THIS PROCESS CANNOT BE EATEN, AS WAS SHOWN IN THE STOCKMARKET CRASH OF 1929, WHEN PEOPLE WITH GOLD JEWELRY WORTH FAR MORE THAN THE GARBAGE JEWELRY PRODUCED FROM THIS MINE WILL EVER BE WORTH, COULD, IF FORTUNATE, BUY A FEW POTATOES. IN OTHER WORDS, WHEN GOLD IS WORTH ZILCH, NADA, NOTHING, NOT-ONE-THING THE FARMER WILL STILL BE ABLE TO FEED THE WORLD! THIS IS CAUSE FOR REFLECTION OF THE MOST SERIOUS NATURE AND ENOUGH TO STOP THIS DRAFT EIS FROM GOING ANY FURTHER. AND THIS PROJECT TO BE HALTED IMMEDIATELY. I AM AMAZED TO SEE THAT THE DISTURBANCE OF THIS SEVEN ACRES IS CALLED "INSIGNIFICANT". WHO IS RESPONSIBLE FOR THIS PART OF THE DRAFT EIS, PLEASE?

N-20

I COULD GO THROUGH THIS DRAFT EIS AND PICK IT CLEAN TO THE BONE. THEIR IS NOT ONE WHOLE PART OF THIS DRAFT EIS THAT WOULD STAND UP TO LATER. THE RESEARCH, STATISTICS AND ENGINEERING PLANS ARE POOR AT BEST AND YOUR MAPS NOT TO SCALE. THE DESTRUCTION OF PLANT AND ANIMAL LIFE, ALONG WITH WATER AND AIR POLLUTION, AND IRREPAIRALE DAMAGE TO THE LANDSCAPE IS UNCONSCIENABLE THIS CORTEZ PIPELINE MINE DEPOSIT FROM CONCEPTION TO END (OF WHICH IS SHOWS NONE) CAN BEST BE SUMMED UP IN THIS WAY, THE 2,000 g.p.m. THAT WAS TO BE USED FOR (TWO OF THE EXPLANATIONS GIVEN) 1 - THE "PROCESS" AND 2 - FOR OFFICE & EMPLOYEE USE, MAKES ONE ASK HOW MANY PEOPLE CONSUMING WATER AND VOIDING IT DOES IT TAKE FOR THE FIRST MINUTE OF DEWATERING? BECAUSE THE 37,000 + g.p.m. WENT FOR THE MINE PROCESS

N-21

N-22

PAGE E-21 FIG. 5

A- ALSO, IN THE MATTER OF THE HOLE DRILLING THE WATER WAS CONTAMINATED. HOW DID THAT HAPPEN? HOW LARGE WAS THE CONTAMINATION? HOW FAR WILL IT CARRY? AND WHERE IS THE MONITORING WELL FOR SUCH POLLUTION? FIG. E-5 STOPS AT 460' THEN STATES IT MAY EXCEED 1,000'

N-23

PAGE E-22 FIG. E6

B- THE SECOND HOLE DRILLING IS ASKING FOR A WAIVER FOR THE 50 SEAL. ISN'T THIS SEAL UNDER REGULATIONS? WHY IS THIS WAIVER BEING ASKED FOR AND FOR WHAT PURPOSE?

N-23

P. E-22 FIG. - [redacted] E6 - WHAT WAS REASON FOR DRILLING BEING STOPPED? WHY THE DEPTH CHANGE? AND WAS THERE A CAVE-IN OR ARE YOU SPEAKING OF SOMETHING ELSE? N-24

TABLE D-1 PAGE D-8

WHY ARE THERE NO SUB-REGIONAL AND REGIONAL MONITORING WELL LOCATIONS FOR THE TOWN OF CRESCENT VALLEY? I WOULD LIKE THE NEVADA STATE ENGINEER TO BE ASKED WHY IT DIDNOT DEMAND A MONITORING WELL FOR THE TOWN WHEN THERE ARE BOTH STATE AND FEDERAL EPA REQUIREMENTS FOR SAFE DRINKING WATER. THE ATTORNEY GENERAL SHOULD ADDRESS THIS ISSUE. N-25

3- V-BOND RELEASE

THERE SHOULD BE NO RELEASE OF RECLAMATION OR SURETY BONDS UNTIL 100% RECLAMATION HAS BEEN OBTAINED & MAINTAINED FOR A MIN. 1 YR. AND [redacted] BOND SHOULD BE HELD ONTO UNTIL ALL WORK HAS CEASED BECAUSE THE OPERATOR IS BEING ALLOWED TO CREATE ADDITIONAL DISTURBANCE AS LONG AS THE ACTIVE UNRECLAIMED DISTURBANCE DOES NOT EXCEED 5 ACRES AND THE TOTAL MONITORED RECLAMATION DOES NOT EXCEED 10 ACRES. THIS SHOULD [redacted] NOT BE ALLOWED. TOTAL DISTURBANCE IS THE AREA TOTALLY DISTURBED WITH THIS PROPOSED OPERATION THE AREA TOTALLY DISTURBED HAS THE POSSIBILITY OF EXTENDING FAR BEYOND THE ORIGINAL ACREAGE IN ORIGINAL PROPOSAL WITH N-26

NO ACCOUNTABILITY REQUIRED OF MINING COMPANY AND UNLESS KEPT UNDER CONSTANT SURVEILLENCE (BECAUSE COMPANY MAY NOT FILE FOR APPROPRIATE PERMITS) ~~AND~~ IS GIVEN IN ~~ESS~~ ESSENCE FREE WILL TO ~~CAN~~ MINE OUT THE REST OF THE ENTIRE STATE OF NEVADA, WITH NO SURETY BOND INCREASE OR BASICALLY, NO NOTIFICATION AS REQUIRED BY FEDERAL LAW AS FAR AS PUBLIC NOTIFICATION RE: PUBLIC LANDS. N-26

~~HAZ-MAT SPILL EMERGENCY RESPONSE PLAN~~ TELLS WHAT CORTEZ DOES, BUT NOT WHAT ~~SPILL PREVENTION~~

QUESTIONS NOT COVERED IN D.E.I.S.

1- WHERE DO ~~ES~~ OLD BATTERIES, OIL & FILTERS FROM OIL CHANGES, OLD TIRES AND ANTI-FREEZE FROM ALL VEHICLES, TRUCKS AND EARTH MOVERS GO TO BE RECYCLED? N-27

2- IS THE FISH (TROUT) THERE IS DEBATE ABOUT EXISTING, IN STREAMS (NOT ALL OF WHICH WERE INCLUDED IN EIS) HAPPEN TO BE THE CUTTHROAT, WHICH IS THE NEVADA STATE FISH? N-28

3- AT WHAT POINT IS PUBLIC NOTIFIED RE: TOXIC EMISSION ACCIDENT EXAMPLE- T.M.I? N-29

4- WHAT IS PLAN ~~IS~~ WASTE DUMP GOES OVER THE WALLS AS FAR AS NOTIFYING PUBLIC? N-30

5- WILL WASTE FROM OTHER FACILITIES BE BROUGHT IN AND DEPOSITED N-31

5-(CON'T'D) AT MINE OR NEW WASTE SITE?

6- WHY WERE NATIVE AMERICANS - SPECIFICALLY THE NEWE NOT CONSULTED WITH AS A MATTER, IF NOTHING ELSE, OF FORM? AS THIS LAND WAS COVERED IN THE TREATY OF RUBY VALLEY 1863- CERTAINLY TO MEET WITH THEM IN DISCUSSION WOULD HAVE BEEN APPROPRIATE CONSIDERING THERE IS A CANADIAN COMPANY WHICH IS FOREIGN INVOLVED IN ALL THIS. N-32

7- THE WATER-RIGHTS QUESTION IS STILL UNCLEAR, AS IS ANIMAL, FISH & PLANT LIFE. YOUR STATEMENTS RE: SEEPS, DRAWDOWN AND WATER TABLE AND SURFACE WATER ARE LACKING N-33

8- THERE IS NO BACK-UP IN SOME OF YOUR DETAILS AND YOUR COMPUTERIZED GUESSTIMATION MAKE ME FEAR FOR THE STATE OF HEALTH OF [redacted] NEVADA. I HAVENT SEEN NEVADA SINCE THE 1970'S BUT WITH ALL THE SEPARATE MINING COMPANIES, NUCLEAR TESTING, AND ABANDONED MINES & MILLS. I AM NOT OVERLY EAGER TO VISIT IT NOW. N-34

9 - PAGE TABLE D1 D8 - THERE ARE NO MONITORING WELLS FOR CRESCENT VALLEY CITY, ONLY FOR THE LEVEE. I REQUEST US-EPA REGION NINE TEST CITY WATER, AS WELL AS THE FIHPINI & DEAN RANCHS. N-35

10 - Pp. H 11 & 12 SHOW DEAD COWS NEAR AND/OR IN DRAINAGE DITCHS AND SHALLOW WATER, WHICH LEADS ME TO THE CONCLUSION THAT THERE WAS OR IS A PROBLEM WITH CONTAMINATION OF WATER AS MINES ON EPA LIST ARE IN SAME AREA. CHECK MAPS PAGE 3-103 FIGURE 3.2-1 ALSO PAGE E-16, FIG. E2 N-36

11 - ~~Why~~ WHY ARE ALL MONITORING WELLS RUN BY MINING COMPANIES? AN OUTSIDE AGENCY SUCH AS U.S.-EPA REGION NINE SHOULD BE PAID FOR MONITORING OR SAMPLES ON A YEARLY OR SEMI-YEARLY BASIS. HAVING SUCH AN ENVIRONMENTAL IMPACT THIS SHOULD BE DONE BY SOMEONE OTHER THAN THE PARTY THAT WOULD BE RESPONSIBLE FOR CONTAMINATION ESPECIALLY WHEN THIS IS A FOREIGN CONCERN WITH THEIR EYE ON THE BOTTOM LINE THAT IS INVOLVED WITH AMERICAN COMPANY. N-37

12 - THE NEVADA EPA AND NEVADA DIV. OF MINERALS DENIED ANY KNOWLEDGE OF THE E.P.A. CLEAN-UP LIST. NEVADA IS IN CHARGE OF REGULATION AND INSPECTION AND APPARENTLY FINDS JOB TOO BURDENSOME N-38

13- THIS DRAFT EIS IS A CATASTROPHE. HOWEVER, I FIND THE INADEQUACY OF NEVADA TO HANDLE IT'S RESPONSIBILITIES ODIOUS. N-39

14- THIS PROJECT AS PROPOSED, AND THE PRESENT POSSIBILITY OF UNKNOWN CONTAMINATION, SHOULD NOT BE ALLOWED TO START-OPERATION, OR DO ANY MORE SAMPLE DRILLING UNTIL PRESENT PROBLEMS ARE WORKED OUT, POSSIBLY BY NATIONALIZING MINES & HOLDING BONDS UNTIL CONDITION OF MINE IS KNOWN WOULD HELP. N-40

15- THE POSSIBILITY OF A SPILL, OR OTHER ACCIDENT AT THIS POINT IN TIME IS ALWAYS POSSIBLE. SO UNTIL THERE IS A GUARANTEE THAT MINING INSPECTIONS ARE BEING CARRIED OUT PROPERLY AS THE OTHER PROJECTS. THIS MINE WOULD BE THE STRAW THAT ~~FILL~~ BROKE THE CAMEL'S BACK. N-41

16- BOYCOTT GOLD JEWELRY

17- WHY WAS THE HAZ-MAT - BLM MINERALS - EPA DOCKET LEFT OFF AS SOME OF THEM ARE THERE IN CRESCENT VALLEY? WOULD YOU PLEASE TELL ME WHICH BELONGS TO KENNECOTT, PLACER DOME AND CORTEZ? N-42

AARON MINING
ALL MINERALS INC.
AMERICAN BORATE CO.
ARGENTIUM MINE
BUCK HORN MINE
BUNKER HILL CO.
CARLIN GOLD MINE
CHROMALLOY MINING & MILLING
CRESCENT MINING LTD.
CRESCENT VALLEY MILL
CYPRUS MINING CORP
(AND Z EXPLORATION CO.
DOUBLE EAGLE INC.
DRESSER MINERALS - GREYSTONE MINE
DUVAL CORP. MINE SITE
EISMAN CHEMICAL CO.
GOLD STRIKE MINE
INTERMOUNTAIN EXPLORATION
JUPITER GOLD CO.
KEMCO BUSTER MINE
MC DERMITT MINE
MINERALS CONCENTRATE
MINERALS MGMT. - ARGENTIUM MILL
MONTELLO SHEELITE
MT. HOPE MINE
MULTI-METALLICS INC.
NEW PASS RESOURCES INC.
RIO TINTO COPPER MINE
SMOKEY VALLEY MINE
STANDARD GOLD MINE
UNION CARBIDE - EMERSON MINE
UTAH INTERNATIONAL INC.
VETA GRANDE MINING CO.
WESTERN WIND FALL LTD.

RESPONSE TO COMMENT N-1

Page S-1, Paragraph 3 of the Summary in the FEIS has been revised to state: "Mining activities are proposed in Lander County, Nevada, on unpatented mining claims (public land)." (See Figure 3.10-1 for land status.)

The National Environmental Policy Act requires a complete analysis of a proposal, regardless of what agency or private entity manages it or owns it. Both the Pipeline DEIS and FEIS have analyzed all impacts, regardless of land ownership.

RESPONSE TO COMMENT N-2

Reference to existing facilities has been added to the Summary.

RESPONSE TO COMMENT N-3

Details regarding waste dumps are discussed in Section 2.2.

RESPONSE TO COMMENT N-4

Ore processing is discussed in Section 2.2.3. The amount of ore processed is dependent on suitability and availability for both the Cortez mill and the proposed mill. An exact figure cannot be given.

RESPONSE TO COMMENT N-5

Overburden disposal from existing Cortez facilities is discussed in the Cortez Expansion EIS. Separate waste rock dumps were included in the Proposed Action for the Cortez Expansion EIS.

RESPONSE TO COMMENT N-6

A list of equipment and estimates of exhaust emissions from heavy-duty diesel equipment are summarized in the Response to Comment F-5 in this volume. On-site monitoring for particulates is currently ongoing at the Pipeline Project site. Emissions of PM_{10}, HC, CO, Nox and SOx from construction and operational equipment exhaust are calculated and shown in Tables F-1, F-2, and F-5. On-site monitoring of gaseous pollutants is not planned, because NDEP does not regulate mobile sources of gaseous emissions, and monitoring is not required by the NDEP. Regarding emissions from other mines in neighboring valleys, the existing Cortez Gold Mine operations (i.e., Horse Canyon, Cortez, and Crescent Pits) are the only other operating mines in the Crescent Valley air basin and cumulative effects are not expected from neighboring air basins, which are generally separated by topographical barriers, such as the Shoshone Range. Emissions attributable to the operation of this facility were summarized in the Cortez Gold Mine Expansion EIS.

RESPONSE TO COMMENT N-7

On-site monitoring of gaseous pollutants is not planned, because NDEP does not regulate mobile sources of gaseous emissions, and monitoring is not required by the NDEP. Groundwater and surface water monitoring locations are identified in Appendix D in Volume I of the FEIS. Further details for water monitoring are contained in the Integrated Monitoring Plan Technical Report (WMC 1995).

RESPONSE TO COMMENT N-8

Exploration activities for the proposed project were permitted under an environment assessment already approved by the BLM. Impacts from the entire proposed project are evaluated in Section 4 of the FEIS.

Cortez does propose an expanded exploration program under the proposed action. The 1872 Mining Law permits such an action, as does the Shoshone-Eureka Resource Management Plan, the Federal Land Management Policy Act, and the BLM's 43 CFR Surface Management Regulations. All appropriate impact analysis and mitigation for this proposal have been completed in both the Pipeline Draft EIS and the Final EIS.

RESPONSE TO COMMENT N-9

Land Use Plan objectives are discussed in Section 5.2.3 of the FEIS.

RESPONSE TO COMMENT N-10

The existing mine is not being closed. Refer to Section 2.1 and the Cortez Expansion EIS. All applicable regulations regarding federal and state permits listed in Table 1.5-1 have been or will be obtained before project construction.

RESPONSE TO COMMENT N-11

The Cortez Expansion EIS was completed in August of 1993. Referring to general discussions, baseline data, and analysis from a previous relevant document is encouraged by the BLM's National Environmental Policy Act Handbook H-1790-1 to reduce paperwork. All impacts not addressed in those documents are analyzed in the present Pipeline Deposit FEIS.

RESPONSE TO COMMENT N-12

Preparers of the FEIS are listed in Section 6.0.

RESPONSE TO COMMENT N-13

A reclamation plan and appropriate reclamation cost estimates for bonding (refer to Response to Comment L-34) has been submitted to the agencies for approval. An approved reclamation plan would be implemented which addresses earthwork/recontouring, revegetation/stabilization, detoxification/disposal, and monitoring operations necessary to satisfactorily reclaim the proposed disturbance including: roads and pits, process ponds, heaps, dumps, tailings, and buildings and equipment. Revegetation standards require at least 50 percent of the adjacent land productivity and diversity be obtained before the revegetation portion of the bond is released. In addition, if standard revegetation efforts are unsuccessful, additional measures may also include supplemental irrigation as well as additional seedbed preparation and reseeding.

Active gold mines throughout the Great Basin, including Cortez, contain areas of successful reclamation and revegetation efforts. Even at older mine-sites excavated and abandoned prior to reclamation laws, many waste rock dumps and other disturbed sites have been colonized over time by the voluntary establishment of native vegetation.

The BLM National Environmental Policy Act Handbook in Chapter V B.2.a(4) "Conducting the Analysis and Preparing the Draft EIS" states:

"Mitigation measures which could reduce adverse impacts or enhance beneficial impacts and which have not been incorporated in the proposed action or an alternative must be identified and analyzed. The analysis should address the anticipated effectiveness of these mitigation measures in reducing adverse impacts which remain after mitigation measures have been applied as well as any further impacts caused by the mitigation measures themselves." This handbook also prescribes the analysis of any residual impacts or *unavoidable adverse impacts* which remain after mitigation measures have been applied as well as any further impacts caused by the mitigation measures themselves.

RESPONSE TO COMMENT N-14

See Response to Comment F-24.

RESPONSE TO COMMENT N-15

The comment is a result of a mistaken reference to Section 2.8.3 on page 4-14 of the text. The reference has been changed to "Section 2.2.7." Earthquakes and 100-year floods are addressed in the technical reports that accompany the Plan of Operation. Please refer to Comment Responses L-21 and L-22 for further discussion on seismic design. Regulatory requirements for consideration of design storm events are treated in a similar manner.

RESPONSE TO COMMENT N-16

See Response to Comment J-16. The source of data for input to the computer model is SHB Agra, Inc. (April 1993).

RESPONSE TO COMMENT N-17

Please refer to Response to Comment L-21.

RESPONSE TO COMMENT N-18

The BLM is responsible for maintaining an inventory of paleontological discoveries in each management district so that: (1) impacts to paleontological resources resulting from proposed development can be assessed; and, (2) those resources can be protected as may be warranted. These data are available for review in the district offices. In addition, the BLM has published internal guidelines on the scope of the investigation required to evaluate these resources in advance of any land use planning. These guidelines do not require field surveys covering the area of interest but often rely upon literature searches of documented resources and verbal reports from paleontologists active in the region.

Appendix A of the DEIS includes the report on a paleontological assessment conducted in 1991.

Sections 3.2.5 and 4.2.3 of the FEIS have been revised to address the recent discovery of a mammoth tusk. Please also note that the area is covered by alluvium, consisting of material that has been eroded from the surrounding mountains and transported to the present site. Many of the units in the surrounding rocks are not fossiliferous. The alluvium is not known to be fossiliferous.

RESPONSE TO COMMENT N-19

The distance from the infiltration band to the referenced parcels is approximately one-half mile. These parcels are included in the DEIS as potential dewatering sites, in addition to other unspecified locations within the band.

See updated Figure 3.4-7 in the FEIS. The State Engineer's Office will review infiltration sites as part of their permit approval.

RESPONSE TO COMMENT N-20

The Creemon silt loam map unit, encompassing about 60 acres of the Proposed Action area, does not meet the soil requirements for prime farmland because of the short growing season.

RESPONSE TO COMMENT N-21

Scales for all baseline maps are shown in the top right-hand portion of the legend.

RESPONSE TO COMMENT N-22

Please see p. 2-25 of the DEIS. The 2,000 gpm consumptive use of water would include evaporative losses and process uses for mining and milling. Bottled water would be supplied for drinking. It is not clear what the comment "37,000+ gpm" is in reference to.

RESPONSE TO COMMENT N-23(a)

The boring log for well OW-45 indicates that water was clouded with bentonite. Bentonite is natural clay material that is used as well drilling mud and to construct sealed zones in the well. The cloudy water may affect laboratory results of an individual water sample, but should not be confused with aquifer contamination.

RESPONSE TO COMMENT N-23(b)

This Figure is an example of shallow well completion. The note on Figure E-6 implies that for some wells less than 100 feet, a waiver of the 50 foot minimum seal requirement may be necessary to monitor groundwater that is less than 50 feet deep.

RESPONSE TO COMMENT N-24

The example well log on Figure E-6 indicates that the boring was drilled to a total depth of 340 feet, and that the hole caved-in to 333 feet, which is the completed depth of the well.

RESPONSE TO COMMENT N-25

Refer to Table D-1 on page D-8 of the DEIS and note the entry "Crescent Valley Towns" (Map Location #15 on Figure D-1 on page D-10).

RESPONSE TO COMMENT N-26

Under the Memorandum of Understanding between the Nevada Division of Environmental Protection (NDEP), the USDA Forest Service (USFS), and the BLM, Small Exploration Projects and Mining Operations (SEPMO) are defined as operations which remove from the earth less than 36,500 tons of material and have a disturbed area of five or less surface acres in any calendar year. To determine the area of the surface disturbed, all land disturbed and left unreclaimed by an operator within a 1-mile radius of the center of the project must be considered. These small operations are referred to as notice-level activities. For the BLM, this

will usually require a filing of a Notice. For the USFS, this will require filing a Notice or Plan. For NDEP, this may require filing a Notice of Mining Operation, or equivalent Notice or Plan.

Mining operations which have a disturbed area of more than five surface acres or remove from the earth in a calendar year material in excess of 36,500 tons, will require the filing of a Plan of Operations. For the NDEP, this requires filing an application for a permit for reclamation. The Cortez Pipeline Project falls within this latter category.

Under a Plan of Operations, an operator must submit a description of all activities. A bond is required to be posted. The purpose of the bond is to cover the cost of reclamation in the event that the company does not fulfill its responsibility. Recontouring and revegetation of disturbed areas must be approved by the BLM/NDEP. The reclamation bond will be released to the company after adequate reclamation has been achieved.

Federal regulations would require that the Pipeline Operations be inspected four times a year.

RESPONSE TO COMMENT N-27

Used batteries, oil and antifreeze are recycled by outside contractors having the required permits/licenses from the appropriate regulatory authorities. Used oil filters are drained as specified in 40 CFR 279, "Standards for the Management of Used Oil," then placed in the operation's permitted Class III landfill. Used tires are either recycled through an outside contractor or disposed of in the waste dumps in strategic locations to prevent resurfacing.

RESPONSE TO COMMENT N-28

Brook and brown trout occur in Duff and Frenchie creeks in the northeastern portion of the analysis area. A single brook trout was found in Indian Creek, and brook trout may occur in Elder Creek, as noted in the DEIS (p. 3-41). No Lahontan cutthroat trout have been found in streams in Crescent Valley (personal communication, Carol Evans, Riparian Specialist, BLM; Gary Johnson, Fisheries Specialist, NDOW; Joe Maslach, Warden/Biologist, NDOW, DEIS preparation and January 1995).

RESPONSE TO COMMENT N-29

Reporting procedures for any spill or release are identified in Appendix G-1. Procedures found in Appendix G apply to airborne contamination as well as spills. The purpose section on page G-1 talks of these discharges.

RESPONSE TO COMMENT N-30

Waste dumps consist of rock material that does not contain ore. The materials are dumped in a large heap on the ground. Waste dumps are not contained by walls. The rocks themselves do not generate concern if they 'spill.'

There is some concern that water which may percolate through the waste dumps may leach metals or become acidic. The State of Nevada requires that materials which are stored in this manner must be periodically tested. The dump must be composed of such materials or designed in such a way that water does not become contaminated.

RESPONSE TO COMMENT N-31

No. Refer to Section 2.0 for a complete project description of the Proposed Action.

RESPONSE TO COMMENT N-32

Refer to Response to Comment I-8.

RESPONSE TO COMMENT N-33

This comment is not specific enough to respond. Perhaps the responses to the preceding comments will clarify.

RESPONSE TO COMMENT N-34

Appendix C of the FEIS includes a summary of water resource technical information not presented in Section 4.0. A description of the expanded groundwater model used is also included.

RESPONSE TO COMMENT N-35

As shown on Figure D-1 and Table D-1 in the DEIS, an existing well number 15 at Crescent Valley will be monitored along with several other wells between the mine and Crescent Valley. Local health departments may also test the city water.

RESPONSE TO COMMENT N-36

The presence of dead cows in or near a drainage is not necessarily a sign of contaminated water. In the arid west, it is common for sick and dying cows to stay close to a water source so as to decrease the area traveled in their weakened state. The simple fact that the animals stay near water when ill increases the odds that they will be near water when death occurs. This is a much more likely scenario than contaminated water. If the water were contaminated, there would likely be many dead animals nearby, including rabbits, coyotes, deer, etc. Water quality tests in the area do not show signs of toxicity.

RESPONSE TO COMMENT N-37

Primacy for implementation of the Clean Water Act has been delegated to the State of Nevada by the EPA. Such provisions are provided for in the act providing the state can show adequate capability of enforcing all aspects of the act.

Nevada, and, for that matter, most states that have such primacy, lack sufficient funds or staffing to adequately police each and every proponent and their projects.

The only viable alternative to the states, including Nevada, is self-monitoring by the proponent. Included in this self-monitoring is the acceptance of a designed monitoring program that must be approved and accepted by the state. Periodic compliance checks by state personnel ensure compliance by the proponent with all factors of the monitoring program.

In addition to the State of Nevada requirements, the BLM, in the Record of Decision, requires from Cortez a $1,000,000 monitoring and mitigation fund. This fund will be used for a period of up to 250 years after the State of Nevada's 30-year period expires to monitor all aspects of the project, but especially water quality in the pit lake. All data that results from this monitoring will be shared with all the appropriate state and federal agencies.

Sampling sites, sampling methodology, frequency, and elements to be sampled are all determined by the State of Nevada. The company must send such samples to a commercial laboratory that is approved by the State of Nevada to analyze all samples. Personnel from the Nevada Department of Environmental Protection may visit the site at any time and take samples. The results of these samples are used to compare to those that are submitted by the company.

This method allows the state to effectively verify that adequate monitoring takes place.

RESPONSE TO COMMENT N-38

Comment noted.

RESPONSE TO COMMENT N-39

Comment noted.

RESPONSE TO COMMENT N-40

Comment noted.

RESPONSE TO COMMENT N-41

The Federal Mine Safety and Health Act of 1977 (MSHA) and Nevada State Requirements for emergency preparedness and training are addressed in Appendix G of the FEIS.

RESPONSE TO COMMENT N-42

To the best of the BLM's knowledge, no Cortez facility has been listed on the EPA's national priority list. The remainder of the comment is not germane to the Pipeline project or this NEPA document.

COMMENT LETTER O – JESS DANIELS

Comment Letter O

Jess Daniels

915 E. 7th St.

Tucson, AZ 85719

Attn.: Project Team Leader, BLM

Battle Mountain District

Comment: Cortez Pipeline Gold Deposit DEIS

I am appalled by the government of the United States' continuing refusal to honor the Treaty of Ruby Valley and the United States' Constitution.

The U.S. Constitution states in Article VI, paragraph 2, "This constitution...and all treaties made...under the authority of the United States shall be the supreme law of the land."

Article IV of the Treaty of Ruby Valley of 1863 does allow, "that the Shoshonee country may be explored and prospected for gold and silver... and when mines are discovered they may be worked..." The Canons of Treaty Construction developed by the Supreme Court hold that treaties must be interpreted as the signers understood them at the time. It follows, therefore, that the Western Shoshone Nation has consented by treaty that Cortez gold mines or anyone else may mine with a pan, a pick, and a shovel and carry out with a mule as much gold as they would care to extract in this manner. It is clear that if Placer Dome/Kennecott would care to legally operate an open pit, cyanide heap leach gold mine that they must negotiate with the Western Shoshone Nation, or allow the U.S. or Canadian governments to negotiate on their behalf. O-1

If justice be served, these are the true legal considerations by which Placer Dome's Pipeline Project POO must be viewed. Failing that, (as I expect, that in light of "our" government's track record failure to act with honor and dignity is inevitable) not even the diminutive federal environmental law, let alone justice, is served by this document.

The Draft EIS does not fulfill the requirements of the National Environmental Policy Act. Study of the document does not provide any evidence of adequate exploration of alternatives to the proposed action. The exclusive reliance on data furnished by Water Management Consultants on behalf Cortez gold mines belies a blatant conflict of interest. O-2 O-3

The Summary of Impacts leads readers to the belief that no significant impacts will result from the proposed project, while a reading of the actual document demonstrates otherwise. This document is totally unacceptable and should be replaced by a new DEIS. O-4

Heap Leach and Tailings Closure

The DEIS does not provide any plan of what is to be done to decommission the heaps and pond liners, etc. It is unacceptable for this document and the BLM to leave such crucial problems to be resolved at some future time with another agency, the NDEP. Statements such as, "A final closure plan would be prepared and submitted to the NDEP upon termination of operation of each cell," and "The heap leach cell would be decommissioned in accordance with NDEP regulations and guidance for closure," provide no useful information for use in the determination of impacts. The document does not provide data to adequately assess the capacity of WAD and free cyanide compounds to "degrade naturally." Nor does it provide any analysis of potentials for leakage of other hazardous substances certain to be present in the heaps, pools, and sludge. Also, what levels of contaminants will be allowed to drain from the heaps and ponds? Will this meet drinking water standards? Or merely compound the threat to the Crescent Valley residents drinking water already posed by Cortez's current cyanide leak? O-5 O-6 O-7 O-8

The third paragraph of page 2-32 states that, "If the results of a second rinsing indicated that the NDEP standards could not be met, alternate decommissioning procedures would be discussed with the NDEP." This again abdicates responsibility for a crucial element O-9

to another agency at some future time. This is not acceptable. If NDEP standards cannot be met, Cortez must forfeit the reclamation bond and be liable for costs of all further measures necessary to thoroughly clean up their mess. O-9

Again, on the following page 2-33 the document is back to "sludges would be handled according to NDEP permits... and in conformance with NDEP regulations." This is followed by a series of unqualified either/or statements which furnish neither the criteria for determining which alternative is to be used nor what will the potential impacts be. The Document suggests they could be removed and placed "in a permitted landfill," without criteria, without naming a landfill that would accept this waste, without specifying the means of transportation, without even suggesting let alone enumerating what are the potential impacts of any of the proposed means of dealing with the waste. Needless to say, the document does not mention what would be the impacts of any accidents that might occur in the execution of these operations, nor even what substances may be involved. O-10 O-11

Reclamation and Bonding

Reclamation standards should be set at 100% of productivity and diversity of lands in a natural condition. Any standard set lower promotes undue and unnecessary degradation of public land. Consideration of these items leads us to the matter of the reclamation bond. The DEIS has demonstrated that a pit lake would be environmentally disastrous and illegal. The bond must cover the cost of refilling the pit with rock. The document states neither the amount of the bond nor how it is to be calculated. Can the public be assured that it will be enough to cover the clean up if Placer Dome/Kennecott should decide to walk away from their mess? The bond must cover all potential reclamation costs, pit refilling, water remediation, heap rinsing, waste disposal and treatment, and reclamation of surface disturbances. O-12 O-13

Water Quality

The conclusion that significant impacts to water quality in terms of a pit lake are not anticipated appears to be based on neither facts nor logic but rather sheer optimism. The only factors utilized to reach this conclusion appear to be the generally good quality of groundwater at the alluvial level near the site, the perceived low probability of AMD, and the PHREEQE model. O-14

The generally good quality of water does not extend into the bedrock level where exposure to flouride and total dissolved solids consistently in excess of Federal regulations would degrade water quality. Neither the perceived low probability of AMD, nor the PHREEQE modelling attempts to account for potential impacts due to interaction with rock walls, biological activity, or evapoconcentration.

In paragraph 1 of page 4-40 the DEIS states, "NDEP regulations prohibit creation of an impoundment which has the potential to degrade groundwater as a result of mining below the water table." Therefore leaving the pit to fill with water is illegal, and the reclamation procedures and bond must encompass the refilling with rock of the mine pit. O-15

The explanation of mitigation measures to ensure good water quality in reinfiltration areas is insufficient. Water quality is likely to be degraded, and the document does not state that environmental law will be respected. In all areas this document should at minimum assure that all relevant legal protections will be met. If Cortez cannot assure water quality, then Cortez cannot be allowed to even begin, let alone continue mining operations at the Pipeline. O-16

Cumulative Impacts to Water Quantity

Support is lacking for claims that there is any probability of successful reinfiltration. Down gradient reinfiltration increases chances of downstream water loss. Water should be reinfiltrated upgradient. O-17

Statements that there will be no impacts to the Humboldt River are unsubstantiated. Data on the modelling process is insufficient. Total reliance on WMC studies bought and paid for by Cortez leave the public to swallow a conflict of interest. To make categorical claims of no impact to the Humboldt River at all, and thereby none cumulatively, based on a model that in no way accounts for the filling of the pit lake is ludicrous. Also left out of consideration are impacts from the future South Pipeline project. The cumulative impacts of all such dewatering projects in the entire Humboldt River Basin must be enumerated and analyzed in a complete environmental document before any further dewatering projects are permitted. Cortez must determine a plan of action for its South Pipeline expansion and assess its impacts in conjunction with this project. The division of the Crescent Pit, Pipeline, and South Pipeline operations into piecemeal documents represents a continuing violation of the intent and letter of NEPA.

O-18

O-19

Air Quality

Utilizing data from Elko for the construction of a pollutant dispersion model for the site is not adequate. Even these models demonstrated poor dispersion conditions 46% of the time. There is a conflict of interest in allowing Cortez to monitor its own emissions. It is also unclear whether wet scrubbers would be operated at the commencement of milling. This would be necessary to mitigate possible crystalline sillica emissions. It is also unclear at what rate concurrent reclamation would proceed. It is necessary that this begin immediately and be monitored by agencies independent of Cortez in order to assure that fugitive dust emissions are controlled.

O-20

O-21

O-22

O-23

Cultural Resources

The Statement of No Impact to cultural resources is reprehensible. Indigenous and indigenous thinking peoples consider all life to be sacred. Especially revered is water. The

springs, seeps and groundwater all have spirits. These things have life and must be respected. Any change in water levels in springs and seeps is a significant impact. To not honor this way of seeing is to further demonstrate an already pronounced cultural insensitivity. If you don't believe me, go ask the Dann's. If you don't believe them go ask the springs. If you can't hear them answer it is because you have too much money stuffed in your ears. O-24

Conclusion

The DEIS is not sufficient to assess the environmental impacts of the POO. The DEIS is fraught with errors, inconsistent conclusions, and conflict of interest. The Summary of Impacts is particularly misleading and not supported by the body of the document. For all of these reasons this document is inadequate and must be discarded. A new DEIS for the entire Pipeline Project, in all of its parts, ongoing , planned and foreseeable is necessary to demonstrate conscientious stewardship, fulfill the public trust, and and meet requirements of law.

Sincerely,

Jess Daniels

Jess Daniels

RESPONSE TO COMMENT O-1

Please refer to Response to Comment L-1.

RESPONSE TO COMMENT O-2

Please refer to Response to Comments C-2 and C-10.

RESPONSE TO COMMENT O-3

All modeling and other data supplied by the applicant and the applicant's consultant, Water Management Consultants, have been peer reviewed by Leland Mink, Ph.D., University of Idaho; Tom Olsen, Ph.D., BLM Technical Service Center, Denver, Colorado; and Bob Moran, Ph.D., Woodward-Clyde Consultants. Refer to Section 6 for a complete list of preparers, peer reviewers, and qualifications. Also refer to Response to Comment I-5.

RESPONSE TO COMMENT O-4

The summary of impacts and other sections of the FEIS have been revised. Refer to the Summary in Volume I of the FEIS. Please note that in the DEIS and FEIS several significant impacts requiring mitigation have been identified.

RESPONSE TO COMMENT O-5

Refer to Response to Comment C-3.

RESPONSE TO COMMENT O-6

Refer to Response to Comment C-3.

RESPONSE TO COMMENT O-7

Refer to Response to Comment C-3.

RESPONSE TO COMMENT O-8

See related responses C-3 and I-11.

RESPONSE TO COMMENT O-9

Refer to Response to Comment C-4.

RESPONSE TO COMMENT O-10

Refer to Response to Comment C-6.

RESPONSE TO COMMENT O-11

Refer to Response to Comment C-6.

RESPONSE TO COMMENT O-12

The following is the standard for successful revegetation for NDEP and the BLM. It should be noted that BLM and NDEP will determine whether extreme site conditions exist at the time that revegetation efforts are initiated. An example of extreme site conditions may be where drought conditions have existed for several years in a row.

The revegetation release criteria for reclaimed mine sites will be to achieve as close to 100 percent of the perennial plant cover of selected vegetation communities or reference areas as possible. The vegetation communities or reference areas will be selected from representative, undisturbed plant communities adjacent to the mine site or, as appropriate, representative ecological or range site descriptions. The selected plant communities or reference areas must have a reasonable chance for success on the mine site. Each Plan of Operations should identify the release criteria in the reclamation plan or permit. For plant communities which are unique or are critical to the ecology of sensitive animal species, the agency may also require specific release standards for individual plant species or vegetative types (grasses, forbs, shrubs, trees). Unless extreme site conditions exist at the mine site, the release criteria should not normally be lower than 50 percent and would normally be expected to be 100 percent of the perennial plant cover for the selected vegetation communities.

RESPONSE TO COMMENT O-13

The Pipeline Project, assuming approval of the Plan of Operations, will be bonded in accordance with all Nevada Department of Environmental Protection (NDEP) and BLM requirements currently permitted by their respective regulations.

The amount of reclamation bond is set by NDEP and the BLM. It is set as the amount estimated to be required to detoxify tailings and heap facilities, dismantling of any buildings, and recontouring and reseeding of all disturbed sites. The company may ask for a 'reduction' of the bond. To qualify for a reduction, the company must satisfy Nevada State standards of fiscal ability to pay for the full amount of the bond. The company is still liable for the full amount.

Neither NDEP nor the BLM, under their current regulations, have the authority to bond for potential water issues related to the formation of pit lakes. Recognizing this issue, Cortez and Placer Dome, U.S. have committed to issuing an irrevocable surety in the amount of $1 million in the BLM's name for that purpose. This surety will cover that period after NDEP's requirement of 30 years has closed.

The DEIS on page 2-41, under "Reclamation Surety," provided the reviewer with a figure of $6,580,804.00 as an estimate (at the writing of the DEIS) of the total reclamation bond. Please also refer to Section 2.2.7 of the FEIS for revised calculations of the Reclamation Surety ($7,573,024).

Federal law discourages a large company such as Cortez from 'walking away' from their responsibilities to reclaim a site. In such an event, the BLM may issue a Notice of Noncompliance and require a bond of 100 percent of the costs of reclamation for the company's activities on all public lands.

Backfilling of the pit was considered by the BLM as a possible alternative for analysis. Please refer to Section 2 of both the DEIS and FEIS for reasons why this possible alternative was dropped from detailed analysis.

RESPONSE TO COMMENT O-14

See related response I-33.

RESPONSE TO COMMENT O-15

See related responses I-27 and I-35.

RESPONSE TO COMMENT O-16

See related responses I-22, I-27, and I-30. Mitigation measures described in the FEIS would protect existing water uses from potential water quality degradation.

RESPONSE TO COMMENT O-17

Contrary to the comment, if no reinfiltration areas are located downgradient from the pit, then downstream impacts would be much greater. See related comments I-37 and I-38 regarding effectiveness of reinfiltration.

RESPONSE TO COMMENT O-18

Please refer to related responses I-6 and I-48. Water that is infiltrated upgradient of the pit would be intercepted by the dewatering program. The downgradient area would not receive any water.

RESPONSE TO COMMENT O-19

Please refer to related responses C-13 and I-7.

RESPONSE TO COMMENT O-20

The modeling procedures the consultant used to process meteorological data were consistent with NDEP procedures. In general, upper air data, and surface meteorological data are processed for use in the dispersion model. Ideally, both upper and surface data should be from the same location, but in this instance this was not possible. Approved procedures call for utilizing the nearest location for either data set, and the consulting firm did so for the DEIS.

RESPONSE TO COMMENT O-21

Cortez has contracted with an independent consultant to operate, maintain, and report data from the on-site PM_{10} monitors, in accordance with NDEP procedures. It is standard procedure for companies to pay for their own monitoring programs, as long as the monitoring procedures are reviewed by NDEP. State agencies do not have the resources to operate monitoring programs for each and every proposed project.

RESPONSE TO COMMENT O-22

As discussed in Section 4.1.4, page 4-9, of the DEIS, the following controls are planned for point sources at the mill: a wet scrubber for the carbon reactivation kiln, which is estimated to provide 80 percent control; a baghouse for the lime silo, which is estimated to provide 80 percent control; and a wet spray system for the crushing circuit, which is estimated to provide 70 percent control.

RESPONSE TO COMMENT O-23

Concurrent reclamation would occur, in conjunction with mine operation, on waste rock dump slopes and the heap leach/tailings impoundment facility slopes during mining sequence and as waste dumps reach their ultimate height. This concurrent reclamation would allow revegetation success to be monitored and refinements made prior to final reclamation at closure.

RESPONSE TO COMMENT O-24

Refer to Response to Comment I-8.

COMMENT LETTER P – UNIVERSITY OF MONTANA

Comment Letter P

The University of Montana

School of Forestry / Montana Forest
& Conservation Experiment Station
The University of Montana
Missoula, Montana 59812-1063
(406) 243-5521
FAX (406) 243-4510

USDI-BLM
Attn: Dave Davis
P.O. Box 1420
50 Bastian Road
Battle Mountain, NV 89820

November 3, 1994

Dear Mr. Davis & the Nevada State Director :

Please find the enclosed comments on the Cortez Pipeline Draft Environmental Impact Statement. Although these comments are being presented to you in the same mailing, consider them individually. Mail responses to the individual authors accordingly. Please do not send a blanket statement or responses to me.

The opinions of the authors do not represent my opinions, nor do they represent the views of the School of Forestry, University of Montana, Missoula.

The enclosed comments are the result of a critiquing assignment completed by students of F380 - *Environmental Conservation* - School of Forestry, University of Montana. This submittal is voluntary in all respects. I have agreed to send the comments to you, with a introductory letter, because of time constraints. Class review was on November 3 and the comment period ends November 4, 1994. F380 students are interested in your responses to their criticisms, and I thought you might find their criticisms interesting as well.

F380 is an upper level course whose students are virtually all majors of disciplines within the School of Forestry, or are environmental science students. The purpose of the course is to discuss the appropriate simultaneous use of multiple resources in the context of an expanding economy. The tone of the course is environmental use - not preservation. The Cortez Pipeline DEIS was reviewed and contrasted to an EIS for the Charles M. Russel National Wildlife Refuge (US Fish and Wildlife Service). The review was brief, and the Pipeline DEIS comments you are receiving are limited. The CMR Refuge EIS was forced by a suite from the Natural Resource Defense Council in US District Court. A lot of public hostility existed. This EIS received a positive review by F380 students. However, comments on the Pipeline DEIS were almost entirely negative. While I am not submitting specific comments myself, I find this variation in comment revealing.

Sincerely,

Bruce E. Miller
Instructor F380 - School of Forestry
(406) 243-2709
message (406) 726-3473

Kevin McCracken
FOR 350
Oct.25, 1994

The Cortez pipeline gold deposit, to be developed in Crescant Valley within Lander County, Nevada, is a proposed 1,880 acre development. This proposed action encompasses a new open pit mine and accompanying water and waste disposal systems. There is also to be a 5,000 ton/ day ore-processing facility and continued exploratory drilling. This operation will be able to operate for the next twelve years based on current estimates of available ore.

The Environmental Impact Statement (EIS) published by the Bureau of Land Management (BLM) covers a wide array of expected environmental impacts. In each of these impacts; air quality, geology, soils and topography, water resources, water quality, vegetation, wildlife resources, recreation, wilderness, and visual resources, the BLM has found there to be little or insignificant impact. The only positive impact would be on the economy.

I do not feel that many of the issues were adequately addressed. I found some of the statements to be unsatisfactory, such as this statement concerning heap leach facilities.

> "if rinsing of the heaps with fresh water did not reduce residual cyanide levels to acceptable standards, a solution of cyanide- destroying chemicals could be applied to the heap until neutralization standards were met."

This statement says this procedure could be used if the highly toxic cyanide is present in excessive quantities. It does not say something would be done. P-1

McCracken – 1

Concerning leach pad liners disposal at the heap leach facilities the EIS states,

> "The pond liners would either be removed and disposed of in a permitted landfill, or they would be removed from the sides of the ponds and folded into the pond bottoms."

P-2

In my opinion this is equivalent to burying toxic waste.

I find this EIS to be somewhat of an insult. Even the proposed No Action Alternative sounds glum according to the BLM. This leads me to question whether or not the BLM did in-fact write the EIS. Many of the tables and maps were submitted by Cortez. This makes me think that there is a strong bias in the report. If this is the case then none of the proposed impact statements were done in an objective nor scientific manner.

P-3

Kevin S. McCracken

Kevin S. McCracken
P.O. Box 20052
Missoula. Mt. 59801

Sarah Fisher
27 October 94
FOR 380

The Cortez Pipeline Gold Deposit Draft Environmental Impact Statement seems like a "typical" EIS -it weighs about 8 pounds and there is a lot of flipping around for answers. It is difficult to get a generalization of a document this full of information without spending some time with it. Even after several hours, it is still difficult to zero in and identify specific flaws. I concentrated on a few specific areas that really caught my eye. Overall, I believe this EIS has generalized some problems and has not gone into depth enough concerning how the mine will be contained.

Just in opening I found several disturbing and dangercus assumptions. On page xii, it says the traffic, noise and humans from the mine will cause no impact... but what about when you couple this action with all the other resource extraction in the area? Together they could be of considerable impact. Secondly, on the next page, xiii, the socio-economic benefits are listed. But what about the long term consequences? Is it going to be a microcosm of a boom and bust cycle? P-4 P-5

Under the "Existing Facilities" section of the EIS, I found lots of "coulds" and "probables". For instance :

2-15 "...the pump rate could be reduced..." It does not promise the rate will be reduced.

2-16 "...the probable location of wells..." But what if ~~the~~ the wells are not there or do not produce enough? Then what?

2-17 "...could install drainage..." Is it their option whether or not to install a drainage? P-6

Also, I did not find an explination as to what the current saftey measures are for how toxics are stored and how a spill is to be maintained. P-7

If that was not enough, section 4, "Environmental Consequences" really left some serious questions unanswered. On 4-16,"...the leak detection and monitoring wells in sec. 2.2.3 are considered adequate for protection." Section 2.2.3 does not specify how leak detection systems or monitoring will take place. P-8

In 4.4, water resources are said to be impacted significantly by lowering the water table and potentially drying up wells. Don't the well owners have any rights or does Cortez override others? It neglects to specify Cortez's limits either. Could Cortez potentially go as deep as they want? P-9

Concerning Acid Rock Drainage in 4-24, it tells the figures of how likely it is, but it doesn't explain how a leak of this magnitude will be detected, prevented or cleaned up. P-10 The appendix gives some detail as to how monitoring will take place, but doesn't explain how often, by whom or where it will be monitored. P-11 Likewise, Appendix E is supposed tc explain the spill prevention and containment plan, but it was really scarce on any significant facts. P-12

Cortez is really kept out of the responsibility aspect of things. They have no responsibility if the water table drops to the point of drying up. Likewise, revegetation and reclamation is promised but there are no specifics as to when, how or to what degree. P-13

I am not that familiar with the specifics of mining, but I do realize that mining has some of the most significant impacts on the environment compared to other resource extraction practices. Since mining is so serious and there are so many toxic substances involved, do words like, "not expected", "predicted", "not anticipated" and "could" have any place in there? Can we really afford just one major disaster? I really do not feel this EIS got down to the nitty-gritty, but glazed over a lot of serious issues. Also, it appears that the BLM prepared the EIS when really a firm made up of different biologists, hydrologists, botonists, etc. wrote up the EIS content. P-14

Sarah C. Fisher
535 Myrtle, Apt. C
Missoula, MT 59801

Sarah C. Fisher

Critique of the
Cortez Pipeline Gold Deposit - Draft EIS
by Gabriele Golissa

Environmental Impact Statements (EISs) are a result of the National Environmental Policy Act (NEPA) of 1969. The following critique of the Cortez Pipeline Gold Deposit - Draft EIS (Cortez DEIS) is based on criteria formulated in NEPA, Section 102 (c).

Environmental Impact of the Proposed Action

The DEIS deals with this issue in length. It discusses possible impacts on a wide range of factors. However, a discussion of impacts on human health would be desirable. P-15

Adverse Environmental Impacts Which Cannot Be Avoided

The document does not state any adverse environmental impacts explicitly. It furthermore gives the impression that mitigation of environmental influences of the Proposed Action is possible. P-16

Alternatives to the Proposed Action

The Cortez DEIS lists the No Alternative Action as well as several alternatives in the areas of project components and discharge of pumped water. However, it is questionable whether the document includes all appropriate alternatives. P-17

Short-term Use Versus Long-term Productivity

One page of the document deals with this issue. Statements in this section are vague

and not very detailed. Though the Cortez DEIS addresses short-term and long-term issues, it does not discuss any existing relationships or (inter-)dependencies. P-18

Irreversible and Irretrievable Commitments of Resources

Almost one page of the DEIS gives general information about this issue. However, this information is not backed by any further analysis.

The Cortez DEIS deals with almost all of the issues addressed in NEPA, except adverse environmental impacts. The document offers possible actions in a textbook style, but fails in stating what actions will be undertaken and when those actions will be appropriate. P-19 In addition, information necessary to follow the discussion is included in the so called 'Expansion EIS' but not in the Cortez DEIS. P-20

The structure of the documents does not allow easy access to important information. Exhibits are at the end of each chapter and not where they are referred to in the text. The included table of contents is not detailed and a subject index is missing. P-21

According to the front page of the Cortez DEIS, the Bureau of Land Management (BLM) is the author of the document. However, the list of preparers and reviewers shows employees of consulting companies in addition to employees of the BLM. Biographical sketches describe persons listed as consultants for the BLM. Though the BLM may have reviewed the Cortez DEIS, major parts of the document seem to be written by people outside of the BLM. P-22

Gabi Gelissa

Gabriele Gelissa
223 Turner Hall
The University of Montana
Missoula, MT 59801

Ginger Leech
FOR 380
Oct. 26, 1994

The Cortez Environmental Impact Statement(EIS) may be considered competent and typical by many who read it. It may be typical, but I hope it will not be considered competent. Although this EIS obviously involved a significant amount of input from many sources, I feel it should not be considered competent because it evades the valid ecological conclusions that should be deduced from the data.

There exist several statements within this EIS which I feel are not consistent in data and analysis. In the section dealing with surface disturbance in the proposed mining area much information was based on data collected from 122 test pit samples which were distributed throughout the old Gold Acres tailing and heap leach material (this included pond and pad liners and underlying soils). The authors state," the testing results show that the material is generally of fair quality for which special material handling requirements would not be necessary." (2-13) In the first place I am curious as to how they choose to define the word fair, secondly I can not see how these samples could be considered insignificant. For example they state findings of, "some elevated arsenic levels...," while one sample showed a level of 2.87 mg/l when the MWP limit is merely 0.5 mg/l. (2-14)

P-23

P-24

In the section discussing "proposed mining operations" several additional contradictions and generalizations can be found. The statement, "Pit bench heights and widths would be designed according to sound engineering practice;" lacks any information on what those practices are and who determines that they are "sound." (2-14) This section also refers to the fact that geologic and geotechnical material exposed during

P-25

P-26

Leech-1

the mining processes would be regularly monitored; but fails to provide and set of procedures or scientific backing for this monitoring. (2-15) The document also lists freon as a material that could be transported, stored, or used in "appreciable quantities", but does not site is as needing any emergency planning in case of an accident. I have been led to believe that freon is highly destructive to our atmosphere. P-26 P-27

Another sub-area of this document which disturbed me was that referring to the proposed reclamation plan. "As the termination of operations for a heap-leach cell was approached, the amount of leach solution in the system would gradually be reduced through evaporation until the point of termination was reached." (2-32) two questions: How is the "point of termination" defined? and Is evaporation of all the left over mining debris not considered to be any threat to air or water pollution?. The proposed reclamation plan provides that the remaining "chemical sludge" in the ponds would either be left to dry out, buried in place, or taken to a landfill. The pond liners are proposed to be either taken to a land fill or to be folded to the bottom and buried in place. (2-33) This document is supposed issued to evaluate the environmental soundness of proposed activities; none of these proposed reclamation plans seem environmentally sound to me. P-28 P-29

Possibly the most pathetic section of this EIS was the project alternatives which in essence represent a large joke. These alternatives are created not as economically and environmentally sound alternatives, but as poorly planned ideas to fill a requirement of Environmental Impact Statements. These alternatives received little thought and obviously the idea is to create a list that can be printed but nothing that would actually change the companies proposal. " Based on the screening of project P-30

Leech-2

component alternatives, no feasible alternatives were retained for detailed analysis." (2-50) The "no action alternative" is just another part of the joke. The no action alternative is not even really analyzed because no action equals no money, and that seems to be how our society works, regardless of environmental impacts. P-31

In general this EIS is typical of the way our government and big bussiness works. We spend ridiculous amounts of money to justify the actions of some large company by dancing around the true scientific facts that point to the actual environmental losses associated with most proposed actions. Environmental impact statements sound on paper like a wonderful idea with great concern for the environment; but in reality they are merely more bull shit from our government leading the public to believe that everything is going to be just fine!

Ginger Leech
120 S. 4th E.
Msla, MT 59801
Ginger Leech

Leech-3

Matt Koozer
October 24, 1994
Forestry 380

The Cortez Pipeline Gold Deposit Draft Environmental Impact Statement was written in accordance with the regulations enacted by the National Environmental Impact Statement of 1970. It is a public information source on the progress of a proposed gold mine in North Central Nevada. Its purpose is to analyze all of the socio-economic, scientific, and environmental factors of the proposed action.

This EIS was written by the U.S. Bureau of Land Management, which would definitely receive great benefits from the proposed action according to the language and form that the facts are presented here. The Statement continually contradicts itself on several key points concerning the proposals impact on the environment. They seem to put a sugar icing on a hardrock cake.

For example: "No threatened or endangered species have been recorded in the Proposed Action area. . . However, two Candidate species (species for which listing as threatened or endangered may be warranted, but which require further study before such a determination is made) may occur in the area. (3-45) For another example of the contradiction existing in this EIS, I turn to Page 4-14. "In the event of an earthquake, rupturing of a

P-32

linear may be possible; however, the facility has been designed according to appropriate design criteria." This makes me ask what exactly are "appropriate design criteria" and what is a safe seismic reading that the design criteria was designed for? Is a 5.0 safe? What about a big 7.0? This poses a potential disaster area. P-33

The main thing that I noticed when reading this EIS is how often they use words like "however", "may", "would", and "estimated". These words are very vague and unsure. They do not know a lot about what could and will happen if the mine goes into affect, and at least they have to admit it in the EIS. They start by stating what would probably happen, then state what could or may happen. This is an ongoing theme of the writers of this EIS.

They do a good job of scaling down the situation in the "Irreversible and Irretrievable Commitment of Resources" section. The cold hard facts that would definitely be the result of the Proposed Action are included in this section, plain and clear. Among the items of irreversible outcomes include "the mining of waste rock and ore, soil losses, and heap leach pads". In the conclusion of this section they state that "the mine would represent an irreversible loss of vegetation and wildlife".

I am glad that I was able to have this opportunity to sit down with an official Environmental Impact Statement. I had never seen one before.

I wonder if they are all worded like this one. I am also left thinking about the time before NEPA required this sort of examination. Did they simply construct thing like mines without the consent of anyone? Granted, this EIS includes a lot of crafty wording and language, but they were still unable to avoid the hard core facts of the environmental damage inflicted by an operation such as the Cortez Pipeline Gold Mine. The name "Cortez" is fitting for something this destructive.

MATTHEW T. KOOZER
526 RIVER ST. #1
MISSOULA MT 59801

Matthew T. Koozer

Seed, Kerry
Kerry Seed
417 Miller Hall · U of M
Missoula, MT
59801
Bruce Miller
Forestry 380
27 October 1994

It does not seem logical that the Cortez Gold Mine would bother spending the money to print this Environmental Impact Survey (EIS). Their meager research efforts clearly show that the proposed Pipeline mine would further decimate the already "poor" riparian areas in Crescent Valley that are home to many species of wildlife.

From the outset of this report it would seem that damage to Crescent Valley ecosystems is expected. The opening summary section on water quality plainly states that the proposed facilities "have the potential to affect surface and groundwater quality through acid rock drainage and/or release of contaminants such as weak acid dissociable cyanide." The EIS also states that "metals or other compounds that leak could impact groundwater quality by infiltrating through surface soils or surface water." The survey admits that some interflow between the groundwater system and the pitlake is "expected," and that spills are "likely to occur" over the life of the mine.

All of these disturbing statements appeared in the opening summary. When you page on to the research section of the report, the proposal becomes even more frightening. It would seem that the only reason the Cortez Gold Mine would

P-34

take only four water quality samples in the entire 1800 acre area would be to mislead the reader of the report, but all four sites were contaminated. Filippini Hot Springs showed traces of arsenic, and the other sites were tainted with cyanide. These findings become more significant when you page on to read that the 220 riparian locations in the area were found to be in "poor" condition by a 1991 BLM study that cited overgrazing as the problem. These wetlands provide brood habitats for the sage grouse, chukar, and mourning dove. Other animals that depend on the area's water supply are already suffering due to the combined effects of recent drought conditions and the mine's use of critical water supply. The mountain lion population is low, the mule deer numbers are down fifty percent from 1985, and the antelope population is so low that the BLM is supplementing it with 200 more antelope. P-34

While the study says that the "removal of moderate- to low-quality wildlife and indirect impacts due to traffic, noise, and human presence are <u>not</u> considered significant," I would disagree; the EIS clearly suggests that an entire ecosystem that is already on the ropes, due at least in part to mining activities, would be destroyed by the construction of the Pipeline mine. P-35

Scott B. Johnson
Environmental Conservation
Bruce Miller
October 27, 1994

Analysis of the Environmental Impact Statement for The Cortez Pipeline Gold Deposit Proposal

The Environmental Impact Statement for the Cortez Pipeline Gold Deposit proposal has a very professional quality and seems to be thorough in that it addresses a wide range of factors in its assessment of the proposed site. The report's coverage of pertaining concerns is decent, and there seems to have been an adequate amount of research done for the majority of the areas. However, there appears to be a fantastic idea created in the report that the impact of an 5,000 ton per day mining facility will have little significant impact on the surrounding environment. In addition, there are areas that are ambiguous or misleading.

The proposal would have one believe the impacted 1880 acres will have such little affects to the area that it is not worth consideration. According the report, there would be "negligible increase in visual change over the existing mine pit disturbance;" however, one must realize the existing site is seven miles away - the proposal will not simply blend in with the original operation if it is that far away. The preceding is only one example of many where the reader would do better to take the statements with a grain of salt, and to relate it to them personally(do *you* think there would be a "negligible difference"). There must be an

P-36

individual thought process for the EIS to come into reality, especially in a case like this, where there does appear to be an inherent bias in the wording and tone of the report.

Another problem with the proposal is that, although it was generally conclusive, I did notice some oversights. I was not aware of any mention of noise pollution in the EIS. Any sight operating big machinery and involved in the hauling of ore will create a notable amount of noise, and, to my knowledge, there was no concern in this area. Also, the proposal mentioned the necessity for the "hauling of carbonaceous gold ore suitable for processing in the existing plant." There is doubt as to how much of this hauling will occur(with subsequent noise and fugitive air pollution), and how it will be handled. It is highly unlikely in my personal estimation that the inter-site roadway will be paved or that the residual dust be wetted down. P-37 P-38

There are also weaknesses in the proposal concerning the reclamation of the original plant community when the site is exhausted. First, the success rate in a dry climate such as the proposed site's is low and would require "above normal precipitation." And, if successful, the proposal promises a community similar to the adjacent terrain. This is ambiguous and could cause future problems. P-39

In section 4.1.4. Point Sources, there was vague language concerning the emissions predicted to be expelled. For example, the "propane firing of the carbon reactivation kiln and two broilers would result in minor emissions of CO and NO_x." This leaves to question what "minor" might be. In similar passages throughout the report, the terms "negligible" and "insignificant" are used liberally. all of this creates loopholes which could lead to future misunderstandings. P-40

The EIS for the Cortez Pipeline Gold Deposit was compiled by the U.S. Department of the Interior and the Bureau of Land Management, and was headed by the project team leader for Battle Mountains office of the BLM. After reviewing the EIS, one may wonder how much influence Cortez mining had on the report, indeed it seems significant at times. However, in defense of the report, certain areas such as the Paleontology and Wildlife sections were thorough and conclusive. The report, though, did omit important concerns and often painted the proposed as a dream operation with little to no drawbacks. That is why it is so essential to scour the report with a knowledgeable and questioning eye.

Scott Johnson
Elrod Hall 330
University of Montana
Missoula, MT 59801

GEOFF WHEELER
500 E. FRONT ST.
MISSOULA, MT.
59802

Geoff Wheeler
10/27/94

CORTEZ PIPELINE GOLD DEPOSITE
DRAFT: EIS

2.1.4 "A portion of the current oxide stockpiles located at Gold Acres are in consideration for processing at the Cortez heap leach pads provided the economics are favorable."

-What would dictate that the economics are favorable or not? What happens to such dumps if the company finds the economics infavorable? When dealing with a boom and bust type of operation, such as hard rock mining how does one objectively define "favorable economics" without the exclusion of certain environmental qualities? This statement is inadequate in considering the multiple aspects of importance which should be taken into consideration when dealing with such waste products.

P-41

P-42

2.1.6 "Exhuast gases from the roaster flow through a gas cleaning plant where dust, sulfer dioxide, and mercury are removed prior to discharge from a stack."

-This statement is nice if it does not stand alone, but alone it is inadequate in dealing with what is to be done with such wastes as flue dust which can wreak great environmental havoc on the surrounding water systems and subsequently the whole of the biotic community. As it should have been in Anaconda, more resources should be focused to deal with such problems.

P-43

2.2 "It would result in an increase in the annual mining and production rates and the total Cortez Gold Mines workforce."

-This statement throws optomism into the face of those who are

perhaps in dire need of a job, but does not recognize the short-termedness of such operations offering only a shortlived dependency of surrounding communities on the Cortez Gold Mines. This boom and bust phenominon must be recognized. P-44

2.2 Water Management; I have only one specific quote from this section, but I do have some general questions and comments on its varied points.

-It was mentioned that the total loss of water from their "mine drying" process would deprive the area of some 2,000 GPM's. How will such a large loss of water effect the native flora and fauna in such an arid environment? Also, how much water will be lost due to evaporation in the infiltration ponds located to the southeast, which if one consults the topo, seem to be very exposed to direct sun exposure. P-45 P-46

-There are no mention of steps to be taken to insure the *ph* stability of the water as it returns to its original table level once the mining operation has been abandoned. This can effect the surrounding areas drastically as similar problems threaten to at the Berkely pit in Butte, Mt. This does not only include the surrounding environments but those which are located downstream will be effected as well. P-47

-On page 2-19 it is not too clear how "placing the infiltration ponds between the area drawdown and spring, seep and well locations, the potentioal effects to springs and seeps and well water would be reduced." This statement fails to define what P-48

GEOFF WHEELER (2)

kind of effects are to be avoided by this strategical placement, and how the ponds placement will solve these poltergeist problems.

GEOFF WHEELER -3

Shaina Jensen
Shaina Jensen
516 University Avenue
Missoula, MT 59801
(406/549-4139)

Shaina Jensen
Forestry 380
Professor Miller
27 October 1994

- EIS Analysis for the proposed Cortez Gold Mines additions

In early September of this year, the Bureau of Land Management (BLM) released a draft environmental impact statement (EIS) in response to the proposed Pipeline Project to be undertaken by Cortez Gold Mines (Cortez). Cortez's intent is to "develop an open pit mine, build reinfiltration ponds, waste rock dumps, a heap leach and tailings impoundment facility to process 5,000 tons of ore per day and dewater up to 30,000 gallons per minute from the pit area," (elko dp), as described in the Proposed Action plan. In total, Cortez has estimated that approximately 1,800 acres of land will be affected.

In order to obtain an overview of the draft EIS for the Cortez project, two correlating portions taken from 3.0 Affected Environment and 4.0 Environmental Consequences have been examined and commented upon. The scope of examination is limited both by the length of the EIS document and that of the requested analysis. What has been attempted here is to gain a perspective on the language and intent of the authors of the EIS so that a fuller understanding can be reached upon the true nature and implications of an environmental impact statement.

3.1 & 4.1 Air Quality

- 3-4: Perhaps data configurations taken from 1972 should be reviewed to assure their relevance and accuracy. (P-49)
- 3-5: Meteorological data from Elko was used as opposed to on-site data, under the explanation that on-site collections were taken for only six months. Perhaps on-site collections should be continued for an extensive time before moving ahead with possibly inefficient data. (P-50)
- 3-6: I would like to have clarified the definition of "fugitive emissions," under the PSD/NSR section, or at least directive given to 4.1.3 where this term is defined. (P-51)
- 3-7: Under the NESHAPS section, I would like to know what the loophole allows for which exempts Cortez from this regulation of mercury and arsenic. I would also like to know the impact of those substances to air quality, regardless of their regulation standards within the Clean Air Act. (P-52)
- 3-7: Under the Air Toxics Regulations sections, while levels of toxic air emissions were formerly found to below acceptable ACQAA levels, what is to say that they will remain so when such an increase in mining activity will be undertaken? (P-53)

- 3-8: Perhaps it is a problem that the Crescent Valley Air Basin is currently unclassified for all pollutants having an air quality standard due to the fact that no such monitoring has taken place. P-54
- 3-8: I find the statement "It is therefore assumed that Cortez would not have an effect on the air quality of the Battle Mountain Air Basin," to be somewhat troubling due to the statements made earlier in the paragraph in relation to lack of testing and data collections. P-55
- 4-3: After finally discussing the definition of "fugitive emissions," I find the qualification of acceptable and derived standards to be only more confusing. P-56
- 4-4: "Uncontrolled emissions from blasting were conservatively estimated..." P-57
- 4-4: It seems commonplace in the explanations given that something is "unlikely." How are these conclusions arrived upon and how can they be supported? P-58
- 4-6: Will haul truck travel on unpaved roads occur alongside streambanks or riparian areas? What are the impacts of chemical dust suppression? P-59
- 4-7: "The assumption that particular activities occur each day of its scheduled duration results in calculations that are gross estimates of emissions from different activities." P-60
- 4-8: Is the Newmont Gold Company similar enough to the Proposed Action that such ties and assumptions can be made? What is the reliability of their data? Where did it come from? P-61
- 4-13: "Pending state legislation would remove crystalline silica from the state toxic list." Regardless, is there still an obligation to consider the ramifications of this substance as it relates to the proposed action? P-62
- 4-13: Is 80% efficiency acceptable? Does all of this go back to the age-old question of how clean is clean? P-63

3.5 & 4.5

- The entire "wetlands" section should be re-evaluated using the Cowardin 1979 definition of wetlands, as the jurisdictional definition is not accurate. P-64
- 3-35: If results were gathered that all riparian area were in poor condition in the Cortez area, what does this say about the prior impacts of mining in that area by that very company? And just because something is in poor condition, does it then follow that subsequent actions are irrelevant? P-65
- 4-47: "The failure of reclamation to re-establish a diverse, perennial plant community similar to the undisturbed community..." How possible is it to mitigate old growth spruce? P-66

Jensen/3

• 4-48: "There would be no impacts to riparian areas or wetlands directly or indirectly due to the drawdown of the aquifers. The proposed infiltration system would provide for the continuation of the plant communities associated with surface waters or high groundwater tables. There may be short-term impacts due to the time required for detection and adjustment of infiltration to sustain surface discharges, but this should not permanently damage riparian areas or wetlands." According to statements made in 3-35, the riparian areas in question are already in poor condition. What is to say that the increase in sedimentation will not permanently damage one of the most critical portions of the ecosystem? 4-48 also states that there will be a significant impact on the sagebrush, shrub, and grass community, a vegetation group commonly associated with the wetland area. If such vegetation will undergo significant disturbance, so too will the wetland. It can also be noted that supplemental irrigation as a mitigation tool in the support of wetland vegetation will not fix the affected wetland or its vegetation.

P-67

P-68

* * * *

I found the analysis of the environmental impact statement for the proposed Cortez Project to be quite frustrating. The language, which has been called upon to be understandable to the common citizen, is frequently unattainable. Definitions and clarifications are sparse, and statements are quite infrequently annotated or supported. Sources, when cited, were frequently dated from the 1970's – I would hope that science has come a little further in the last twenty years. Not having a great deal of background on many of the sections, it was difficult for me to comment as I do not feel I have the right to judge what I do not understand. However, I was quite disturbed by the wetland and riparian sections (under vegetation sections 3.5 and 4.5), as it is an area which I have come to have an understanding of. While environmental legislation and the efficiency and practicality of enforcement continues to come into question, I still believe that in a society where the value of the environment is superseded by the value of the dollar, such an established system is still necessary. If we cannot convince people on the basis of morality, we will have to mandate on the basis of legality. Though the EIS may have a number of problems inherent in its design and its oversight by an agency such as the BLM, it is still imperative in the process of environmental law. The movement of conservation and environmental ethicism must start somewhere – to say that it will be easy would be a falsehood. We are only at a starting point, and it is up to us to determine who will take the lead.

P-69

ARMOUR-1

LYNN ARMOUR
NOVEMBER 1, 1994
FOR 380
CORTEZ PIPELINE EIS WRITING ASSIGNMENT

The Cortez Pipeline Gold Deposit Draft Environmental Impact Statement appears to be a very thorough analysis due to its length. Upon closer inspection, however, the draft EIS [redacted] is very biased on behalf of the mining interests. The National Environmental Protection Act mandates that environmental impact statements be written with an interdisciplinary approach that includes consulting with representatives from various agencies. The introduction to this draft EIS implies that it was prepared by members of many agencies, including the US Fish and Wildlife Service, Army Corps of Engineers, NV Division of Environmental Protection, Mining and Air Quality Bureaus, NV State Historic Preservation Office, US Environmental Protection Agency, and the National Park Service. The document's list of preparers is dominated, however, by Bureau of Land Management personnel and private consultants. The draft EIS offers full support for the proposed mine, yet it offers little in the way of analysis of potential impacts or effectiveness of proposed mitigation efforts.

-The seismic activity in the area has a rating of zone 3(scale: 1=least damage expected; 4=most damage expected). Little is said of the potential for failure of safety measures against spills or leaks((i.e. tailings pond liners)in the context of potential seismic activity. P-70

--4.0 Environmental Consequences:

-4(13)-Crystalline Silica may exceed allowable toxic pollutant levels. The substance may be removed from the state toxic list, thus P-71

removing Cortez's concern with its release. If not removed, a wet scrubber would be employed to dilute the emission. No mention of water source for scrubber, no concern for emission levels if not "officially" toxic. P-71

-4(13)-wet spray to control dust...again, no mention of water source for this operation. P-72

-4(14)-System designed as no-discharge system...no evidence that this design is tested or proven efficient. P-73

-4(17)- No perennial waters to receive increased sediment, however many streams in arid regions are intermittent and ephemeral...impacts on these stream beds? P-74

-4(19)-Actual extent of water table drawdown unknown... wildlife and riparian areas dependent upon water source, no realistic analysis of effects. P-75

-4(30)-if monitoring detects deficient water quality, plan for remediation *should* be implemented...What is this plan and *will* it be implemented? P-76

-4(32)-Poor explanation of microorganism role and possible effects if liner breaks and microorganisms released. P-77

-4(44)-No detail of effectiveness of liners to be used. P-78

-4(52)- Implementation of feasible mitigation measures if monitoring shows reduction in water supply...no definition of "*feasible*" or amount of reduction that would warrant action P-79

-4(47)- No information of cumulative effects of evaporative losses. P-80

-General- No analysis of the expected expediency or efficiency of mitigation efforts(i.e. relocation and enhancement of reinfiltration ponds), or impacts expected during implementation of P-81

mitigation efforts. No information of amount of water required to process materials, spray to control dust, and maintain day to day operations of project. May the reader assume that the project will use water from the supply that is pumped out of the water table in the dewatering process? How much impact will this have on an already reduced water table? P-82

All in all, the draft EIS covers a variety of topics which range from water quality to social impacts. The main shortcoming of the report is in its lack of detail of monitoring plans, and the efficiency and safety of the planned system. The total water needs of the project are not outlined with detail. The draft EIS seems to represent simply the mining industry's interests and the Bureau of Land Management's interest in supporting any endeavor of the industry. Perhaps this is a draft which deserves a great deal of attention before rewritten in its final draft...Sign me up for input during the public comment period! P-83

In addition: revegetation efforts seem to be directed towards improvement of grazing opportunities...to the detriment of wildlife. What is the justification for replanting vegetation that may not provide as [redacted] high quality source of food for wildlife as does the native species variety currently in place? What losses of wildlife are expected as a result of this alteration of vegetation? P-84

p 4-14: 4.2.2 Seismic sites design in section 2.8.3, but 2.8.3 doesn't exist. P-85

p 2-69: Fig 2.2-2 "Oil stockpile area" @ 82 acres (Shouldn't this say "soil"?) P-86

LYNN ARMOUR
521 HARTMAN #11
MISSOULA, MT 59802

Lynn Armour

The Proposed Action by the Cortez Gold Mines appears to cause detrimental effects to the surrounding ecosystems. Throughout the Environmental Impact Statement, which was issued in regards to this proposed open-pit mine, it is evident that there will be repercussions on areas such as wetlands, bedrock aquifers, and on wildlife. Even when not directly affecting a particular area or habitat, a chain reaction of events would occur that would eventually make its way to every ecosystem surrounding the mine. P-87

In the bedrock aquifers which were tested, WAD cyanide was detected. This means at some point in time, the recharge waters came in contact with the waste products of old mines. Although the EIS stated that the concentrations of cyanide and arsenic found did not exceed EPA drinking water standards, who is to say that the addition of another mine and more waste would not cause these poisons to exceed those "safe" levels. And are those levels based solely on human safety? What about the animal and plant life those waters support, how will they be affected by those "insignificant" traces of cyanide and arsenic? P-88 P-89

In 1991, the Bureau of Land Management (BLM) conducted a study on riparian and stream habitats in the area and found them to be poor. Stream banks were cut and eroding, sedimentation levels were excessive, and riparian vegetation

was lacking. Hot Springs make up the principle wetlands in the region. Samples from Filippini Hot Springs and Hot Springs Point showed increased levels of magnesium, potassium, sodium, chloride, fluoride, and traces of arsenic. These studies prove that mines do have a negative effect on the environment presently, and could eventually cause even more damage in the future. P-90

Along with the decline in the conditions of the wetlands and in the vegetation which is supported by them, comes the decline in the animal species which depend on the previous two for survival, and the larger game which depends on the latter. Sage grouse, chukar, Hungarian partridge, and mourning doves are all examples of the type of species which need healthy wetlands in order to live and prosper. Mule deer populations are down 50% since their 1985 levels due to the taking of critical water supplies by the mines, which has caused droughts. P-91

The building of roads into remote areas and the poor forage conditions are also major factors which have impacted the decline in species populations. This whole process has then led to a decline in mountain lions. This EIS however proposed ways to rectify the decline of this particular population...they are going to feed them horses! Why I choose not to elaborate on this proposal any further is obvious. P-92

The EIS for the proposed Cortez mine I feel did a very good job in proving why this mine should NOT be developed. By showing the negative ecological effects other surrounding mines have already had on the area, it proved that adding yet P-93

another mine would just intensify those which presently exist. It also did not do a very good job in assessing long term effects. The time periods for which its studies extended were very short and not in any way sufficient in obtaining data concerning the effects of possible seismic events, drawdown of water, and evaporative losses from the pit lake. Even without including this vitally important data, the EIS proved that allowing the Proposed Action to take place would be detrimental to the environment and to ourselves.

P-93

P-94

Alicia Ruegge
Rm. 366, Miller Hall
University of Montana
Missoula, MT 59801

Alicia Ruegge

Jose Mendoza
FOR 380 - Assignment #4
10/27/94

Cortez Pipeline Gold Deposit Draft EIS.

The Environmental Impact Statement is base on a proposed development action by Cortez Gold Mines to operate a new gold mine and processing facility located in Central Nevada. The proposed action includes developing a new open-pit mine with associated dewatering system and waste dumps, constructing a new combined heap leach/tailing impoundment facility, constructing a new ore processing facility complete with appurtenant facilities and continuing exploring drilling. The proposed area is believe to have sufficient ore reserves to allow continuous operation of a new mine and processing plant for at least12 years after plant commissioning. The EIS describes the proposed action components, reasonable alternative, potential environmental consequences of the project and alternatives, and design measures or mitigation measures capable of eliminating or reducing potential significant impacts. Below are comments that I made concerning the actions that may be undertaken by Cortez.

Section 1.4 - *Public Participation:*

- It seems that only a few individuals had the opportunity to review the Draft EIS.
- does most people who will be affected by the proposed action had a chance to review the Draft EIS?
- According to the public review, it seems that they are only interested in impacts on the water, land, and socioeconomics. The public seems not to be interested in air pollution, health effects, wildlife, etc.

P-95

Section 2.0 - *Alternatives including the proposed Actions:*

2.1.6 - Chemical Reagent Requirements and Storage:

- This section states that the inventory of reagents is kept as low as feasible.
- I don't understand what low as feasible really means.

P-96

- **Safety Measures:**
- Sodium Cyanide and acid are stored separately – How and Where are they stored?

P-97

- Sufficient Calcium hypochlorite and /or hydrogen peroxide are maintained on the site to neutralize any unforeseen spills – What type of unforeseen spills? Where might it occur? What does sufficient really means? How will the chemicals be applied?

P-98

Section 2.2 - *Proposed Actions:*

2.2.1 - *Surface Disturbance in the Proposed Mining Area.*

- In order to mine and process the ore in the pipeline deposit, a total of approximately 1,880 acres would be affected by the proposed action.

- In this section, they only mention what could the disturbance be. There were no mention on how the disturbance would affect the area, and the short and long term impacts it would have on the area. P-99
- They mentioned that the MWMP test that would be performed on the material shows that the material is generally of fair quality – they fail to explain what fair quality really is. P-100
- Again, they used words that are too vague such as slightly elevated. What they fail to mention is, what effects this slight elevation will have on the water, soil, etc. P-101
- They claim that the Old Gold Acres tailing material in not toxic - to who? or to what? P-102
- What will happen to the tailings when there is a high intensity and long duration rainfall? No mention of any measures that will be taken in such a case. P-103
- No matter how "slightly toxic" the tailings will be, it may have a negative impact on the environment. P-104
- They fail to mention what the pond liner is made of, how it will work, an illustration of the pond liner, and how effective it will be. Again, no mention of emergency measures in case of a leakage. P-105

2.2.2 - ***Proposed Mining Operations:***

Alluvial Wells:

- They fail to mention if the water in the in-pit sumps would contain chemicals - arsenic, iron, etc. P-106
- Will a liner be placed in the in-pit sumps to prevent further leaching? P-107

Water Management:

- They mention of the design and construction of an infiltration pond to put water produce during pit dewatering activities back into the alluvial aquifer.
- No mention of the level of pollutant in the water.
- No mention of treatment before it is put back in the alluvial aquifer. P-108
- If there will be a treatment, what form of treatment will it be?

Monitoring:

- They mention what the monitoring system will be but they fail to mention how they will do the monitoring, when (time) they will monitor, and measures taken if any part of the system fails. P-109

2.2.3 -

- They did not clearly explain the Carbon-In-Leach Circuit, Carbon-In-Column Circuit, and the Recovery and refining circuit. P-110
- The explanation of the circuit process are too vague, they should also have included a flow chart of the entire process. P-111
- ***Tail Disposal Facilities*** - explanation of the process is too vague. Also, they fail to explain how the slurried ore from the mill will be treated. P-112

2.2.5 - ***Access Roads and Internal Mine Roads:***

- They claim to do limited road building - what is limited? How many road miles will be constructed? P-113
- Fail to mention how the roads will be maintained
- No mention of the effects the dust suppressant, that would be used to control fugitive dust, will have on the vegetation, and to the water during rainfall runoff. P-114
- Also, they should have mention the chemicals in the dust suppressant.

2.2.7 - ***Proposed Reclamation Plan:***

Topsoil removal and stockpiling:

- They only mentioned that topsoil stockpiles would be protected from disturbance and erosion.
- They should have mentioned what type of disturbance, how and what types of measures will be taken, and how effective they will be. P-115

2 - 36 -***Road Reclamation:***

- The explanation of the road reclamation is too vague. P-116

- They claim that the regraded and topsoil areas would be revegetated - that sounds good, but what types of plants will be used? Will it be native or introduced species? If it is introduced species, what effect will they have on their new environment? P-117
- They claimed that they would carefully monitoring the reclaimed areas. What is carefully monitoring? How will they go about doing the monitoring? P-118

Section 2.4.2.2 - *Alternatives:*

- Project component alternatives has only six alternatives which include technical, environmental, and economic feasibility. P-119
- all the alternative seem to have high cost environmentally and economically.
  the No Action Alternative seems the worst of all.

After careful analysis of the E.I.S, I found many flaws with the proposed project. Almost all sections were too vague and hard to understand. Some of the words or sentences could mean different things to different people because it is too general. Most actions that would be taken from the start to finish of the proposed project does not seem too environmentally friendly. I strongly that a new EIS be written and address the issues more carefully. Better mitigation plans, alternatives etc. should be looked at carefully. Generally, the entire EIS is poorly written. Personally, I wouldn't accept this project proposal.

José Mendoza
813 Ronald Ave.
Missoula, MT. 59801

José Mendoza.

Derek Volkart
740 S. Higgins Apt #6
Missoula MT 59801
Derek Volkart

Vague explanations of methods and terminology, one-sided views, and inaccurate assessments of current and possible problems is exactly what this draft EIS for the Cortez Pipeline Gold Deposit has to offer.

The class was instructed to search for science and facts that support statements. But many of the vague statements issued did not need support because they did not state anything. As for science, the use appeared to begin and end with worker distribution (as seen in Appendix I) and economic benefits to the community.

The vague statements begin in the summary. Page V states "Exploration activities would generally consist of limited road building and exploration drilling near the project site." Just exactly how much is "limited"? The EIS fails to define what limited road building and exploration drilling is. Page IX in the summary states "Reclamation should be carefully monitored". This tells the reader absolutely nothing because reclamation does not have to be monitored. The information on the no action alternative in the summary offers a one-sided view. The EIS briefly addresses the benefits and dwells on how no action will affect other open pit mines. The vague explanations, one-sided views, and inaccurate assessments continue throughout the EIS but they are more common in section 4.0, Environmental consequences. Page 4-7 states, "Effects of PM10 from construction activities would be highly variable because impacts would be a function of duration of the activity and existing site specific meteorological conditions." This statement is practically worthless without giving an estimate of how long the activity will last so an estimate of PM10 emissions can be found.

P-120
P-121
P-122
P-123

Pg. 1-2

Page 4-14, Seismic Events, addresses minor slope failures and possible liner ruptures. But what is a minor slope failure? And what kind of earthquake do they expect to occur in which the liner of heap leach/tailings pond will not rupture? 4.3.3, Mitigation, offers reclamation efforts for erosion and increased sediment and if these efforts are not successful, "additional seedbed preparation and reseeding would be implemented". It does not offer a solution however, to the possibility of a failure of this additional seedbed preparation and reseeding. 4.4.2 addresses Acid Rock Drainage. The EIS concedes that Sulfate could combine with rain and leach Sulfuric Acid into the soil but "The relatively low precipitation rate reduces the amount of water available to cause acid rock drainage". This is an outrageous statement! The EIS has already mentioned how variable meteorological conditions are (pg. 4-7). To assume that average precipitation will always fall is ridiculous. What happens when a fifty or one-hundred year storm event occurs? I suppose the Crescent Valley would begin drinking Sulfuric Acid.

P-124

P-125

P-126

This EIS should be filed in the grey, cylindrical filing cabinet that sits next to the desk in every office. It is hard to accept that a document like this could be submitted and not be considered a practical joke on the human race. The EIS implies that the BLM was responsible for it's creation. I have a hard time believing this and feel that most, if not all of the EIS was written by the mining company itself.

page 2-2

Stefanie Moreland
902 Aber Hall
Missoula, MT 59801

Stefanie Moreland

The proposed Cortez Gold Pipeline Project, if accepted, would impact 1,880 acres of Lander County located in North-Central Nevada. The Project development as proposed includes an open pit mine, dewatering system, waste rock dumps, heap leach/tailings combined impound facility, 5,000 ton per day ore processing facility, and exploration drilling. Cortez Pipeline Gold Deposit Draft Environmental Impact Statement addresses concerns associated with the development, operation, and time tables proposed. The DEIS covers issues pertaining to air quality, geology, soils, water, vegetation, wildlife resources, social, and economic values

The DEIS registers on the cover sheet the lead agency involved with the document as the U.S. Department of Interior's Bureau of Land Management and that the responsible official is Ronald B. Wenker, Acting Director in Nevada with BLM. 6-1 shows, however, the BLM actually performed technical analysis, writing and reviewing/editing drafts, and managing overall document preparation, but did not author the document. The prepareres are found on 6-2. They include a list of seven individuals from Woodward-Clyde Consultants, and 8 individuals from JBR Consultants Group.

Overall the requirements of an EIS are met in the document, but the analysis and implications are not always clearly stated. The consultant groups who wrote the DEIS show biases through stressing and providing more analysis of social and economic positive impacts than environmental degradation. Possible impact on resources is trivialized by referring to tables of statistics

Moreland-2

and other sections with little tangible implication discussion.

For example, the DEIS indicates that the Pipeline Gold Deposit would allow for continuous operation for at least 12 years. The impact would be an increase in annual mining, increase in production rates, and increase in the Cortez Gold Mines workforce. Since Cortez has a mine currently operating, there will be an overlap in production periods. They do not, however, discuss the transfer of employees in this section. The numbers in later tables show were the workforce is coming from, but I could not find discussion of long-term employment patterns between the two mines. P-127

Section 4.13 states water consumption and evaporation as well as soil disturbance are unavoidable adverse effects. Vegetation and Wildlife habitat also fall under this category because once disturbed, reclamation activities can not bring vegetation back to before Project condition. P-128 A point not discussed in this section is the impact the Project has on wildlife populations and dispersals during operation of the Project. A second is that wildlife can not just wait for available habitat. As a result of the disturbance, other areas will be used more heavily by both wildlife and recreationists leading to wide-spread effects. P-129

Effects on environmental conditions such as wildlife, vegetation, aesthetics, and recreation are not easily measured, therefore, do not receive the mitigation pressure that a measurable resource like water quantity and quality receive, which is a major short fall of the EIS process.

Joshua Harde
8 Creek Crossing Ct
Missoula MT 59802

October 27, 1994

Joshua Harde
Env. conservation
Forestry 380
Bruce Miller
Draft EIS

When ever an Environmental Impact Statement(EIS) is drafted it is because someone or something poses a threat to the environment. Perhaps it is solely this EIS or perhaps all EIS's are like this one and leave to much space for ambiguous behavior. This statement on the Cortez Pipeline is very in depth but lacks in conciseness of its wording. The statement was also set up to give an objective opinion about the impacts of the proposed action which it does a mediocre job of . The most important problem with an EIS is they are structured to be almost impossible for the average person to read and understand them. An EIS is a great way to get an idea of what might happen following a proposed action. For them to work we all need to be able to understand them, and they need to be written to mean something specific without gray areas.

The Cortez Pipeline EIS is quite in depth as far as the range of subjects covered. The EIS covered everything from air quality to wildlife impacts and everything in between. The problem seems to be how each area is covered. In section four the EIS covered the consequences of the proposed action to the different areas of study. This should be the most important section in the entire document as it was stated previously the consequences is precisely the reason an EIS is done in the first place. In this section covering the consequences the wording is so weak it leaves holes big enough to drive a truck through. Words such as likely and potential are used in almost every topic sentence. Even after using such flexible words the sentences seem to be spiced up just to sound good. For example, it was said "actual rate of recovery is likley to be somewhat higher than estimated."[1] The word likely makes the entire sentence ambiguous and the initial rate

[1]Enironmental Impact Statement on Cortez pipeline, section 4 page 39

of recovery is only an estimate in the first place. It would seem rational that since this statement is supposed to be a government document protecting our environment they would not make estimates or find out what recovery rates are "likely to be" rather what they really are, which would be the objective rational way to handle the application.

The basis for the EIS is give an objective view as to what the effects of the proposed action would be. It was said "applicant committed design measures will reduce potential impacts to less than significant levels." [2] This sounds as if the Bureau of Land Management (BLM) is letting the applicant do the testing and designing. First, if the applicant is creating the design it will best fit the applicants needs not the environmental concern. Secondly the words potential and significant are less than precise in their meaning. What is a significant level and who is measuring. All of the proposed action was made to sound environmentally safe and within regulations. It seems all the writers were doing is confusing the reader by glorifying what it says and making the rest incomprehensible.

P-130

P-131

The major problem with an EIS is that the average person cannot read one very easily. First of all the statement is about six hundred pages of big words and charts which would deter the average person from reading it. Second of all when talking about regulations and chemicals that have abbreviations which are difficult to decipher. Many times the figures needed to have a sentence make sense are in some other part of the statement and must be found which means it can take a long time just to read a paragraph and understand it.

P-132

It sounds as if the applicant wrote this report assuming an EIS would be done and the BLM simply put their name on it. The idea behind the EIS is wonderful but in order for them to work the wording has to be strong and have precise meaning and be easily understood by all those

P-133

[2]Ibid, section 4 page 3

Hardt -

who read them. With the further development in the EIS there will be visible changes in how the environment is treated.

RESPONSE TO COMMENT P-1

Refer to Responses to Comments C-3 and C-4 for clarification.

RESPONSE TO COMMENT P-2

All closure procedures would be in accordance with NDEP regulations at the time of closure. Please also refer to Response to Comment D-15 for discussion of closure procedures.

RESPONSE TO COMMENT P-3

All maps and tables are referenced regarding the source of information. The applicant would be the most appropriate source of design drawings and of project components, e.g., Figures 2.2-4 and 2.2-5. Refer to response O-3 regarding peer review of these documents.

RESPONSE TO COMMENT P-4

Cumulative impacts are addressed in Section 5 of the Final EIS (FEIS). The commenter should review this section for more information.

RESPONSE TO COMMENT P-5

Boom and bust is more likely to occur in an area where there has been no previous mining activity, and where the first few mines are being developed. Mining has been going on in the project area since the 1800s, with gold mining since the 1950s. Although gold mining activity is dependent on gold prices and can therefore fluctuate over time, given that there are several proposals before the BLM at this time for mine development and expansion, this activity is not expected to be a short-term phenomenon. Besides, the Proposed Action would contribute to a

condition leading to a boom and bust situation if it were introducing a large new workforce to the area. The Proposed Action is adding only 70 new mining jobs, and is mainly allowing for the continuation of the existing mining jobs at Cortez.

RESPONSE TO COMMENT P-6

There are a large number of variables associated with dewatering of the open pit mine. Today's best technology can only predict probable results. Thus, a range of options, such as probable well locations and depths to groundwater are stated in the EIS. The EIS would be misrepresentative if it stated that some things were certain to occur when, in fact, there is some uncertainty associated with the predictions. The dewatering plan will be adjusted to keep the pit dry.

RESPONSE TO COMMENT P-7

The commenter is referred to Appendix G of the FEIS.

RESPONSE TO COMMENT P-8

The reference to Section 2.2.3 is a mistake, it should be Section 2.2.8. This also applies to the FEIS; refer to the same subsection of that document.

RESPONSE TO COMMENT P-9

The commenter is referred to Response to Comment D-11. Also, please note that the project proponent does not have permission to override established water rights. They are limited to dewatering at the rate permitted by the state.

RESPONSE TO COMMENT P-10

Acid rock drainage (ARD) does not occur as a leak. It is a process that occurs over a long time. Rock materials are tested to see whether they include constituents, such as pyrite, which may

cause ARD. Materials which have a potential to cause ARD must be stored in a manner that is approved by the Nevada Department of Environmental Protection. Such storage is generally designed to limit exposure to oxygenated waters or to be mixed with enough neutralizing materials to buffer the ARD potential.

If ARD has been determined to have occurred, the company is responsible for removing any contamination and for preventing it from reoccurring.

Release of leachates and acid rock drainage is discussed in Section 4.4.4 of the FEIS. Frequency and location of monitoring wells are identified in Appendix D of the FEIS.

RESPONSE TO COMMENT P-11

Appendix D of the DEIS specifies locations of monitoring wells, monitoring frequency, and monitoring techniques, e.g., pp. D-7, D-8, and D-9. Also refer to the Integrated Monitoring Plan (WMC 1995b) and Appendix D of the FEIS. Mitigation measure 4.4.5-3 further addresses this subject.

RESPONSE TO COMMENT P-12

Appendix G, not E, contains spill and emergency response plans.

RESPONSE TO COMMENT P-13

If the indication from monitoring is that springs or other water sources will be impacted by mining activity, the State Engineer will require modifications to prevent these sites from drying up. The State Engineer could also prescribe mitigation or even the cessation of operations.

As described in the heap leach/tailings facility closure (page 2-32): After final reclamation is performed, the revegetation sites will be monitored for a minimum of two years to analyze reclamation success. If standard revegetation efforts are unsuccessful, additional measures may also include supplemental irrigation as well as additional seedbed preparation and reseeding.

The recommended seed mixture reflects the goals of the post-mining land uses of grazing and wildlife habitat by providing forage and cover species similar to that of pre-disturbance conditions.

By state law, Cortez must have a bond (surety) in place to ensure completion of reclamation work. The BLM and state will evaluate the success of the vegetative growth of a reclaimed mine site three full growing seasons after completion of earthwork and seeding.

Concurrent reclamation will begin on the slopes of the heap leach/tailings facility and the waste rock dumps as they attain final height during mining operations.

RESPONSE TO COMMENT P-14

The commenter should refer to Section 6 for a list of preparers. Under third party agreements almost all EISs are prepared by third parties (i.e., environmental consulting firms) under the direct supervision and control of the BLM. The lead agency, in this case the BLM, has ultimate authority over content and review.

RESPONSE TO COMMENT P-15

Human health, safety, and emergency response training is addressed in Section 2.2.8 as a subheading and Appendix G of the DEIS. Air emissions related to human health are discussed in Section 4.1.4.

RESPONSE TO COMMENT P-16

Unavoidable adverse impacts are addressed in Section 4.13 of the FEIS.

RESPONSE TO COMMENT P-17

The commenter is referred to Responses to Comments C-2, C-10, and I-4.

RESPONSE TO COMMENT P-18

The referenced sections meet all procedural requirements established by the Council on Environmental Quality (CEQ) and BLM guidelines.

RESPONSE TO COMMENT P-19

All adverse impacts are addressed in Section 4.0 of the FEIS.

RESPONSE TO COMMENT P-20

Tiering to previously approved documents is encouraged by NEPA guidelines to prevent excessively large documents.

RESPONSE TO COMMENT P-21

Comment noted.

RESPONSE TO COMMENT P-22

The commenter is referred to Response to Comment P-14.

RESPONSE TO COMMENT P-23

The commenter is referred to related Response to Comment F-25 and revised Section 2.2.1 of Volume I of the FEIS. In the DEIS "fair" was used to indicate that the material was not toxic in the context of NDEP regulations.

RESPONSE TO COMMENT P-24

The commenter is referred to related Response to Comment F-25.

RESPONSE TO COMMENT P-25

The project will be carried out with practices that meet engineering standards (SHB 1993), and MSHA guidelines will be met. The Federal Mine Safety and Health Act of 1977 (MSHA) sets forth the mandatory safety and health standards.

RESPONSE TO COMMENT P-26

Geologic and geotechnical characteristics would be recorded regularly, geologic structures would be mapped, and groundwater and slope movement would be monitored. This information would be used to perform slope stability analyses.

In addition to safety, there is an economic incentive to prevent slope failure. Such an occurrence would cost time and money to clean up the failed material. Access to ore would be limited during this time. The commenter is also referred to Response to Comment P-25.

RESPONSE TO COMMENT P-27

Emergency response training is discussed in Section 2.2.8 of the FEIS and Appendix G.

RESPONSE TO COMMENT P-28

"Point of termination" refers to the end point of evaporation and the cessation of solution flow from the heap. Evaporative components would not be toxic. Please also refer to Responses to Comments D-15 and D-16.

RESPONSE TO COMMENT P-29

The commenter is referred to Response to Comment C-6.

RESPONSE TO COMMENT P-30

The commenter is referred to Responses to Comments C-2, C-10, and I-4.

RESPONSE TO COMMENT P-31

The commenter is referred to Response to Comment M-2.

RESPONSE TO COMMENT P-32

Candidate status and official listing (as threatened or endangered) are, by definition, separate categories. Listing a species as threatened or endangered follows set guidelines, and, once listed, threatened or endangered species are given specific legal protections. Species which may warrant listing may be nominated for threatened or endangered status by petition to the U.S. Fish and Wildlife Service. The Fish and Wildlife Service must then consider the merits of the listing proposal. If warranted, the proposal to list will be published in the Federal Register, and following a comment period, the species may be officially listed. Research may show the species is not threatened or endangered, however, as was the case with the loggerhead shrike in the Great Basin. See also the Response to Comment E-8.

While no threatened or endangered species were observed in the study area, the FEIS does state (in Section 3.6.2) that the bald eagle, a federally listed threatened species, may pass through the study area as a transient visitor. The FEIS have also been revised to include the results of an Ecological Risk Assessment (ERA) to assess the potential effects of pit lake water on wildlife. The bald eagle is used as a potential receptor species in this assessment. The results of the ERA can be found in FEIS Section 4.6, subheading "Exposure to Toxic Substances at Pit Lake."

RESPONSE TO COMMENT P-33

The FEIS has been revised in Section 4.2.2 to address the question of "appropriate design criteria."

RESPONSE TO COMMENT P-34

Refer to the revised water quality sections 3.4 and 4.4 of the FEIS for clarification. There is no evidence that current mine supply wells are affecting riparian zones.

RESPONSE TO COMMENT P-35

A complete analysis of direct, indirect, and cumulative impacts expected as a result of Cortez's Pipeline proposal was presented in the Pipeline Gold Project DEIS. Refinements of these analyses, based on the public comments generated by the public review of the DEIS, are presented in the FEIS.

RESPONSE TO COMMENT P-36

The commenter should refer to Section 4.8 of the FEIS for a full discussion and the context for the statement.

RESPONSE TO COMMENT P-37

The proposed project would generate noise, but there are no residences located in areas where the noise level would be significant, so significant impacts would not occur. Please refer to Section 3.0.2 of the FEIS.

RESPONSE TO COMMENT P-38

Section 2.2.5 discusses internal haul roads and control of fugitive dust with suppressants.

RESPONSE TO COMMENT P-39

Refer to revised Section 4.5.3 in the FEIS. If standard revegetation efforts are unsuccessful, additional measures would include supplemental irrigation as well as additional seedbed preparation and reseeding. The recommended seed mixture reflects the goals of the post-

mining land uses of grazing and wildlife habitat by providing forage and cover species similar to the pre-disturbance conditions.

RESPONSE TO COMMENT P-40

Refer to Section 4.1.1 in the FEIS for significance criteria. Emissions less than the significance criteria are considered "minor," "negligible," and/or "insignificant."

RESPONSE TO COMMENT P-41

This is the subject of the earlier Cortez Expansion EIS. The ability to make a profit would determine if and when waste dumps are mined; i.e., when gold prices reflect a positive economic return. If not profitable at the time of mine closure, they would be reclaimed.

RESPONSE TO COMMENT P-42

The reference to "favorable economics" does not exclude environmental considerations. Economic evaluations are used to determine where and how processing could be accomplished. This does not imply that the environmental impacts are not analyzed. Refer to Sections 4.1 through 4.15 of the FEIS for analysis of impacts from ore processing.

RESPONSE TO COMMENT P-43

This is a statement about "existing" facilities. Refer to Section 4.1 of the FEIS for analysis of the Proposed Action.

Please see Response to Comment P-5.

RESPONSE TO COMMENT P-44

The commenter is referred to Section 4.9 of the FEIS for analysis of these issues. Also, refer to Response to Comment P-5.

RESPONSE TO COMMENT P-45

Potential reduction of flows to springs and seeps would be mitigated as described in Appendix D of the Integrated Monitoring Plan (WMC 1995b) and the summaries of mitigation in Sections 4.4.5 and 4.5.3 of the FEIS.

RESPONSE TO COMMENT P-46

The commenter is referred to Response to Comment L-23.

RESPONSE TO COMMENT P-47

The commenter is referred to revised Section 4.4 in the FEIS for discussion of pit lake water quality. Please note that acid base accounting (Section 4.4.4) indicates that pH changes are not likely in the pit lake.

RESPONSE TO COMMENT P-48

The commenter is referred to Section 2.2.2 of the FEIS (subheading "Infiltration Site Locations") for clarification.

RESPONSE TO COMMENT P-49

There is no reason to assume mixing heights measured in 1972 would change. Cortez is committed to continuing its program of gathering meteorological data close to the site.

RESPONSE TO COMMENT P-50

Meteorological and air quality data at the site will continue to be monitored. The NDEP routinely permits the use of representative data from established sites with more extensive records for its requisite air quality modeling.

RESPONSE TO COMMENT P-51

"Fugitive emissions" refers to emissions which do not pass through a stack, chimney, vent or other functionally equivalent opening. These emissions generally emanate from "open" areas with no specific point source. Emissions of PM_{10} are particulate matter of less than 10 micrometers in aerodynamic diameter.

RESPONSE TO COMMENT P-52

Arsenic and mercury are not exempt; they are addressed under Nevada Regulations. Both were found to be below levels of concern according to ambient air standards. Please refer to Section 4.1.4 in Volume I of the FEIS. Also refer to Response to Comment F-7.

RESPONSE TO COMMENT P-53

Modeling and impact analysis for toxic air emissions that could be generated from mining activities are addressed in Section 4.1 (subheadings "PM_{10}, Mercury and Arsenic," and "Dispersion Modeling").

RESPONSE TO COMMENT P-54

Comment noted.

RESPONSE TO COMMENT P-55

This statement is based on recent NDEP modeling which shows no effects to air quality in the Battle Mountain Air Basin. Please also note that the Shoshone Mountain Range forms a physical barrier between the air basins.

RESPONSE TO COMMENT P-56

Comment noted.

RESPONSE TO COMMENT P-57

Comment noted.

RESPONSE TO COMMENT P-58

Statements regarding these assumptions are based on professional judgment which indicates that blasting below groundwater levels would not produce significant fugitive dust.

RESPONSE TO COMMENT P-59

Haul roads would not be adjacent to riparian zones. Dust suppressants used would be those stipulated by management agencies and have been shown to be effective without causing additional harm to the environment.

RESPONSE TO COMMENT P-60

Comment noted.

RESPONSE TO COMMENT P-61

It is the most comparable data available. Monitoring data are subject to the same conditions as those for the Cortez site.

RESPONSE TO COMMENT P-62

Please refer to Response to Comment F-10.

RESPONSE TO COMMENT P-63

Control efficiency is subject to best available control technology and is discussed in Section 4.15 of Volume I of the FEIS. The actual control efficiency and system used would be subject to NDEP approval.

RESPONSE TO COMMENT P-64

According to Cowardin (1979), wetlands are defined as:

> ... lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water. for purposes of this classification wetlands must have one or more of the following three attributes: (1) at least periodically, the land supports predominantly hydrophytes, (2) the substrate is predominantly undrained hydric soil, and (3) the substrate is non-soil and is saturated with water or covered by shallow water at some time during the growing season of each year.

The U.S. Army Corps of Engineers (Corps) and the Environmental Protection Agency (EPA) jointly define jurisdictional wetlands somewhat differently as:

> Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas (EPA, 40 CFR 230.3, and Corps., 33 CFR 328.3).

Wetlands are protected by the Corps. Any disturbance to wetlands requires a Section 404 Permit issued by the Corps. As a result, for this statement, the definition used by the Corps and EPA is the most appropriate definition.

According to the Cortez Pipeline Seep & Spring Study (JBR 1993) two kinds of wetlands are predominant. Wet meadows, are created either by seeps or springs, or exist along the floodplains of creeks. Saline flats in Crescent Valley are formed by streams and creeks which have no outflow. Typical species and wildlife associated with these wetlands are listed in Tables 3.5-1 and 3.5-2 in Volume I of the FEIS.

RESPONSE TO COMMENT P-65

The riparian areas are in poor condition due mainly to overgrazing by wild horses, uncontrolled stray horses and livestock grazing. The indirect impacts to riparian areas are acknowledged by noting the condition of these areas. The impacts that may result from the present project are addressed by mitigation proposed in Section 4.5.3.1 of Volume I of the FEIS.

RESPONSE TO COMMENT P-66

Upland communities within the study area include shadscale/black greasewood, shadscale/bud sagebrush, sagebrush/grass, pinyon-juniper, and mountain mahogany. The vegetation in the Proposed Action area is dominated by the shadscale/bud sagebrush community type. Approximately 1,827 acres of the shadscale/bud sagebrush community would be directly impacted by the Proposed Action, including that acreage disturbed by reclamation activities. Of this disturbance, 1,639 acres would be reclaimed. There is no "old growth spruce" near the proposed mine site.

RESPONSE TO COMMENTS P-67 AND P-68

Page 3-37 states that there are no wetlands, or riparian areas in the proposed study area. In addition, most, if not all, riparian areas are above, or outside, the anticipated drawdown zone. The sagebrush, shrub, and grass community is an upland community and not associated with the wetland community. Any disturbance to this community would be direct disturbance on the mine site proper, where no wetlands or riparian areas exist.

RESPONSE TO COMMENT P-69

Comment noted. Modern mining involves technical and complicated processes. Therefore, discussions such as the water sources section of the FEIS are technical because of the nature of the subject. Please refer to the expanded glossary for definition of terms.

RESPONSE TO COMMENT P-70

The proposed facilities have been designed for an operating basis earthquake of magnitude 4.5 (Sergent, Hauskins, and Beckwith 1993). The "Hazardous Materials Spill Emergency Response Plan" appears as Appendix H in this document. Specifically, the DEIS section entitled "Response to a Seismic Event" (page G-20, Appendix G-1) addresses the measures to be taken in response to a seismic event. Please also refer to Section 4.2.2 of Volume I of the FEIS.

RESPONSE TO COMMENT P-71

The commenter is referred to Response to Comment F-10.

RESPONSE TO COMMENT P-72

Water for mining and milling purposes would be supplied from the dewatering program.

RESPONSE TO COMMENT P-73

By NDEP regulation, the system must be monitored. Systems are designed with the purpose of preventing discharge to State waters. Monitoring systems are included in the design. Designs are reviewed by the NDEP. Monitoring consists of shallow wells close to the facility and deeper wells further away. If a leak were to occur, monitoring should detect the discharge in the early stages. A company must show that a cleanup was instituted immediately. They must also show that the cause of the leak has been remedied and that measures have been taken to prevent the problem from reoccurring at the specific site or elsewhere on the mine property.

Also, refer to Section 2.2.3 (subheading "Heap Leach Facilities") in Volume I of the FEIS. See also Response to Comment D-14 for a discussion of liners in Heap Leach and Tailings Facilities.

RESPONSE TO COMMENT P-74

Section 4.4.2 in Volume I of the FEIS has been revised to addresses potential impacts to all drainages.

RESPONSE TO COMMENT P-75

Refer to Section 4.4.2 of the FEIS for discussion of potential impacts to springs, and see Sections 4.4.5 and 4.5.3 of the FEIS for a discussion of measures to prevent or mitigate reduced flows in springs or seeps.

RESPONSE TO COMMENT P-76

Remediation would include a pumpback system as stated in Mitigation Measure 4.4.5-3 in Volume I of the FEIS.

RESPONSE TO COMMENT P-77

Results of treatment in a biopile would be reported to appropriate agencies. Biopile treatment is a tested technique with reliable results.

RESPONSE TO COMMENT P-78

Liners are designed to NDEP specifications to provide zero discharge performance. Monitoring will be carried out to measure effectiveness. Please refer to Response to Comment O-14 for further discussion of liners. For additional information on liner effectiveness, see the HELP model technical reports (WMC 1995d and 1995e) and Section 2.2.3 of the FEIS.

RESPONSE TO COMMENT P-79

Potential effects on wildlife water supplies are further addressed by Mitigation Measure 4.4.5-2 in Volume I of the FEIS.

RESPONSE TO COMMENT P-80

Cumulative evaporative losses are discussed in Section 5.3.4 of Volume I in the FEIS. They are considered significant.

RESPONSE TO COMMENT P-81

Section 4.4.5 of Volume I of the FEIS states that results of the expanded groundwater model simulations indicate infiltration will be effective. Relocation or enhancement of infiltration ponds will be implemented if effectiveness is less than expected. There would be some lag time involved in bringing additional infiltration ponds into operation, during which other mitigation measures (see FEIS Section 4.4.5) may be needed.

RESPONSE TO COMMENT P-82

Water supply is discussed in Section 2.2.5 of Volume I of the FEIS. Consumptive use of about 2,000 gpm per day is expected for mining and milling.

RESPONSE TO COMMENT P-83

Monitoring and efficiency issues are further discussed in the Integrated Monitoring Plan (WMC 1995b) and Appendix D in Volume I of the FEIS. Also please note that a long-term contingency fund has been committed by the applicant (Section 2.2 of Volume I) to provide for corrective action and/or monitoring for up to 250 years after mining has ended. Water needs are discussed in Section 2.2.2. Also refer to Response to Comment P-14.

RESPONSE TO COMMENT P-84

Dominant plant species in the Pipeline Project Area include shadscale, bud sagebrush, halogeton, cheatgrass, Sandberg bluegrass, and bottlebrush squirreltail. The recommended revegetation seed mixture was developed to closely represent the surrounding natural communities and also minimize the establishment of noxious weeds and undesirable species such as halogeton and cheatgrass. Since these weed species are established in the surrounding area, a seed mix must be composed of species that will compete with these weed species. The only non-native species in the seed mixture are crested wheatgrass and Palmer penstemon. Both of these species are used extensively for reclamation and range rehabilitation in Nevada because they are desirable species for most land uses and generally establish successfully to reduce erosion and weed invasion.

The environmental consequences to most wildlife resulting from direct disturbance as described in the Proposed Action, are predicted to be low to minimal, largely because the majority of direct disturbance would occur either adjacent to existing disturbance or in habitats not used by a wide variety of species. Mule deer seldom use the dry, open flats of the valley floor, while antelope numbers in the area are low. The nearest identified antelope-use area is east of the Cortez Mountains, though recently antelope seem to be expanding their range in southern Crescent Valley. Similarly, areas which would be directly disturbed are not generally used by game bird species, with the exception of mourning doves. Impacts to nongame species are also predicted to be minimal.

RESPONSE TO COMMENT P-85

The comment is a result of a mistaken reference to Section 2.8.3 on page 4-14 of the DEIS text. The reference should read "Section 2.2.7." Please refer to Section 2.2.7 of the FEIS for this reference.

RESPONSE TO COMMENT P-86

The figure has been revised in the FEIS.

RESPONSE TO COMMENT P-87

Both the DEIS and FEIS for the proposed Pipeline project fully describe the anticipated impacts — direct, indirect, and cumulative — for all resources expected to be impacted by the project. The BLM has proposed adequate mitigation, or Cortez has committed to ("applicant-committed") practices sufficient to limit environmental degradation where appropriate. Where applicant committed practices or mitigation will not limit impacts, adverse impacts have been identified. Please refer to Sections 4.0 and 5.0 of the FEIS for details of this discussion.

RESPONSE TO COMMENT P-88

Refer to Response to Comments I-17 through I-35. Also refer to the revised Water Quality Analysis in Section 4.4.4 of Volume I of the FEIS.

RESPONSE TO COMMENT P-89

Please refer to revised Section 4.4.4 of the FEIS for a discussion of potential impacts to groundwater quality. Also refer to Section 4.6.2 (subheading "Exposures to Toxic Substances at Pit Lake") for a discussion of exposure of wildlife to potentially contaminated groundwater.

RESPONSE TO COMMENTS P-90, P-91, AND P-92

Water issuing from thermal (hot) springs often contains relatively high concentrations of various minerals. As noted in Thermal Waters of Nevada (Garside, L. J. and J. H. Shilling. 1979. Thermal Waters of Nevada. Bulletin 91. Nevada Bureau of Mines and Geology. 163pp.), "Minerals are much more soluble in hot water than in cold, therefore these [hot water] fields often yield water with considerable amounts of dissolved minerals" (p. 2). Sampling at Hot Springs Point in 1961, prior to the recent Cortez mining activity, showed relatively high concentrations of calcium, magnesium, sodium-potassium and chloride, and the presence of fluoride. Specifically, Garside and Shilling (1979) cite the following mineral concentrations, based on the 1961 sampling: Ca = 53 ppm; Mg = 43 ppm; Na and K = 319 ppm; Cl = 44 ppm; F = 5.9 ppm; total dissolved solids = 1140; and conductivity = 1750 µmhos/cm). Filippini Hot

Spring is located near another spring which was sampled in 1966. Mineral concentrations found in the spring sampled in 1966 were: Ca = 141 ppm; Mg = 61 ppm; Na = 292 ppm; K = 540 ppm; Cl = 332 ppm; and conductivity = 2330 µmhos/cm. Sampling of the Filippini Hot Spring by Water Management Consultants in March of 1992 produced the following results: Ca = 18.4 ppm; Mg = 4.72; Na = 188 ppm; K = 2.24 ppm; Cl = 89.8 ppm. Conductivity was not measured. The 1992 sampling indicated the minerals were present in lower concentrations in the Filippini Hot Spring in 1992 than in the nearby hot spring in 1966. The results of these various samplings demonstrate that water quality in thermal springs varies from spring to spring and that high concentrations of minerals in thermal waters is commonly a natural occurrence.

The avian species listed and other wildlife do depend on wetlands during some phases of their life cycles, as noted in the DEIS. See the Response to Comment E-2 for a discussion of the mitigation plan for seeps and springs. The decline in deer populations noted is a regional phenomenon, and is due to a combination of factors. Impacts to water sources caused by mining, where they have occurred, are local. These withdrawals do not cause droughts, though they may exacerbate conditions during a drought, or in areas with few water sources. To address this potential impact, the mitigation plan referred to in the responses to comments E-2 and I-57 has been proposed.

The proposed location of the project is not in Mountain Lion habitat. Direct or indirect impacts, and thus cumulative impacts to the local lion population are thus not projected to occur.

While mountain lions are known to take foals of wild horses, or perhaps the occasional sick or lame wild horse, wild horses are not the primary prey base of mountain lions. The BLM has no plans to "rectify the problem" by "feeding wild horses to mountain lions." In fact, the BLM is charged by federal law to manage and protect wild horses.

Please refer to Sections 4.4.3, 4.4.5-1, 4.6.3.1 (for a discussion of mitigation to water supplies for wildlife), and 3.6.2 of the FEIS.

RESPONSE TO COMMENT P-93

Comment noted. Please refer to Section 5.3 of the FEIS. This section discusses impacts from past, current, and reasonably foreseeable projects. All factors are considered before a Record of Decision is issued.

RESPONSE TO COMMENT P-94

More than 3 years of data has been collected to date. Please refer to Sections 4.2.2, 4.4.2, and 4.4.3 in the FEIS for discussion of seismic and water resources. Ongoing monitoring for the life of the project and post-closure period will also be necessary. Please note that modeling for drawdown effects was projected for the entire dewatering period (10 years) and 250 years for geochemistry impacts.

RESPONSE TO COMMENT P-95

Section 7.0 lists all the parties who received a DEIS. Over 400 copies have been mailed or received by the public. Copies were sent to numerous libraries and are available at the Nevada State Office and at the Washington, D.C. offices of the BLM and the Secretary of the Interior. The release of the DEIS was publicized by numerous public news releases and the document was available and discussed at a number of public meetings. All parties who would be affected have been given an opportunity for review of the draft. The public review includes comments on nearly all DEIS topics. Also refer to Section 1.4 of the FEIS for a complete description of the public scoping and public involvement process.

RESPONSE TO COMMENT P-96

This refers to the minimal amounts of on-site materials needed to provide for fluctuations in milling and heap leach demand. Refer to Section 2.2.5 of the FEIS.

RESPONSE TO COMMENT P-97

The commenter is referred to Appendix G-2 of the FEIS for storage reporting forms used by the applicant.

RESPONSE TO COMMENT P-98

The commenter is referred to Appendix G-1 of the FEIS for the spill and emergency response plan.

RESPONSE TO COMMENT P-99

Project impacts are discussed in Section 4.0 of the FEIS.

RESPONSE TO COMMENT P-100

MWMT results are further discussed in revised Section 4.4 of the FEIS.

RESPONSE TO COMMENT P-101

The commenter is referred to Section 4.4.4 of the FEIS. Significant impacts have been identified. Mitigation Measure 4.4.5-3 addresses these impacts.

RESPONSE TO COMMENT P-102

Degree of toxicity refers to comparisons to the MWMT limits set by the NDEP.

RESPONSE TO COMMENT P-103

The existing tailing materials have been in place for over 30 years. No evidence of contamination has been detected as a result of the exposure of these materials to meteoric events.

RESPONSE TO COMMENT P-104

Toxicity is evaluated relative to established standards by regulatory agencies such as NDEP. These are discussed in Section 4.4.4 of the FEIS.

RESPONSE TO COMMENT P-105

Please refer to Response to Comment D-14 for a discussion on the pond liner. Monitoring for leach ponds is addressed in Appendix D of the FEIS.

RESPONSE TO COMMENT P-106

Meteoric water mobility test data suggests that the in-pit sump water may contain elevated concentrations of TDS, fluoride, arsenic, iron, manganese, mercury, aluminum, and possibly antimony and selenium.

Water from in-pit sumps would be treated before infiltration if any constituents exceed NDEP standards.

RESPONSE TO COMMENT P-107

Liners will not be used. Water will be removed as it is collected.

RESPONSE TO COMMENT P-108

The commenter is referred to Section 4.4.3 of the DEIS and Section 4.4.4 of the FEIS for discussion of treatment of infiltration water.

RESPONSE TO COMMENT P-109

The FEIS is revised to include monitoring and mitigation in Section 4.4.5 and a brief summary of the hydrologic monitoring in Appendix D. Further details are included in the Integrated Monitoring Report (WMC 1995b).

RESPONSE TO COMMENT P-110

The description in the EIS is a simplified description and is intentionally not overly technical.

RESPONSE TO COMMENT P-111

The commenter is referred to Figure 2.0-1.

RESPONSE TO COMMENT P-112

The descriptions for the CIL, CIC, and recovery circuit in Section 2.2.3 of the FEIS explain how slurried ore is treated.

RESPONSE TO COMMENT P-113

The commenter is referred to Section 4.1.3 of the DEIS for discussion of haul road miles. Also, refer to the description of rerouting of County Road 225 in Sections 2.2.5 and 4.10.2 of the FEIS.

RESPONSE TO COMMENT P-114

Roads will be bladed periodically to maintain safe surfaces. Magnesium chloride will be applied to suppress dust. Magnesium chloride is commonly used at various mines for dust suppression. There have been no significant adverse effects of magnesium chloride on adjacent vegetation or water associated with runoff.

The commenter is referred to Section 4.1.3 of the DEIS for discussion of dust suppressants.

RESPONSE TO COMMENT P-115

Section 2.2.7, Topsoil Removal and Stockpiling has been revised in the FEIS.

RESPONSE TO COMMENT P-116

Comment noted. The description is sufficient for impact analysis.

RESPONSE TO COMMENT P-117

The recommended seed mixture identified in Table 2.2-6 of the FEIS is composed of 12 species. Crested wheatgrass, alfalfa and sanfoin are introduced species, but are species often used in mine reclamation projects in Nevada. The seed mixture reflects the post-mining land uses goals of grazing and wildlife habitat by providing forage and cover species similar to the pre-disturbance conditions. In addition, the species chosen were also based on the following: effectiveness in providing erosion protection; ability to grow within the constraints of the low annual precipitation of this area; and suitability for the site aspect, elevation, and soil type.

RESPONSE TO COMMENT P-118

A monitoring plan and estimated cost is included in the reclamation plan that has been submitted to the agencies for approval. Post-reclamation monitoring and maintenance will be performed quarterly for a period of 3 growing seasons. Subsequent monitoring beyond 3 years will be negotiated with the BLM and NDEP. Revegetative success will be monitored. Perennial cover of revegetated areas will be compared to that of native, undisturbed sites.

RESPONSE TO COMMENT P-119

Further clarification of alternatives is provided in Responses to Comments C-2, C-10, and I-4.

RESPONSE TO COMMENT P-120

Road building is detailed in Section 4.1.3 of the DEIS. Exploration activities are discussed in Section 2.2.4 of the DEIS. The commenter should note that a summary is not intended to supply the details but to provide an overview.

RESPONSE TO COMMENT P-121

Reclamation should be monitored to determine that recontoured surfaces are stable and resistant to erosion, and that reseeded areas are recovering. Reclamation monitoring is required by NDEP and BLM. Refer to Section 2.2.7 of the DEIS for reclamation details.

RESPONSE TO COMMENT P-122

Comment noted. The No Action Alternative, by definition, consists of continued operation of existing mines.

RESPONSE TO COMMENT P-123

The PM_{10} evaluation was based on a comparable mining site. The reader should refer to the entire analysis in Section 4.1.3, subheading "Fugitive Dust Impacts."

RESPONSE TO COMMENT P-124

A "minor slope failure" refers to a sloughing of waste rock that would not be expected to significantly impact the overall structure or dimensions of the waste rock dump. The planned reclamation activities would mitigate the results of any unanticipated events of this nature.

The facilities have been designed for an operating basis earthquake of magnitude 4.5 (Sergent, Hauskins, and Beckwith 1993). Please refer to Section 4.2.2 of the FEIS.

Additional References

Sergent, Hauskins, and Beckwith (AGRA) (1993). Tailings Impoundment and Heap Leach Facilities, Pipeline Project, Lander County, Nevada. SHB Job No. E92-8098.

DePolo, D. (1995). Seismology Laboratory, University of Nevada-Reno, Personal Communication, Telephone Conversation, January 17.

Whiteside, L. (1995). National Geophysical Data Center (NOAA), Personal Communication, Telephone Conversation, January 17.

Niles, F. (1995). University of Nevada-Reno, Desert Research Institute, Personal Communication, Telephone Conversation, February 3.

RESPONSE TO COMMENT P-125

If standard revegetation efforts are unsuccessful, additional measures would also include supplemental irrigation as well as additional seedbed preparation and reseeding.

RESPONSE TO COMMENT P-126

Please refer to Section 4.4.4 of the FEIS for additional information. The discussion states that AMD would be limited by other factors such as the neutralization capacity of host rock. The amount of precipitation is only one factor. Neither the entire basin nor even local groundwater would become acidic due to a year of greater than average precipitation.

RESPONSE TO COMMENT P-127

The transfer of employees between existing operations and the Pipeline Deposit project is discussed under Section 4.9.4 of the DEIS, Operations Phase.

The overlap in the operation schedules of the existing mine operations and the new mine operations are discussed in Sections 4.9.1 and 4.9.3 of the DEIS. The text describes the phasing out of the existing mine and the transfer of the existing operation employees to the new mine. Table 4.9-1 in the DEIS also presents the employment patterns for the two mines operating simultaneously through 1996.

RESPONSE TO COMMENT P-128 AND P-129

Cortez is required to make a reasonable effort to establish a vegetative cover that is equal to 100 percent of the native, undisturbed sites. Usually, a company is required to make at least a second effort to seed if the first effort failed.

After a reasonable time period NDEP and the BLM will consider whether vegetation is recovering. If recovery is slower than expected, the two agencies will consider whether Cortez has acted in good faith and if extenuating circumstances (i.e., repetitive years of drought or heavy livestock grazing) have stressed revegetation. Based on these considerations, NDEP and BLM may agree that Cortez has acted in good faith and release the company from further revegetative efforts. Please refer to Appendix F in Volume I for further details on release criteria.

Indirect impacts to wildlife, including displacement of wildlife, are discussed on page 4-52 of the DEIS. This discussion notes that the habitats which would be directly impacted by the proposed project are not heavily utilized by most large wildlife species. Current populations of antelope, the principal large, wide-ranging species in the area, are low. See Response to Comment L-29 for a discussion of the impacts of an increased local human population.

RESPONSE TO COMMENT P-130

"Applicant-committed design" refers to voluntary design measures or agency-mandated design measures. BLM, NDEP, and other agencies have review capacity over these measures but they are, in fact, designed by the applicant. Please also refer to Response to Comment I-4. It should

be noted that significance criteria must, at a minimum, meet applicable state and federal standards.

RESPONSE TO COMMENT P-131

Significance criteria are defined at the beginning of each resource evaluation in Section 4.0 of the DEIS. Refer to 40 CFR 1508.27 for the definition of significance as defined by the Council on Environmental Quality regulations.

RESPONSE TO COMMENT P-132

This DEIS deals with complex and technical issues. A Glossary is provided (as Section 9.0) to define technical terms.

RESPONSE TO COMMENT P-133

Refer to Response to Comment P-14.

COMMENT LETTER Q – WESTERN SHOSHONE DEFENSE PROJECT

Comment Letter Q

WESTERN SHOSHONE DEFENSE PROJECT

GENERAL DELIVERY ✹ CRESCENT VALLEY ✹ NEVADA 89821 ✹ (702) 468-0230

My english name is Carrie Dann. I am a member of the Western Shoshone National Council, a traditional original government of the Western Shoshone people... and the Western Shoshone Defense Project. I was born in this valley and have lived in this valley ever since. As a youngster I enjoyed the scenery of the land and I have seen deer and a lynx cat play with her babies. I have also seen the Golden Eagle feed her baby. I have seen and enjoyed the land with all of the other life that have a common connection with the land as I do. This land to us, is not just a piece of land, it was, and still is our Earth Mother.

As a traditional Western Shoshone I still follow the ancient instruction of our Creator (God). The Creator gave us laws to follow and how to conduct ourselves as humans. To a traditional indigenous person this land is not a real estate nor is it a waste dump. It is our Mother. This Earth Mother gives to all of Her children all the necessities of life.

The four of the most sacred are Earth Mother (land), Water, Air (Winds) and the sun (fire). If any one of these are hurt, damaged, diseased or destroyed than we, all life on our Mother, too are hurt, damaged, diseased and probably will be destroyed.

I find it ironic that there are people who specialize or have expertise in all science and yet need to go back clean up disaster that could have been avoided. This so called clean mining operation is a sham. If you can clean up under ground water contamination, then clean up the already contaminated water at the mill site, before you go on to contaminate more!

My concern is for the Mothers of tomorrow, for the life that is not here yet.

Will the mothers of tomorrow cry for their children caused by toady's action?
Will the mothers of tomorrow give birth to mentally or physically handicapped babies?
Will mothers of tomorrow see their children have clean water while they are out walking on the land as I did and still do?
If mothers of tomorrow can't find clean water for their babies at the super markets where is she going to find this precious giver of life?
Will mothers of tomorrow find clean air for their babies or will they have gas masks or some kind of mask so that their babies can run and play?
Will mothers of tomorrow see their grandchildren or great grandchildren?
Will mothers of tomorrow experience the wonder & pleasure of life - just enjoying the land, drinking the clean water without a fear of a glass of contaminated or tainted water?
Will the mothers of tomorrow suffer and cry mental and emotional anguish if her new born is ill from the environmental poisoning?

Who today is speaking out in behalf of the mothers of tomorrow?
Certainly not the BLM or the gold companies - they speak of only 10-12 years.
Who today is speaking out on behalf of the great grandchildren for the mothers of tomorrow?

You may wonder why I speak of the mothers of tomorrow. The answer is the natural law that all creation follow. We, as female, give birth, we feed this new life from our bodies, as the Mother Earth feeds us and all of Her children from Her body.

WESTERN SHOSHONE DEFENSE PROJECT

GENERAL DELIVERY ✹ CRESCENT VALLEY ✹ NEVADA 89821 ✹ (702) 468-0230

The BLM doesn't want to address the Western Shoshone problem. The answer is simple. It is called the 1872 mining law. The BLM does not sell U.S. lands. It is the land under the Western Shoshone guardianship (under the instructions of the Creator) it is the home of the Western Shoshone people. This land was supposedly TAKEN from the Western Shoshone in 1872 the same day as the mining law of 1872 went into effect. So therefore, it is not public lands it is the land of the Western Shoshone people and that is why the mining companies pay the value of the land in 1872 at the costs of $2.50-$5.00 per acre. This is ironic. This very day attempts are being made to pay the Western Shoshone for this land at the value of land in 1872. However, under their law, only indigenous people's lands can be TAKEN by gradual encroachment threw a commission (ICC) backed by the U.S. supreme court and be forced into accepting $0.15 per acre for Mother Earth - The lands not for sale!

The treaty of Ruby Valley was signed by two sovereign nations, the Western Shoshone and the U.S. The Western Shoshone did not cede any land to the U.S. The U.S. constitution recognizes treaties as the supreme law of the land. The actions of the BLM regarding lands, including the lands on which the Pipeline Project is located, is usurpation and violation of Western Shoshone sovereignty and violation of U.S. constitution.

I have not attended these EIS DEIS meetings in the past because BLM action and these laws are not the laws of the traditional Western Shoshone government. It is the law of a De Facto government.

Carrie Dann,
Western Shoshone National Council
October 27, 1994

Attn; Dave Davis
USDI- BLM District Manager
P.O.box 1420
50 Bastian Road
Battle Mountain, NV. 89820

11-4-94

Cortez Pipeline Gold Deposit

The Treaty of Ruby Valley was signed by two soverien nations, the Western Shoshone and the U.S. The Western Shoshone did not cede any land to the U.S. The U.S. constitution recognizes treaties as the supreme law of the land. The actions of the BLM regarding lands, including the lands on which the Pipeline Project is located, is a usurpation and a violation of Western Shoshone sovereignty and also a violation of the U.S. constitution. Q-1

I have not attended these EIS DEIS meetings in the past because BLM actions and those laws are not the laws of the traditional Western Shoshone government. It is the law of a DeFacto government.

Carrie Dann

RESPONSE TO COMMENT Q-1

The Treaty of Ruby Valley is outside the scope of this EIS.

Comment Letter R

R. Saderup
3820 Wedekind rd.
Sparks NV 89431

Dave Davis Project EIS Team Leader
Bureau of Land Management
Battle Mountain District Office
50 Bastian Way, P.O. Box 1420
Battle Mountain, Nevada 89820

Mr. Davis,

I am sincerely opposed to the Cortez Pipeline Gold Deposit Draft Environmental Impact Statement for the following reasons:

The Native American population of the Shoshone Nation were not consulted, or considered during the draft of the EIS. Nor did it consult with any recreational users of the area. Nor did it consult any of those who make a direct living from the land via the use of springs, creeks, watersheds to supply necesseties to cattle, agricultural prospects, and day to day living. Nor did it honestly regard the safety and welfare of the areas wildlife habitat. R-1 R-2

Reinfiltrating water from the underground aquifer back into the same aquifer at another point does not impress me as a sound resolution to gain entrance to the gold deposits the Cortez operation has proposed. No valid proof has been given as to the effect of countering any destructive reactions that might ensue during such a temporary removal of groundwater. If immediate damage is incurred during such an operation to the underground structure, then there is no viable solution in reconstructing the architecture of such a design. By aggrivating the pressures and currents of such an aquifer effects would be immediately detrimental to local springs, creeks, streams, and inhabiting wildlife and human life. R-3

Upon completion of mining activities, the open pit created by the Cortez Operation would fill, creating a man made lake. I witnessed the same process at the Ruth, Nevada copper pits worked by Kennecot Corp twenty years ago. Due to the removal and upset to the local water table it is now unuseable by any species on this earth, except possibly some microbes. No solution has been offered as how the Cortez Joint Venture would counteract this effect. R-4

Nothing I read has been stated as to the repercussions the Operations water rights (2000 gallons per minute) would have on local springs. This seems to be an unusually large amount of water to be removed over a period of ten to twelve years as the life of the mine would be. R-5

Last I oppose any further mining in the State of Nevada unless a fair and substantial compensation be given to all peoples, and their descendants, who inhabit, frequent, or labor in this community. Nevada is not a wasteland to be divided between Multinational corporations in their pursuit of happiness, R-6

Sincerely,
R. Saderup

RESPONSE TO COMMENT R-1

Please refer to related response I-8.

RESPONSE TO COMMENT R-2

Refer to Response to Comment I-8. All local residents, landowners, and other interested parties were given the opportunity to provide input to public scoping and to review of the DEIS. Refer to Section 1.4 of the FEIS. Also refer to Sections 3.6 and 4.6 for discussions of wildlife.

RESPONSE TO COMMENT R-3

The reinfiltration system is specifically designed to alleviate potential impacts to local springs, creeks, and streams. Damage to underground structure and architecture is not anticipated, as discussed on p. 4-32 of the DEIS and Section 4.4.3 of the FEIS.

RESPONSE TO COMMENT R-4

The severe acid drainage situation at the Ruth Copper Pit developed in geochemical conditions that are not similar to the Proposed Project. The reasonably foreseeable possibility of degraded Pipeline Pit water quality is treated as a significant impact, and mitigation and a long-term monetary contingency fund is committed to by Cortez in the FEIS (Section 2.2.8).

RESPONSE TO COMMENT R-5

By stating that the project would have a consumptive use of up to 2,000 gpm for process use and evaporation losses, the FEIS means to indicate that the rest of the water pumped for

dewatering would be reinfiltrated. Potential impacts and mitigation for this scenario are discussed on pages 4-28 and 4-29 of the DEIS and Sections 4.4.2 and 4.4.5-1 of the FEIS.

RESPONSE TO COMMENT R-6

Comment noted.

COMMENT LETTER S – NEVADA MINING ASSOCIATION

NEVADA
Mining Association

Comment Letter S

5250 S. Virginia St.
Suite 220
Reno, NV 89502
(702) 829-2121
FAX (702) 829-2148
Las Vegas Phone
(702) 382-4904

November 4, 1994

Bureau of Land Management
Attn: Dave Davis
Battle Mountain District Office
50 Bastian Way
P.O. Box 1420
Battle Mountain, Nevada 89820

Dear Mr. Davis,

The Nevada Mining Association (NMA) appreciates the opportunity to and respectfully submits the following comments on the Bureau of Land Management's (BLM) "Cortez Gold Mine's Pipeline Project Draft Environmental Impact Statement" (DEIS).

NMA represents over four hundred member mining companies, mining supplier businesses and individuals involved and interested in the mining industry in Nevada. The mining industry plays a very important role in the social and economic well being of the State of Nevada. NMA is proud to have among its valued membership Pacer Dome U.S., Inc. (PDUS), the owners and operators of the Cortez Gold Mine and proponents of the Pipeline Project. PDUS's mining operations have contributed greatly to the well being and prosperity of Nevada, and the Pipeline Project will afford PDUS to continue such excellent contributions.

S-1

NMA has review and analyzed the DEIS for the Pipeline Project and finds it to be a well drafted and complete analysis of alternatives, the affected environment, environmental consequences and cumulative impacts. The analysis of the environment was well done, especially of water quality and quantity impacts. NMA believes that the DEIS clearly demonstrates that such impacts are minimal and that the effect, if any, on the Humboldt River watershed is minimal. Therefore, NMA strongly supports the adoption of the Proposed Action and urges the BLM to approve the Proposed Action.

If you have any questions regarding NMA's comments, please do not hesitate to call either Paul Scheidig, NMA's director of resource and environmental affairs, or me at (702) 829-2121.

Respectfully submitted,

Michael J. Doyle
President

RESPONSE TO COMMENT S-1

Comment noted.

COMMENT LETTER T – J. FILIPPINI AND "C" RANCHES

Comment Letter T

Nov. 2, 1994

BLM

Battle Mountain, Nev.

Pipeline Comments,

The John Filippini family and 'C' Ranches Inc. are very concerened with the E I S study on the above mining project, we are very concerned about the impact on irrigation wells, domestic wells, livestock wells and springs, and the effects of the project on Nevada's State Rangelands. We hope that these concerns will be addressed and if impact ocurs, solutions will be addressed immediately under the Nevada Water Law. We also have many concerns about the effects of long term de-watering. We believe gold is not as important as the water in the arid State of Nevada. T-1

We are also concerned about the impact of the many people, but hope the mines can make these impacts minimal. We have faith in the presant personel at the mine now, and hope that all future people working there, will share these concerns and solve them as they cone up. We hope everybody can be happy with this new project in the future. T-2

Sincerely,

John Filippini C Ranches Inc.

H C 66-46

Beowawe, Nv. 89821

RESPONSE TO COMMENT T-1

Appendix D of the Integrated Monitoring Plan (WMC 1995b) and the summary of mitigation in Sections 4.4 and 4.5 of the FEIS are intended to reduce impacts to water in the project area by solving potential problems before they have a chance to occur. Monitoring of impacts would be ongoing to verify that mitigation is effective.

The only loss of Nevada rangelands would be 95 AUMs in the Carico Allotment (0.3 percent of the grazing preference) and would only be for the duration of the project. At the end of the project life, after reclamation, these AUMs would be returned (except those permanently removed in the area of the 235-acre open pit).

An Integrated Monitoring Plan (WMC 1995b) and the summary of mitigation measures in Sections 4.4 and 4.5 of the FEIS have been developed to address potential impacts to wells and springs.

RESPONSE TO COMMENT T-2

Refer to Section 4.9 of the FEIS for a discussion of potential socioeconomic effects.

DEIS Section 4.9 discusses the impacts of the nonlocal construction and operations workers associated with the Proposed Action. With the exception of an impact on study area schools, no other significant impacts are anticipated from the influx of these nonlocal workers and their dependents.

To Ned Talcot for Battle MA

Comment Letter U

Robert D. McCracken, Ph.D.
3930 S. Swenson #810
Las Vegas, NV 89119
September 14, 1994

Thomas Leshendok
Acting Director, State of Nevada
U.S. Department of Interior
Bureau of Land Management
P.O. Box 12000
Reno, NV 89520-0006

Dear Mr. Leshendok:

I have reviewed the DEIS of the proposed Cortez Pipeline Gold Deposit. I have the following comments. As near as I can tell, this is an ahistorical document. No effort whatsoever appears to have been made to place the issues discussed in the context of the human history of the area. I find this unfortunate and probably contrary to the spirit, not to mention the regulations, pertaining to NEPA. (U-1)

Moreover, I find the social analysis to be inadequate. Analysis of social conditions was based on a telephone survey of 151 respondents in Elko, Spring Creek, and Carlin. Use of such flimsy data in a DEIS such as this is disturbing and to me reflects biases regarding the unimportance of the human environment in assessing the impacts of projects such as this. It seems to me your department would better serve the public interest by developing and utilizing more thorough and sophisticated methods for assessing social impacts and conditions as a matter of practice. (U-2)

All in all, I find these deficiencies in historical and social analysis to be major flaws in your analysis and overall approach to management of federal lands in central Nevada. Such a lack of the appreciation of the human consequences of your actions are visible in other concerns under your department's jurisdiction, such as efforts to reduce grazing in central Nevada. Edicts are handed down by the Department of the Interior that often appear to be completely oblivious to the human and social needs of the local residents. Any effort to redress these inadequacies as a general matter of practice on central Nevada lands, and specifically in this DEIS, would be greatly appreciated by most of the residents of the area.

Sincerely,

RDM/joc

Robert D. McCracken, Ph.D.

RESPONSE TO COMMENT U-1

Human history of the project area is described in Sections 2.1.2, 2.1.3, 3.9.2, and 3.9.3 of the DEIS and FEIS. In addition, the current document is tiered to the Cortez Expansion EIS, 1993. Section 3.11.2 gives a 9-page summary of prehistory and contemporary human history of the project area.

RESPONSE TO COMMENT U-2

As noted on page 4-68 of the DEIS, a social/quality-of-life survey of the study area communities conducted by Huntington was utilized to characterize the social conditions in the project area and to present the community responses and attitudes to new mining projects. The survey utilized the methodology recommended in the Bureau of Land Management Guide to Social Assessment. Systematic sampling techniques were used to obtain the sample, and questionnaire-based telephone and on-site interviews were conducted with the sampled residents. The Waksberg Random Digit, two-stage cluster design was used to generate the telephone sample. The questionnaire was pretested before it was used for data gathering. To ensure that all potential respondents had an opportunity to participate in the survey, interviews were conducted during the day and evening hours, 7 days a week. A good representation of the residents and occupations was thus obtained. The scientific research techniques followed ensured that the sample was representative and the data gathered were reliable.

In addition to the data gathered through the survey, information on social conditions in the communities was also gathered from published and unpublished reports and news items in the local newspapers. For further details regarding this study, the commenter is encouraged to contact the BLM at Elko for the socioeconomic technical report, prepared as a supplement to the Newmont Gold Company's South Operations Area Project EIS.

Comment Letter V

November 2nd, 1994

Bureau of Land Management
50 Bastian Road
P.O. Box 1420
Battle Mountain, Nv. 89820

Subject: Draft Environmental Impact Statement - Cortez Pipeline Gold Deposit, Cortez Gold Mines (CGM).

Attention: Dave Davis.

Dear Sir:

Persuant to the October 27th, 1994 DEIS Crescent Valley, Nv. meeting and our subsequent conversation, I am enclosing the following information for the above DEIS inclusion and future reference:

We have a domestic well which we had drilled and has been in continuous operation since 1985; our well was collared at 4790 feet and drilled to a depth of 226 feet; it has 6 inch steel casing and the water level is a constant 60 feet from the surface; our well is located in the 'North West Corner of Lots 27 and 28, Block 14, Crescent Valley Ranch & Farms Unit No. 1, Crescent Valley, Nevada'. V-1

Thank you for your attention to this matter.

JAY SCOTT - Jay Scott
Box 67
Crescent Valley, Nv. 89821.

c.c.
Return Receipt Requested.

Copies to: BLM - DAVE DAVIS, BATTLE MTN, NV.
CGM - MARK H. LIST, BEOWAWE, NV.

RESPONSE TO COMMENT V-1

Comment noted.

COMMENT LETTER W – NATIONAL AUDUBON SOCIETY

National Audubon Society

NATIONAL CAPITAL OFFICE 801 PENNSYLVANIA AVENUE, S.E. WASHINGTON, D.C. 20003 (202) 547-9009

Comment Letter W

October 19, 1994

Dave Davis
Pipeline Project EIS Team Leader
Bureau of Land Management
Battle Mountain District Office
50 Bastian Way, P.O. Box 1420
Battle Mountain, Nevada 89820

Dear Mr. Davis:

The National Audubon Society is deeply concerned about the potential environmental and cultural impact of the proposed Cortez Pipeline Gold Deposit mine in Crescent Valley, Nevada. To be developed by the Cortez Joint Venture, a cooperative effort between multinational mining corporations, Placer Dome and Kennecott, the proposed Cortez mine, when in full operation, will be composed of a 5000 ton per day processing mill, a 1605 acre waste rock facility, a 932 acre combined heap leach and tailing area and a 474 acre, 1000 ft. deep water containment pit. After review of the "Cortez Pipeline Gold Deposit" Draft Environmental Impact Statement (DEIS), NAS believes unequivocally the Cortez Pipeline poses an unparalleled threat to the pristine environment of Northern Nevada and especially, the ground water of the Humboldt Rivers basin of Nevada. W-1

Since the gold ore is located below the region's aquifer, operation of the Cortez Pipeline mine requires pumping the aquifer at an estimated rate of 30,000 gallons per minute in order to access the gold. Although Cortez Pipeline claims that "dewatering" will have no "significant impact" on the regions water quality, our analysis indicates otherwise; dewatering greatly increases the risk of cyanide contamination of the the region's aquifer because it creates a net water drain which W-2
then acts as a "magnet" for the cyanide-ladened water underneath the mine. In addition, the Cortez Pipeline inevitably causes such standard Hard Rock Mining groundwater hazards such as acid mine drainage, leaching of heavy metals, and W-3
tailings liner leaks. Furthermore, such dewatering practices pose a long term threat to the permanent water storage capacity and viability of the aquifer by grossly disrupting the hydrology of this fragile and little understood groundwater system. W-4

Moreover, dewatering by the Cortez Pipeline is estimated to cause the ground level of the nearby area to subside by 20 inches. Subsidence to this degree presents a significant environmental hazard by damaging the integrity of the mine's safety W-5

features. In areas such as the tailings facility, depression in ground levels greatly increases the risk of plastic liner degradation and thereby, the release of toxic cyanides and heavy metals into the soil and groundwater. W-5

The Cortez Pipeline poses a substantial threat to the region's air quality; for example, due to air inversions and the topography of the valley, conditions for adequate dispersal of mill gas emissions exist only 54% of the time* . Furthermore, chemical ladened airborne silicates from the nearby mill pose a significant danger to the continued health of the surrounding communities, and their livestock, as well as to the region's unique fauna and flora. W-6 W-7

Finally, we believe that the development of the Cortez Pipeline is a violation of the implicit water rights delineated in the Treaty of Ruby Valley between the Shoshone Nation and the United States of America. The Shoshone cultural tradition hoids water as a sacrament, therefore, the Cortez Pipeline's policy of "dewatering" is an attack on the Shoshone religious beliefs which are protected under the Native American Religious Freedom Act. For all the aforementioned reasons, we believe that there are adequate grounds in the law to place a moratorium on any further actions regarding the project until these serious questions are resolved. W-8

Sincerely,

Brock Evans

Brock Evans
Vice President of National Issues

* "Cortez Pipeline Gold Deposit" DEIS, air quality section.

RESPONSE TO COMMENT W-1

Please refer to revised Sections 4.4.3 and 4.4.4 for a discussion of potential impacts to groundwater quantity and quality based upon expanded modeling efforts.

RESPONSE TO COMMENT W-2

The FEIS acknowledges that there is a potential to impact groundwater quality due to the development and dewatering of the pit (see Section 4.4.4). Likewise, it is correct that dewatering will create a potential for water and mobile chemical constituents to move towards the pit. However, cyanide compounds will be used at the land surface; and the water level during dewatering will be from 300 to more than 1,000 feet below the land surface. If a cyanide spill or leak were to occur, it is unlikely that cyanide would migrate through this great vertical distance.

RESPONSE TO COMMENT W-3

Potential impacts from acid mine drainage, leaching of heavy metals, and seepage from tailings/heap leach facilities are discussed in Section 4.4.4. Mitigation Measures 4.4.5-3 and 4.4.5-4 address these potential impacts.

RESPONSE TO COMMENT W-4

Dewatering impacts are addressed in Section 4.4 of the FEIS. Expanded groundwater modeling is also addressed in these sections.

RESPONSE TO COMMENT W-5

Potential impacts from subsidence are discussed in Section 4.2.2. Although impacts to the liner system is not expected, mitigation has been proposed in Section 4.2.4.

RESPONSE TO COMMENT W-6

Mill emissions are addressed in Section 4.1.4 of Volume I in the FEIS. All emissions would be below applicable standards for PM_{10} and toxics.

RESPONSE TO COMMENT W-7

There are no current standards for crystalline silica. It is not on the EPA's list of Hazardous Air Pollutants. Also note that previous modeling in the DEIS showed no significant impact according to previous standards.

RESPONSE TO COMMENT W-8

Please refer to Response to Comment L-1.

COMMENT LETTER X – DIRK EWERS

Comment Letter X

Route 4, Box 169
Louisa, VA 23093
10/29/94

Mr. Dave Davis
Bureau of Land Management
50 Bastian Road
P.O. Box 1420
Battle Mountain, NV 89820

RE: Cortez Pipeline Gold Deposit Draft Environmental Impact Statement

Dear Mr. Davis:

I would like to take the chance to comment on the proposed Pipeline Project by Cortez goldmines in Lander County, Nevada. After becoming familiar with the DEIS, I have strong concerns about the proposed action, and oppose any further goldmining activity in the area.

On a visit to the region in 1992, I was given a tour through the Cortez facilities where the environmental destruction was easily seen.

The surrounding area of the 300 feet deep Horse Canyon pit reminded me of pictures I've seen of the moon's surface. There were no plants or any sort of life visible, only rock and dirt.

I don't think that a few hundred high paying jobs are worth the destruction of an entire landscape.

Concerning the Pipeline Project, I offer my concerns:

First of all I'm disturbed that the DEIS is negligent in not considering the indigenous people's opinions, traditions, and the ways of sustainable living with the land. X-1

I believe that the impact the Pipeline Project will have on the area is a strong enough reason to consult the Western Shoshone people, whose families have been living in the area long before any mining began.

The DEIS mentions that the project would result in an increase of jobs. Unfortunately, it will only create temporary jobs which will last maybe ten years. I can already recognize major structural problems after a ten year period, due to the closing of the goldmine and job lay offs. X-2

Further it says that, "most of these employees would reside in Battle Mountain and Elko". Having been in Nevada and Crescent Valley, I have to raise the question as to how the area, especially Crescent Valley, will handle an even greater impact of residents.

There is absolutely no sustainable recycling system in the region. All recycling goods are sent to the landfill. Even worse, Crescent Valley residents simply dump their trash in a hole in the ground. This landfill site has not been properly sealed or protected; hazardous housewastes end up in the groundwater. An increase in population will only aggravate this problem. X-3

As the poorly installed landfill reflects a short term, exploitive mentality of the Great Basin region, so does the goldmine. An entire area will be destroyed, the already small number of pinenut trees will decline even more, and an abandoned, contaminated environment will leave no chance for sustainable survival anymore.

Furthermore, I also have strong concerns about the described hydrogeologic modelling to predict the amount of water used. First of all, mining would continue for 12 years, while the computer model in the DEIS gives only the scenario for the drawdown after 10 years of mine operation. X-4

Past experience from other mines has proven computer models don't work. According to the Audubon magazine, a model for the Barrick goldmine predicted that 10,330 gallon will be pumped every minute, the actual average is 68,000 per minute. X-5

I don't think that a two year study can really predict the impact on surrounding springs and environment. Although the DEIS mentions that only 11 springs have "potential for flow reduction", this is a lot, considering that water is very scarce in the region. X-6

I also fear for the surrounding hot springs, of which the cultural values haven't been acknowledged in the DEIS. X-7

Adding to this concern is, that during the summer months the nearby ranches pump a significant amount of water every minute. As far as I'm aware of the land rights issue, I doubt that the Western Shoshone provided the BLM with exact numbers of their water use, especially since the BLM did not consult with them. X-8

Due to this lack of information, the described computer model looses even more credibility.

Over the last century, the Great Basin area has lost important parts of its biodiversity. The Pipeline Project is a threat to the remaining animal and plant diversity in the Crescent Valley, especially for the wetlands and riparian zones. X-9

It also contradicts the recent efforts by the Western Shoshone to restore and maintain these zones from further loss, in order to preserve their sustainable way of living.

I hope you will consider my opinion. I will closely monitor the situation as it progresses.

Very truly yours,

Dirk Ewers

RESPONSE TO COMMENT X-1

Please refer to Response to Comment I-8.

RESPONSE TO COMMENT X-2

Please refer to Response to Comment P-5.

RESPONSE TO COMMENT X-3

Comment noted.

RESPONSE TO COMMENT X-4

Please refer to Responses to Comments I-4, M-9, and Z-1.

RESPONSE TO COMMENT X-5

Please refer to Section 4.4.3 of the FEIS for a discussion of modeling accuracy and comparison to other mine dewatering rates.

RESPONSE TO COMMENT X-6

Please refer to Section 4.4.2 (subheading Effects of Lowering Water Table on Surface Drainage Infiltration and Springs) for a discussion of impacts to springs. Also refer to Mitigation Measure 4.4.5-1 for planned enhancement measures to be taken if springflow reduction occurs.

RESPONSE TO COMMENT X-7

Hot springs identified in the study area include: Hot Springs Point, Chilis Hot Springs, and springs near Hand-Me-Down Creek. These would not be affected by dewatering or any other project disturbance. Cultural resources values would not be affected.

RESPONSE TO COMMENT X-8

Please refer to Responses to Comments EL-14 and E-17. As stated in these comments, the DEIS and FEIS address impacts to those water rights that could be impacted by the project, not all water rights in the Crescent Valley basin.

RESPONSE TO COMMENT X-9

Comment noted.

COMMENT LETTER Y – WALTER BROWN

Comment Letter Y

Walter Brown
P.O. Box 8968
Moscow, Idaho 83843
208-882-9755

Dave Davis
B.L.M.
Battle Mt. Dist. Off.
50 Bastian Way
P.O.Box1420
Battle Mt., NV. 89820

Mr. Davis,

This is a comment on the Draft Environmental Impact Statement that is for the proposed Cortez Pipeline Gold Deposit. I would like to have you think of this as a request for the DEIS , even though the comment period may be over,as well as being included on theNEPA mailing list for any other projects in this area, and as well as for the final comment period for this project. Thank you.

At this point I would like to thank you again for your time and the actual consideration that you have shown by actually issuing a DEIS and not just defiling the land without one.

The ground water that is found in the "High Desert", and more specifically in Crescent Valley, is far to precious to the ranchers and others that live there, as well as to the continued wealth and future of our great nation as a whole, to ever be wasted on a project such as this. The sheer volume of water that is being requested is in clear violation of the National Environmental Protection Act , as well as sundry Environmental Protection Agency regulations (information on request, though you should really have taken a closer look yourself). You have not used the best available scientific data, as is obvious. This is another NEPA violation that would need to be rectified before the approval (or even issuance of the FEIS) of this travesty. Y-1

The distances that are covered by water throughout the valley, as well as the whole region, is one of uncertain hydrology, the same as in any "High Desert"region, not just the one that you are exploiting at the moment. I can not repeat this last fact enough! You do not have accurate models for the effect of this volume of water loss.

As a side note. This volume of water was not covered in any of the other decisions that have been made concerning the Cortez Mining Projects, and needs to be addressed as a separate issue.

As the mine would begin operation I would recommend that the increase of water that would be needed at any future time be addressed at as a separate issue,rather than be sluffed off as has been done in other projects.

For the land.

Walt Brown

RESPONSE TO COMMENT Y-1

Please refer to expanded groundwater modeling and geochemical modeling contained in Section 4.4 of the FEIS. Also, please note that approximately 90 percent of the volume of water to be used by the project will be returned by reinfiltration.

COMMENT LETTER Z – HELEN IRENE JONES, J.D.

Comment Letter Z

Helen Irene Jones, J.D.
1623 Ordway Avenue
Reno, Nevada 89509

November 3, 1994

Dave Davis
Pipeline Project EIS Team Leader
Bureau of Land Management
Battle Mountain District Office
50 Bastian Way
P.O. Box 1420
Battle Mountain, Nevada 89820

Dear Mr. Davis,

I am writing regarding the Cortez Pipeline Gold Deposit DEIS. Based upon what I have learned about the analysis contained in the DEIS, I believe that the proposed project will have serious effects on the environmental health of the area, and potential the health of animals and people.

The following are a few observations:

1. I understand that the Cortez mine is basing its predictions on a computer model designed by a private consulting firm, which concludes that there would be no 'significant' impact on the surrounding springs and seeps. In conversations with my brother-in-law, a western hydrologist, I understand that this model may well not reflect the complex reality of groundwater hydrology. The model only predicts groundwater levels for a 10 year period of time: the initial life of the mine would be 12 years, with an additional 14 years of pumping indicated in the plan. The model, thus, underestimates the amount of pumping predicted. Z-1

I am concerned that the pumping of groundwater creates a cone of depression, which would lower the water table and such other groundwater towards the center of the mining pit. The resultant gradient could render current groundwater remediation of the Cortez Mine ineffective. I understand that under the Cortez Mine lies a shallow plume of groundwater that is contaminated with cyanide, and that a series of pollution control wells currently pump this contaminated water back into the mine. If a gradient is created, pumping water has the potential to suck this contaminated groundwater past the pollution control wells and down into the general groundwater aquifer. Z-2

2. The ground can subside with pumping, damaging the aquifer and permanently reducing its capacity to store water. It is expected that the Pipeline Project will cause the ground to sink as much as 20 inches in certain places, including beneath the proposed heap leach/tailing facility. This sinkage could cause the ripping of the plastic liner releasing toxic cyanide and heavy metals into the ground. Z-3

3. When the mining activities are finished, the open pit would fill with water and create a lake. There is a strong possibility that groundwater would be contaminated through the leaching of heavy metals into the pit walls, leaks in the tailings impoundment and acid mine drainage. Z-4

4. The proposed mine will degrade the air of Crescent Valley. The DEIS sates that conditions for the adequate dispersal of pollutants occur 54% of the time, while the remaining 46% of the time air inversions can trap pollutants within the air basin. Z-5

All of the above will undoubtedly have an effect of the long term environmental health of the region. As has also been pointed out, the Humboldt River basin will most likely face a water deficit in the future if dewatering continues. The DEIS points out that there is little understanding of the long term impact of dewatering. It is imperative that a long term study of the impact of dewatering on the Humboldt River basin be undertaken before any new projects are to be permitted. Z-6

As a taxpayer and citizen I believe that I am owed all of the facts before a private company is permitted to perhaps permanently degrade land which is owned by the people. The BLM must require additional, exhaustive studies on the realistic effects of this proposed project

Sincerely,

Helen Jones and Steven Foster
Citizens

RESPONSE TO COMMENT Z-1

Please note that the modeling accounts for 10 years of dewatering activities. Although the mill would operate for 12 years, the last 2 years would process stockpiled ore and no dewatering would occur. There is no plan for an additional 14 years of pumping from the proposed project.

RESPONSE TO COMMENT Z-2

Please refer to Response to Comment W-2 and Section 2.2.2 (subheading Cortez Groundwater Remediation Program) of Volume I of the FEIS for a discussion of potential interaction with the pumpback remediation system.

RESPONSE TO COMMENT Z-3

Please refer to Response to Comment W-5.

RESPONSE TO COMMENT Z-4

Please refer to Response to Comment W-3.

RESPONSE TO COMMENT Z-5

Please refer to Response to Comment W-6.

RESPONSE TO COMMENT Z-6

Groundwater flow modeling has been expanded in the FEIS to further evaluate potential impacts to the Humboldt River. The results of this analysis are presented in Section 4.4 of the FEIS and indicate no significant impacts to the Humboldt River.

COMMENT LETTERS AA – REPRESENTATIVE SAMPLES OF WESTERN SHOSHONE SUPPORT LETTERS

COMMENT LETTERS AA
REPRESENTATIVE SAMPLES OF WESTERN SHOSHONE SUPPORT LETTERS

INTRODUCTION

The following letters are a representative sample of correspondence received by the Bureau of Land Management (BLM) from both United States citizens and citizens of other countries.

These letters were generated in response to the Cortez Gold Mine's proposed Pipeline Project Draft Environmental Impact Statement issued in July, 1994. The primary message relayed in the vast majority of these letters received by the BLM was opposition to the Pipeline project. These letters also stated support for Western Shoshone Native Americans' claims of sovereignty over all traditional Western Shoshone lands. The proposed Pipeline project is located on Public Lands managed by the BLM. These Public Lands are within those lands claimed as sovereign by the Western Shoshone. The BLM received more than 350 such letters.

The BLM has addressed all pertinent comments raised in these letters in the preceding comment responses contained in this volume. Volume I of this document reflects the changes that have resulted from these comments.

A representative sample of these type of letters is presented here for your review. Due to the sheer volume of these letters, we have been unable to include all of them. These letters are on file at the Battle Mountain BLM Office, 50 Bastian Road, Battle Mountain, Nevada, 89820.

01 November 1994

Stéphane Trustorff-Luchini
P.O. Box 27233
Albuquerque, NM 87125

Bureau of Land Management
Attn: Dave Davis
P.O. Box 1420
Battle Mountain, NV 89820
(702) 635-4000 Tel
(702) 635-4034 Fax

Response to
"Cortez Pipeline Gold Deposit
Draft Environmental Impact Statement
July 1994"

The following is a citizen response to the Cortez Pipeline Gold Deposit, Draft Environmental Impact Statement, July 1994 (DEIS.) It includes questions and points of concern I would like directly answered and addressed.

I am responding to the DEIS with concerns not limited to those within my own backyard. However, I did reside in Crescent Valley, Nevada for a year (1992-93), Nevada for five years, and now return as an occasional resident. Out of my experience working for the Western Shoshone people and my appreciation for the high desert there, I will focus my concern on Western Shoshone land rights and the dewatering of the underground water system.

INDIGENOUS PEOPLE

Western Shoshone tradition and religion were ignored.

TIERING. The argument, "The Proposed Action falls within the same area as that analyzed for the Expansion EIS; therefore, the findings with regard to Native American concerns remain the same," (DEIS p. xiv) is invalid. The Pipeline project has the potential to affect an area outside of the direct mining and processing area mapped out in the DEIS. The Pipeline DEIS itself acknowledges this by considering the affect of dewatering on the springs and creaks in the surrounding area. Therefore, the geographic scope of impact is already presumed to be greater than the defined area for the mine operation itself. The Expansion EIS only considered the area for the mine operation. Tiering the Pipeline DEIS on the previous Expansion EIS is invalid.

Any affects beyond the operational area of the mine must be researched, including effects on the Western Shoshone tradition and religion. When you do this, you will find that springs are sacred sites to indigenous people, including the Western Shoshone. Any disturbance to the springs will be a disturbance to the Western Shoshone practice of their tradition and religion.

SIGNIFICANT LOSSES AND AFFECT. The statement, "The Proposed Action would not significantly contribute to cumulative losses of historic or prehistoric resources" is without basis. You did not show valid data or a valid research methodology to support this claim. How can you presume what is significant to the indigenous people? Only they can determine this. Neither the Expansion EIS or the Pipeline DEIS showed that indigenous people were consulted.

The statement, "The Cortez Expansion EIS Native American consultation identified no areas of traditional or religious importance to Native Americans that would be significantly affected." The Expansion EIS did not discuss any affects on springs in the area, as disturbance of the natural water systems was not an issue. The Pipeline DEIS discusses the possible disturbance of springs in the area due possibly to dewatering of the underground aquifer. Springs are to Native Americans, specifically the Western Shoshone, sacred areas. Any disturbance to a spring is wrong. Use of the phrase "significantly affected" is again incorrect, and reveals an ignorance and exclusion of indigenous thinking.

Further, the above two statements imply that historic or prehistoric resources are of the only significance. While they may be to the U.S. government, traditional and religious significance to the Western Shoshone is contemporary as well. The DEIS is written as if their tradition and religion is dead, to be exhumed and studied. To the Western Shoshone, it is alive. Anything that disturbs their practice of it today is an attack on themselves, not just on their ancestors.

SOVEREIGNTY. Beyond arguments recognized by U.S. policy and judiciary, is the issue of Western Shoshone sovereignty. The U.S. through its agency the BLM continues to deny the Western Shoshone their freedom to live their lives by their own laws. Within Crescent Valley, the Dann sisters have been threatened with the loss of their livelihood by the BLM. At the very least, the BLM should recognize that the proposed project is located on disputed land. The agency and the U.S. should, however, fully recognize indigenous sovereignty.

DEWATERING

The DEIS does not adequately address the unknown affect on the underground hydrogeology of Crescent Valley and related water systems. It does not show that it can reliably predict the effect of mine dewatering on the water system. It simply hopes that it won't be negatively affected, integrates monitoring system to see if it does, and proposes mitigation measures that are not proven.

REINFILTRATION TESTS INCONCLUSIVE. Data from testing of a reinfiltration scheme discussed within the DEIS cannot be used to show that reinfiltration can return the water to its source. The described dewatering system includes 4 types of wells, three of which will remove water from each of the three levels of underground water identified: the alluvial, the upper, and the lower hard rock. All this water is proposed to be piped to surface reinfiltration ponds. Tests showed that the water left the ponds Except for evaporation, where did that water go? It is not shown that the water reinfiltrated each of the underground water strata that it was removed from. It cannot even be shown that in that six week test period the water even reached the uppermost alluvial strata. Did it simply saturate the earth above that level? Can you show that reinfiltration will put the water back from where you took it?

LIMITED SCIENCE. How much do you understand about underground water hydrology? You are suspect if you claim to know much. In fact the science is little understood. With respect to the underground water hydrology of Crescent Valley, what affect will the dewatering of each of the strata alone and in combination have on the surface water hydrology? What is the relation of each of the strata to the surface waters? The implication is that, for example, if you were able to reinfiltrate some of the removed water into the upper most strata, will a particular surface water be affected by loss and unsuccessful reinfiltration of its related deep water?

AVAILABLE DATA. Mines are in operation in Nevada that dewater open pits. What has been learned from this? Does reinfiltration return the water back to its source over the operational life of a mine? Where is that data?

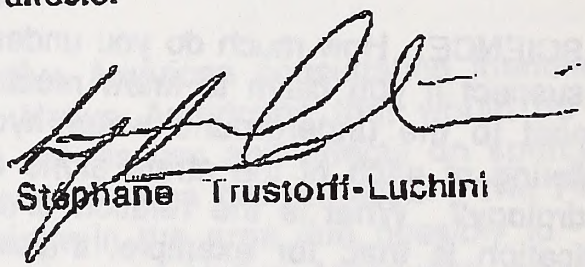
ACCEPTABLE RISK. We are in an age of science and technology where we are changing our acceptance of risk. We used to produce all kinds of chemicals, do a little testing, and make them available for use. In this real world experiment, we have severely polluted our planet and killed many of our people and individuals of other species, even killing entire species. Only after damage and death is done, and is recognized as significant, do we do the further research and take remedial action. Science and technology must take a new approach if we are to survive on a health planet. We must not conduct grand experiments on ourselves. We must have an adequate understanding before we begin to meddle. Or let alone. No dewatering of aquifers should continue until we understand what we are doing.

RESOURCE EXTRACTION. The Bureau of Land Management may not be capable of addressing the environmental impact of any project. As clearly stated in its "Mission Statement" on the inside front cover of the DEIS, it is concerned only with resources. These are things taken from the earth for the economic benefit of humans. This short sighted approach can never fully recognize the interdependence of all life on this earth. We think we can take without any reporcussion or immediate harm. Experience thus far in this grand experiment show that the costs are catching up with us. We will, sooner than later, be the ones suffering from our own shortsighted greed.

SUMMARY

The Pipeline DEIS must be rewritten with a new approach. It must be rewritten to stand on its own, without tiering onto previous inapplicable studies. The BLM must follow all applicable laws, and should not have to be reminded. It should recognize its responsibilities with respect to (and for) indigenous peoples and their traditions and religion. It should remind itself of its self-appointed "stewardship" of the land as primary to its enacted role of distributor of its "resources."

The sovereignty of the Western Shoshone Nation must be recognized. Western Shoshone must be involved in determinations regarding their land, including the proposed Pipeline project. Dewatering and reinfiltration should be thoroughly and not haphazardly studied for their affects on the environment. The Pipeline project cannot be operated without an understanding of the affects.



Stéphane Trustorff-Luchini

9170 W. Hwy. 56
Cedar City, UT 84720
November 2, 1994

Dave Davis
Bureau of Land Management
PO Box 1420
Battle Mountain, NV 89820

Dear Mr. Davis:

I was shocked and horrified to read about the heap leach gold mine you are now considering for Crescent Valley. I've visited this area in the past, and was impressed by the abundant wildlife and beauty of this lush area. It would be a terrible tragedy to pollute and poison Crescent Valley with this massive mine. You know as well as I do that the heap leaching process is deadly to wildlife, and a serious threat to local water supplies.

I am also concerned about the huge amount of water Cortez is planning to pump from a limited aquifer. This project would be so destructive to Crescent Valley and the local people, in so many ways, that it would be a terrible crime to allow it to go forward. I hope you will do everything you can to see that the Cortez Gold Mine does not destroy Crescent Valley.

Most sincerely,

Lester Wood

Lester Wood

November 2, 1994

Dave Davis
Bureau of Land Management
Battle Mountain District Office
P.O. Box 1420
Battle Mountain, Nevada 89820

Dear Mr. Davis:

I am writing to you to express my concern for the proposed Pipeline Project in Cresecent Valley. While the Treaty of Ruby Valley granted the United States the right to mine the land of the Western Shoshone, treaties are to be interpreted as they would have been at the time they were signed. This scale of mining could not have been foreseen at the time of the treaty, and is, therefore, in violation of it.

I believe that the Pipeline Project will prove to have a harmful effect on the people and environment of Crescent Valley. Mines throughout the United States have proven to contaminate the water, thereby destroying the vegetation and the animals. Furthermore, this contamination threatens the lives of the people living in the area. Their survival depends on the water that will be pumped out of the ground and possibly contaminated. There is no guarantee that the Pipeline Project will leave any less harmful effects than others that have already done so.

These are people's lives that are being threatened. Their livelihood is being threatened. Their subsistence is being threatened. Is the risk of people's lives worth it? Let me ask you another question. If this project was planned to be built in your backyard, would you want it there?

I hope that the concerns of people like me will reach you and convince you that it is not enough to hope that these people will not be harmed. There must be a guarantee that they will not be.

Sincerely,

Bryn E. Jones

Bryn E. Jones

AMERICAN INDIAN LAW ALLIANCE
404 Lafayette Street, 2nd Floor
New York, NY 10003
212-598-0100, x 257
212-598-4013 fax

October 12, 1994

Dave Davis, Pipeline Project EIS Team Leader
Bureau of Land Management
Battle Mountain District Office
50 Bastian Way, P.O. Box 1420
Battle Mountain, NV 89820

Dear Mr. Davis:

The American Indian Law Alliance joins with the Western Shoshone Defense Project, the Western Shoshone National Council and the Citizen Alert Native American Program in requesting an immediate halt to the proposed Cortez Pipeline Gold Deposit Project. We believe that the evidence strongly suggests that the Pipeline Project and its associated dewatering will have an effect on the long term environmental health of the region. A report prepared by Tom Meyers for the Sierra Club found that the Humboldt River basin will face a serious water deficit in the future if dewatering continues. The fact that we have little understanding of dewatering's long term impacts demonstrates the short-sightedness of proceeding with the project until further study. Common sense would dictate and the overall health of the earth demonstrates that water is more valuable than gold and it is our responsibility to protect this asset for future generations. We join with the leadership of the original government of the Western Shoshone people in demanding a cumulative impact study for the Humboldt River Basin prior to any further development.

Sincerely,

Kent Lebsock
Programs Administrator

TGF/kl

cc: Cythia Pinto, Native American Consultation Coordinator
Bureau of Land Management, Nevada State Director
Bruce Babbitt, Secretary of the Interior
Ada Deer
Placer Dome, USA
Placer Dome, Canada
Western Shoshone Defense Project
President Bill Clinton

RECEIVED
MAIL ROOM

1995 NOV -7 P 1:53

BUREAU OF LAND MANAGEMENT
BATTLE MOUNTAIN DISTRICT

M. Griebenow
Ammerseestr. 8
82061 Neuried
Germany
28.10.95

Bureau of Land Management
Battle Mountain District Office
Dave Davis, Pipeline Project EIS Teamleader
P.O.B. 1420
Reno, Nevada 89820

Dear Mr. Davis,

the Pipeline Project is opposed by concerned US citizens and Native Americans, because it adds to the contamination of soil and water and to the degradation of the Humboldt-River-System, where at least nine other mines are also pumping water at rates of 30 000 - 50 000 gallons per minute.

In the highly industrialized nationstates in europe, heap leach mining and open cyanide ponds are not allowed. It is not comprehensible why a "developed" country like the US is donating its public land for 2 - 5 dollars per acre to foreign corporations who pay revenues that don't even cover the environmental damage they are leaving behind.

The Mining Law of 1872 provides all the profits to foreign corporations and enormous disadvantages for the land and the people. While in many disputes with the Western Shoshone Nation the BLM has claimed responsibility for so called public land, it seems to be neither interested nor able to limit negative effects for the country it is meant to serve. The BLM's licensing practices have allowed deforestation by chaining pine trees, the establishment of military operation areas and bomber ranges and the contamination and dewatering by goldmines. It is turning the land into a sacrifice area.

The Western Shoshone Nation is the legal owner of most of Nevada's "public land". The Western Shoshone National Council, which has traditionally taken care and responsibility for this land, is opposing the consultation process with Native Americans as required by law, because it does not lead to substantial consequences. One of the necessary measures before the Pipeline Project can be allowed to proceed is the conduct of a cumulative impact study on the effect of dewatering by all mines which are operating in the Humboldt River system.

The Treaty of Ruby Valley must be interpreted "as the Indians understood it", therefore it allows mining only as it was known in the 19th century. The Western Shoshone Nation demands to stop mining and to restore the land. To follow these demands is the only way to act responsible towards your country and towards future generations.

Sincerely

Marion Griebenow, Ammerseestr. 8, 82061 Neuried

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Bureau of Land Management
Pipeline Project EIS Team Leader
Dave Davis
P.O.Box 1420
Battle Mountain, Nevada 89820

and

Bureau of Land Management
Nevada State Office
Cynthia Pinto
850 Harward Way
Reno, Nevada 89520-006

Dear ladies and gentlemen,

The planned goldmine in Crescent Valley, the Pipeline Project, is a serious threat to the environment due to the leaching process and the pumping of millions of gallons of groundwater in this sensitive halfdesert land. Situated in the heart of Western Shoshone territory, it also violates Western Shoshone landrights, which are presently subject of negotiations with the Department of the Interior. We urgently ask for a comprehensive study of the effect of goldmining in the Humboldtriver-system and for a moratorium of goldmining until the issue of Western Shoshone landrights has found a final solution.

Übersetzung: Die geplante Goldmine "Pipeline Project" in Crescent Valley, Nevada ist aufgrund des chemischen Lösungsverfahrens und des Abpumpens von millionen Litern Grundwasser in diesem sensiblen Halbwüstengebiet eine ernsthafte Bedrohung für die Umwelt. Es ist auch eine Verletzung der Landrechte, denn es liegt im Herzen des Western Shoshone Territoriums, das zur Zeit Gegenstand von Verhandlungen mit dem Innenministerium ist. Wir verlangen dringend eine umfassende Studie der Auswirkungen auf das Humbolt-Flussystem und ein Moratorium für den Goldabbau, bis die Frage der Western Shoshone Landrechte gelöst ist.

Name	Adress	Signature
Jacek Średziński	Doktorce 1 17-135 Strabla	Średziński
Piotr Nietupski	B-stok 15-948 Wiejska 15/121	[signature]
Agnieszka Tomorowicz	B-stok ul. Kamowiana 7 m 2	[signature]
Maciej Konopko	B-stok ul. Berlinga 40 m 6	[signature]
Kuć Paweł	B-stok ul. Św. Wojciecha 12/24	[signature]
[illegible]	B-stok Zagórna 23/77	[signature]
Anna Godlewska	[illegible] 48	[signature]
Artur Zmiejko	ul. Berlinga 25 m 73 15-814 Białystok tel. 541-623	[signature]
Przemysław Szarejko	ul. Radzymińska 26 m 44 15-863 Białystok	P. Szarejko
Urszula Ostyprowicz	ul. Wiosenna 30 16-020 Czarna-B-stocka	[signature]
Piotr Sowośko	ul. Gajowa 57 m 44 15-794 Białystok	

Kontakt und Information:

WESTERN SHOSHONE DEFENSE PROJECT
General Delivery, Crescent Valley
Nevada 89821. Tel. (702)468-0230

oder Renate Domnick, Gesellschaft für bedrohte Völker, c/o Hansaplatz 5
20099 Hamburg (Tel. 040-243480)

oder: Erika Soder, Gesellschaft für bedrohte Völker
Österreich: A-1030 Wien, Weyrgasse 5/4

Lena Schöneberger
Schloßstraße 26
89561 Dischingen
Germany

Dischingen, January 29th, 1995

To
Mr. Dave Davis
Pipeline Project EIS Team Leader
Bureau of Land Management
50 Bastian Way, P.O.Box 1420
Battle Mountain, Nevada 89820
USA

Dear Mr. Davis

My name is Lena Schöneberger and I am 15 years old. I have been interested in the situation of indigenous people for a few years now, especially in the situation of the natives in Northern America.
I am writing to you to express my anger and disappointment about the planned destruction of Western Shoshone territory by your Pipeline Project and about your behavoir against an independent nation like the Western Shoshone.
In 1863 (signing of the Treaty of Ruby Valley) the technic of opencast mining was unknown. So the Western Shoshone have never signed a treaty which agrees with an opencast mining of this dimension (There are much smaller gold mines like the Cortez Gold Mine which have caused considerable damages in the mountains around !) and they also have never given up their water rights !
But the pumping of ground-water will have effects on wells and rivers near by. At Humboldt River there is already a shortage of water. The Land of the Western Shoshone is a desert and therefore the few wells are of great importance. There are at least 55 of them in the environs of the planned mine and they are frequented by all animals of the area. Water and these wells are of great spiritual importance for the Western Shoshone !
I urge you to accept the Western Shoshone as a sovereign nation and request you to enter into fair negotiations with their traditional government, the Western Shoshone National Council.
If you destroy the water system, all life in this area will be threatened !
There are many young people like me in Germany who cannot understand that a country like yours, with such a great democratic history,treats its native people without any respect like you do !!!

Yours sincerely

Lena Schöneberger

Dave Davis
Pipeline Project EIS Team Leader
Bureau of Land Management
50 Bastian Way, PO Box 1420
Battle Mountain, Nevada 89820
USA

Gesa Himmelrath
Kappelerstr.16
40597 Düsseldorf
Germany

Dear Mr. Davis,

1. 2 .1995

I urgently ask you to stop dewatering the area around Crescent Valley for the pipeline-Project. We have to prevent terrible damage to the environment and the communities of Nevada.

I know about the report of the University of Nevada-Reno hydrologist, Tom Myers, entitled: "The Hydrologic Effects of Open Pit Gold Mining in the Humboldt River Drainage."

The report revealed, that the open-pit gold-mining dewatering will include a loss of over one million feet of water to a system containing a surface flow of less than 200.000 AF per year at Rye Patch Dam.

Nothing can justify a waste of desert water in a pumping rate of approximately 68.000 Gallons per minute.

The company of Cortez Joint Venture wants to make a lot of money with the goldmines, but do they really have to do that without respecting the demand for water and life of the living people and animals around there? Do you really want to ignore, that as a result of current open-pit mining projects ,the water-based ecosystems will collapse?

We ask you to think about these projects again, in order to protect our ecosytem.

Thank you for your time and consideration

sincerely yours

Gesa Himmelrath

NEW GOLD MINE THREATENS WESTERN SHOSHONE LANDS!!!

What is the Pipeline Project?

The Pipeline Project is a massive new gold mine to be located approximately 15 miles southwest of the Dann Ranch in Crescent Valley, Nevada. It would be owned and operated by the Cortez Joint Venture, a cooperative effort between mining multinationals Placer Dome and Kennecott. The Cortez Joint Venture currently operates the Cortez Gold mine and its associated facilities at the southern end of Crescent Valley. The proposed project includes the construction of a new processing mill capable of milling 5,000 tons of ore a day, a 586 acre waste rock facility, and a 241 acre, 1000 ft. deep open pit. This will likely be followed in the "reasonably foreseeable future" by a 233 acre expansion of the open pit, an additional 1019 acres of waste rock, and 532 acres of tailings. Furthermore, the mine must pump out the groundwater aquifer to reach the gold.

Dewatering

The Pipeline Project intends to dewater at an initial rate of approximately 30,000 gallons per minute (gpm), annually pumping 49,000 acre ft. of groundwater. This water will be pumped into large, engineered ponds where it is supposed to reinfiltrate into the ground water table, based upon a two year study by a private consulting firm, hired by Cortez Joint venture. According to this study by Woodward-Clyde there would be no 'significant' impact to the surrounding springs and seeps.

We have many reservations about this process. First of all, this conclusion is based on a computer model which only predicts groundwater levels for a ten year period. The initial life of the mine would be 12 years, and it is clear from the document that an additional 14 years of dewatering would result from southward expansions. The original Cortez Pit plans to begin dewatering in the reasonably foreseeable future. Thus, the predicted amount of pumping is severely underestimated.

Groundwater hydrology so complex and difficult to predict, that any computer model is at best a gross simplification. At the Barrick Goldstrike Mine north of Crescent Valley, initial predictions set a pumping rate of 12,000 gpm. Currently, the mine has increased its pumping permit to allow almost 60,000 gpm, while rumours persist among employees that the true rate is perhaps closer to 100,000 gpm.

Pumping groundwater creates a cone of depression, lowering the water table and sucking other groundwater towards the center of the mining pit. The ensuing gradient could render current groundwater remediation at the Cortez Mine ineffective. Under the Cortez Mine lies a shallow plume of groundwater contaminated with cyanide. A series of pollution control wells currently pump this contaminated water back into the mine. By creating the gradient, dewatering has the potential to suck this contaminated groundwater past the pollution control wells, down into the general groundwater aquifer.

Dewatering can also result in the ground subsiding, damaging the aquifer and permanently reducing its capacity to store water. At the Pipeline Project the ground is expected to sink as much as 20 inches in certain places, including beneath the proposed heap leach/tailings facility. Such sinkage increases the potential of ripping the plastic liner releasing toxic cyanide and heavy metals into the ground.

Cortez Gold claims they will change their operations if any springs are affected by the dewatering, but they intend to monitor only a fraction of the water sources in the general area. Because of the nature of the engineered reinfiltration ponds, it is unlikely they could construct more ponds in a timely fashion if certain springs began to dry up. The success of reinfiltration ponds in recharging the aquifer on such a large scale is untested, and questionable.

Upon completion of mining activities, the open pit would fill, creating a man-made lake. Evaporative groundwater loss from the pit lake and reinfiltration ponds would be permanent. There is also the potential for degradation of groundwater through the leaching of heavy metals in the pit walls. Water quality could further be reduced by leaks in the tailings impoundment and by acid mine drainage when moisture percolates through the waste rock dumps.

The Western Shoshone Defense Project feels that the Pipeline Project and its associated dewatering -will- have an effect on the long term environmental health of the region. In May of this year, the Western Shoshone Defense Project, the Western Shoshone National Council, the Citizen Alert Native American Program, and the Sierra Club participated in a joint press conference regarding dewatering. Tom Meyers, hired by the Sierra Club to study the issue, found that the Humboldt River basin will face a serious water deficit in the future if dewatering continues.

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The fact that we have little understanding of dewatering's long term impacts was perhaps the most stunning finding of his report.

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Because of the furious rate at which the mines are proceeding with plans to dewater, the W.S.D.P. and C.A.N.A.P. demanded a cumulative impact study for the Humboldt River basin be undertaken before any new projects were to be permitted. Such a study had to include and respect Western Shoshone sovereign rights and responsibilities towards the water. Despite this demand, the Bureau of Land Management has pressed forward with projects such as the Pipeline, ignoring their long term implications and cumulative effects.

Water Is Life

Caught in the rain shadow of the High Sierras, the arid Great Basin's springs and small mountain streams of utmost importance to all life. At least 55 springs and seeps occurs around the southern half of Crescent Valley. These riparian areas are islands of life, vegetated with diverse plants, and frequented by almost all the animal species in the area. Wet meadows and riparian areas are used by sage hens and chukars to rear their broods. Raptors including red-tailed hawks, northern harriers, and golden eagles frequently hunt at these locations. A host of other wildlife including mule deer, kit fox, gray fox, coyote, bobcat, badger, meadowlarks, mourning doves, burrowing owls, Brewer's sparrows and various rodents rely on these water sources.

The Western Shoshone recognize the importance of these springs to the existence of all their relations. Water is sacred, the source of all life. As a result of these beliefs, springs and other water sources are imbued with deep spiritual significance. They are the home of certain spirit beings who deserve respect. The destruction of these springs would be nothing less than an ecological and cultural genocide.

Environmental Racism?

Throughout the planning process for this project the Western Shoshone people, especially the Dann sisters, have been ignored. The BLM claims that their responsibility to consult the Western Shoshone was fulfilled by consultation over an earlier expansion of the Cortez Mine which involved no ground water pumping. This had nothing to do with the Pipeline Project and to suggest that this represented the consultation is ludicrous. According to the California Mining Journal, Cortez Gold Mines "is not negotiating with the Shoshone Indians." The proposed new mill would significantly increase air emissions within Crescent Valley. The DEIS notes that conditions for adequate dispersal of these pollutants occur 54% of the time. The remaining 46% of the time air inversions can trap these pollutants within the air basin. The Dann sisters live downwind from the proposed mill.

Mining and the Treaty of Ruby Valley

Article IV

"It is further agreed by the parties hereto, that the Shoshone country may be explored and prospected for gold and silver, or other minerals; and when mines are discovered, they may be worked, and mining and agricultural settlements formed, and ranches established whenever they may be required. Mill may be erected and timer taken for their use, as also for building or other purposes in any part of the country claimed by said bands."

As illustrated in the above section of the Treat of Ruby Valley, one of the rights granted to the U.S. by the Western Shoshone Nation was permission to mine on their lands. One might assume then that the proposed Pipeline Project is permitted under the Treaty. Yet, such an assumption is contrary to established treaty law. Treaties are agreements between sovereign, independent nations. The U.S. Supreme Court has ruled that treaties are to be interpreted as the native peoples would have understood them at the time of the signing. At this time (circa 1863) mining was conducted by the construction of shafts extracting visible veins of gold, or by panning visible granules found in stream beds. The Western Shoshone in no way agreed to the scale, intensity, or form of modern open pit heap leach gold mining.

More importantly, the Treaty nowhere mentions water rights. It should be understood that these treaties do not give rights to Native Americans, they grant certain rights to the United States and its citizens. Those rights not specifically ceded in the document remain intact. As the original inhabitants of Newe Sogobia, the Western Shoshone retain their inherent rights and responsibilities towards the waters within their aboriginal territory. Thus the expropriation, exploitation, and removal of these waters as proposed by the Pipeline Project and other mines is in violation of the Treaty of Ruby Valley and an infringement upon Western Shoshone sovereignty.

"Water is the life blood, the key to the whole thing. Without water, our lands rights struggles - even if we were to win back every square inch of our unceded lands - would be meaningless. With the water which is ours by aboriginal right, by treaty right, and by simple moral right, we Indians can recover our self-sufficiency and our self-determination. Without that water, we are condemned to perpetual poverty, erosion of our land base, our culture, our population itself. If we do not recover our water rights, we are dooming ourselves to extinction. It's that simple. And I say that the very front line of the Indian liberation struggle, at least in the plains and desert regions, is the battle for control over our water."

-- Madonna Thunderhawk, Hunkpapa Lakota, Women of All Red Nations

Is Today More Important Than Tomorrow?

The Western Shoshone people understand that the current economy in northern Nevada revolves around mining. Miners, on average, are the best paid workers in the state. But the Western Shoshone people also understand that their culture and spirituality are inextricably connected with Newe Sogobia. They cannot move when the ore runs out. It is absolutely necessary to maintain the land's capacity to support life. Damaging the water systems threatens the long term survival of all species on these lands, humans included. We must envision a sustainable economy if we are to survive.

"It our duty as Western Shoshone to protect this land, air, and water for future generations." Carrie Dann

The preceeding is from an action alert published by the Alpha Institute.

PUBLIC HEARING COMMENTS AND RESPONSES

PUBLIC HEARING COMMENTS – BATTLE MOUNTAIN, NEVADA

PUBLIC COMMENT MEETING ON CORTEZ GOLD MINES' PIPELINE PROJECT
DRAFT ENVIRONMENTAL IMPACT STATEMENT
Wednesday, October 26, 1994
BLM Office, Battle Mountain, Nevada

Meeting was opened by Dave Davis with the BLM who is the project's team leader. After introductions, Quayle Lusty with Cortez Gold Mines made a presentation to introduce the project and the concepts involved. Upon completion, the floor was opened to questions concerning the presentation only.

Maynard Alves: Yes, sir. Those wells you say you're monitoring now, where are those wells located and who do they belong to and whose property are they on....

QL: Uh, I can't answer your question. There's twenty-two wells which we have identified and are monitoring. Are they outlined in the EIS? (directed to Dave Davis)

DD: Yes, sir. They're, uh, on the map, a large scale map ..... I'm not sure is we've got it identified down to the property owners. The vast majority of them are on public lands, not all of them.

MA: Are they just monitoring wells that you people put in or were they existing wells?

QL: Both. Some of those are existing wells that, a, the BLM or, or ranchers have put in that we have had permission to monitor. We're monitoring, as I said, both water quality and water levels. Those wells, part of our program, we had presented to the NDEP as our water quality control. And we have to report on these wells, I think, quarterly under the Nevada Division of Environmental Protection.

MA: You say they belong to ranchers in the area, and the only rancher in the area that has wells there that I know is us and I don't know of any monitoring wells. That's why I kinda wanted to find out what, what's being monitored. If you could send me some information on that, I'd really appreciate it.

QL: We'd be happy to do that.

MA: Thank you.

from audience (Jim Alves): I have a question.

QL: Yes, sir.

JA: One of your slides showed, ...information, you said that you had done a test by pumping water .....(Helen Mary - "that's Jim Alves") .... reinfiltrated it back into the system, and

that's how you find out how much water would go back through, back into the system. What I want to know is, of how much water did you pump in your test.

QL: We pumped for a period of, I don't know how much in gallons, but we pumped for a period of two months. We pumped two wells, we drilled out there in this pipeline area, uh, and I'm thinking it was on the order, Art do you remember?

Art Walsh: No.

QL: I think it was on the order of, uh, 1300 gallons a minute, something like that. .... two wells.

JA: Now, in the EIS it states that you're gonna be pumping 22 to over 30 wells at a time, pumping as much as 30,000 gallons a minute. That's a much larger scale, .. use 1500 gallons a minute like you said out of two wells, to come up with this final conclusion that they're not gonna hurt the water table. I can't, that's a, a big gap between two, you know, 1500 gallons a minute to 30,000 gallons a minute, over a long period which you say 10 to 12 years. I'm just curious how you can, how you can deduct such a long term uh, ending when you're using such a small scale.

QL: A hydrologist could give you details and answers on that. But basically, we have a number, we have a whole bunch of monitoring wells that surround the vicinity of these two wells we were pumping. And during that 60 day period, we monitored the drawdown, and computer simulated that over, over a 10 year pumping period with additional wells, and uh, that's part of the hydrologist's study. It backs up the EIS.

JA: My understanding was the computer only knows what the computer's told.

QL: That's true.

JA: Ok.

QL: But this, this kind simulation is done all the time by hydrologists that are figuring out the hydrology and the constraints and the reactions of these aquifers. We also compared this to the same type of operations that are ongoing at Barrick and Newmont and Amax Sleeper. So that we knew that we were right in the same ballpark as, as ..... our reactions were predicting were very similar to the reactions at Barrick, actually experiencing at those other operations. They are, they are pretty similar... sorry they're in pretty similar or identical host rock .... the uh.....

DD: For the record, that was Maynard Alves, asked the first question and Jim Alves asked the second. If you'd plan to ask further questions, can I impose upon you folks to stand up and state your name when you present your questions to Quayle please.

QL: Ok, are there any other technical questions. Yes, sir.

Yes, I'm Jerry LaMiaux. I understand that you have only one, one site in which to reinject and that is a reservoir type injection.

QL: I'm sorry, that's not true. We have, we have identified a band of area three to five miles from the pit. And we have one initial site that we're proposing to start with, but after we start pumping and looking at the actual reactions of the ground water in the area, if it's determined that we need to reinfiltrate in other locations in order to counteract the, or mitigate the effect on the wells in that area, we can certainly do that. As long as we can get permission from the land, most of it is BLM property. Um, we can go to the BLM and get additional area or new reinfiltration galleries if the initial one ,..... we start doesn't work. The initial one is only located where it is because it's between Crescent Valley where most of the water wells in the valley are and the nearest ranch and the pit. So we started there hoping to counteract most of the, of the effect.

JL: ..... my question..... are there other land owners around the area, pit area (coughing in background) other than the Alves.

QL: Uh, are you talking about within the five mile ....

JL: Right, that's right, that would be affected by water drawdown.

QL: There, there's only one other well within that five mile radius that's not owned or controlled by Cortez, and that's one that's jointly held by the BLM and John Fillipini, a rancher. We talked to John about that and assured him that if we affect the water in that well..... water table. Yes, sir.

John Carpenter: Would you explain this reinfiltration system you're gonna use. Any slides on that or how it works.

QL; .... I don't have any slides other than the one I showed up there. It's the same system as is presently being used right down here at Echo Bay. It's being used very successfully. Essentially, you pump the water out of wells right adjacent to the pit. You transfer it into a pipeline 3 to 5 miles. You put it into shallow ponds that are just dug down into the gravels. Get the top soil off and put it into shallow ponds there into the gravels. The water just soaks right down into the gravels. Drains right out and eventually goes down into the water table right from where it came. Now, knowing what we know about the characteristics of the gravels of the valley, we predicted that it takes about five years for the water to get from where we're putting it into the ground back to the pit. So that means every five years we end up pumping it again. But uh, we, essentially create a temporary imbalance, we draw the water table down here where we're mining and mound it up a little bit over here where we're putting it in, and it eventually flows back on us. But that way we, we avoid .....we're minimizing the

impacts that are outside of that five mile area, still keeping this imbalance right around the pit area. Is that clear as mud?

JC: Yes, kinda, uh, how many of these, how many pits do you have to do?

QL: Uh, the floatation rate that we experienced from our tests was about uh, what was it Art? Four to, four, the water level went down four feet per day around this pit. Now we anticipated about 1 acre of pond area per thousand gallons per minute of pumping so. If we're pumping 30,000 gallons per minute, uh, we anticipate that it would be about 30 acres of pond.

JC: What will you do, fence these ponds?

QL: Yes. That's part of the disturbance that we had included in that 1880 acres of disturbed area. Yes, sir.

MA: Sir,you said that there were no other wells within that five mile area. I do believe that's a, a mistake. I think some of our wells are within that five mile area. I think that needs to be corrected or researched, please. Thank you.

JA: I have another technical question.

QL: I don't believe that's correct but we'll look into it.

JA: I have another technical question I was gonna ask if Mark List was here. I don't want ..... into my ten minutes but .....

DD: If it's on the EIS I'd appreciate if you'd wait.

JA: .....on the a reinfiltration system he was speaking of just now.

DD: Just on the side, Mark had a death in the family and was unable to attend..

JA: Ok, I, I just thought maybe he would be here, should I ask these questions now? Ok, according to the EIS on page 4-102, location of the ..... uh, reinfiltration pond, Outenburg Hill (?), ...pond .....area.....Outenburg Hill? Is that correct?

QL: Your initial location is, is in that vicinity, yeah, like I said, it's between the pit and Crescent Valley.

JA: .....right here. Pretty much 3 miles due west of the Dean Ranch, uh, and also down hill. Uh, Dean Ranch headquarters, alfalfa fields and hay meadows. Crescent Valley is made up of alluvial fans, pretty much, true?

QL: On the sides, yes.

JA: But the valley fills in. Uh, so it's different layers, gravel, topsoil, and rock further down, is that correct? Some alluvials coming of the side of the mountain, you say ..... ponds going into gravel stratus.

QL: Yes.....

JA: Uh, are there any other layers in the valley that are unpenitrable by water, if, if, you know, underneath that gravel, that would keep the water from going down. If you drill a whole valley around those, that, that band, ...hard pan would keep that water from going down.

QL: No, we haven't drilled a hole down.

JA: OK. Uh, some layers of that gravel pretty much taper out to the center of the valley and just gives up and quits, is that right .....

QL; Well, in the center of the valley, the water table as you well know, is only 10 or 20 feet deep.

JA; Right, and the gravel stratus goes out from the sides of the hills ....

QL: That's right. Those gravel stratus are pretty much interconnected. Our experience from the reinfiltration tests we did during this pumping test, was that, we did have monitor wells all around there so we were monitoring what happened. The water did tend to flow out initially but then worked its way down very quickly to rejoin the water table down at the 250 foot depth.

JA: Ok, so some of those gravel layers are pretty shallow then.

QL: Yes, some of them are.....

(double talking)

JA: ..... water runs downhill. And I guess you're familiar with the problem at Boulder Flat. The water in Newmont Gold's reservoir is leaking out and Boulder Flat now has a spring .... up that were never there before. Or that..... people from Battle Mountain have done out there to drive across the dry flat and got stuck in places there was never water before. Uh, is it possible, if you're pumping 30,000 gallons a minute, as it says on page 4-21 of the EIS, you're pumping at the subsurface wells, pumping the surface infiltration pond, uh, could that water hit a gravel stratus and run down hill? Do you understand what I'm saying. I mean gravel bed is not verticle, is there any chance that water could hit a gravel stratus and flow downhill at 30,000 gallons a minute. ...seen streams that

wide run out of the canyon and run for miles. Is there a chance that 30,000 gallons a minute could hit a gravel stratus and run out into the valley some how.

QL: There's a chance of anything happening, but, if, if that, if this works the way it works right here at Echo Bay, is just, that doesn't happen, it just, it soaks down eventually and gets down into the sub water

JA: But it is possible that water could go down and come up three miles away.

QL: Water does run downhill.

JA: Right.

QL: But generally the topography there is steeper fans on the sides of the valley tapering out to practically level flat area in the middle. Usually stratus in those fans are dipping at the same level, or the same angle or steeper than the surface itself.

JA: Right, so then ... all the table and all that water runs down there, so the build up water there's a chance that these springs just appearing in the valley floor, is that correct.

DD: .....Jim, Helen Mary Johnson, our geologist would like to address that.

HM: Um, oh, hi, Jim, uh, um. I think that, if you read in the DEIS they say that, if they did start seeing springs or seeps poking up downhill from that, what they would do is compensate that by now putting as much water in that particular pond. They would move the infiltration pond to a different location.

JA: OK, but I'm just curious, before that happens, it takes a long time for that water to stop its flow, and you have, you create a swamp or, or a wetlands.

HM: Um, I think that, you wouldn't actually get a swamp or a wetlands, you might get a slightly boggy area. It's true that there'd be a delay factor in when you actually see it and when it comes out. But it's not gonna be a permanent change or situation you have to deal with.

JA: Well, I'm concerned with, is with the ranch hayfield and stuff in this flow is directly downhill from the initial infiltration pond, I'm concerned of especially from this end with a low water table, or excuse me, high water table, if that 30,000 gallons a minute dumps within three miles of us, runs in the gravel stratus, runs downhill, comes up and floods our, and makes a swamp out of our alfalfa fields or our hayfields, or floods the yard or a spring comes up in the livingroom, uh, ... just curious, who's liable for that, for damages, things like that....

QL: .....the EIS and our water rights permits from the State, obligate us to mitigate

impacts on the landowners of wells, springs, etc. And we will do that.

JA: In case of damage.....30,000 gallons a minute ... travel through the gravel stratus .....what happens if we get damage. That was my .....

QL: Are there any other questions?

DD: Yes, sir

Jim Wrecks:

I had a question about ..... Does Placer Dome have a purchase agreement with Gold Fields? I mean, according to articles in Elko Daily Free Press and this Rocky Mountain paper, ...don't own the rights yet to the, the, you don't own the rights yet to mine there, so that's what I was curious about .... develop an area...Placer Dome doesn't actually own that. ..... hearing coming up in March of '95.

QL: We, uh, we have a lease/purchase option with Gold Fields,..... and uh, there is litigation concerning that lease/purchase option. We are going ahead with the permitting process on the assumption that we do have a legal binding contract.

JW: You're going through with this on an assumption.

DD: Excuse me, let Quayle finish first.

QL: We are going through with this uh, assuming we do have a legal binding contract with Gold Fields.

JW: Who, whose money is spent going through ... process on an assumption.

QL: Ours.

JW: So then this whole BLM hearing is being funded by Placer Dome, ... doesn't make it real unobjective.

DD: No, it's not being funded by Placer Dome.

QL: I'm sorry, let me try to clarify that. We are paying for all the background studies and the study input into this, we are paying the BLM's contractor who's done the actual environmental impact statement. The BLM themselves are responsible for putting this together.

JW: Beyond that, don't you then have to go through and negotiate with the Western

Shoshone at, once you get the rights from Gold Fields.

QL: I won't answer that one.

DD: I will. We've stated this at the onset of this process, this NEPA process is not a forum for addressing the Ruby Valley Treaty of 1862 or 3, excuse me, I don't know which it is. And we are not going to address that in this forum tonight or in the EIS. That is a matter between the Western Shoshone and the U.S. Government, that being the State Department of Commerce, not the Bureau of Land Management. We have virtually no authority to address that issue.

?? But you have the authority to give permits.

DD: Correct.

?? So that people like you can mine, right.

DD: Heidi, would you like to stand up and identify yourself please.

Hi, I'm Heidi Blackeye, I work with Citizen Alert Native American Program.

DD: And to answer your question, that is correct. We are obligated under .....1872 Mining Law to address applications for mining on public lands. That is correct.

HB: Right. Uh, what I'd like to say is that, you know, whether you think it's relevant or not to the EIS, we feel that it is.

DD: I'm fully aware of that, ma'am.
Any other technical questions for Quayle before we ..gin, begin comments on .....yes ma'am.

?? I just was wondering how far from Humboldt River is this whole project, how many miles are we talking.

QL: ..... twenty-seven miles I believe.

JA? It's over twenty, I was just looking at that map that you had up there on the screen and it looked like it was over twenty.

QL: I believe it's about twenty-seven miles from this mining, proposed mining location to uh, the Humboldt River. Would you identify yourself, please.

?? Oh, I'm Nan Streif (?)

DD: Any other technical questions on Pipeline proposal for Quayle. Yes, sir.

?? .....question about the infiltration ponds, uhh, and stock ponds and this sort of things. For example, runoff, stratus soild ....clay.....retain the water ...longer.....Have you looked into any way of preventing that, to optimize the infiltration rate or have you even considered uh, uh, pumps to pump water into the valley.

QL: . We, we considered reinjection wells, and pumps, and other things. The water coming out of this pit, or coming out of these wells, is drinking water quality, its's clean, it's pure. It doesn't have sediment in it that is going to gum up the bottom of the pond. You take a pond where cattle laid around in it.....

?? .....even if you take and clear out ponds with bulldozers, you don't have this gravel ....gravel finds, sand, and this sort of thing, and you will presumably have .....

QL: ..... happened in the first pond.....water flows through a series of ponds, it goes pond to pond to pond until it does .....Uh, the first pond will probably settle out all the silt if there is any silt.

?? So these will run in sequence.

QL: They're run in sequence, yes. It's running downhill through a series of ten, fifteen ponds, whatever is necessary till all the water is completely uh, soaked into the ground.

I have a question to ask, uh, my name is Carrie Dann. Uh, I understand that this Crescent Valley gold right now where the mill is at that there's also some kind of a contamination underground. How's this gonna be affected when you start pumping all this water. Is that water from the contaminated area gonna flow into that new uh area.

QL: No, ma'am. That's part of the reason that we have.....

CD: Are you sure now. I mean, I don't, I don't want the idea....."no ma'am that's not gonna happen" There is that possibility it could happen, right?

QL: No, ma'am. That is why we're reinfiltrating this water. By mounding the ..... water at the reinfiltration site, we can keep any other water from coming into this area. That's the whole idea between just pumping it here and reinfiltrating it there, it creates a local imbalance between the pit and the reinfiltration site, but it keeps all the water outside of that area from migrating towards the pit, that's the whole idea with this concept. So anything that's going on the Cortez,..... Cortez plant site ..... side of the valley or anywhere else in the valley, will not be affected.

CD: That's a guarantee.

QL: That's the plan.

CD: That's the plan, but is it a guarantee. I mean, you know, we as parents and grandparents, we have think for the future generations of the children. Not only our children but all the children, you know, that someday may want to walk on that land and maybe possibly get a drink of that water.

DD: To answer your question, that's part of their, their pollution control permit's stipulation with the NDEP. They have an extensive array of monitoring wells around that contamination site. They are monitoring ,... excuse me, an extensive monitoring plan as well as a mitigation plan that is a pump back plan to clean up that. So they've already got a monitoring plan in place to assure that that water isn't going anywhere. I, I, I can't remember the number of wells, it's seventy-six, seventy-...

QL: Yes, it's well over fifty wells out there monitoring that .....

DD: So, as part of the concern that you raise, the Bureau was concerned about the same thing. And we worked with the State Engineer to insure that those, that is part of their monitoring program that that contaminated water does not go anywhere, and uh, I hate to say "trust us, we're from the government", but, it is the science today as we understand it, it is standard operating procedure to do as Quayle mentioned , mound the water. You create a pressure differential by mounding that water. That prevents it from moving to another area, ok. And so if there's any indication at all that that water's going anywhere other than back into their treatment system, as is, as is by their permit, they're going to have to relocate at lease some of their reinfiltration array and mound water to keep that water, that contaminated water from going anywhere but back into their treatment facility.

CD: ..... oh uh, you know the safety of future generation .....because you have places in the news, that all, you know some cities in the midwest are now getting a dose of uh, the fertilizers and the chemicals that's being used on the farms back there. And they're concerned about their water. Is this what the future generation of our people, of all people gonna be faced with this.

DD: I believe the NDEP Pollution Control Permit is public information and you can write Doug ???'s office and get a copy of that. And I can't give you, I'm sorry I don't have a photographic memory, but there are very specific details and levels of all the constituents that is,... the pollution, that these folks are required to remediate back to. And you'll notice there's no time frame on it. So if, hypothetically, Cortez has to get down to drinking water or better with that ground water contamination, through their treatment system and that remediation plant, it's a contract with NDEP, with Bureau monitoring, that guarantees that they're gonna clean that site up, and that's regardless if

it takes five years or thirty-five years. They have to get it back to the existing conditions prior to the contamination.

CD: That is a guarantee.

DD: Yes, Ma'am.

QL: That's part of the permit. Yes, sir.

My name's Tom Myers. I was curious if you could tell me how long it will take the pit to refill with water once the project is all done and then what rate.....

QL: I don't remember to tell you the honest truth.

TM: ...the models that run beyond ten...beyond ten years .....

QL: .....we have a pit lake study that is study is a separate document that's been done by our hydrologist and all of that information was in that study. I just don't remember...

DD: I thought it said, I thought EIS said..... I'm sorry I don't have a photographic memory, I believe it said 90% of the level within the first hundred years. I believe that was the figure used in the EIS but I'd have to go back and check.

TM: I don't recall in , in this EIS.... that's what they said it was up at uh, Gold Quarry.

DD: Helen Mary, do you remember off hand.

HM: No, but I think 90%'s like in the first decade or two.

QL: Do you remember what part of the EIS it's in...

HM: Oh, heck no. .....

QL: It fills pretty fast,

HM: Yeah.

QL: ...the 90% level and then .....function and it slows way down. Yes, sir.

Gary Longwell again (?) Uh, I understand that .....correct.

QL: That is correct.

??????????????????

QL: Well, we anticipate the pit lake to be very similar in, in caricature to the pit lake that we presently have at the old Cortez mine. That pit lake is drinking water quality and excellent bass fishing.

DD: Any other questions?

?? I have one. My name is Nathan ? .....but I read here in the Environmental Impact .....there was to be no recreational, nothing to do with recreational with that water. No. 1, I lived here all my life and some of the best fishing holes I've been, that I know about are old mines. I was wondering why we couldn't do something with the BLM or whatever to make a say 10 years after you guys have pulled off, that it could be a fishing hole. Cause I hear the Environmental Impact Statement said that at this time they're not planning for that.

QL: Well, I hope, I hope there also will be a fishing hole, cause I like to go fishing too.

N? .....

QL: We just couldn't commit to that in the Environmental Impact .....

N? Well, I realize that.....

QL: .....cause we're, that too far down the road, and we don't know right now with mining law in kind of a, in question, we don't know what the status of the land is gonna be there when we're all finished and reclaimed and the pit lake is established it may be back in the BLM's hands. I don't know.

(multiple people talking)

DD: Yes, sir. You have another questions.

?? ...ask ya, how much per ounce .....cost ....gold out of the ground.

QL; Um, this is an environmental impact study, it doesn't concern itself with economics for this kind of venture. We haven't addressed it in the EIS. That's kind of a privileged information. If you'd like to get one of the company's annual reports, there's some of that information there.

?? That was only part of the context. I was just curious, if the price of gold did drop or if this project becomes too costly..... you'd have to shut down the mine earlier, then where does the money come from to reclaim the area.

QL; Well, Placer Dome US is a big company. They have other mining operations besides this one. We're also a subsidiary of Placer Dome, Inc. which is an international

company with mines all over the world so uh,

DD: I can address that one step further. There are bonding requirements since ..... where these folks are going to have to post a bond with the Bureau of Land Management for full reclamation of the proposal. So, even if, just say out of the 1880 acres they only manage to disturb half of that. We're going to have enough funds in the US Treasury or some other, either through bonds, cash or whatever, that they are going to have a fund that assures reclamation of any disturbance they do.

QL: The record of decision, as I understand it, will not be issued until we've placed that bond.

DD: That's correct.

DD: Just one matter of record here, there's three folks video taping and we're running up on 1:30, somebody give me a hand wave when you need to change video tape. We want to make sure everybody's got an accurate record here, so, anybody that needs to, just give us a yell and we'll give you an opportunity, we'll stop what we're doing and give you a chance to change tapes. Yes, sir.

?? Would you identify these people that are video taping.....

DD: Two out of three. Helen Mary Johnson is our geologists, she's recording for the BLM. Jim Alves of the Dean Ranch, and I'm sorry, I don't remember your name sir.

Jim Wrecks:

DD: Jim Wrecks, and you're for yourself, or the....

JW: Yeah, we're doing a video for uh, well, we have a piece airing on CNN, it's uh, November 15 at 10 am..... air on .....147 different countries. The title is Project..... in fact the questions I was asking is for clarifications for that CNN program.....

?? Have you been to the site?

JW: Yes.

QL: When was that?

DD: Are there any other technical questions.

JW: I've been working with the Western Shoshone for two and a half years now.

DD: Are there any other technical questions for Mr. Lusty on the project. Ok, thank you, Quayle. We're going to begin commenting and as I noted, we're already an hour, this is considerably longer that the last one. We want an open forum here, if it's alright with you folks and we've gotta go longer than nine o'clock, I've got the keys to the building, we want to give everybody a chance to comment. We will take the opportunity to go beyond nine o'clock in order to insure that everybody has a fair chance to comment. I would like to take a minute and review the ground rules again. Opp, the wrong ground rules. First and foremost, limit comments and questions to those that pertain to the DEIS. Again, this is not a forum for anti-BLM, pro-BLM, (I don't think we'll get any of those), pro, against mining, this is for comments related to the analysis that the Bureau presented on Cortez' proposal. We ask that you stand up and when you're making the comments and face the podium. It would be a clearer record for us, ...all video taping, if you could use the podium, some people are camera shy, if you just want to stand at your seat, that is permissible. Please state your name and affiliation if you have one. One speaker at a time, that's just common courtesy. And as I noted, please a ten minute limit per comment, I will be timing you, I will interrupt you at the ten minute time and ask you, one, to either wrap it up within the next minute or, two, come back at the close of the meeting after everybody's had an opportunity to comment, and finish up your comments. Two other things, we did have pre-register, excuse me, registration forms out there. I hope everybody took some time and put their name and address down, this will assure that you get a copy of the final EIS if you so desire. And we also had pre-registration comment forms, uh, simply to guide us in preparing the final EIS. It's not mandatory that you use them, I've got a couple of extra ones. I'm gonna take 'em in the, the way they were given to me, I didn't arrange them in any order. And I'll begin with Mr. LaMioux, Lander County Commissioner.

JM: Yeah, I won't take very much time. I've got a cold so please bear with me. I've uh, first of all Lander County Commissioners are pleased that we were able to request an, and get them, the BLM, these additional hearings. We felt that it wasn't quite right that the hearings weren't close to the (coughing in background) I think that this gives everybody, that is, in the area that has a very close interest, more time to make input. Uh, ... Lander County itself is concerns of new roads and accesses that are around the mine and that will be impacted. And suggest without reference to any disputed ownership of land. Uh, as a matter of polluting any public access to other .... public roads, that an alternate right of way be ceded to Lander County for the establishment of an alternate route. For uh, SR 306 or the old 21 Highway. We're suggesting that this ...(coughing) appropriate action for the BLM and Lander County in serving the public interest ..... (more coughing) recognizing that uh, State Highway 21 or SR 306 is an RS 2477 road so that we can maintain continuing access to connecting state and county roads..... Second, I, I guess I ought to uh, ... We're very pleased to see the Pipeline proceed and succeed. I guess you can see that, the numbers say that it going to bring a lot of taxes uh, to the, to Lander County. Secondly, I think that we are all pretty individualistic in this country, you're uh, oriented towards uh, free enterprise, and this is free enterprise at, I believe, at its best. But we're also interested that all parties

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that are, are treated fairly, are given due consideration to avoid losses in the surrounding properties and residences. So hopefully this uh, these hearings will allow us to do that and uh, sort of.....get to have their say and be able to be on record. Thank you.

DD: Um, I apologize, Bud ??... last name, Bud

Yontz?

DD: Yes, sir. Thank you.

Bud: I'd like to save mine to uh, towards the end because I'm afraid I may not meet one of the ground rules, if we have time.

DD: Ok, we'll give it a shot. Ronald Gash.

RG: My name is Ronald Gash, I'm president of Pioneer Equipment Company, we're a distributor of mining equipment in the State of Nevada. It's our opinion the Pipeline Project will provide economic benefits and jobs both directly and indirectly along with the tax base for Lander County, State of Nevada and the United States. Our company has done business with Cortez Gold for over twenty-five years. We know Cortez to be a good, honest, fair and professionally run company. They are very environmental seriously, sound company, they are a good corporate citizen for the State of Nevada. And their employees have told me that it's a good place to work. And I know personally after twenty-five experience, they're a good company to do business with. Our company is 100% in support of the Pipeline Project. Thanks. BM-2

DD: I apologize, I'm not doing very good on names tonight. The gentleman from People of the West, for the West.

NL: My name is Nathan Lawrenson. ..... My question I guess is for you. There was just ..... . Reno and Elko, and all ..... to take place as in Lander County or Eureka. So if I want to have any input in this I'm suppose to go to Reno to do that. Why is that?

DD: No, sir, you didn't....

NL: These two meetings we have here and in Crescent Valley were special meeting that we asked for.

DD: The County Commissioners asked for

NL: Yes, sir. I was .....involved in that .....

DD: I can address that on a couple of notes. First of all, this is not the only, the only place

you've had input into. We've, as I went over the public input, or public participation, there were a number of avenues including written comments that any citizen in the United States has an opportunity to participate in this process, from I believe, late, mid December 1992 on up through the present and to the approval. So just because you're unable to attend the meeting doesn't mean that your written comments aren't given a serious consideration as any verbal comments are. The second reason was, is that when we did the news releases and the radio announcements, the only interest we got, that the BLM received, of any uh, significance, I guess is the word I'm looking for, of substantial interest and issues raised from the scoping meeting were people from Elko and people from Reno, or groups from Reno. There were no substantial issues of any kind raised either by telephone, in writing or in any other opportunity provided the citizens of Lander County. Therefore we took that as there's no interest.

NL: How much interest would I have to express from that er, would you have to get from say Battle Mountain, to have one of those meetings here instead of Reno or in addition to....

DD: A letter.

NL: Just one letter, from one person.

DD: Sure.

NL: Ok. Thank you.

DD: Yes, sir. Uh, John Carpenter, please. Was there anything else, I'm sorry. Anything else? John Carpenter.

JC: Thank you, I'm John Carpenter, uh, Assemblyman representing basically Elko County. Uh, as you can see by the employment figures, why this does affect Elko County in a big way. Uh, I, uh, sat on the Natural Resources Committee in the uh, State Legislature. And uh, I, uh, had a very active part in uh, in making sure that the uh, the companies would in fact uh, be held to their responsibilities as far as the environment is concerned. And I think it was said here that there'd be a bond to the, to the uh, BLM. The all, the State of Nevada will also have a great part in the permitting process of this venture. I think that we need to strike a balance between the environment and jobs and the economic stability of this area. We know that mines have became a great part of our economic structure. We've got to keep the mines going. But at the same time, we have to consider any other adverse effects on the environment and to the neighbors that these mines might possibly affect. So therefore, I would suggest that uh, that uh, that either in the EIS or sometime during these process, that the mines sit down with those people that are gonna be affected out there. I think we know who they are. The John Fillipini, and the Alves, and the Danns. I think they should sit down with them. Maybe there's a way rather than putting this water back into the ponds, and uh, now that I know that it's happening down in uh, Echo Bay down here, I'm going down

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there to look and see just what uh, is taking place down there. And I hope that it is a successful venture, as we've heard here this evening. But I think that we know that it's a successful venture up at Barrick, from their, puttin' a lot of this water back into the ground and creating a great wetland out there. And they're also doing a lot of things with agriculture. And I think that the companies and these people that live there need to look at that. I think if we can stop some of these problems up front, we're a lot better off than trying to run into a lot of problems down the line because then sometimes it's too hard to make an adjustment. I think that's what these EIS's are for, is to make sure that we do what is necessary up front. So we don't create a lot of problems both for the mine and their neighbors. I hope that this can be a successful venture, and I think that it will be a successful venture, because the life blood of northeastern Nevada depends mainly upon ranching, mining, and tourism. In this valley where this mine is going to be, they're all intertwined down there. We may not get too many tourist off of I-80, but I think that miners, livestock people and the ranchers really have to get along down there, and make sure that we don't get into a bad situation. Because if we don't handle it here on the local level, we get all these outside groups in, and really they, they don't understand our way of life. And that's what we want to avoid. And all I have to say, it really disturbs me, about the Sierra Club, and things that they're puttin' out. Frankly I think that a lot of these things that they're puttin' out is just something to stop mining. I really don't appreciate that. I don't think they go at it in a scientific way. Or if they do, I think it's flawed.And I think that it's up to us people here, in Lander and Eureka County, to make sure that this deal is done right, the mine can operate, and nobody gets hurt. So I would suggest that everybody get together and see what you can do, to work this situation out. If you've got problems, don't let it fester. Don't let it get down the road here five or ten years and end up with big lawsuits and things like that. Thank you. BM-4

DD: Uh, where are we at on video tapes, folks. Are we doing ok. (some discussion) Ok, Jim Alves from the Dean Ranch.

JA: Ok, the green stripe or the green squares here is the private property which belongs to the Dean Ranch. Blue is water rights which belong to the Dean Ranch. Vested water rights being all the creeks which is the line. The light red area down here is some of the impact of where the Pipeline project is suppose to be. Just to acquaint you with where we're at. The rest, most of, the majority of all this property here all belongs to the Bureau of Land Management, including theses squares that we're checkerboarded with. So we are the largest, closest private property owner to the mine. That's why we're so concerned. I heard on the radio yesterday, noon news, KELV AM out of Fallon, Nevada, the representative of Cortez Gold Mines stated that with all the research Cortez has done, that the water in the Crescent Valley area will not be affected. The water infiltration system will solve all problems. If this is so true, then why does the DEIS on page 4-19 state that quote "the resulting water table drawdown in the area has been estimated using a computer model. That the actual extent would not be known until the dewatering system is operating." The news release I heard as well as what has been told by Cortez at these hearings, is a public relations campaign to push this incorrect EIS BM-5

through. Cortez is promising low environmental impact and more jobs. That sounds good it's good PR. But the EIS is not telling us the truth. At the EIS hearing held in Elko, Nevada, I stated that the fact is that this EIS is based on incorrect data. The Dean Ranch and Tony Lesperance presented hard evidence that this EIS is incorrect. The Dean Ranch consists of close to 50,000 acres of private property, the closest, largest private property owner to the Pipeline gold deposit. The Dean Ranch also holds a large grazing permit in both Elko and Battle Mountain grazing districts of the BLM. The Dean Ranch has approximately 30 water wells, 14 of which are artisan wells, some only 60 feet deep. The Environmental Impact Statement states the Dean Ranch has only 11 wells total. That's incorrect data. The EIS also states that the Dean Ranch has only have a, only have a hand full of springs. The fact is that the Dean Ranch holds water rights to close to 55 springs, again incorrect data. The Cortez Environmental Impact Statement goes as far as to state that the Dean Ranch has no surface water rights. That is incorrect data. The Dean Ranches's vested water rights to many creeks and streams, allocating surface water rights and a total of over 7,550 acres. The Cortez Environmental Impact Statement states that dropping the water table 700 feet, as it states on page 4-22, will only affect ground water in a 5 to 7 mile range around the Pipeline pit. That's on page 4-21. The Dean Ranch headquarters and a large percentage of the water rights belonging to the Dean Ranch are within that five to seven mile range. Yet Cortez continues to try to make us believe that the Dean Ranch will not be affected. By Cortez's own Environmental Impact Statement, given as flawed as this EIS is, the Dean Ranch will be seriously adversely affected. So will other water right holders in the Crescent Valley area. Does five miles seem very far? If it is, then why in the operation of the new small pit that Cortez has opened next to the Pipeline project, why do the windows in the homes of the Dean Ranch rattle and shake every time Cortez sets off a blast. This so far is only a small start to a much larger project. What are the vib.., what are these vibrations doing to the fragile ground water system now. What will happen when and if the Pipeline project grows and gets deeper. Cortez said on the radio that there will be no problems, that all of this will be fine. There's a problem with that. The data that Cortez used in their environmental impact statement is incorrect. Cortez refuses to acknowledge the truth, they refuse to face the fact that the water in the Crescent Valley area will be seriously adversely affected. Cortez leads us to believe that everything will be ok. Why would Cortez refuse to acknowledge this. The man came up here and stated that Cortez is an old mining district, that's correct, 1860. The Dean Ranch is also old. The Dean Ranch was founded in the 1860's. In fact, according to the book written by Mollie Knudson, which records a history of the Grass Valley/Crescent Valley area, Joe Dean, the man that founded the Dean Ranch in the 1860's married the daughter of the man who founded Cortez Gold Mine. It's just kind of a shame to see that old neighbors can't get along. Hopefully we can work something out. Thank you very much.

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DD: Can I get a copy of that.

JA: Can I mail it to you, I did some changes.

DD: You bet, you bet. Uh, one editorial comment. This is not Cortez' EIS. This is the Bureau of Land Management's EIS. Maynard Alves, please.

MA: After the hearing in Elko, the BLM was quoted in the paper saying in response to my comments that they used the best available information. The EIS developed recharge data for Crescent Valley C20 at some 24,500 acre/feet a year. I have a fact for 1990.. a copy of ...book.. it's from the State Engineer titled "Nevada Water Facts for 1992". If you will note on page 21 for Basin 54, Crescent Valley, that the State estimates to recharge at 16,000 acre feet or some 8,500 acres feet less than the EIS. In other words, the EIS is estimate a recharge of over 50% greater than what the State estimates. Also note that the acreage for Crescent Valley is 752 square miles. I believe this is somewhat larger that what was used in the EIS which makes the discrepancy even larger. I do not know if the BLM invited statement that the best information was used, however unless a logical reason is presented for not using the State information, I must believe that the State information is the best available information. The Dean Ranch alone has certificated surface water rights for 7,558 acres or some 29,195 acres feet of water. That must be recognized and dealt with in the EIS. Further, I will and develop an eventual water right for another 3,060 acres for some additional 12,648 acres feet of water use. Again, these facts must be dealt with. There is no dewatering process in effect in Nevada at this time that has correctly estimated the amount of pumping required. Most have missed by at least a factor of 2 or more. All of the pumping data available in Crescent Valley, including all the tests in our own wells, indicate that minimum will draw down under full pumping. All of the drilling logs indicated a course continuous nature to the gravel material comprising the aquifer. I believe even the data from Cortez supports this. Consequently, ...pumping out uh, uh, pump.., consequently, they are pumping out of a underground lake and I am also too, my irrigation wells. Therefore, to draw down the cone of depression to over a thousand feet will require an immense pumping effort. Admittedly, I am not a water engineer, however my native intuition tells me that ultimately that if the Pipeline project is to be successful, that not 30,000 gallons a minute will be pumped, but a much greater amount, to the, maybe to the tune of 100,000 gallons a minute or more to be successful. Most Nevada waters are relatively high in calcium. Calcium in water tends to seal off soils of a basic nature when the water comes in contact with the soils. This is one of the reason our dry lakes are so obvious. Consequently, infiltration ponds, which incidentally is the cheapest of all possible alternatives in dealing with pumped water, will tend to seal off and in fact become evaporation ponds. Local evaporation rates are around 50 inches annually. For simplicity, one could simply say that four feet of standing water will evaporate annually. Thus the evaporation for every acres of water will be four feet, or one million three hundred and six thousand eight hundred gallon. Based on a continuous pumping rate, this amounts to 2 and a half gallons per minute per acre per year. If in the final analysis, a hundred thousand gallons a minute must be pumped and only 80% of the water will in fact infiltrate, then some 20 thousand gallons per minute must evaporate. This would require some 8,000 acres of evaporation ponds. I can go on and on with examples, however, the most important point of all this is that we simply do not

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know what the end result will be. However, even if the pumping is just 30,000 gallons per minute, then based on a year long pumping, this will remove 48,264 acre feet of water every year for the life of the project. Unless all of this water can be placed back into the local aquifer, then common sense dictates that the ranch, the Dean Ranch will be impacted. One does not need to be a water engineer to come to this conclusion. Uh, I would like to make reference to Mr. Lusty's comment that this, that this compares to Newmont, Barrick, etc. same ground formation. Now when Barrick, turns on their pumps, they lower the water table at Dee Gold, five miles away, five hundred feet. Now if that data, which we have acquired and we assume is correct, will have a great impact on the Dean Ranch. And we again, I, I, as I spoke in the other meeting, we are not here to try to destroy anybody's livelihood, uh, economic base of the area, or anything that would impact the local people that live here and work here. But we are extremely concerned to have our life's work in this ranch. And I'm sure all of the people here tonight that have worked hard and own something would not want to have someone else come into the area and destroy it. And we are no different than the rest of you people sitting here tonight. We do not want to be damaged, or we do not want to be destroyed and our property or our livelihood. And that is why we're here tonight, to make everyone aware of our concerns. And I thank you very much for your time.

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DD: Can I get a copy of that. (couldn't understand Mr. Alves' response) That's fine, sir. Alica Roser of the Sierra Club and Alliance to End Mining Abuse.

AR: .....written comments, if you will bear with me while I read, uhm. The Draft Environmental Impact Statement for Placer Dome Pipeline, Pipeline project does not meet the intent or requirements of the National Environmental Policy Act. It contains numerous errors and misinterpretations ..... insufficient ..... standards required for assessing the impacts of this proposal and alternatives for the proposal. The EIS does not consider in detail any alternatives. NEPA requires federal agencies to study, develop and describe appropriate alternatives to recommend courses of action in any proposal which involves unresolved conflicts concerning alternative use of available resources, and that's a quote from Section 102..... Uh, the DEP regulations refer to this requirement as quote "the hears of the Environmental Impact Statement and demand agencies rigorously explore and acceptably evaluate all reasonable alternatives." And quote, "devote substantial treatment to these alternatives be considered so that reviewers may evaluate ....." This EIS considers only proposed actions in detail ..... Eleven alternatives were mentioned but discarded after less than one page of discussion each. This project will have substantial impact on the surrounding ground water system. Alternatives to the proposed project included a mixture of reinjection wells ....reinfiltration systems, substitution of mine water for agricultural water, or purchase or acquirement of other water rights to compensate for the loss of the water from the pit. Refilling the pit was not given serious..... and that alternative, although costly, is credible. Filling some of the other pits in the area is also a potential alternative.....Refilling of the water line would reduce the water deficient created by the pit. And because of mound water problems ..... ultimately be required.

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The Water Management Consultant study appears to be the primary source, exclusive source of information for this DEIS. These studies were conducted prior to the BLM's decision to .....were almost certainly directed and paid for by the mine proponents. This method of developing the most critical data for the major impacts of the mine demonstrates conflict of interest. The Consultant's continuing financial success is based on the acceptance of the report by the mine proponents. To my knowledge, no consultant ..... negative light by a Nevada project when the study was funded by the mining company. Because the Nevada BLM lacked staffing to review the chemistry and technology of the complicated problems, the public is left to trust the study bought and directed by the company. ..... omissions and..... interpretations in spite of the ..... EIS ..... the BLM should require complete review and .....corrections and study. Regarding cultural resources, the document inadequately, inadequately addresses cultural resources, cultural ..... is not even summarized. The statement that the EIS consultation identified no areas of traditional or religious importance to the Shoshone is totally unsubstantiated. Regarding threatened/endangered and ..... species, this mine will impact many springs in the surrounding area. Northern Nevada has a large diversity of ..... species ..... although many if not most of these snails are not characterized in detail, they should be examined for potential impact by this mine. The impact could be substantial, and result ..... loss of species that have not even been described. Other organisms in the springs may be similarly impacted .....wildlife..... If I'm going too fast, let me know, but I'm just trying to get done ..... page here. (*Transcriber's note - "..going too fast..," talk about your understatements!!!!*) With this mine, significant acreage of wetlands will potentially be impacted both by threat of removal of springs also by removal of water resulting in loss of other springs. ..... Army Corp of Engineers should be required but no mention ..... Regarding ..... no ..... presented ..... Although the State of Nevada does not require a bond for heap leach commissioning, the BLM is required to bond for complete reclamation. ..... statement on the cost estimate is not provided ..... bond covered, but how will it be administered. And it is unlikely that it will be sufficient for heap leach commissioning .....State does not bond .....separate bond. There should be a full bond for the cost ..... The BLM should use standard ..... methods for bonding. ..... bond developed, who will hold the bond and what ..... must be provided. This is essential to assess the impact. In regards to reclamation, the standards for reclamation are ..... federal law. The company has a reasonably good record at Bald Mountain Mine, ...clearly demonstrated that more than a 100% of the adjacent land' activity and diversity could be obtained. Uh, we don't understand why the BLM ..... The Federal Land Policy Management requires agencies to prevent ..... to public land. Accepting anything less than 100% is unnecessary since 100% can be obtained. Regarding water quality, the potential ..... mercury uh, ... national drinking water standards. .....samples .....statement on the water quality..... ground water .....errors and omissions. In general, drinking water standards are .....chloride and ..... standards .....as the mercury concentration ..... if one assumes a 110%

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..... concentration factor , ie. 10% of the water evaporates in reinfiltration ponds, the concentration of mercury ..... drinking water .....actually enters the ground water. Regarding ground water quality and reinfiltration and reinfiltration area, the EIS should simply state that the law be followed. The water can't be discharged into, water that will degrade ground water. If the Cortez project can not economically treat the water, they don't have a line...it's a very serious problem..... discussion.....EIS .....vague statements are made to protect the environment, without any real ..... enforcement. The BLM .....likely to violate state and federal law. Regarding pit water, the EIS states that NDEP regulations prohibit creation of ..... because of the potential for .... ground water as a result of .....water table. But the rest of the discussion on pit lake water quality appears to be more than, I hope that the water quality .....The EIS indicates that frequent ..... water quality ..... accomplished. ..... model .....pit water quality is a distortion of ..... does not work well with trace minerals many of which .....It is .....pit water quality ..... liability. .....water quality of the pit ..... evapo..... contaminates.....will be worse and clearly will be a source of contamination of ground water..... certainly be violated..... potential ..... It.....illegal to allow the pit .....filling of the pit and ground water contamination .....Regarding dewatering, the Pipeline project should not be permitted without a complete study of the effect of the overall surface and well water system. The dewatering of..... Pipeline project must not take place until the State of Nevada and the United States geological survey have determined the accumulative impact of mining dewatering. ...And I would be happy to discuss these comments with anyone who has questions.

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DD: Tom Myers, from the same group. Hello.

?? I was wondering if I could ask a couple of questions of the speaker.

DD: No, sir. This isn't the forum for it. This is comments on the EIS.....

TM: Thank you, Dave. As he said, my name is Tom Myers, and I'm a hydrologist who works for the Sierra Club and several other groups in the Reno area. Um, therefore, my comments will focus exclusively on the hydrology of this project, including the ground water modeling effort, the effect on the Humboldt River, uh, impacts on water rights, the riparian systems in Crescent Valley. Um, I have reviewed the DEIS and the summary of the hydrology which is provided by the BLM, the summary of reference is on page 30-14 of the DEIS. Um, my, I have provided a lot of detailed scientific comments on the uh, on both the DEIS and the uh, and the summary that will be submitted with the uh, comment to be submitted by the Sierra Club in their comments. First, in general, the ground water model as described in the hydrologist summary is inadequate. The model was run for only ten years and so until the end of mining. Yet statements have been made that there will be no effect on the Humboldt River. The effects don't occur until after the pit begins to refill, so the model itself has to be inadequate to assess the long term affects. Also the redistribution of water in Crescent

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Valley after pumping ceases could change the predicted drawdowns and in local wells as the pit begins to fill. Finally, there is no sensitivity analysis of the aquifer properties performed in the model to determine the precision of the estimates. In other words, we don't know how precise the estimates are. They've provided no information on that whatsoever. Because the aquifer properties that are used in the modeling effort were determined based on just two overlapping concepts, by overlapping I mean both tests were running at the same time which complicates the results. There should be more concern with the accuracies of these estimates, and that's why the, uh, sensitivity analysis should be performed. I just want to recommend that the BLM obtain review of, by independent hydrologist with credentials in ground water models. Of the three consultants retained by the BLM, all have substantial industry background but only one is published substantially in pier review literature and its not in ground water model. I did a literature search on all three of the company consultants and only, I ..... only one of them has any background, only .. pier review background in this area at all. The others have published almost not at all. The DEIS states that there will be no effect on the Humboldt River as I just mentioned. However the pit will be excavated to more than 400 feet below the river levels, almost 7 or 8 hundred feet below the ground water level, but its 400 feet below the river level, and there's very little recharge or inflow to the Crescent Valley from anywhere else. Um, uh, the DEIS mentioned that there's a recharge of 24,000 acre feet. Maynard just mentioned that really may only be 16,000 acre feet. If as I just discovered tonight, the pit refills in 90% of it ..... just ten years, that's approximately 135,000 acre feet that has to come into the pit in the next, in ten years after the pumping ceases. Uh, there's imperviable boundaries all, er, on the south, east and west sides of this basin. All of the water that goes, that's recharged has to go into the pit just to get that kind of volume. And since I don't think that will occur, what, what I'm saying here is just for water, just for the water balance, a lot of this water has to come from the Humboldt River. But, these factors suggest then that with the mass of deficit just to be created by the open pit, the Humboldt River will become a major recharge source for the valley. But since the model's not run to simulate pit refilling, there's no justification to the statement that there'll be no effect. If the model was run to simulate that, then it should be included in the DEIS in the summary and it was not. Impacts on existing water rights are likely to initially be slight, however, in the long term, the impact says that the ..... will be very major. First, the open pit by itself creates a hundred and fifty thousand foot acre foot deficit that cannot be mitigated by reinfiltration. Even is this reinfiltration basins work perfectly, mitigation does not work because the pit is effectively one large void. Prior to mining and dewatering, the pit was mostly rock. After mining, it will be 100% water. Only approximately 1500 acre feet will have, of water, now exists in the area of the pit. After mining has ceased, there will be 150,000 acre feet in the area of the pit. This, then, it, so what I'm saying then is that if the water is not, ... that it goes into filling this pit is not currently in the basin and is not being stored by the reinfiltration basin. This will create a deficient requiring many years to make up at the low recharge rate that exists in the basin. Second, evaporation from the pit alone after it refills will be about 5% of the annual recharge. Combined with the accumulative affect from other pits in the valley, there will be a long term 15%

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deficient created in the valley. If Maynard's numbers is right it's more like 25% of the, the percent would be closer to 25%, that's a long term permanent deficient on the water balance in the valley, of the Crescent Valley itself. There's no way to mitigate this effect short of stopping free water evaporation. I express doubts about the usefulness of mitigation by reinfiltration for several reasons. First, mounding of ground water increases the very low gradients towards the discharge end of the valley, that is the Humboldt River. It increases these gradings by almost 400%. Just according to Darcy's Law, the primary equation used in ground water hydrology, this must increase flow from the basin because of increase in grading towards the Humboldt River, it has to increase the flow in that direction. Neither the summary or the DEIS provide output of the discharge from the valley to the Humboldt River rather they just state there's no effect. Now what I'm asking for is for the actual model output or some table showing how much water goes across the ..... that they used to model the northern end of the boundary. Just based on physical principles, ground water hydrology, I have extreme doubts about the statement of no effect. Second, the ground water contours presented in the DEIS and summary for various pumping and recharge scenarios show a much larger drawdown cone than ground water mound. So now that the volume of less than 20% of the drawdown cone. In other words, even after accounting for the different storitivity, the model results themselves do not justify the statement that all water remains in the basin. What basically, what I'm saying is the model is not, I mean the results presented do not show that the water stays in the valley. I mean the mound is a lot larger than the, I mean the drawdown cone is a lot larger than the mound. Third, there's a large amount of water just lost in wetting the soil between the basin and the ground water table. Currently, the soil is dry, and certain a, certain percent of the water that is reinfiltrated has to go to just wetting that soil. That is water that will, that is not available for anyone's use. It will not be drained towards the well when, when someone pumps in the future, it will not go into evapotranspiration any of this, the water goes to wetting currently dry soil. That will also create a deficient. In summary, the DEIS inadequately predicts the effects of dewatering on the Humboldt River and local water users. The basin is too complex. I recommend this project not be permitted until the proper studies have been completed, adequately predict the effects of the study, oh, uh, excuse me, of this project, and the accumulative effects of all mines in the Humboldt River basin. Thank you very much, and while I adlibbed quite a bit, there's my comments.....

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DD: Dennis Gunn, from Reno.

DG: I'll pass my time.

DD: Mr. Gunn passes. Is it Corbin Harding?
Uhm, while Mr. Harding makes his way up here, how are we doing on video tapes? Everybody alright?

CH: My name is Corbin Harding, Shoshone Indian from this Mother Earth. What we're saying to each other here through my knowledge of what's been takin' place so far,

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we've been telling each other lies here. Today, we all depend on water. I know most of you people here carry your water in a jugs. We have to protect that clean water. If we don't, where are we goin'. Where are we gonna order this water from. Throughout the world today, the water is 'taminated so bad, some places they can't use it. And today, the mining operations throughout the world is 'taminatin' our water quicker than it can produce itself. We know the water flows north here. We all know that. Some places, like the Dean Ranch today, some places the water is coming up because its coming through a course ground. It will take long time for it to come back up again to that water level. We all seen our springs dryin' up where we pumpin' water for our irrigation, just for irrigation now, but huge amount of water been pumped for the mines. What is it doin' to our water table underneath us. Where's it going, how long it's gonna take to fill that gap in there again. It might takes thirty, forty years. At the meantime, when that water gets 'taminated that we usin' today, where do we get our water. Right here in Battle Mountain, I see artisan wells dry up and today throughout the world, artisan wells as we call them, dryin' up. Springs that you people can not drink out of. You's 'fraid to drink out of that spring comin' out of that mountain. You scared because its 'taminated with something kind a disease. Are we gonna be a sick people, our lives gonna be short. For today, what about tomorrow, what about the next day, what about the young ones that's gonna be comin' behind us. Are we thinkin' about them, or you thinkin' about your young ones that are gonna be walkin' this Mother Earth? Maybe they won't have nothin' clean. Today, everything is dyin', I don't care what it is. The animal life is dyin', we're chasin' them off their habitat where they use to live. And today, we are still fencin' them out. The BLM is sayin' we gotta fence them, fence this out. We shouldn't be doin' those things. We should be working together, to clear, to make that, our earth cleaner than what we plan to do today. Instead of tryin' to 'taminate it with something, a disease that's gonna be here with us. They're gonna be sick people, we already begin to see that, throughout the world. Those are the things that we have to be concerned with. You people, this is on your shoulders now. Not on mine, yours. This is what you people have to think about really strong. And think about your kids, think about your grandchildrens, and their grandchildrens down the line. What are they gonna be drinkin'. Are they gonna be carrying water like we are, in the plastic container from Safeway we get all this water. Maybe Safeway gonna run out of this water some of these days, then what are we gonna do. Those are the, really important thing you people got to tonight to think about. Discuss it among yourself. Let's not beat behind the bush about it, let's bring it out and say we have to work together as one people. We cannot divide ourself with an issue like this. We all gonna have to unite ourself together to be strong and discuss it, bring it on the table. So that way, we know what we're doin'. Mining is not the way for me, I know that's where you get your money ..... But think about the earth, your mother, that produces your food, that produces your water. Think about that. See, you are gonna move from here to wherever the other planet's gonna be. I don't think there's another planet out there floatin' around. It won't allow us anyway, I don't think. We're people that, uh, ruined this part of the world anyway today. I say I been traveling throughout the country, I know what our water is. It's very serious matter for you people. I hope you guys will

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take this in, I'm a poor speaker but I hope that what I said to you will really make you think about a lot of different things here. So ..... way, we have to work together, like I say. Let's not be 'fraid of each other, let's start the movement so we clarify, get out Mother back in shape again where it can produce a good thing for us to survive on. Thank you.

DD: Jim Wrecks, CNN.

JW: ..... Um, my name is Jim Wrecks, I work full time and as free lance for both ABC, Fox, CNN, most of the major networks. I've done news packages, and most recently I've been workin' with the Dann sisters and the Western Shoshone Defense Project for about two and a half years. I'm not a good public speaker, I'm behind the camera usually, so bear with me. Uh, ...Nevada, I'm speakin' after Corbin, what I was just gonna present was a report by the BLM about areas that have been contaminated in Nevada. So I know Corbin hadn't mentioned any specific sites, but I'll list out some of these mining companies: Aren Mining, All Minerals Mining, All Minerals, Inc., American Borite Company, Argentina Mine, Buckhorn Mine, Bunker Hill Company, Carlin Gold Mine, Comalogy Mining & Milling, Crescent Milling LTD, Crescent Valley Mills, Cypress Mining Corp., D & Z Exploration Company, Dee Gold Mining Company, Double Eagle Inc., Dresser Minerals, Drakston Mine, Duvault Corp. Mine Site, Eastman Chemical Company, Goldstrike Mine, Intermountain Exploration ... Gold Company, Kemco Buster Mine, McDerrmit Mine, Minerals Concentrate, Minerals Management, Argenta Mills, Montello ....., Mount Hope Mine, Monte Telex, Inc., Impass Resources, Inc., ...Copper Mines, Smokey Valley Mining Company, Standard Gold Mine, Union Carbin, Underson Mine, Utah International, Inc., ...Grant Mining Company, Western Windfall Ltd. And this is a list compiled by BLM here of all mining companies that have contaminated this area, the Nevada area. Um, so, we saw Mr. Lusty's presentation earlier, and that's all based on what? On current technology which this list that BLM themselves has is public record, is shown to be ineffective. So we're risking the health of ourselves, and now, I failed to mention that, I'm kinda permanent here now in Crescent Valley, gonna be the instructor over at Northern Nevada Community College. And so I'm gonna be talking to students, and you know, like Corbin said, where are they gonna be gettin' their water from. You know, and, I mean we gotta, we gotta get together on this thing. Uh, I mean, for me it's a pretty important thing, and I, I don't understand how we can uh, be mining gold when I know, I mean I've been to college, I got my degree, I know that down the road, that water's gonna be much more valuable than gold, and it seems pretty crazy to contaminate that water now to get the gold while it's worth so little, when down the road for all of us here, we're, our, our valuable resource is that water. And that's gonna be the thing that's worth the most to us down the road. I mean it really is, cause I've worked for these news networks. I can tell you CNN's preparing a major piece right now on water in the world, and showing that other foreign countries are taking areas like this one that they're proposing to develop and they're taking those areas and protecting them from other foreign countries, because they know that the water's gonna be necessary for their

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existence. Ok, so why is it, in this country, the United States, that we're, uh, ... as this list shows, contaminating our water source. And we're gonna have to go to these other foreign countries, which it just so happens that all of these mining companies are owned by these foreign countries, ok. Where is Placer Dome and RTZ, they're England and Canada, ok. They're the ones whose gonna be selling our water, selling us our water. I just would like to present this, it's kinda off the cuff, so I'll write something up and submit it later. Thank you,

DD: As on the side, we do, I didn't mention earlier, we have until November 4th to provide written comments if you're a little camera shy tonight, so don't forget you've got about uh, five more days to provide written comments on this findings. Uh, unless there's someone else, Bud I apologize, I forgot it again, Bud Y... Yountz. Uh, Mr. Yountz to my knowledge is the last speaker unless there's somebody else who would like to speak after .....

BY: Uh, my name is Bud Yountz, and I'm from Reno, and I'm speaking as a, an informed private citizen. Uh, I think there's an element that may be overlooked in determining the overall quality of this project's degree of environmental stewardship that's being applied. Uh, in the way of personal credibility, I'm an eagle scout, I go to church every Sunday, I was raised to tell the truth to the best of my ability. I have two children that will inherit this planet, so I believe I have high environmental standards. I am a chemical engineer, so I believe I have training to help me understand some of the technical issues. I'm a member of the mining industries, which I think gives my a broad basis for a comparison to miners and mining companies. So you'll have to judge for yourself, uh, about my credibility to back up my comments and beliefs. BM-43

I've personally visited nearly every uh, gold mining operation in the western United States. And after doing that you get a feel for companies and people who are good operators and follow good environmental stewardship and those who don't. My father taught me that when you get into something that you're unsure of and don't fully understand, always fall back on the people. The kind of people that are involved will tell you more about something than anything else. So based on my experience, Placer Dome's track record for environmental stewardship, my point is that the citizens in Nevada should take comfort in the fact that a company like Placer Dome is involved in this project. It bring in good science and competent people with high environmental standards and people who've lived, worked, and cared about Nevada for years and years. I'd like to offer a couple of examples to support my beliefs. Uh, in 1992, Placer Dome's Bald Mountain project (BLM's tape ran out)

award by the committee for their world class research and development into environmental technology to protect ground water. They generously shared their expertise with mining companies around the world so that all could benefit. They employ a full time environmental manager, Bill Upton, to see that their operations meet all the requirements as a very minimum. Bill, Bill is the chairman of the NMA

Environmental Subcommittee. He has a sterling statewide reputation and an emerging national reputation. Not all the mining companies make this investment. And I feel like Placer Dome should be congratulated for that. They've been in Nevada for nearly thirty years. Both Art Walsh and Quayle Lusty have been in Nevada for a long time and were involved in the McDermitt project north of Winnemucca. Placer Dome has a billion .....Placer Dome, Incorporated, the parent company, is a billion dollar company which has the talent and expertise and resources to run the project correctly. The company goes back many decades, they're not fly by night, they have the resources to deal with uh, issues that might arise. One example that I, I think sort of speaks well for the company, is they have a project in Montana. And they saw some movement under some of the buildings. They got on it immediately, they shut down the operation which was generating over a million dollars a day in revenues for the company. I think most of us would have hung on until we were forced to shutdown and incur that kind of financial penalty. But they did the right thing, they understand and are fixing the problem. Now that they want to resume operations, they're seeing all kinds of barriers pop up that they, towards restarting, that they would not have had to face had they tried, had they tried to continue to run and not done the right thing. So in summary, regardless of how you feel about this project, it should be recognized that this project will benefit from having a company that's competent and has concerned people, and has a high environmental standards that Placer Dome has. The Pipeline project will be enhanced by their involvement. I personally believe that an appropriate balancing of interest can be achieved leading to an environmentally sound project creating value for all the citizens in the State of Nevada. Thank you.

DD: Uh, on my list of people, Mr. Yountz is the last one. Is there some, anyone else that would like to comment. Come on up, state your name please.

RS: My name's Rick Strife, I'm speaking for myself but I am a hydrologist for one of the mines in the area, hydrogeologist, excuse me. I don't have a prepared speech but just to comment on some of the earlier comments. Uh, I work at Echo Bay and we've not experienced the calcium carbonate sealing the ponds up. They will seal the first few ponds will act as settling ponds, and then the later ponds will seal over time, so that there maybe require additional ponds. BM-44 Uh, as far as nobody ever predicting water rates correctly as far as those rates being predicted low, Echo Bay originally predicted that ..... would pump 45,000 gallons a minute. That estimate has gone down since that time. Uh, we now estimating 30,000 gallons .....so in not all cases have mining operations had to bump their numbers up, they've also come down. BM-45 Uh, the local aquifer characteristics uh, are unique to each area. You can not compare Cortez to Newmont, Barrick, or Echo Bay. You have to look at the individual site. Uh, as far as the effects on the Humboldt River, I think what we're ignoring is the vast amount of water stored in the alluvium gravels between, uh, between Cortez, and twenty-seven miles to the river. That acts as a large buffer ..... dewatering operation that ocurs locally at Cortez as far as uh, Cortez affecting the river, I think that it's more than adequately buffered by the amount of water that's stored in the gravel between the mine and the BM-46

river. Uhm, I think Cortez should be required to mitigate any uh, uhm, problems that arise from this dewatering effort. If they dry up a spring that somebody needs for watering cattle they should be required to mitigate that somehow. I think that's probably be addressed in the EIS. I'd also like a copy of the Sierra Club's response to this EIS and also Mr. Myer's response. Thank you. BM-47

DD: Anybody else this evening. Yes, sir. Mr. Miles.

?M: .....Lander County District Attorney. I made these comments at the Elko meeting so I'll make it very brief tonight to benefit folks here who weren't familiar with that. Approximately two and a half years ago, Cortez consortium came to the Lander County Commissioners and announced that they had a nice strike and they wanted to know what Lander County wanted in the way of development. And at that time the, the then current Board of Lander County Commissioners told Cortez that the principle concern, the County's principle concern would be to assure that no water would be used, leave the Crescent Valley basin other than what might be lose in production procedures. What the commissioners didn't want to see happen was a situation where literally hundreds of acres feet of water be dumped into the Humboldt River and flow all down to Lovelock and the Humboldt sink, as is unfortunately the case with some of our other mines. The people at the Cortez consortium, Placer Dome primarily, committed themselves to come up with a system that would meet what the Board of County Commissioners asked. And they, EIS, that EIS indicates that they have met that commitment. What they have proposed to do is a system that will conserve and recycle back into the aquifer as much of the water as possibly can be done given today's technology. There certainly will be some evaporation loss, and that's inescapable. If we're going to mine at all, I think mining probably is a good thing for the community, for the county, certainly it would be a financial benefit for the county. And I think that what Placer Dome has proposed to do as stated in the EIS is a uh, a reasonable compromise between concern over water and the environment and uh, producing the mineral resources that are available to us in this community. Uh, there's one thing that hasn't been said tonight that perhaps should be noted. That is that Nevada State Engineer and Nevada State Water Law provides for protection for entities that might be adversely affected by pumping. Uh, the state law provides that a current water user has to accept what the law calls a reasonable amount of lowering of the water table by another user. And if that, if the water table is lowered beyond that reasonable amount, then the affected party is entitled to compensation. That does not necessarily mean that a uh, a artisan well is going to continue to flow artisan. It may have to be pumped, and state law permits that. If uh, if springs are adversly affected then some sort of a, of a compensation has to be provided. But this is not a matter really for the Bureau of Land Management. Water law in the west, at least so far, is as for a hundred and fifty years been the province of the State. Feds are currently trying to change that. Secretary Babbitt clearly is ..... of control over western water, but so far, western water is controlled by the states, and it is the states not the Feds, who will control the affect of the dewatering of this particular project. Thank you very much. BM-48

DD: We're a little over our allotted time, was there anyone else that has any comments about the uh, DEIS. Yes, ma'am. Heidi Blackeye.

HB: I wasn't gonna get up and say anything because I already gave a presentation, my oral comments in Reno. I'm with Citizen Alert Native American Program which is located, a we're an environmental watchdog for the Great Basin Tribes, and uh, we, uh, work with Citizen Alert which is a statewide organization, that's been around for over twenty years. And uh, it was started by two women who ..... legislature..... for those Yucca Mountain ..... depository. And uh, I'm not, I'm not here ta uh, uh, you know, uh, I'm concerned about jobs too. And I'm concerned about water. I don't know if anybody has, has, remembers that here we had a nine year drought. And water's our problem. The owners of the mine don't even live here, they're not even from here so if they have any problem the can just move away. They probably live here temporarily. But uh, what I wanted to comment on was that uh, the reason why our organization was started was because the government, multi-corporations, institutions, schools, whatever, relies on public ignorance because they don't have to the information to make the right to make the right decisions ..... future generations. And so uh, what I'm up here for is, is to ask you if you have any questions or concerns or anything, you can ask me, I have fact sheets in the back and we also have a facts sheet on the environmental concerns regarding Cortez. And uh, you know, I, I'm not in, I, I just, the only concern that I have is for the future generations. I'm here, and I started in these, uh with this organization I was very young, you know. And I would rather be out having a good time and uh, but I'm not because I care about, you know, the future generations. And so if you do to you should seriously think about this. If, if you want mining to stay in Nevada, then you have to ensure that there's gonna be environmental safety regulations for everyone. And because Cortez does not follow the environmental safety regulations and they're telling us that they are, they're not. So, if uh, anybody has any questions they can come and talk to me in the back.

BM-49

DD: Ok. Anybody else this evening. Ok, once again, just want to remind you, you still have an opportunity to participate in this process by providing written comments to the BLM at this office, P.O. Box 1420, Battle Mountain, 89820 up until the close of business on November 4th. Thank you for your participation. And I just closed the meeting and we've got another question.

?? I was wondering do they have to be postmarked by November 4th (lost it, too much other discussion in background)

Public Hearing Comments BM-19 through BM-38 are repeated below in letter form

10/26/94

Oral Comments:
Cortez Pipeline Gold Deposit, Draft Environmental Impact Statement
Contact: Sierra Club Nevada Field Office/Alliance to End Mining Abuses, 786-8595

The draft Environmental Impact Statement for Placer Dome's Pipeline Project does not meet the intent or requirements of the National Environmental Policy Act. It also contains numerous errors and misinterpretations of the data that render the document insufficient to meet standards required for assessing the impacts of this proposal and alternatives to the proposal.

The EIS does not consider in detail any alternatives. Section 102(2) (E) of NEPA requires federal agencies to "study, develop and describe appropriate alternatives to recommended courses of action in any proposal which involved unresolved conflicts concerning alternative uses of available resources." 42 U.S.C. 4332 (2) (E). The CEQ regulations (40 CFR 1502.14) refer to this requirement as the "heart of the environmental impact statement" and demand that agencies "rigorously explore and objectively evaluate all reasonable alternatives" and "devote substantial treatment to each alternative considered. . . so that reviewer may evaluate their comparative merits." This EIS considers only the proposed action in detail, and includes the strawman "no action" alternative. Eleven alternatives were mentioned, but discarded after less than one page of discussion each. BM-19

This project will have a substantial impact on the surrounding groundwater system. Alternatives to the proposed project include a mixture of reinjection wells and surface infiltration systems, substitution of the mine water for agricultural water, or purchase and retirement of other water rights to compensate for the loss of the water from the pit.

Refilling the pit was not given serious attention. That alternative, although costly, is credible. Refilling some of the other pits in the area is also a potential alternative. Refilling to the water line would reduce the water deficit created by the pit and should have been considered. Because of groundwater problems, this alternative may ultimately be required. BM-20

The Water Management Consultant studies (WMC 1992b and WMC 1993) appear to have been the primary, if not exclusive source of information for the EIS. These studies were conducted prior to the BLM decision to produce an EIS for the mine, and were almost certainly directed and paid for by the mine proponent. This method of developing the most critical data for the major impact of the mine is fraught with conflict of interest. The consultant's continuing financial success is based on the acceptance of the report by the mine proponent, and to our knowledge, no consultant has produced data that gave a negative light on a Nevada project when the study was funded by the mine company. Because the Nevada BLM lacks staff able to review the chemistry and hydrology of a complicated problem like this, the public is left to trust a study bought and directed by the company. As discussed below, this study has errors, omissions and poor data BM-21

interpretation. As part of a rewrite of the EIS, the BLM should require a complete review and recommendations for correction of those studies. BM-21

Cultural Resources: The document inadequately addresses cultural resources. The cultural inventory is not even summarized. The statement that the EIS consultation identified no areas of traditional or religious importance to the Shoshones is totally unsubstantiated. BM-22

Threatened, Endangered and Sensitive Species: This mine will impact many springs in the surrounding area. Northern Nevada has a large diversity of endemic species of snails. Although many, if not most, of these snails have not been characterized in detail, they should be examined in the springs potentially impacted by this mine. This impact could be substantial and result in loss of species that have not even been described. Other organisms in these springs may be similarly impacted. No discussion was presented on spring wildlife, other than for those larger organisms that use the springs for watering. BM-23

With this mine, significant acreage of wetlands will potentially be impacted, both by direct removal of springs, but also by removal of water resulting in loss of those springs. What mitigation is being proposed for this loss? A 404 permit from the Army Corps of Engineers should be required, but no mention is made of this permit. BM-24

Reclamation Surety: No discussion is presented on discussion for calculating the bond. Although the State of Nevada cannot require a bond for heap decommissioning, the BLM is required to bond for complete reclamation. Although the one-sentence statement on the cost estimate does not provide any indication of what that bond covers or how it will be administered, it is unlikely that it will be sufficient for heap decommissioning if rinsing is required. How will the bond be held? Since the state does not bond for heap rinsing, the BLM needs to establish a separate bond, which should be a full bond for the costs and not allow for the "corporate guarantee" allowed by the state. The BLM should use standard federal methods for bonding. A clear and detailed discussion of how the bond was developed, who will hold the bond and what are the release criteria must be provided. This is central to assessing impacts. BM-25

Reclamation: The standards for reclamation are weak and have no basis in federal law. This company has a reasonably good record at the Bald Mountain mine, and has clearly demonstrated that more than 100 percent of the adjacent land productivity and diversity can be obtained. Why has the BLM gone for the low 50 percent standard? The Federal Land Policy and Management Act requires the agency to prevent "undue and unnecessary degradation" of the public land. Accepting anything less than 100 percent is unnecessary, since the 100 percent standard can be easily obtained. BM-26

Water Quality: The detection limit for mercury in Hole PL49 at 960 feet is greater than the national drinking water standard. No units are included on that table. We are surprised that such a strong statement on the water quality expected to be BM-27

reintroduced in another groundwater system is made with data that contains errors and omissions. But in general, drinking water standards are exceeded for fluoride and TDS. Selenium standards are nearly exceeded, as are mercury concentrations in several cases. If one assumes a 110 percent evapoconcentration factor, i.e. 10 percent of the water evaporates from the infiltration ponds, the concentration of mercury and selenium is increased in water that actually enters the groundwater. BM-27

Groundwater quality in reinfiltration area: The EIS should simply state that the law will be followed. Water cannot be discharged to groundwater that will degrade groundwater. If they cannot economically treat the water, they do not have a mine. The very serious problem that exists in this discussion, as in other parts of the EIS, is that vague statements are made to protect the environment, without any real quantitative enforcement standards. The BLM in this case has released a document for a project that is likely to violate state and federal law. BM-28

Pit Water: The EIS states that "NDEP regulations prohibit creation of an impoundment which has the potential to degrade groundwater as a result of mining below the water table." But the rest of the discussion on Pit Lake Water Quality (4-39 and 4-40) appears to be no more than a hope that the water quality will somehow be fine. The EIS indicates that PHREEQE was used to model the pit water quality, but gave no specifics on how that was accomplished. The inference is that this model successfully can model pit water quality, which is a distortion of what it can do. PHREEQE does not work well with the trace minerals, many of which are the toxic contaminants of greatest concern. It is thus helpful, but in no way will it model post-closure pit water quality with any reliability. BM-29

Based on the data in appendix C, the water quality in the pits is likely to be poor. Simply allowing for evapoconcentration of contaminants, water that is already poor will be made worse, and clearly will be a source of contamination to groundwater downgradient. Fluoride and TDS standards will almost certainly be violated, and far exceed the "potential degradation" standard. It is thus illegal to allow this pit to remain as a lake, based on the data in the EIS. The bond should thus include sufficient funds for refilling the pit, and remediating any groundwater contamination that is likely to occur.

Dewatering: The Pipeline project must not be permitted without a complete study of its effects on the overall surface and groundwater systems. The dewatering required by the Pipeline Project must not take place until the state of Nevada and the United States Geological Survey have determined the cumulative impacts of mine dewatering along the Humboldt River Basin. BM-30

Testimony for the Pipeline Project

Tom Myers

My comments will focus exclusively on the hydrology of this project, including the groundwater modeling effort, effects on the Humboldt River, and impacts on water rights and riparian systems in the Crescent Valley. I have reviewed the DEIS and the summary of hydrology provided by the BLM. My detailed comments are included in the hydrology section of comments to be submitted by the Sierra Club.

First, in general the groundwater model as described in the hydrology summmary is inadequate. The model was run only for 10 years till the end of mining, yet statements have been made that there will be no effect on the Humboldt River. Effects will not occur until after the pit begins to refill, so the model is inadequate to assess the longterm effects. Also, redistribution of water in Crescent Valley after pumping ceases could change the predicted drawdowns in local wells as the pit begins to fill. Finally, there is no sensitivity analysis of the aquifer properties performed to determine the precision of the estimates. Because aquifer properties are determined based on just

BM-31

BM-32

two, overlapping pump tests, there should be more concern with accuracy of these estimates.

BM-32

I recommend the BLM obtain review by independent hydrologists with credentials in groundwater modeling. Of the three consultants retained by the BLM all have substantial industry background, but only one has published substantially in peer reviewed literature, and it is not in modeling. The others have published almost not at all.

BM-33

The DEIS states there will be no effect on the Humboldt River. However, the pit will be excavated to more that 400 feet below the river level and there is very little recharge or inflow to the Crescent Valley. Both of these factors suggest that, with the massive deficit to be created just by the open pit, the Humboldt River will become a major recharge source for the valley. Since the model was not run to simulate pit refilling, there is no justification for the statement that there will be no effect.

BM-34

Impact on existing water rights are likely to initially be slight. But, the impact longterm has the potential to be major.

BM-35

First, the open pit itself creates a 150000 acre-foot deficit that cannot be mitigated by reinfiltration, even if the basins work perfectly. Mitigation does not work because the pit is effectively one large void. Prior to mining and dewatering, the pit was mostly rock, after mining it will be 100 percent water. Only 1500 acre-feet will have been removed and possibly recharged from the volume of the pit. As already stated, about 150000 acre-feet will go into refilling it. This will create a deficit requiring many years to make up at the low recharge rates in the basin. BM-35

Second, evaporation from the pit will be about 5 percent of annual recharge. Combined with other pits in the valley, there will be a long-term, 15 percent deficit created in the valley. There is no way to mitigate this effect short of stopping free water evaporation. BM-36 BM-37a

I have expressed doubts about the usefulness of mitigation by reinfiltration. First, mounding of groundwater increases the very low gradients toward the discharge end of the valley by 200 to 400 percent. According to Darcys law, this must increase flow from the basin. Neither the summary or DEIS provide output of the discharge BM-37b

from the valley to the Humboldt River; rather, they just state there is no effect. Just based on physical principle of groundwater hydrology, I have extreme doubts about this statement.

BM-37b

Second, the groundwater contours presented in the DEIS and summary for various pumping and recharge scenarios show a much larger drawdown cone than groundwater mound. The mound has a volume less than 20 percent of the drawdown cone. In other words, even after accounting for different storativities, the model results themselves do not justify the statement that all water remains in the basin.

BM-38

In summary, the DEIS inadequately predicts the effects of dewatering on the Humboldt River and local water users. The basin is too complex. I recommend this project not be permitted until the proper studies have been completed to adequately predict the effects of this project and the cumulative effects of all mining in the Humboldt River basin.

RESPONSE TO COMMENT BM-1

As stated on page 4-70 of the DEIS a right-of-way would need to be granted for the relocation of Lander County Road 225.

RESPONSE TO COMMENT BM-2

Comment noted.

RESPONSE TO COMMENT BM-3

Comment noted.

RESPONSE TO COMMENT BM-4

Comment noted.

RESPONSE TO COMMENT BM-5

Please see related response EL-22.

RESPONSE TO COMMENT BM-6

Please see related response EL-14 and the first paragraph of response EL-17.

RESPONSE TO COMMENT BM-7

Please see related response EL-17.

RESPONSE TO COMMENT BM-8

The 5-to-7-mile extent of drawdown is measured from the center of the pit, not the project area boundary. This extent was based on preliminary modeling that used conservative assumptions of only two infiltration areas and a pumping rate of 56,500 gpm. Expanded model results are presented in the FEIS Section 4.4.3 that show results based on infiltration distributed at seven sites throughout the infiltration band which results in a smaller radius of drawdown.

RESPONSE TO COMMENT BM-9

Cortez has conducted seismic monitoring of shot-hole blasting during mining operations and determined that measurable seismic ground waves only occur in close proximity to the open pit location. Valley fill sediments limit the area over which seismic ground waves from this type of blasting can be detected. For a limited period during stripping of the Crescent Pit (new small pit referred to in comment), surface blasting of large boulders occurred, which could have produced noticeable air concussion effects distant from the mine area. This practice has been discontinued. Cortez Gold Mines will work with the Dean Ranch to determine whether these impacts are caused by the Crescent Pit operations. If they are, mitigation measures will be developed to minimize these impacts.

RESPONSE TO COMMENT BM-10

Vibrations are not expected to affect groundwater flow in alluvial aquifers. It is possible that wells near blasting sites may become clouded or silted; however, the buffer around the proposed pit will prevent or limit impacts to private wells. Some impacts to local groundwater flow from vibration may occur near the pit in bedrock flow systems, although there are no bedrock wells known to be located within 5 miles of the proposed pit. These impacts would be monitored and, if necessary, mitigated. See related comment and the Cortez response CV-12. It would be difficult to relate the cause of impacts directly to blasting; however, if groundwater quality or quantity is affected, the mitigation measures described in Section 4.4.5 would be implemented.

RESPONSE TO COMMENT BM-11

Please see related response EL-13.

RESPONSE TO COMMENT BM-12

The area of Crescent Valley in the FEIS analysis is 481,000 acres (752 $mi.^2$) as stated in Table 3.4-3 of the FEIS.

RESPONSE TO COMMENT BM-13

Please see related response EL-17.

RESPONSE TO COMMENTS BM-14 AND BM-15

Please see related response EL-22 regarding uncertainty in predicting groundwater impacts. Also, note that the pumping rate of 56,500 gpm was used to assess potential impacts, while the expected dewatering rate is 30,000 gpm. Because of the infiltration system, larger pumping rates do not necessarily result in more severe or extensive impacts. The hydraulic characteristics of the gravelly alluvial aquifer have been considered in the assessment, as discussed on pages 3-20 and 3-21 of the DEIS.

RESPONSE TO COMMENT BM-16

The infiltration ponds are obviously not designed or sized to function as evaporation ponds. Please see related responses F-16/17.

RESPONSE TO COMMENT BM-17

It is acknowledged that if a large part of the water pumped is not returned to the aquifer, the groundwater impacts would be much more severe. The project and mitigation measures have been designed to reduce the impacts in large part by using selectively placed infiltration sites.

RESPONSE TO COMMENT BM-18

Dewatering at Barrick's Goldstrike Mine tapped an extensive, high permeability, fractured carbonate aquifer. This resulted in the substantial drawdown at Dee Gold, which lies along the trend of the fracture zone. The Pipeline deposit also occurs in a fractured carbonate formation; however, aquifer testing and exploration data indicate that faults and the limited extent of the carbonate window act as hydraulic boundaries surrounding the Pipeline pit and would limit the extent of drawdown in the bedrock. The referenced Dean Ranch wells are completed in the alluvial aquifer and are downgradient from infiltration ponds that will limit drawdown.

RESPONSE TO COMMENT BM-19

Refer to Response to Comments C-2, C-10, I-4, and M-2.

RESPONSE TO COMMENT BM-20

Refer to Response to Comment C-10, and Section 2.4.2.3 (Alternatives for Pit Backfilling) of the FEIS for additional discussion of pit backfilling. Also refer to the technical report on pit backfilling that is discussed in Sections 3.0 and 4.0 of the FEIS.

RESPONSE TO COMMENT BM-21

Refer to Responses to Comments O-3 and I-5.

RESPONSE TO COMMENT BM-22

Please see related response I-8.

RESPONSE TO COMMENT BM-23

A springsnail survey was conducted during December 1994. No springsnails were documented at the seeps and springs that were surveyed. Section 3.6.3 has been revised to reflect this information. As discussed in Section 4.5 of the FEIS, springs and seeps in the area are not expected to be significantly impacted by pit dewatering. Because of uncertainties related to modeling the impacts, mitigation measures are proposed if monitoring indicates impacts are occurring. These measures are discussed in Sections 4.4.5 and 4.5.3.1 of the FEIS.

RESPONSE TO COMMENT BM-24

As discussed in Response to Comment B-23, no impacts to wetlands are predicted to occur. Mitigation of potential impacts to springs is included in Sections 4.4.5 and 4.5.3 of the FEIS. The reference to U.S. Army Corps of Engineers is not clear; however, Table 1.5-1 indicates the need for a Section 404 Permit for dredging or filling of wetlands.

RESPONSE TO COMMENT BM-25

Cortez Gold Mines has submitted a complete Reclamation Permit Application to both the NDEP and BLM. This package includes reclamation and closure of the heap leach facilities.

Prior to any approval, Cortez must submit a bond to the Nevada BLM for reclamation of the project. The amount of that bond must be agreed upon and approved by both the BLM and NDEP. Included in that bond is closure and reclamation of the heap leach facilities.

The DEIS provided an estimate of $6,580,804 (pate 2-41), Reclamation Surety). The FEIS (Page 2-46, again under Reclamation Surety) presents a figure of $7,573,024. The discrepancy

reflects changes to the amount as a result of discussions between the primary parties responsible for the bond: Cortez, the NDEP, and the BLM.

As a technical point, there is no known requirement under CEQ regulations for inclusion of a complete cost estimate for reclamation in an EIS. The BLM is charged with ensuring the EIS contains a complete analysis of the proposal, i.e., implementation through closure and post-closure if necessary and assuring the public that all pertinent permits, federal, state, and local laws and regulations are listed or complied with. By stating that a reclamation surety bond is proposed and must be in place prior to commencement of operations, the BLM has complied with its own policy requirements and requirements under NEPA.

RESPONSE TO COMMENT BM-26

The Nevada Interim Standards for Successful Revegetation include the following statements: "The revegetation release criteria for reclaimed mine sites will be to achieve as close to 100 percent of the perennial plant cover of selected vegetation communities or reference areas as possible. Unless extreme site conditions exist at the mine site, the release criteria should not normally be lower than 50 percent and would normally be expected to be 100 percent of the perennial plant cover or the selected vegetation communities." The proposed Pipeline Project is in a low precipitation zone (less than 8 inches annual). Cereal rye will be seeded along with crested wheatgrass as a temporary cover crop. The stubble of temporary cover crops provide protection and a firm seedbed for the grasses. Winter grains seeded late in spring or spring grains seeded early in summer fail to produce a grain crop, but grow fast and densely enough to offer good protection for seedlings of perennial seeded species.

According to the BLM Manual Supplement, Nevada State Office, a reclamation plan should include the following reclamation criteria: Reclamation plans should reflect the objectives of the land use plan and the requirement of the regulations to prevent unnecessary or undue degradation and provide for reasonable reclamation.

The BLM and NDEP will determine what the release criteria will be. Determination will be made during the period of reseeding and revegetation.

The reclamation success at the Bald Mountain mine is not directly comparable to the Cortez mine. The former is in a higher precipitation zone and, therefore, it is not appropriate to assume that the revegetation success achieved at the Bald Mountain mine can be obtained at the Cortez mine simply because they are under common ownership. However, the corporate philosophy for both of these mines is that state-of-the-art reclamation techniques will be used to ensure the best possible results.

RESPONSE TO COMMENT BM-27

See related responses I-22 and I-24.

RESPONSE TO COMMENT BM-28

See related response I-27.

RESPONSE TO COMMENT BM-29

See related responses I-17 regarding regulations pertaining to pit water quality and I-33 regarding use of modeling to predict pit water quality.

RESPONSE TO COMMENT BM-30

The USGS has recently published, "Potential Hydrologic Effects of Mining in the Humboldt River Basin, Northern Nevada." This document is incorporated and referenced in Section 3.4.4 of the FEIS. Please also refer to Sections 4.4.3 (Groundwater Inflow Into Humboldt River) and 5.3.4 in the FEIS.

RESPONSE TO COMMENT BM-31

Please see related responses I-46 and I-48.

RESPONSE TO COMMENT BM-32

Please see related responses I-45, I-46, and I-49.

RESPONSE TO COMMENT BM-33

Tom Olsen, Ph.D. (formerly of the BLM Technical Service Center, Denver, now with the Nevada State BLM office), has reviewed the expanded groundwater modeling effort described in the FEIS. Dr. Olsen has performed similar reviews for a number of other projects in Nevada mining districts. See Response I-5, which reflects Drs. Mink, Ralston, and Allman's qualifications and roles in the DEIS.

RESPONSE TO COMMENT BM-34

Please see related responses I-53 regarding volume of water to refill the pit, EL-13 regarding amount of recharge, and I-59 regarding potential impacts to Humboldt River. The expanded model results in the FEIS are used to simulate pit refilling. See related response BM-35.

RESPONSE TO COMMENT BM-35

Again, the implied pit volume of 150,000 acre-feet is not accurate. See response I-53.

The groundwater model has been expanded to account for 100 years after dewatering stops and to account for the volume of water to refill the pit (FEIS Section 4.4.3). The results show that the mounding created around the pit by reinfiltration will contribute to a relatively quick recovery of the water table and pit lake water levels. It is estimated that the pit water level will recover to about 93 percent of the pre-mining water level within 10 years after dewatering stops.

RESPONSE TO COMMENT BM-36

Please see related response I-56, which presents the basis for a net evaporation loss from the pit lake of approximately 361 acre-feet/year. This is only 1.5 percent of the 24,500 AFY annual recharge and 2.2 percent of the 16,000 AFY basin yield estimated by the State Engineer.

RESPONSE TO COMMENT BM-37a

Evaporation from the pit lake is considered to be an unavoidable commitment of water resources, which would be mitigated from a water rights perspective by transfer of certificated water rights. See FEIS Section 4.4.3.

RESPONSE TO COMMENT BM-37b

Because of the distance between the Humboldt River and the infiltration sites, the groundwater gradient near the river is not expected to change significantly. Please see related responses I-59 and EL-1. Also see the modeled water balance results on Figures 3.4-6 and 4.4-4 of the FEIS.

RESPONSE TO COMMENT BM-38

The volumes of water pumped and infiltrated have been accounted for within the model. Measuring volumes of the drawdown cone and mounds is not an accurate means to verify the model water balance. See also related responses I-42 and I-53.

RESPONSE TO COMMENT BM-39

Please see related response I-43.

RESPONSE TO COMMENT BM-40

Comment noted.

RESPONSE TO COMMENT BM-41

The comments and concerns are noted. Impacts to flows from wells and springs will be greatly limited by reinfiltration of water pumped to dewater the mines as discussed in Section 4.4.2 and 4.4.3 of the FEIS. The potential to contaminate waters is discussed in Section 4.4.4 of the FEIS. Mitigation measures are described in Section 4.4.5.

RESPONSE TO COMMENT BM-42

Refer to Responses to Comments I-21 through I-60.

RESPONSE TO COMMENT BM-43

Comment noted.

RESPONSE TO COMMENT BM-44

Comment noted.

RESPONSE TO COMMENT BM-45

Comment noted.

RESPONSE TO COMMENT BM-46

Revised sections of the FEIS cite data from several comparable sites. (See Section 4.4.4, subheading Pit Lake Water Quality Modeling). It is recognized that each site must be considered independently, but that certain generalizations are applicable.

RESPONSE TO COMMENT BM-47

Refer to mitigation measures for potential spring flow reduction in Section 4.4.5 of the FEIS.

RESPONSE TO COMMENT BM-48

Comment noted.

RESPONSE TO COMMENT BM-49

Comment noted.

PUBLIC HEARING COMMENTS – CRESCENT VALLEY, NEVADA

PUBLIC COMMENT MEETING ON CORTEZ GOLD MINES' PIPELINE PROJECT
DRAFT ENVIRONMENTAL IMPACT STATEMENT
Thursday, October 27, 1994
Ranch House, Crescent Valley, Nevada

Meeting was opened by Dave Davis with the BLM who is the project's team leader. After introductions, Quayle Lusty with Cortez Gold Mine made a presentation to introduce the project and the concepts involved. Upon completion, the floor was opened to questions concerning the presentation only.

Charlie Harper:

"Charlie Harper, we've got the log cabin out here on the other side of town. I see you bringing the power line in along the existing routes. I would like see you go back up to the big terminal up above here and work with Sierra Pacific to bring power to the people that are outside of town that don't have power. I realize that Cortez brought the power to this town, that's what made this town. But there's a lot of people, I've got like almost 30 or 35 names on my list alone, people outside of town that don't have power. Uh, if that power line didn't come down the existing route and came right down the highway, you could tap off on both sides all the way down and pick up a lot of people and do the community a service and bring the same power to you."

Quayle:

"We appreciate that comment, and, uh, we'll sure pass it on the Sierra Pacific.

CH: Good luck.
Unknown Woman: We've already done that.

QL: Unfortunately, we don't have a lot of control over what they do, Sierra Pacific will own this power line. Cortez is not even paying for it, other than we're, in order to get the power line built we have to sign a five year take or pay contract with Sierra Pacific. I'm afraid they'll route it where they want to. And I don't know..,

Unknown Woman: You have no input.

QL: ..we'll pass it on. The other comment is this power line will be much higher voltage than the existing one. It's gonna be a 120 kV line and the existing one is 60 I think. So it's gonna be a lot more expensive to tap off of that than it is, the one that's out here now.

Unknown Woman: Well, it's a hundred thousand dollars for us now....power so. I'm sure it would be, I'm sure it would, and that's only 4½ miles, so I'm sure it would be a lot cheaper. Just, just input, just input.

QL: You know better than I do. Are there any other technical questions? Yes, sir.

Jim Alves: I'm Jim Alves. I've got a question about your monitoring wells. You said last night there'd be between 50 and 70 monitoring wells around the pit. And my question is about your dewatering wells, are they going to be monitored for uh toxins and contaminates the same way your monitoring wells will be.

QL: Our dewatering wells, our uh, our dewatering wells, pumping wells, will not be individually monitored or sampled. We are obligated to meet drinking water quality for the water that's discharged or the water that's taken away from the pit area.

JA: So that then water will be tested.

QL: Those wells will all go together into a common pipeline or a common conveyance, that water will be sampled and tested periodically to make sure that it meets drinking water standards. Now, our permit with the Nevada Division of Environmental Protection, and our water rights require us to have that water meeting drinking water standards before we reintroduce it into the ground water.

JA: Are there time intervals between your testing, your sampling.

QL: Mark, do you know.

Mark List: Well, we expect, we haven't completed .....(couldn't understand him)

Dave Davis: Mark, can you speak up a bit please.

ML: We haven't completed the, that permitting process with NDEP yet, we haven't been in and discussed that ..... it would be at least quarterly intervals...water quality monitoring against our watering productions monitoring, maybe more frequent than that... In addition to the aggregate volume of water that ...water quality analysis ... monitoring ....we'd be monitoring a, uh ..number of ground water monitoring and observation wells that serve to draw down during the ....development ....additional pumping operations as well as compliance monitoring sites so there'll be..... probably all won't be on the same schedule, so there could be as many as a weekly intervals .....ground water monitoring.....

JA: Basically, one of the questions I was worried about is if there was a contaminate that hit the soil or hit the water, I was curious how, how often the sample would be taken because at 30, you said between 20 and 35 thousand gallons a minute being pumped, that's a heck of a draw on the system, if there was a contaminate, sure enough the dewatering wells would probably pick it up. I just wanted to make sure it was caught before it was pumped, as you said three to five miles away and then just dumped back

into the system. I was just curious about water quality and drinking water....

QL: Were there any other questions?

Carrie Dann: I'd like to know..

QL: I'm sorry, would you stand up and identify yourself please.

Carrie Dann: I'd like to know why Cortez will be transporting water, bottled water to drinking if this is drinking water quality.

QL: I'm sorry, I don't understand your question.

Carrie Dann: In your EIS statement it says Cortez, the Pipeline project will be drinking bottled water. If it's drinking water quality, why can't you use that water.

Unknown man: You're buying water from the bottled water company, why can't you drink the water you're taking out of the ground, is what she's saying.

QL: We probably could but there's, there's health or state, the health department, I think, requires you, if you have more than 10 employees or 20 employees or something like that they require you to put in a complex water treatment plant, chlorination and all that other stuff, regardless of what the water quality is, they won't let us just use the water coming out of the ground even though it does meet ground water standards. Is that right Mark? We looked at the costs of that and we decided that, hey it was just cheaper to bring in bottled water than it is to build this costly water chlorination plant, and nobody likes to drink that chlorinated water anyway.

ML:: ..... permit to do it.....

DD: Mark, excuse me, could you come up front, we can't hear you. Mark. Yo, Mark. Could you come up here and speak please.

ML: In order to operate that sort of system at Cortez, we would have to meet certain because of the number of people that are employed there and the number of service locations we have, we'd have to acquire a uh, a water, public water supply permit, which we had in the past at Cortez, but we were unable to maintain because of the complexities of EPA regulations on these, uh, water systems. Uh, I don't know if you're familiar with what's going on in Elko, but it's pretty routine for the Elko Municipal Water System to have to send out notices because they have not been able to meet the bacteria standards in the water. So we did a cost analysis on operating a system, a very rough one, but it pointed pretty heavily at buying, it was less expensive, more favorable economic, uh, position to take if we just purchased water for drinking water purposes.

Unknown Woman: We just got one of those letters from Elko last month. It's not uncommon there in Elko, every, 'bout every three, four months we get a notice that our water better be boiled for awhile because it's no good. It's wonderful.

Carrie Dann:

In talking about uh, oh, costs, did I here you right yesterday, that uh, the Joint Venture is paying also for all of the people that is working..(someone coughing) like your BLM employees and all the other people or are the tax dollars paying for the BLM employees out there that's monitoring whatever is going on.

DD: We have a normal budget that we prepare for congress nation wide every year, and on a day to day basis, that comes out of the national budget that you hear so much about in the congressional debates and so forth, that finance that. Cortez did supply, because of the budget cuts, you're aware that, uh, under the Vice President's performance review there even revising the federal government and they're reducing staff, they're reducing budgets in order to attack the deficient. Cortez did supply a, an amount of money that has enabled us to travel to meetings, for air travel, per diem, uh, printing of the EIS and overtime for nights like tonight. But beyond that, this is tax payer dollars for the most part. Now, Cortez, under the Council on Environmental Regulations, in order to meet their time frames, CEQ, that's Council on Environmental Quality, does provide an opportunity for all proponents whether it's a power line, a new power plant, a mine, a, a highway, to contract for the Bureau, in this case, this federal agency, to pay a third party contractor to prepare an environmental impact statement. And there's a very rigorous selection process that we went through, we select the contractor, all's Cortez does is pay for it. That contractor is working under our direction, completely. Cortez is given courtesy copies of everything, but we are in complete control of that document. The only say Cortez has is the financial obligation, and they signed an MOU, a Memorandum of Understanding, up front agreeing to pay for the services with the understanding that the contractor was working completely under the guidance of the Bureau of Land Management. That also, I might digress one step further, uh, we also contracted, we have, at the time, we only had one hydrogeologist in the entire BLM, that was available, and he was booked up, uh him name's uh, Dr. Tom Olson, out of our Denver Service Center. He was booked up on hazardous material sites in Arizona, and Barrick and couple other mine sites around the country. He was unavailable, Cortez at our request, did supply a fund, and we selected a , a world renown hydrogeologist, Dr. Leland Mink, he's the director of the Water Resources Institute at the University of Idaho in Moscow, to provide the peer review that Quayle referred to earlier and Tom Myers referred to last night. Cortez, again, did pay for that, but again an MOU was signed that the only input that Cortez had for the entire thing was they're paying for the contractor, because we don't have the expertise, those people, Dr. Mink and two associates, were working for the BLM completely under our direction and for our purposes.

Carrie Dann: Were they also working for the Joint Venture or the Pipeline Project?

DD: No, ma'am. They had to sign a conflict of interest statement. There is absolutely no conflict of interest, they have absolutely no interest in this project whatsoever. We made that, that is a criteria for all contractors and subcontractors working for the BLM. They have to file, under the Council on Environmental Quality Regulations, they must file a statement of no conflict of interest.

QL: Yes, ma'am

Unknown Lady: .... Crescent Valley resident. In regards to dewatering, if you should dry up our wells by some chance, what recourse do we have or what will you do for us...

QL: We are, we are obligated under our state water right permit, the State Engineer's permit, and the NDEP, Nevada Division of Environmental Protection, and I'm sure the final Record of Decision from the BLM will include a stipulation that if we have adverse effects on the wells or waters of the Crescent Valley residents, we will mitigate those impacts. In other words, we will take some steps to correct that situation. Now, it depends on what the situation is, how we go about doing that, there's lots of things we could do to make it right with you. We could deepen your well, put a new pump in for you, uh, we could, if you're close to the pit or close to the water supply, we could make up that water with our own water, or we could simply give you some money to take care of it yourself, but we would be obligated to mitigate those effects, impacts.

DD: Let me digress one point, a minute on that please. What the Bureau's Record of Decision would state is Cortez must comply with all applicable Federal, State, County, and Local ordinances, laws, and regulations. The issue of water rights under, is under Nevada statute, and they have, I'm not a water rights expert, but they have very strict interpretations of what a new user, and what kind of impacts that new user can have on a valid existing rights user. And that's the way we would handle it from the Bureau's standpoint, they have to comply with State law. Ok.

QL: Yes, sir.

?? What you were just talking about with the ranchers.

QL: Stand up, please.

?? Would the ranchers be included as residents of Crescent Valley?

QL: I believe they are residents of Crescent Valley, are they not?

?? So would the Dann's also have rights such as those...

?? Absolutely.

DD Any valid existing rights.

?? And um, so if you acknowledge that the Dann's are there, why won't you acknowledge they're Shoshone?

General confusion:
QL: I'm sorry.
?? Huh?
Helen Mary: Excuse me.
Mark? This is not suppose to be political.
DD: Wait, wait, wait, wait. Let the man speak. I'm sorry, what's the question again.

?? The question is, if they're, if they're recognized as ranchers, why are they not also recognized for their cultural heritage.

DD: OK, now I'll jump in. Uh, we've address this about five time, and I'll address it again tonight for the record. It isn't that we don't recognize the Western Shoshone cultural heritage. There is an issue between the United States government, the Bureau of Land Management, in my opinion, is caught in the middle, and the issue of the Ruby Valley Treaty of, somebody please help me, 1863? (confirmation from audience) thank you ma'am. This forum, the National Environmental Policy Act, the Bureau's own regulations in implementing legislation, does not give us any leeway to address this issue other than the normal consultation that takes place through the Native uh, American Indian Religious Freedom Act, Section 106 of the uhm, National Historic Preservation Act uh, NACRA, I'm sorry I can't remember that acronym, but a number of laws require consultation with the Native American folks that are involved. It's not a question of recognition, either by Cortez or the BLM. There's a broader issue here, uhm, the 1863 Treaty, and the U.S. Government and the Supreme Court ruling. And what I have said, speaking for the Bureau, is we have no legislative mandate to implement or negotiate that, and it is outside the purview of the National Environmental Policy Act to address that. This is an issue that needs to be addressed between the United States government, that is probably the State Department or at least the Secretary of Interior's Office, and the Western Shoshone. Thank you.

Heidi Blackeye: I have a comment to what you said..
DD: Heidi, if this.....
Heidi: ....no, this is relevant.
HB: I work with the Citizen Alert Native American Program, and we're an environmental watchdog for the Great Basin Tribes. And I just wanted to comment, because you said that, you mentioned Native consultation. But there was no Native consultation, if anybody's seen the Draft Environmental Impact Statement, it lists from a previous project, that Cortez expan.. , which was the Cortez Expansion Environmental Impact

Statement, it mentioned, it does not mention Pipeline project. The Pipeline project does not exist in the project that they consulted with the Native American's with. So...

DD: Go ahead.

HB: So there was no Native consultation on this Pipeline project.

DD: That really is a comment for the EIS, but I'll let you finish.

HB: Well, you just said, you just said Native consultation, and none was done....

DD: Well, the gentleman asked a question and I responded to that.....

HB: Well, I have to say something

DD: Yes, ma'am, I understand.

HB: I'll sit down now.

DD: Again, this is, at this point, please, limit technical questions about the proposal, if you'd like clarification about the dewatering, the tax base, whatever, please limit it that right now.

QL: Yes, sir.

Larry Jones: Larry Jones, Crescent Valley resident. On the leach pads, when you get done so to speak, once the project is completed, what happens to the leach pads, uh, there's gonna like, if it would rain or whatever, it would come through and still leach out, the cyanide that you use, or what's the story behind that?

QL: Our, our, our permit with the Nevada Division of Environmental Protection requires us to rinse the heaps when we're finished, that is, we stop putting chemicals on, we rinse them with water, we flush them out, until essentially all the chemicals are gone out of them, at that point, once they're certified to be clean, and we have to actually we have to drill and test them to actually prove that to the State, then they will let us reclaim them, just like we do waste dumps, grade out the sides, cover them with top soil or alluvial growth material and re-vegetate. Yes, Sir.

?? Yes, uh, how far out do you intend to uh, uh, monitor the water, I was watching the show on your slide there. I mean are you gonna to monitor .....(someone coughing) map ... EIS study, are you gonna monitor it further out, who's job is that?

ML: Well, our monitoring program for the basin itself and the effects that, that are, uh, developing there from the open pit dewatering would be built upon that, that general diagram that you saw with the 20 odd initial monitoring points. Those points were selected based on the ground water model that we built from the entire basin to analysis the system. There would be a number of additional, uh, monitoring wells that would be constructed, in fact some of those have already been built, there's about nine that we've already installed and another three being drilled right now. But, in addition to that, as the program is initiated, a number of monitor wells would be added to that grid. And it would be a flexible program as we gain information from those wells, we may drill additional wells farther out, based on what we see happening from the, from the uh first

monitoring wells. It's hard to say exactly how far, because there wouldn't really be any limit to that. If it was necessary to place wells on the opposite side of the valley, that's what we could do. And we'd certainly do it. This thing isn't just going to happen immediately, it, as the pumping starts we'll slowly,..... have an affect in the aquifer system that will be carefully monitored with the number of wells, and then the result from that will help us determine where to locate additional monitor wells at, as well as where to optimize the location of our pumping wells, to keep the pumpage down to a minimum. So, it, it's hard to say exactly how far out they'll go, they may be located uh various locations throughout southern .....

?? Do you feel that there any drainage .. being this valley lower than some of the other valleys, into the other valleys.

ML: Well, there's actually under the natural conditions that are occurring with the amount of pumping that goes on over, over the last twenty or thirty years in Crescent Valley, there is a natural head difference, water table difference between Carico Lake Valley and Crescent Valley of about 6 to 8 feet. Uh, uh, that is a condition that we don't expect to see change in this pumping operation.

?? How 'bout to the west or east of this valley.

ML: Well, we'd, there, the um, from the hydrologic analysis we've done, we, we firmly believe that this basin, the activities were run.... taken as basin, aren't going to affect any other basin. In fact, they'll have, have a fairly localized impact due to the requirement to re, reinfiltrate uh, the 28,000 gallons per minute of the 30 thousand gallon per minute pumped. So, in the, in simple terms, the ranges act as barriers that isolate this basin from other basins.

?? If you can't infiltrate.

ML: Well, we've, we've, it's not just a, a guess, we've run uh, some test work for 6 weeks at 2300 gallons per minute, which is a fairly substantial pumping rate, and got excellent results. When we designed the system from that, we used some safety factors to scale that down, uh, uh, say for example, we've got an infiltration rate of seven gallons, or seven feet per day from the six week pump test we designed at one foot per day, which would be a conservative design adjustment to make sure that there was sufficient ponds available, sufficient area available that, that,uh if conditions changed slightly it still, get, get a effective infiltration program underway quickly. And, and there's, there's larger scale operations now demonstrating that similar settings, it's, it's quite effective, and a successful way to manage the pumping and discharge system ....open pit dewatering program. One is Echo Bay and the other is the Sleeper Mine in Desert Valley.

DD: For the record sir, you're Mr. ??

Leroy Echiverry.

DD: Thank you.

QL: Yes, sir.

?? Do you have a consumptive use permit, for your water right you get 2,000 gallons per minute to use and reinject the other 28,000.

Mark: Yes, we're, our permit.....

QL: Would you stand up and identify yourself, please.

Gary Woodbury, Deputy District Attorney, ??? County.

ML: Yeah, the way our permits have been issued and signed off on by the State Engineer, there have been no additional appropriations granted under this, under this dewatering permit, the consumptive use portion of that 30,000 gallons per minute, or right now it's approximately 15,000 gallons per minute, the permit is written for up to 2,000 gallons, gallons per minute. There's 15,000, 1500 gallons per minute, excuse me, 1500 gallons per minute have certificated water rights with them. In other words, those, those consumptive use permits already exist and have been granted for this basin. They're not new appropriations, they're, they're they're quite old certificates.

GW: You bought someone else's certificates?

ML: We had some old certificates and we did purchase some additional irrigation rights which were transferred into....

GW: So how many total gallons per minute or cubic feet per second do you have consumptive use on?

ML: Right now it's the equivalent of about 1500, 1500 gallons per minute, but the permits are written to allow us, if we can acquire additional rights, to go up to 2,000 gallons per minute, in annual duty terms, that would be 24 hours a day, 365 days a year.

GW: Then, what, what, what, how, what is that water consumed in doing, what ....where do you..

ML: It's evaporated loses, we can't discharge, these are zero discharge facilities. We wouldn't be able to operate very long if we didn't.

GW: The mine itself doesn't consume any water.

ML: Well, the water retained in the tailings, the rest of the water eventually is evaporated, in the long term the water that is retained in the tailings impoundment also desiccates and evaporates. So, there is no discharge from the consumptively used portion of the water. It's lost to the evaporation.

GW: What I understood you to say, was that you have a 30,000 gallons a minute that you would ultimately pump out of the, to dewater.

ML: That's correct.

GW: Alright, then I understood that you, now you say you have a consumptive use you could use at some point, maybe 2,000 gallons a minute in the mine operations consumptive use then you're obliged to put the other 28,000 gallons per minute to be injected 3 to 5 miles away.

ML: That's correct.

GW: Is that correct?

ML: That's correct.

GW: Ok. So my question is, on that, at least at this point is that 2,000 gallons per minute, that, that is used in the mine operation, is that on the leach pad, or is it doing something else?

ML: Exactly, it would be... the leach pad would be a ....

QL: It's tank loses, it's pond loses, it's on the leach pad, it's total circuit loses, tailings pond, dust control, water trucks, everything, that's a, it's all evaporative loses but it's, it's consumed in the operation.

GW: And 1500 gallons per minute was an old permit that you had from the State Engineer.

ML: It's a number of permits. A lot of, the greater portion of that being an old historic certificated water right from the Gold Acres well system.

GW: And the 500 cubic, er, 500 gallons per minute is a new water right.

ML: It's not a new water right, it's, they are irrigation rights that were purchased.

GW: From someone else in the valley.

ML: Yes, that's correct.

GW: Recently.

ML: Yes, within the past few years.

Carrie Dann: Excuse me, I must be kinda dumb, I'm trying to keep up on this, uh ... talking about these water rights. May I ask a question. On each well, how much is granted to each well that is existing on the Pipeline project to pump up to 2,000 gallons per minute.

ML: I can understand why that would be confusing. Um, we had a hearing here when we were going through the water rights permitting process, uh, and that was explained at that point. What the State Engineer has granted us is a blanket appropriation defined by public land subdivision, an area around the Pipeline deposit, and, and, those, those permits that are authorized are, are defined by quarter section areas in the area that this permit was granted for. It's rather confusing but we are, we would be allowed to pump up to 30,000 gallons per minute.

CD: From one well?

ML: From any number of wells and any location within that blanket area that was approved. Similar to your water rights filing for a pumping well where you describe it by quarter, quarter section, and, and, and uh, and possibly you stepped out and drilled another well adjacent that. To, to, in order, in order to allow that, to accept the needs of a mine dewatering program, special provisions had to be developed with the State Engineer so that all these filing that would normally be filed could be consolidated to an annual report that shows the location of each of these wells. And the amount of pumping, the discharge rates, instantaneous, and, and annual rates, that sort of thing.

CD: So, if you purchased some of these wells that go up this valley here, does that mean, do you not have the water rights from down here and you can transfer it up there to the Pipeline project?

ML: It means that you can try to transfer it. The State Engineer will receive an application on it, only the State Engineer can make the decision on whether that right can be transferred or not.

CD: Ok, then another question is, where did you purchase these water rights?

ML: We purchased the irrigation...

CD: Other than, other than the Gold, you know Gold Acres water rights, what other water rights did you purchase?

ML: The additional rights were purchased from the ??? McCoy property, the Robertson property,

CD: Where are they located?

ML: Uh, I, I can't remember the legal description, but the McCoy property is just to the south, uh, west, er, southeast of John Filippini's hay field, it's in a, an adjacent half section there. There was two water rights on that, irrigation rights certificated. There was an additional right we recently purchased uh, from the ???? property. I'd be happy to provide you with the abstract of that, if you'd like to see that.

CD: That would be nice.

ML: Ok.

Heidi Blackeye: Uh I have a question about the mine dewatering, I wanted to ask you if you studied the long term effect after you stop mine dewatering in the basin. How, uh, what will be the impact in that area and what will be the decrease in the water table, how much will it decrease.

ML: Well, it would, I guess it depend's on what frame of time you're interested in talking about. Uh, there was a hydrodynamic study done on the rate of which the pit would fill, there, and, and, it, and accompanying that study was a chemic.., hydrochemical study on the reactions that would take place within the pit, to determine the ultimate water quality of the pit. In addition there was an analysis of, of the recovery of the aquifer system when the pumps are shut down.

HB: So, can you give me a number.

ML: A number for what, what number do you want?

HB: How much would the water going to decrease, I mean?

ML: There, there, essentially there will be no, in, in long term there would be no change to the water table system. The open pit, if your concerned about .....the evaporative loss from the open pit.....

HB: After you mine dewater, that's when the effect would happens,...

ML: Well, that's what Tom Myers might say..

HB: No, that's what a lot of people say...

ML: We'd be happy to discuss this with you in greater detail....

Dave Davis: Wait, wait, time out, **TIME OUT!!!!!!!!!!!!!!** I'm willing to tolerate discussion, not argument. Let me make it perfectly clear here. We have very diverse group, we have a lot of differentia.... differ... different opinions here. This is not a forum for argument. We're here to hear everybody out. If I can't

control the meeting, we'll turn the cameras off and we'll go home and the people that have legitimate concerns are going to have to write their stuff in. Ok? We're happy to talk to you about it, I want one person talking at a time, and no arguments, ok?

HB: I'm not gonna get up and beat him up.

DD: NO, Heidi, I, I have to protect Mark.

HB: This is for us, to express our concerns.

DD: Yes, ma'am. But there is a format that can be done in a civil manner without both people talking. There's no way we can translate what just occurred here with both of you walking on top of each other. Ok. Physically impossible.

QL: Is there any other technical question?

CD: Yeah, I have just one more, and I'll shut up after that. I keep hearing the words, "I think, I believe," and the word "scheme"..

DD: The word what, ma'am?

CD: "Scheme"

DD: Scheme, ok.

CD: Uh, please identify them, what does these words mean in, because we want facts, we don't want "I think", "I believe". And so, could you actually give us facts as to what's going to happening, happen during this dewatering process. We would, I would be happy to know if you say, "we really don't know what affect there is going to be". I mean, you be honest about it, don't try to give us a lot of BS, you know, because that's what makes people wonder about, especially the government people, and you know the government people right now are under scrutiny. And so, if you would just say, "I really don't know what is going happen, if this is what's going to happen, I think this is what's gonna happen", you know that would be appreciated.

DD: I'll take the first shot now. It's my meeting. (much laughter from audience) What the National Environmental Policy Act and the Council on Environmental Quality says is we have to use the best science available to address potential impacts, in this particular case the subject is dewatering, mine dewatering. It's the current technology, the best technology available just like for air quality, is a computer model. It is not an exact science but it is the best science we have to date. What they do is take the model, it's a complex series of formulas run into a computer, they punch numbers into it, and then they, they have, run a series of tests to try to get an estimate and then you get the model to try and fit that, alright. Every year, they have, they're gonna have to update this, as a matter of fact I can tell you right now probably quarterly, they'll have to monitor that computer model and update it, ok. So the best we can do right now is science and the reason the caveat that you're referring to in the Chapter 4 of the EIS,

"we don't really know exactly", is it is not an exact science, it is more like weather forecasting. We learn more every year about it. We have computer models to tell us where the hurricanes are coming from, when the tornadoes are gonna develop, but it's not an exact science. We're getting better at it every year and it's the same thing on computer modeling and ground water modeling. To the best of our knowledge right now we have met, there are some questions, and legitimate questions raised about that computer model from Tom Myers and other folks, and we're gonna address that and review that before we make a decision on where we're going with this project. But right now it's the best science available. It's not an exact science, we can not tell you that this spring right here is gonna drop 4.6 inches, that's not possible. But we can tell you we believe in this area of affect, what they call the cone of depression, this five miles you continue to hear about, we do believe we have an accurate representation of what is going to happen at that water table. Ok.

CD: Ok..... Yesterday it was addressed, some of these artisan wells on the Alves property, are you aware that some of these artesian wells have some tiny little minnow like fishes in them? I don't know if even the Alves are aware of this, but you know we use to do riding in that field some time age and uh, I'm a great observer of nature, and they use to be there, I don't know if they're still there today but there was little tiny artes... I don't know if you want to call them artesian fish or what.

DD: We did a complete field analysis with respect to listed threatened and endangered species and listed candidate species for those areas that we were given access to, obviously on all the public lands where we thought the cone of depression would affect, and any place that we could given permission from private land owners. Under the Threatened and Endangered Species Act, we're obligated, I'm not saying, I'm not gonna concede that there are threatened or endangered species, or anything else in that spring, I'm not ready to concede that. We're obligated to protect them, Ok. There's no option. I'm not willing to concede that there'd be little minnow you're describing, there may be 10 billion of them in every spring in the valley, I don't know that. But our research to date indicates no threatened or endangered species present in Crescent Valley. We have a number of candidate species of which none of those were fishes.

CD: No, I was just wondering if you and the Alves are aware that some of these artesian wells did, you know, some time ago, did have this type of little tiny fishes.

DD: I personally haven't been to the wells, I didn't know that, no ma'am.

CD: Thank you.

DD: Any other technical questions? We're.. Time out, how we doin' on video tapes, folks, same story as last night, everybody ok? We want to give everybody a good chance to have a good record here. If there are no more technical questions... yes, sir.

Jim Wrecks:

Just to state for the record, my name is Jim Wrecks, a independent journalist, I've been working on the, with the Danns for about two and a half years now. I asked this question yesterday, and it was basically that there is another entity that has rights to the land, and that's another mining company, Gold Fields, and Dave mentioned today, you spent taxpayers money to approve a project by a company that doesn't own the rights to the land. I was just wondering if you could explain how that whole.. I know there's a court case coming up between you and Gold Fields in March of 95 to figure out who owns it. So how are we, how come we're paying for a, an EIS..

DD: The Bureau doesn't care. Ok, a very clean answer. (laughter) Time out. The Bureau does not care about the land ownership with respect to claim holdings. That is a civil matter subject between the two entities. Now, for the record, the Bureau is being drug into this lawsuit, uh for a number of reasons; plan of operations approval, knowledge of meetings, and so forth. But beyond that, the Bureau has no desire, no legal interest, or any interest in who ultimately owns those claims. Therefore, we are required under the Code of Federal Regulations, 42 CFR 3809, to process all plans of operations submitted to the Bureau of Land Management, ie. the Pipeline project, regardless of what the civil suit says.

JW: So, hypothetically, all these documents, telephone book size documents get printed up, I mean, I could like, I could propose a claim right here in Crescent Valley and you'd have to go through paperwork even though I don't own the rights. You do understand...

DD: If, if I, I think, I think I understand you. If you, you, if you filed over somebody else's existing claim, it's already filed in Eureka or Lander County, and you came in with a plan of operations or for that matter a notice of intent, the answer is yes, we are obligated to respond to that. We have no interest, it would be up to the earlier claimant to file a lawsuit..

JW: And that's, that's what's occurred.

DD: Yes, sir.

JW: Is that they've proposed a project in which they didn't own the rights at this time, that's...

DD: Now that, I'm not gonna get into the legal dispute, there's certainly differences of opinion whether they have the right or not, and I'm not gonna get into that. My point is, the Bureau is obligated to respond to the filing of plan of operations.

JW: Could Mr. Lusty answer the question?

DD: If he wants to.

QL: I'd rather not get into the litigations because that's a matter to be decided by the courts. But Cortez' position is, we have a legally binding contract with Gold Fields that allows us to mine that property, period. Until a court tells us otherwise....

JW: The court hearing is in ninety, March, do you know when it is?

QL: There's a court date set in March of next year.

DD: Yes, sir.

?? In the draft, a lot of the information in the charts were from like 1989 to 1992. I understand it was prepared for December 92. Uh, will these charts and graphs be updated for the final draft, the final ....

DD: Regardless of what form..., it depends on what changes. .....base maps, the for instance the base maps showing the wells for the hydrographic basin hasn't changed any since its preparation. We're not gonna change that. If indeed any charts or any information is found to be incorrect, yes, sir, we'll update it.

?? It also incorporation .. by references numbers this doc, previous documents...

DD: That's true.

?? Some of those tables may have been generated....

QL: Are there any other technical questions?

MH: One over there.

(multiple talking, took short break to allow time for changing tapes)

DD: I'm sorry, go ahead please.

?? I noticed in the Environmental Impact Statement, the draft, the socio/economic paper that was given to Crescent Valley, seems to be limited. Now we haven't had anything basically happen with Pipeline. This past year we've had 60 water meters and turn ons in the past year. Nobody's employed initially on the Pipeline. So I'm asking that this, addressing this question about the impact on the Crescent Valley, I don't think was fully undertaken.

DD: Ok, that, that, that is a comment for the EIS, and we'll, we'll go ahead,and, and, and review that, but we were looking to close out the technical portion, uh, with respect to

the proposal. Are there any more questions? Ok, thank you Quayle, very much. I'm sorry, for the record one more time, your name was what sir?

Jay Scott

DD: Jay Scott? Ok, uh. Now is a, a large economic, your, your basic question if I can paraphrase for you, is you don't feel that the EIS did justice to the soc..,the potential socio/economic impacts to Crescent Valley. We'll take a look at that and make sure that it's updated and you're saying as of right now you've had an additional 60 water meters added to the town? CV-1

JS: That's right.

DD: Ok, we'll take a look at that, yes sir.
I want to go over the ground rules one more time because, I just got a feeling this is a real diverse crowd. (laughter) I don't know what it is. We're not all that bad, folks. Limit the comments and the questions to those that pertain to the DEIS, Pipeline Draft EIS. Please stand up when making comments and face the, what use to be the screen. State your name and affiliation, one speaker at a time and please try and limit it to ten minutes. Uh, I've already explained that ground rule, we're gonna be switching tapes out here in a minute so I may interrupt somebody so we make sure everybody gets a good record here. We did provide pre-registration comments to comment, if anybody else wants to comment, you're not limited just because you didn't fill one of these out, you can still comment. But I'm gonna take these, right now, and begin with these and then, uh, we'll move forward from there, if there's anybody else that would like to comment. And, Heidi, we get to here from you again.

HB: Can I be last?

DD: If you want, yes, ma'am.

HB: Thank you.

DD: Guess what, Carrie. Carrie Dann, please.

CD: I am Carrie Dann, I am a member of the Western Shoshone National Council, the traditional, original government of the Western Shoshone People. And also, I am, ah, with the Western Shoshone Defense Project. I was born in this valley, and I have lived in this valley, ever since. As a youngster, I enjoyed the scenery of the mountains, uh, the whole land as a whole. I have seen the deer, I have seen the lynx cat playing with their cubs. And I have watched the eagle feed their babies. And I have seen and enjoyed the land, with all the other life, that we have in common with the other animals or creatures as you might want to call it. This land to us, is not a piece of land, it is a mother. It is our Earth Mother. As a traditional Western Shoshone, I still follow the

ancient instruction of our Creator. The Creator gave us laws to follow. And how to conduct ourselves with humans. To a traditional indigenous person, this land is not a real estate. And it is not a waste dump. It is our Mother, Earth Mother. This Earth Mother give us and all of her children, all the necessities of life. Four of the most sacred things are, to the traditional Western Shoshone and most indigenous people, is the land, it is sacred. The water, is sacred, the air, is sacred, the sun is sacred. Without any one of these, there can be no life. No animal life or human life. And I find it kinda ironic that people who specialize in our, have certain expertise in different sciences, and yet, you know, with all of this expertise, all the science, there is an environmental disaster somewhere. These things can not be avoided. The we have what they call the cleanup operations, and to me, this so called clean mining operation proposed by the Pipeline project is a sham. Because today we also know, there is contamination at the mill site, the Cortez mill site. Why can't this be cleaned up first. To show that cleanup of the ground, and clean water can be done. I think they should be done before any new contamination of water, underground water. And of course, one of my concerns is for the future generations for the mothers of tomorrow. Will the mothers of tomorrow cry for their children because of the actions we are doing today. Will the mothers of tomorrow have mentally retarded, or physically handicapped children. Will the mothers of tomorrow see their children have clean waters to drink, as I did when I went walking in the mountains. If the mothers of tomorrow can't find clean water at the supermarket where is she gonna find this precious gift of life when our water is contaminated. Will the mothers of tomorrow find clean air for their babies, or will their babies have to wear gas masks, or masks of some sort, so that their children can run and play. Will the mothers of tomorrow see their grandchildren or their great grandchildren. Will the mothers of tomorrow experience the wonders and pleasures of life that I enjoyed on the land drinking the waters up in the mountains or elsewhere where I've been. Will the mothers of tomorrow suffer and cry mental, suffer and cry, and suffer mental and emotional anguish when their newborn is still because of the environmental poison. Today, who is speaking out for the mothers of tomorrow, certainly it's not the BLM nor the mine, or the Pipeline project. They only speak from 10 to 12 years. Who is speaking out on behalf of the great grandchildren of the mothers of tomorrow? I, as one of the members of the Western Shoshone National Council, I have to speak out for the next seven generations. That is wondering why, I'm wondering who's speaking out for the mothers that's not here yet. We have to address these problems, this environment has to be safe for these children that's not here. To me, it is a duty, what is a duty to the BLM? Is it a duty to protect the environment for the future generations so that they can have clean water, clean air. I think it should be. You may wonder why I speak to the mothers of tomorrow. The answer is it's a natural law. And all creation calls us. We as females give birth. We also feed these children from our bodies, as the earth feeds us from her body. And it not only feeds the human children, but it also feeds other children, other children which is all life. I can see why the BLM doesn't want to address the Western Shoshone problem. The answer is simple. It's the 1872 Mining Law. The BLM does not sell US lands. This land is under the guardianship of the Western Shoshone people, as per the instructions of the Creator. It is the home of the Western

CV-2

Shoshone people. This land was supposedly taken from the Western Shoshone in 1872, same date, the same year as the mining law came into affect, July 1st, 1872. So therefore, it is not the public land, it is Western Shoshone people's land that the mining laws uh, companies buy for $2.50 to $5.00 per acre. Say at the estimate value of the land is a crime, the 18 mining law went into effect. This is the same time supposedly, that the United States Government took Western Shoshone land by gradual encroachment. And I use the word "took" because those are the words that's been thrown at us. And I believe that the, all the Western Shoshone laws are laws of the indigenous people can be taken by the words "take" or "gradual encroachment". Again, you know, uh, all this problem is Bureau of Land Management with the...., the thing is, there is never, there has not been no document as for the Western Shoshone ceding land to the United States. So all of this land that we're talking which the Pipeline project is on, belongs to the Western Shoshone under their guardianship. It is not a public land. We are the only people in the United States that can not have a title argument in the court systems of the United States. We are denied that. They only can add and say, we've been paid for something we don't want to sell. I think that's wrong too. Of course this happens in what you call the Indian Claims Commission, backed up be the Supreme Court decision. And I'll say again, what the ICC offered the Western Shoshone people is 15 cents per acre. 15 cents per acre, that's a sham in itself. And yet these mining companies are buying the same land for $2.50 to $5.00 per acre. I think that is fraud on the part of the United States against the Western Shoshone people. In the first place this land is not for sale anyway. Then there's the Treaty of Ruby Valley that was signed between two, two sovereign nations, the Western Shoshone and the United States. In this treaty,uh, Western Shoshone did not cede any land to United States, it gave right of ways. The U.S. Constitution, I hear everybody talk about constitution, we're the only people in the United States that don't have constitutional rights. However, the Constitution does say that treaties are supreme law of the land. What happens when it comes to the Western Shoshone people, do they become un-supreme?

DD: Carrie, ...

I just few more to go, just finish, I'll read it, then I won't be making other comments. Uh, uh,....the action of the BLM regarding the land, including the land on which the Pipeline project is located. This use of ..... in violation of the Western Shoshone sovereignties, and also violates the United States Constitution. I have not attended the DES, DEIS meetings in the past because I don't believe the BLM, BLM's action on the laws that are not traditional Western Shoshone laws. .....the laws.....(?)

CV-3

DD: Jay Scott, Crescent Valley.

Jay Scott, resident of Crescent Valley. In going over the environmental impact, the Environmental Impact Statement, I notice the survey that were made .....

Audience: Speak up, can't hear.....

JS: ..... surveys have made regarding water, springs, seeps,.... and small creeks around the valley, were primarily done at a single time. I wonder why they weren't done over a period of time, like in the spring time, summer, fall. There may be time during the winter of course when they couldn't be done. But I find some fault with them not doing, ...diligent that ..... people were monitoring..... Why, my question of course is, why weren't there more observances made and uh, put into the DEIS. CV-4

DD: Are you asking for an answer now or are you willing to wait for the final...

JS: I don't imagine I'll get an answer now.

DD: OK,.....(some chuckles) thank you. L.A. Jones.

LJ: Yes, my name is Larry Jones and I'm a resident of Crescent Valley. I've listened to Ms. Dann's speech here about how she's walked around the hills and observed all these animals, birds, what have ya. I've walked these hills and I've hunted and I'm quite sure there's quite a few people here that's hunted these lands. I thought it was not too bad a hunting over here until I went over on the Diamonds. On the Diamonds over there, the ranchers over there reseed. I've yet to see the Alves, the Danns, and the Reynolds, I believe that would be the immediate ranchers within this area right here, reseed for wildlife. My question is, is how can they sit there and say about how they took care of the land and how this person doing this much harm to this one whenever they're a group. How can they sit there and say that whenever they, you go up on the hillside and the deer are lean, and I'm talking about when they had the wet seasons. They're lean. There's no feed. You go on the Diamonds and there's feed. That's all I got to say. CV-5

DD: Thank you, sir. Ray Williams.

RW: I'm Ray Williams, chairman of Lander County Commissioners. First of all I'd just like to thank you all for showing up here in Crescent Valley and thanks to BLM for their honoring our request, to have two more hearings on this subject. We feel it's very vital that this, this mine has both impacts and benefits to both Eureka and Lander County, and we felt that it was appropriate that these hearings be held closer to the people who are gonna be affected by this project. We're here tonight more to take in information, I'm the chairman of the commission like I said and we have Tim? Echeve who is our county manager. Our final meeting on this project will be held the morning of the 3rd at 10 o'clock, via telephone conference for us to put together our final thoughts to address this issue in writing. So, we do appreciate you all coming out. We thought maybe Tim and myself would be the only one here to I called Leroy and the people from Eureka County. And in addition to the public notices that were sent out by Bureau of Land Management, we wrote an additional thirty letters and we were on the telephone for a couple of days to make sure that all the affected people would know that this meeting was gonna be held here so they'd have an opportunity to come out and express their opinions. Thank you all for coming. Thank you. CV-6

DD: Thank you Ray. Jim Alves.

JA: ....from here .....????

DD: Jim, yeah, come on up here please. You got your map again. No map tonight.

JA: No map tonight, I left my famous map at home. My name is Jim Alves, my father is Maynard Alves who owns the Dean Ranch in the center of the valley. The Dean Ranch and its representatives have at the last two environmental impact statement draft hearings in Elko and in Battle Mountain, presented evidence that the EIS is flawed. The Dean Ranch's biggest concern is the total incorrect data dealing with the Dean Ranch's water rights. The reason why we want to set our water rights records straight is so that in the future if any water rights are affected we will have been on record for putting this forward. The Dean Ranch holds water rights to approximately 30 wells, 14 of which are artisan wells, some only 60 foot deep. The Environmental Impact Statement states that the Dean Ranch has a total of 11 wells. The Dean Ranch hold water rights to approximately 55 springs. Environmental Impact Statement states much lower number. The Environmental Impact Statement also goes as, as far as to state that the Dean Ranch has no surface rights, when in fact 7,550 acres of vested and certified surface water rights belong to the Dean Ranch. All of this water could be adversely affected by the Pipeline project. The Dean Ranch consists of approximately 50,000 acres of private property plus our BLM grazing permits. The Dean Ranch is the closest large private property owner to the Pipeline project. The Dean Ranch headquarters, and a large percentage of its water holdings are within the 5 to 7 mile ground water impact zone as stated in the EIS. The Dean Ranch is not trying to close or stop any mining. That's not what we're here for. We're not here to try to stop any mining or stop any permits. What my father and I are worried about is damage to our water rights, our property and our livelihood. We feel that the EIS in it's present form, does not correctly address our concerns. Therefore, we must speak out against the EIS in its present form for our own protection. CV-7

Now I realize this meeting was a statement for only EIS comments, but I haven't used up my ten minutes so I'm gonna say something. A person just stood up and threw out my name, and I would like to address something real quick as far as seeding the mountain. If you've ever done anything with the BLM, try to seed. It is a nightmare of permits, hassling and everything. You almost have to go through the same process as mines go through to try to put a mine in, to try to do any seeding on public land. So, I just wanted to clear that up real quick. Right now, I'm in the process of planting over 2,000 acres of hay, dry land rye hay, and as I'm planting, I'm driving within, this afternoon before I came here, I was within 30 yards of approximately 30 deer in my own field, 3 bucks, (I'm not gonna let anybody hunt), nice big four point. They're fat, they're coming on the ranch, we provide water, they have hay, uh, anything they want on our ranch. Ranchers, farmers, private property is a sanctuary for wildlife. There's where wildlife can come, we, uh, during hunting season, during the winters survive,

reproduce, and according to the Fish and Game and Wildlife Services deer numbers are actually way greater population now than they were 50 years ago or a hundred years ago. So as far as stating that ranchers are out to hurt the wildlife, I feel that ranchers in 'fect, in effect, actually support wildlife all year long, with water improvements and with hay and everything else. Again I know this was a comment break for environmental impact statement, but somebody said something about my name and it upset me.

So again, we're not here to denounce or try to shut down any mining, that's not our purpose. I don't want to come across as trying to railroad the mine or try to shut them down. We just want to go on record as stating that we have a legitimate claim, we own property, we own water rights, we, excuse me, we just want to go on record, let everybody know that those exist and make sure that the EIS states fact, so that in the future, if any of our property or holdings is by any means damaged by this project, the same goes for any other property owner, or water right holder in this entire area, including the Crescent Valley wells, as far as toxins, contamination, water level, it's something we should all go on record for to protect ourselves for the future. That's why we've been so adamant in claiming that this EIS is false. Thank you very much for your time, if you have any questions, feel free to call or come out to the ranch and visit.

Break while video tapes are changed.

DD: Charlie Harper, please.

CH: Yeah, I, I'm gonna turn around so .... can hear, hate to see ya talkin' t my back. I read part of the EIA, S, whatever, uh, and my comment was that on, uh, dewatering of the mine, uh, I had a brainstorm one time, if we dammed up uh, part of Indian Creek over there and made a uh, Southfork Dam, as you will. Uh, we figured out that it would go five miles back up the valley, I don't know how many acre feet it would take in, but it would be a recreational environmental safe place to put the water out of this hole in the ground, and as any dam has to have an outlet, the outlet would naturally come down Indian Creek again and go back into the ground about, uh, just the other side of Florence's place, like it has been for the last millennium. The only time it goes any farther is when we have one of them flash floods that come through here. Uh, you people from Lander County, it's in you county, it would be a recreational area that would support not just the mine, but this town, Lander uh, the Hilltop, uh, road could be improved. There could be a peripheral road around this uh, recreational area. And it would create jobs, it would give us a place for hunting and fishing, the wildlife would be taken care of, because of the water in this dam area. Uh, I just don't think they've looked hard enough, uh, I read that study and, and they just kinda passed it off as, uh they didn't even want to look at it. Southfork was built by tax money. Why can't this be built by tax money from both counties and help everybody in the county and help the mine get rid of the problem of dewatering. Thank you.

CV-8

DD: Thank you. Mr. Corbin Harding

CH: My name is Corbin Harding. I'm a Shoshone Indian.....I would like to say to you people here..... travel in the State of Nevada that we are all aware of. Water is pretty well down in all the creeks, not only in one creek, but throughout the county, throughout the state of Nevada today, we're hurting for water. When we start pumping the water from underneath us, where is that gonna take us. How far is this pumpin's gonna go on, evaporation of it. Today, the ranchers, the farmers, the miners, the people, today as I see through our State of Nevada, we all carry jug of water. What is it gonna be like within a very short time, when that water underneath us gets 'taminated, more than what it is. Are we gonna go someplace else, put the pipeline in, from some area, to have clean water. We already witnessing those things. In Nevada here, like down south, the water is very scarce today. I think each and everyone of you know that. Like I said yesterday, we the people today have to really think about this and work together to the best that water do for us. Springs throughout this State of Nevada today, I don't think any of you people will go out there and take a drink of spring water, because you carrying a jug with you from Safeway. This is what's been taken place so far. We, today, gonna have to really think about this. What about our young ones, (somebody coughing), what they gonna be drinkin'. Are they gonna be sickly, deformed people gonna be roamin' this Mother Earth. That's what it's about today. You usin' all kinds of chemicals, all kinds of fertilizers, you name it, we use it. Those are the tings that I talk about last night, and today you are the people, really have to think about it. You put a dam in any, all this mountain streams, that's not gonna solve the problem. It might be for a recreation, but what it's gonna be doin' is holdin' that water behind that dam. Do we think it's gonna overflow that dam. What dam is over built, overflown so far to date throughout Nevada here. Which dam is overflowin'. Each one of the dams I see is way down. Our fish life today is sufferin'. Our animal life today is sufferin'. We talk about planting seeds out there and making things grow. How's't gonna grow without the water. We can put all kinds of seeds out there, but we need to have the water. Clean water, not a weak water. Those are the things that you people have to think about. Those are the things that my people talk about the long time. You have to keep talking to your water, the spirit in the water in order for that water to have a strength. And today don't have strength. In Idaho, for instance, a farmer asked me what was wrong with his water, it don't grow. 'Cause the spirit is dead, I told him. We got an engineer comin' from Idaho, I went last week. We were there talking about 'taminated water. Coeur d'alene Lake is so 'taminated, nothing can live in it. That's mercury. What is the BLM doin' over there? Are they doin' anything for them. We have to think about the BLM, are they protecting us. Or are they working for money. Money is evil of all things. Today, throughout the country, as I see it, I think most of you people seen it, artesian wells is drying up, not coming up no more. Our springs, up in the hills, just flow for a little while and then goes into the ground. Don't have that much value in them. Those are the things that the Indian people have talk about for thousands of years. And today, you people are in our shoes at one time. It's on your shoulders what you are gonna do with you waters. Are you gonna let somebody do it, and 'taminate it for you? This is somethin' that we all gonna have to think about, talk about it, together. We can not separate ourselves as a people. I don't care what color

CV-9

we are, we gotta be one people to talk about it. Let's unite ourself and do the best we can to save our animal life, the bird life, the plant life, and save something for the younger generation behind us. Thank you. CV-9

(applause)

DD: Thank you, Mr. Harding. Leroy Echigaroy.

LE: I'm Leroy Echigaroy, I'm vice-chairman of the Eureka County Commission. And a lot of the things I would have said were addressed here tonight. But one thing I want to make certain of that, that any changes in the roads, those changes, those roads be dedicated to Eureka County.....want them dedicated to Eureka County. CV-10

?? Can't hear you, Leroy.

LR: If there's any change in the roads, if the mine make any changes in the road, we want them dedicated to Eureka County.

?? Even if they're in Lander County? (Numerous comments and confusion on where these roads are.)

LR: If they're in Eureka County.

DD: Thank you for the clarification.

(Laughter, multiple comments.)

LE: Also, uh, I guess, I have a question here too, more or less, uh. In the monitoring of the water, uh, I wonder if there's gonna be any acceptance, if, a lot of the individuals here may have domestic wells, and they may be far out. Would, would their measurements, their monitoring be accepted. I'm probably addressing this to you (Quayle).... in this study. If someone out here twenty miles starts going dry, would you be willing to mitigate those? I'm mean you're talking about your cone of depression right around your mine here. But, uh, I'm not too sure that we might not, we might not affect springs, water that are out further than that. Now, I'd like to see that addressed. I mean, whether you do it, work with the individuals, or no matter how you do it, State Engineer, some of the people that are being affected. I would like to see that happen. Because I think everybody, everybody's got a stake in this thing. And, and it's something that we all have to get along with. And yet, we have to be rational about this thing. I mean, it ..... someone can't just come to you and say, 'Well I need this and I need that'. There has to be a good reason. And I think people are gonna have to work together, to get this done. And I'd like to ask..... CV-11

CH: Can I make a comment on this same thing?

DD: Go ahead. Introduce yourself, one more time.

CH: Charlie Harper. Uh, when, I think it was Standard Oil, or whatever that did the thumper across the top of the valley about seven, eight years ago, they silted my well with their explosions.

DD: Talking about seismic activity.

CH: Right. Exactly. They came through with the seismic booms all the way across the valley They did it twice. The first one was farther north, the second one was on this side of Gold Springs. They silted my well, they broke my pump with the silt that came in. I went to the company, they said, "We don't have nothing to do with that, we couldn't have affected you." Yet .... Jay and Lauramae Scott, they knocked dishes off their shelf down here and I don't know how many people. (from audience - "Our house, too") Well, our house, we were a lot closer, we were within a half a mile of it. But, four and a half, five miles down the road, they knocked dishes off the shelf, they uh, uh, silted other wells. They didn't do it as bad as mine cause I was closer. It wrecked my pump, it cost me 350 bucks to put a new pump in the ground. They didn't want anything to say about it, and I was stuck holding the bag again. So, that question that Leroy's got is a good one. What are you gonna do for us folks way outside of your area but are still affected by whatever happens down the road. CV-12

LE: If it's legitimate, I mean we just can't go out there ....

CH:: Well, hey, how come my pump worked fine until that day.

Unknown lady: Till about 3 o'clock that afternoon when everything went to .... shit. Excuse me.

(background discussions)

QL: We are monitoring points throughout the valley. And, uh, if, if for instance somebody's well in Beowawe goes dry, and yet all of our monitoring all the way down through the valley show that there's been no change in the water table, how could we have affected somebody's well in Beowawe. I mean it's just not possible. I guess I can answer your question by saying if there's a reasonable chance at all that we have caused this, we're bound to mitigate. We will take care of it.

LE: I think that's all were askin'.

QL: Not only does the BLM bind us to do that, and the State water permits require us to do it, and Cortez would do that anyway 'cause that's the kind of company we are. We try to take care of our neighbors.

DD: (Answering a question from the background) What does mitigate mean? To lessen the impact or to fix the problem is a real simple explanation. Mr. Echevarry do you have anything else.

LE: That's all.

DD: Guess what Heidi. (HB: It's my turn) Let me make sure. Does anybody else have any technical comments about.... yes ma'am.

?? My name is Grace Swill(???) I don't know if this is a technical problem or not but Larry was wondering why we weren't reseeding. Our, our residence is the closest one to Cortez Gold Mines. And uh, I don't think there's too many mountains were we live, Larry. And I've lived there like over thirty years at that place, and it look just like it always has. And the only wildlife we ever have is either Alves or Filippini's stock.....

(laughter, numerous remarks)

DD: Anybody else with technical comments on the EIS. Yes ma'am.

CD: I just wanted to ask a question, what kind of replanting was done in Diamond Valley that Mr. Jones speaks of.

DD: I'm gonna have to direct the question to Mr. Jones. I don't know what you're referring to specifically.

CD: What kind of planting, what kind of plant were planted in the Diamond Valley area.

LJ: Winter grass

CD: What is a winter grass?

LJ: It's where the animals and cattle can feed in the winter.

CD: Is it something like crested wheat?

LJ: Yeah, more or less..

CD: It is a crested wheat.

LJ: ... the ranchers in that valley were the ones that planted it, with the BLM.

CD: You have a lot of that in Elko County too. But remember the year that we have lot of snow...I think I saw in the Elko Free Press where a lot of the antelope died was because the sage brush was taken out and affected the antelope population. You're talking about

game animals, you know, it kind gets you either way, one way or the other, you can't make everybody happy I guess. Thanks for the information anyway, it's good to know.

LJ: Well the only thing of it is, I've walked these hills, all through these hills, there ain't that much feed up there. And yet I can walk over the Diamonds over there and there's feed out the ying yang over there in Eureka County.

CD: Also, if you go in the high country .....

(too much confusing discussion, talking, laughing.)

DD: We'd like to wind this up, so.... (laughter) You're welcome to discuss that at length at any time after this meeting. Or take it outside. Uh, is there anyone else.

?? Hey, Dave. I didn't get a chance to talk ..... can I give a ten minute, not ten ....minute

DD: You want to talk? Ok. Yes, sure. Mr. Jim Wrecks. Jim, Jim just asked, you asked to be last Heidi and Jim asked to speak.

HB: Ok, I have another paper so .....

JW: My name is Jim Wrecks, and I've been working with the Western Shoshone now for about two and a half years out here in Crescent Valley. Currently, I get my paychecks by doing , you know, independent journalism and writing grants for video production and stuff like that. We've got a show coming up on CNN, uh, November 15. It's gonna talk about some of these issues in a much grander scale, all of Nevada. Um, so anyway that's a little about me and my personal history. But, uh, I was also here in 92 when the feds came in, I was at the Dann's. I sat on the other side of the fence from .....Jones ..... was sittin' over there. It was a much more volatile situation at that time. And uh, Carrie was being held back and wasn't able to speak, you know, say anything she wanted to say. She wanted to be heard, ... And her brother Clifford was put in jail. I'm sure some of you heard about that or say it in the news. And so I really want to congratulate everybody here after living here for a, ya know, a couple of years, and you get to see faces and I've never really talked to you people before...now I get that opportunity. I mean it's really wonderful that we can talk about positions in a forum like this and that we're not in such a violent forum that we were back in 92 to discuss these things, problems or questions or concerns. CV-13

Um, some of you may be wondering why we spoke out against the dewatering, Western Shoshone Defense Project, the organization is on 2nd Street over there in Crescent Valley, when in the past we've only focused on uh, protecting the livelihood of the Western Shoshone in Crescent Valley. And I hope the reasons are obvious with, with, we're not alone in recognizing the potential danger to the water, land and the people, as you've heard. There's a lot of other people that have concerns here. Um, the fact

there's so many attesting to the potential danger, and that's why we had to speak out. And we, we, and believe me it's hard for me to stand up here, coming from an environmental background and talk to people who I know are miners and stuff and they have difference of opinions on certain issues. Um, so, um, I'm a little scared because, uh. We oppose this Pipeline project for a variant of reasons that others are more qualified than myself to mention and have talked about tonight and over the last few weeks. However, in researching this particular DEIS, I looked into the history of the companies involved, ok, and I don't mean the local company or Cortez, I mean the big guys, Plācer Dome and Kennecott, you know, where do they come from. I'm sure some of you know where these companies come from, ya know foreign countries. But you know what they've been involved in over the last few years. I was, I was surprised to find so many books, videos and articles which describe the destruction of these foreign owned companies have committed on local people, people like ourselves. Alright, there, there are numerous books available and I encourage you guys to look these up at our library right here, at the one in Elko that mention how Kennecott, for instance, this is a fact, I have the book here with me, helped to overthrow the democratically elected government in Chili with its economic destabilization campaign in the 1970's. Ok, this led to the imposition of one of the most brutal mater.. military dictatorship ever seen in Latin America. The company also does things like demanding no strike clauses uh of their work force, ok. In deadlocks that it's had with its various unions, they've both laid off thousands of employees. Ok, and I can also provide the books and the facts to back that up and you can come by any day at our office on 2nd Street to talk about these things, ok. So what I'm saying here is if, if Kennecott, ok the partnership in this project, can overthrow a Chilean government, ok, um, you know, what are they gonna do to us, to the Danns, to myself who's speakin' out now, to the Alves who spoke out. Ok, this is a big company, alright now,.... I mean, I, I've talked to other people, you know, in Elko and they don't want to speak out. I volunteered at the food bank, ok, in Elko to distribute food to people on welfare, ok, over at FISH, I'm sure, it's on 10th Street I think over there. And these people they don't want to speak out, ya know, they're gettin' cuts, ok, they're uh, a guy now he's, he can't afford his house payments anymore so he had to apply for welfare because they cut his pay by six and a half bucks an hour. Ok, that's not the Kennecott mine but it's another local mine. Ok, I'm just saying you really think that these, these guys in suits in England, ok, really care about us out here. Ok, I mean sure a lot of us who aren't Shoshone like myself remember England, that was the country that we revolted against in the 1700's to gain our own independence and to form our own constitution, ok. England doesn't care about us, I've been there, ok. The last thing they want to do is protect our water here in Crescent Valley. They're gettin' the gold and bringin' it out there, ok, and I got again research that shows that down the street any time you guys are welcome to come over and talk to me about it. Alright, now, over the next few months, alright, and actually for the last couple of days you've been experiencing what's called multi-million dollar PR campaign. Alright commercials, you've prob'ly heard them, have already started in Elko, that tell us the water's safe, ok, out here in Crescent Valley. Each time they tell us that the water's safe, what are they spending with, a day's miner's pay, ok, to tell us the water's

CV-13

safe. I mean, we live here, uh, you know, we should, as you heard, know the quality of water, ok, why would they bring it up. While they make the workers drink bottled water, ok. And I'm glad those questions were put on record tonight at this public meeting and I hope that during the rest of the meeting, other people have similar questions. I just want people to remember this down the road and start hearing this PR campaign kick in, ok, ask yourself, where's the money come from, ok. And uh, and I will say this though, for Kennecott and for Cortez and for Dave, they said that we'd spent, they're the ones paying for this overtime, so I think this is the best money that Cortez has probably spent in the history of the company and I'll write them a letter to that effect, to state that for letting us say these things. Uhm, an, and I want to say this for the record, especially for the man over there, the local law enforcement and other people in the community and the mining community. No matter what rumors you here or what Kennecott or Plācer Dome puts out in their PR campaigns over the next few months or years, while myself and other live out in the Cortez Mountains at the encampment out there, *we are committed to non-violence. Trying to get this across to you guys, committed to non-violence and peaceful defense of the Western Shoshone.* (emotional) Their livelihood and the environment. Regardless of what people say, we work for all those who drink the water here. Now our office is open 24 hours, ok, there's somebody there all the time. Ok, we ....people call us from all over the world and people who are interested in this issue, ok. Some of you guys may not know this. I, I, brought with me tonight information and videos that I'll distribute to people in the room, ok. I mean it costs us money for information but, I mean, I, I don't get paid for this, ok. And I left, um, I use to work for ABC for like two and a half years back in Chicago, and I left my job and, and just took my camera to go out here and document these things because they weren't gettin' on the news. Because you people want to hear what I have to say, what other people have to say. We hear what these big PR companies and stuff have the money to say, ok. So for the last couple of years we've been trying to bring light to one issue. I've been working with people like Carrie and Corbin to document this issue, to try and protect the water, not just here but around the world and on our plant. I don't know how old you are but I'm only 25 years old. I'm gonna have to live here for what another *fifty years* (emotional again) on this planet. I've seen all the destruction, I want to make sure, I want to make sure that it's safe for if I have a family, for the Shoshone, for everybody. I kinda went off my speech. Sorry. I encourage you to stop by anytime, 242 2nd Street, that's our office, or drive out to the camp. We've got a camp out there. And as for your question back there, with the, the BLM may not let us but we've got money that we've purchased native seeds that we're gonna be re-vegetating in the uh, riparian zones along the different streams. And we're gonna fence those areas off to give them a chance to start out. We're also gonna do some replanting trees and stuff. Everybody in the community is invited to help us do that, ok. It's time to end the paperwork. These guys, they're not our enemies, the BLM is not our enemy, ok. You know, they, they told us tonight they're gettin' cut backs, they can't perform these duties, they can't protect the land, they don't have enough money. It takes people like myself and others who are committed to go out there and do that protection. And the Western Shoshone, as you've heard them say, have said that

CV-13

they've been instructed from their Creator with their traditions to do just that. So I say, let's give them a chance. Thanks. CV-13

Applause.

DD: Heidi. ....other one. You asked to be last. Do you want to speak now. Ok, fine.

HB:. Ok, I'm gonna make this really short.

(from audience) Ok, that's it. (laughter) That's short. (laughter)

HB: Thank you. Uh, just so I can introduce myself again, in case nobody knows me....

(from audience) Speak up.

HB: My name's Heidi Blackeye, and I'm with the Citizen Alert, Native American Program, it's located in Reno, Nevada. It started 20 years ago, and the Native American Program was started four years ago. In coordination with those two groups, we have addressed environmental issues throughout Nevada and the Great Basin region. We address mining, toxics, water, nuclear, nuclear waste, nuclear testing. Uh, we don't address a lot of mining, and reason for that is because , uh, there's a lot of it goin' on. So when we do address a mining issue, we make sure that there is gonn' be, uh, possible, uh long term affects for the people, and there's that, those possibilities there. And uhm, we're here, actually the Native American program, um, is in opposition of the Draft Environmental Impact Statement on the Cortez Pipeline project, because there's a lot of inaccuracies in the study. Uh, throughout the study, there states accumulative impacts in one area in another area, it says that there's no accumulative impact, or moderate impact. And, um, by the time I got done reading the book I didn't even know what it, what it was really telling me. And so, as resp, as uh, people in the community of Crescent Valley, your responsibility is to address, address the Draft Environmental Impact Statement and your concerns. And to not, and, and to not, uh, because they'll rely, they're gonna rely on your ignorance, and that's why the Citizen Alert and the Native American Program, organizations like this were formed because of it, because they do rely on your ignorance. You don't have the information for one thing. And that's why we were set up, to give you the information. I have facts, uh, fact sheets in the back with the phone numbers on 'em. And uhm, you can call me and ask me about this project, and uh, if I can't give the answers I know someone that can help you, um, in responding to the Draft Environmental Impact Statement. So, so don't let 'em, don't, don't um, don't let 'em rely on your ignorance, you know, respond to this. Because you know, this is for the future generations. I wouldn't be out here if it wasn't important to address your concerns with the Draft Environment Impact Statement. It's inaccurate. I'm not against mining, if you're gonna do mining you should do it right, and you should enforce the safety regulations, and they haven't been doing that, and now we're, we're trying to keep them accountable. And as citizens of Nevada, you have that CV-14

responsibility, and you should do that. I have fact sheets in the back that were written up by Western Shoshone Defense Project. And it just has the lead concerns, air quality, noise impacts, mine dewatering, and um, I also have a news letter. So if you want to see me in the back I can give you that information. Thank you.

DD: Thank you, Heidi. I think we have two more. Uh, Ken Jones, Sheriff of Eureka County.

KL: I'd like to wait till last or whatever ....

DD: You want to. Uh, Kim Townsend, is that correct.

KT: My name is Kim Townsend, I'm a Western Shoshone, and there are three things I would like to see all mining corporations do. One is to have a vision for the future, to protect and conserve water because once it's gone, it's gone, there's no way of replenishing it. You can't replenish it, you can't replenish it. Seeds don't grow without water and those are more important than any thing else in this world. Water is sacred, water is vital to all forms of life. And these mining people ought to realize that, you can't keep using water and consuming water, and the government can't keep regulating water through water consumptive use, water consumption everything, because once it's gone, it's gone. People don't realize that now, you know tomorrow it might be all gone, and then what do we have, have to drink. You can't live on Pepsi. Animals don't live on Pepsi. Coca Cola or whatever sodas are there. Water is vital, water is sacred and water needs to be protected. That's all I have to say. CV-15

DD: Thank you. I saw a lady in back. Yes, ma'am.

LS: My name is Lauramae Scott.

DD: Yes, ma'am.

LS: I'm an employee of Cortez Gold Mines, and a twenty year resident of Crescent Valley, and I sit on the Crescent Valley town board. Now no one ..... here has said a thing that for Cortez. I worked out there for the last twelve years. And the last three or four years I've seen great improvements in their, in their environmental protection.....They're trying to clean up the mess that was created over how many years of mining. They are trying to clean up the ..... They're working on it. And it's, it's my livelihood and if they close down over the next two years, I have to give up a home that I've had for many years. Now to me, I can't see why we can't all work together. I have a livelihood in the mining. They have a livelihood in the ranching. The Shoshone have their land. We all have our concerns. And I think all of our main concerns is for our water. I know that the town of Crescent Valley has established a .....program to protect our town water, our drinking water. We fought against Echovision (?) ..... taking the water and giving it to Reno and to Las Vegas. I think all of us have that concern. But I do feel that we can all work together and that we don't have to close down mining, we CV-16

don't have to give up ranching, we don't have to give up our wildlife, if we all work together.

(Audience) I agree. (much applause)

DD: Anybody else before Ken. Ken Jones.

KJ: Uh, I have a concern with the EIS in regard to number of people in Crescent Valley and Beowawe. Uh, I, and I hope that I'm wrong, but I as candidly as I can, I think that the numbers are understated. CV-17

(Audience) Tell him to move over.

DD: Ma'am?

(Audience) Have him move over.

DD: They were hoping that you, ask you to come out a little further.

KJ: Sure, sure. The uh, concern about the numbers in the EIS as far as people who are going to be coming to Crescent Valley and Beowawe. Uh, I'm concerned that those numbers are underestimated. Uh, what it's, what the EIS certainly does not address is that there's already an influx of people. I've been out here in this valley going around and talking to people recently and I'm finding people who are now living in Crescent Valley who work at Barrick, and Newmont who can't afford to live in Elko, and they're living in Eur, in uh, Eureka County here in Crescent Valley and Beowawe. Uh, I understand that that's not direct, uh, impact from the Pipeline project, but I think its, uh, uh, affect has got to be considered. And.... obviously the reason I'm concerned about it is providing all the emergency services that need to be provided to this community. So I, I'm merely asking that the uh, the, I don't know where the figures came from. hopefully they didn't come from me. Uh, that, that, the even the number of deputy sheriffs available here are even overstated by about two times. Uh, these are real issues that certainly I'm going to have to address somewhere down the road, the Board of County Commissioners are going to have to address when we are funding emergency services. So, what I'm asking merely is to take another look at the numbers. Let's be sure that those numbers are real, and that they, uh, and that they really mean something. I, I, I frankly am very concerned that they are understated and uh that, we gonna see a lot more people than the EIS would have us think. Because those people are not gonna be going to Elko. The EIS says that most of them will bedroom in Carlin and Elko, goodness, we're becoming, here in Crescent Valley, a bedroom community to Elko, Carlin, and, and to the uh, to the uh, the mines north of Carlin up on the Carlin Trend. And uh, so , I'm merely asking that we take another look at those numbers and make sure that those are realistic. CV-17 CV-18 CV-19

DD: We can do that.

KJ: Thank you.

DD: Thank you. Last chance, contrary to Mr. Wrecks' contention, this is the last public meeting to express verbally your comments. You have until November 4th, eleven.., to have a uh, written comments postmarked by 11:59 p.m. sent to the Bureau of Land Management for inclusion into consideration as docu.....yes, sir.

?? My name if Jeff ???? ..... like he mentioned I'm one of those people that can't afford to live in Elko. And I've been here for three months. And I'd like to address uh this question about mitigation. If there's a problem with water in the future, it isn't mitigation, its litigation. It's they're lawyers against your lawyers. So if there's a problem with water rights being somehow infringed upon in the future, it isn't gonna be mitigation, it's gonna be litigation. It's gonna be money versus money. CV-20

DD: Normally, I would let that drop. Uh, as a comment, I, I believe, are you from Nevada, sir?

Jeff? No, I'm not.

DD: Ok, I, I would encourage you to contact the State Engineer's office. It is not as simple as you make it. The State Engineer has some very severe penalties about impact to existing users. And it is, it isn't even an option to go to court before that State Engineer intervenes on behalf of the existing user. That's an overly simplification of a very complex....

Jeff: The Environmental Impact survey is already compromised water rights that this rancher over here is already ..... lakes so. You're already started.....

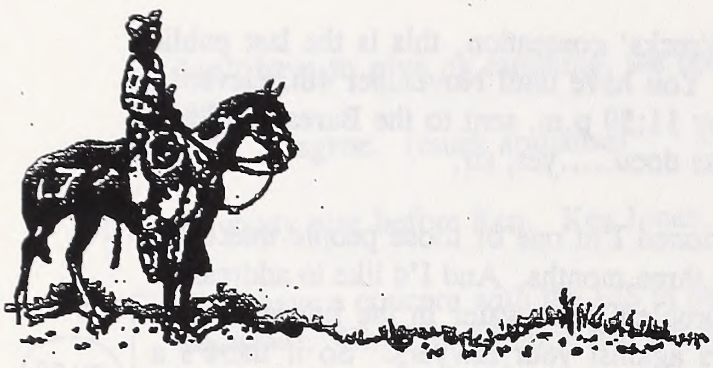
DD: Uh, again that's not.....ok, I screwed up, I shouldn't have answered that.

(laughter from audience)

DD: I'll let it go. We'll, we'll take you comment under consideration. Thank you. Is there anybody else here, again, last opportunity for verbal comments. I'm encouraging you, it's a very short time, to take another look at that EIS. Try to get any additional concerns or comments into the district manager, P.O. Box 1420, Battle Mountain, Nevada. The address is in the EIS. You can give me or Helen Mary a call, at 635-4000 for further information about the project. I, take a liberty here, I'm sure, the mine would be happy to talk to you about any of your concerns with a phone call, uh, contact Mark or Quayle. One more, yes, sir.

?? Uh, it's heartening to see all the people with their diverse opinions and view points. But I'd like to thank everybody that came. I think we owe a special thank you to Betty.....(applause)

DD: If there's nothing else, we appreciate your peaceful participation, have a safe drive home and thanks a lot.



JIM ALVES
C/O
-DEAN RANCH-
STAR ROUTE
CRESCENT VALLEY, NEVADA
89821
(702) 468-0332

Sept. 29, 1994

Hearing on;

Cortez Pipeline Gold Deposit

Draft, Environmental Impact Statement

Hello,

My name is Jim Alves, my father is Maynard Alves, who owns the Dean Ranch in Crescent Valley, Nevada.

First, I would like to enter into evidence, two maps. One map shows Water Rights that belong to the Dean Ranch, and the Dean Ranch private property. The other map shows Dean Ranch private property in contrast to B.L.M. land. This second map also shows that the Dean Ranch is the nearest, largest owner of private property to the Pipeline Deposit.

Now for a brief history of the Dean Ranch. The Dean Ranch of Crescent Valley, Nevada, is approximately 130 years old. Joe Dean started his ranching operation in Crescent Valley in the 1860's.

Prior to 1885, the meadows and hay fields of the Dean Ranch were fenced by Joe Dean. The water to irrigate these meadows and hay fields came first from the mountain creeks. These creeks are;

Indian Creek
Frenchie Creek
Sod House Creek
Duff Creek
Little Cottonwood Creek
Cottonwood Creek
Brock Creek
Mule Canyon Creek
Four Mile Canyon Creek
Mill Canyon Creek
Coyote Creek

These creeks were used for irrigation before 1900, making these creeks Vested Water Rights to the Dean Ranch.

Yet, this Environmental Impact Statement, (E.I.S.), REFUSES to recognize these Vested Water Rights as surface water rights belonging to the Dean Ranch. Please see table 3.4-2, "Surface water rights within study area", on page 3-78 of the E.I.S.

Also, please see the map on page E-16 of the E.I.S. In the lower right hand corner of the map, the E.I.S. states that, "No surface water rights exist in map area."

THAT IS CRAZY ! ! The Dean Ranch is on this map! Thousands of acres of surface Vested Water Rights belong to the Dean Ranch.

Someone did NOT do thier homework in preparing this E.I.S. The Dean Ranch holds Water Rights to approximately 55 springs in the Crescent Valley area. According to the E.I.S., page D-9, only 24 springs will be monitored, and only a percentage of those 24 springs belong to the Dean Ranch. Do the rest of the springs that belong to the Dean Ranch not exist?

Once a spring dries up, it cannot be, "Drilled deeper", to save its' use. Man cannot duplicate Mother Nature. These springs are the source for stock water on the Dean Ranch, and a necsessity for wildlife.

On page 3-75 of the E.I.S., "Summary of wells in Crescent Valley", Only 11 wells are shown belonging to the Dean Ranch. The Dean Ranch holds Water Rights to approximately 30 wells. Some of these wells have Vested Water Rights. Of the wells on the Dean Ranch, 14 are artesian wells. Some of these artesian wells are only 80 feet deep. The domestic well at the Dean Ranch main house, has a static water level of 15 feet below the ground surface.

Many water wells on the Dean Ranch are for irrigation. Irrigation that is VITAL to the operation of the Dean Ranch.

If ANY Water Rights belonging to the Dean Ranch are affected in ANY WAY, caused by the dewatering of the Pipeline Gold Deposit, it will have a DESTRUCTIVE influence upon the Dean Ranch, its' operation, the livelihood of its' owners, the livelihood of its' employees, the wildlife that lives on the Dean Ranch, and its' history.

Other ranches will also be adversely affected by the dewatering of the Pipeline Deposit. "C" Ranches, the Filippini family. The Dann Ranch. The Dann family has a history in the Crescent Valley area that is much longer than any of ours.

Not only will water in the Crescent Valley area be disturbed, so will grazing. The E.I.S. talks of this on page 4-69. Grazing is why the ranches are in the Crescent Valley area. If the Pipeline Deposit harms grazing, it will then harm the ranches, and the families that operate those ranches.

In looking over thethings in this E.I.S. that affect the Dean Ranch, I have found many flaws and missed facts.

If this E.I.S. as a part, or as a whole, is based on MISINFORMATION, then the COMPLETE E.I.S. is of NO USE!! IT IS A JOKE!!

This E.I.S. should be trashed and a new E.I.S. should be completed from scratch, USING FACT!!

The scariest thing about this, is the negative affect that it will have on any and all water in the Crescent Valley area.

I would like to close with what I feel is the only line in this E.I.S. that holds any truth. This only line of truth is found on page 4-19 of the Cortez Pipeline Gold Deposit, Environmental Impact Statement. "The resulting watertable drawdown in the area has been estimated using a computer model, BUT THE ACTUAL EXTENT WOULD NOT BE KNOWN UNTIL THE DEWATERING SYSTEM IS OPERATING." That would be too late! This PROVES that the people who wrote this, really have NO IDEA what they are doing!!

Thank you for your time

RESPONSE TO COMMENT CV-1

The commenter states that the DEIS may have underestimated potential socioeconomic impacts of the Proposed Action on Crescent Valley, in light of the fact that during the past year an influx of new population in that community has been noted.

The socioeconomic analysis of impacts in the DEIS used a gravity model to predict the population impacts of the Proposed Action in the short term, i.e., during construction. This model predicted that only 4 percent of the 185 nonlocal construction workers would likely live in Crescent Valley. Since construction workers are typically in the project area only for a short duration they tend to live in hotels, motels, or RV parks. Given the lack of these resources in Crescent Valley, the town is unlikely to attract a large number of construction workers.

Two alternative scenarios were utilized in the DEIS for estimating likely long-term increases in the population of affected communities from the operation of the new mine. The first scenario assumed that the new nonlocal operations employees (estimated at 53) would relocate in the study area in a pattern similar to the existing Cortez employees (based on Cortez employee residence pattern in 1993). Therefore, about 30 percent of the newcomers (16 households) would likely move into Crescent Valley and about 43 percent into Elko/Spring Creek. The second scenario utilized a basic gravity model based on population of the community and its distance from the project site. Based on this model, 55 percent of the newcomers would likely choose to live in Elko/Spring Creek and only 10 percent would likely select Crescent Valley.

Since this study was conducted, an influx of new households was observed in Crescent Valley. Inquiries from the community indicate that this influx occurred mainly because of the availability of relatively inexpensive housing and residential lots with utilities in Crescent Valley. Proximity to other mines has also been a factor in this growth (List; Drenon 1995).

Some further growth in population of Crescent Valley will continue to occur, and some of it would be on account of the Proposed Action. However, most of the residential lots near the central parts of the town have been developed and the remaining lots are mostly undeveloped (i.e., not served by utilities), and the lands surrounding the town are federally owned. Therefore, only a limited amount of future growth could likely occur. Although vacant land is available between Crescent Valley and Beowawe and there are several signs up in that area announcing the sale of this land, this land cannot be developed until electric connections become available. Therefore, the Proposed Action would likely cause only a slightly greater number of new households to relocate in this community relative to the numbers presented in the DEIS.

RESPONSE TO COMMENT CV-2

For a discussion of the remediation at the existing Cortez facilities, please refer to the Cortez Expansion EIS. Please note that remediation is proceeding satisfactorily and in compliance with NDEP directives.

RESPONSE TO COMMENT CV-3

The commenter is referred to Responses to Comments RE-1 and I-8.

RESPONSE TO COMMENT CV-4

The seep and spring survey was focused on recording flows, wetland acreage, and wildlife habitats, which can be done in a single visit at the appropriate time of the year.

RESPONSE TO COMMENT CV-5

Comment noted.

RESPONSE TO COMMENT CV-6

Comment noted.

RESPONSE TO COMMENT CV-7

Please refer to EL-17 and EL-14.

RESPONSE TO COMMENT CV-8

The commenter is referred to Section 2.4.2.2 (Alternative 6) of the FEIS for a discussion of this alternative.

RESPONSE TO COMMENT CV-9

The commenter is referred to Responses to Comments I-21 through I-60.

RESPONSE TO COMMENT CV-10

The BLM will issue right-of-way grants to the appropriate entity for control of the roads.

RESPONSE TO COMMENT CV-11

Refer to revisions to FEIS water resources section related to the expanded model predictions. Refer to mitigation and monitoring plans in FEIS Section 4.4 and the Integrated Monitoring Plan (WMC 1995b) for more details regarding mitigation for affected wells.

RESPONSE TO COMMENT CV-12

As answered by Quayle Lusty during the hearing, if there is monitoring or other evidence to indicate that Cortez's actions affected a well, then they are committed to make restitution. Please see also response D-11.

RESPONSE TO COMMENT CV-13

Comments noted.

RESPONSE TO COMMENT CV-14

Comment noted. Concerns regarding cumulative impacts and other comments raised have been addressed in Section 5.3.

RESPONSE TO COMMENT CV-15

Water resources have been addressed in other responses as well as in revised Section 4.4 of the FEIS.

RESPONSE TO COMMENT CV-16

Comment noted.

RESPONSE TO COMMENT CV-17

See response to comment CV-1 with respect to project-related growth in Crescent Valley. Future growth in Beowawe is unlikely because there is no property available for sale in that community and the likely impacts of the Proposed Action are potentially overstated in the DEIS. In other words, Beowawe would not experience any project-related population growth.

RESPONSE TO COMMENT CV-18

As noted in Response to Comment CV-1, the Proposed Action is not expected to cause an influx of a large number of project-related population into Crescent Valley. The small increase caused by the project is not expected to excessively tax the community's emergency services. The number of sheriff deputies stationed in Crescent Valley is one officer (Page 3-63 of the FEIS).

RESPONSE TO COMMENT CV-19

As noted in Responses to Comments CV-1 and -17, the project is not expected to result in a large influx of population into the communities of Beowawe and Crescent Valley because of the limited availability of developed lots. More households could move in only if electricity is extended into the undeveloped area between Beowawe and Crescent Valley. Therefore, the Proposed Action by itself is not expected to affect emergency services in those communities.

RESPONSE TO COMMENT CV-20

Comment noted.

Public Hearing Comments: Elko, Nevada

Draft Environmental Impact Statement Meeting
September 29, 1994
Elko, Nevada

After introductions were made, Mr. Quayle Lusty, Mine Manager of Cortez Gold Mines, made a brief presentation, including slides, to provide a background and summary of the proposed Pipeline Project.

Following that presentation, the floor was opened for questions.

Unknown Lady: I was just wondering on the monitoring wells, how often you had to report those.

Mark List: I don't know if you were here when I was introduced, my name is Mark List and I'm environmental engineer for Cortez Gold Mines.

Lynn Pettit: And could you give us your name, please.

Unknown Lady: Debbie McAlexander (?) , I live at Crescent Valley.

M. List: Currently we have two, water resource monitoring programs that are related to this project. One of those programs is covered under our monitoring control permit issued by the Nevada Division of Environmental Protection. The other program is a broader, regional scale program ...it follows those local wells that are, have been completed as monitoring wells in and around the site, as well as a number of monitoring points in the valley. To answer your question, when, the, if and when the project is implemented and becomes operational, monitoring would have to be done on a quarterly basis, and reported under the standards and requirements of the Nevada Division of Environmental Protection. That would be primarily the local wells system that would monitor the compliance. The regional well system would be monitored on a regular basis, certainly at least quarterly to semi-annually, in some cases more frequently than that depending on the sensitivity of the resource. And that particular information would be submitted not only the Nevada Division of Environmental Protection but also to the State Engineer's office.

Quayle: Any other questions about the project? Yes, sir. Would you stand up and identify yourself.

Chris Sewell: Chris Sewell, I was at the meeting last night. How thick is the plastic liner used ... facility.

QL: The design liner is 60 mil.

Chris Sewell: Ok, and I'm wondering, the dikes being constructed within that facility will be constructed with heavy equipment, I assume, the rock dikes.

QL: The 60 mill HDPE liner will be overlain by a, what we call a overliner crush material, it's a fine crushed material. It provides a drainage blanket for all the solutions to drain. It protects that liner, it is 18" to 2 feet thick, and then the block fill is put in over top of that. Yes, heavy equipment will be used, but not directly on the liner. First there's 18" to 2' of fine grated material is put over it, and then equipment can safety work on it after that.

Are there any other questions?

No response

QL: Ok then, I'll turn it back to Lynn.

LP: There's several seats available .....another introduction ..... much..... Nevada Division of Wildlife ..... cooperation with the final impact statement.

We will start with the people that pre-registered for comments randomly, and then we'll take anyone else that has comments. You may come up here or just stand up where you are. Tony Lesperance:

TL: My name is Tony Lesperance, I live here in Elko and I am associated with Great Basin Resource Management Great Basin Agriculture. I've only been aware of the certain provisions within the draft EIS for the last 48 hours. Further I've only been provided a copy of this draft during the last 36 hours, consequently my review is somewhat limited. I am familiar with the Crescent Valley area, Cortez Gold Mine and related agriculture. In this regard I offer the following:

From 1972 through 84 I was in charge of and lived in Grass Valley ... research and demonstration ranch which is located about 15 miles due south of Cortez. Throughout this period I frequently helped local neighbors and cattle ranchers gather cattle in Cortez Mountains as well as Carico and Crescent Valley. I'm also quite familiar with the Dean Ranch. The Dean Ranch became property of First Security Bank of Utah during the late 1970's. After repeated attempts to sell the property it was transferred to its subsidiary First Security Leasing and subsequently leased. Our firm, Great Basin Resource Management, was retained by First Security Leasing to work closely with the leasee to redevelop the property along the lines originally perceived by Dan Fillippini. In that regard, Mr. Fillippini spent considerable time at the ranch during 1983-1984 hoping to reestablish the original irrigation system and the entire cropping system. Much of my historical perspective of the Dean Ranch is based upon my discussions with Mr. Fillippini. In 1985, First Security Leasing decided to sell the ranch, consequentially the lease agreement, arrangement with the leasee was terminated. We were involved in the

disclosing of the ranch thereafter. In 1993, our firm was retained by the present owners, Maynard and Jacqueline Alves to develop accurate cropping statistics ...ASDS. Our firm has also been retained by Cortez Gold Mines to assist in preparation of their reclamation plan during 1990-91. Further a sister organization, Great Basin Resource Management, has assisted in the actual reclamation of Cortez including doing the actual interim seeding on the Pipeline site. I wish to go clearly on record, as being totally in support of the expansion of the Cortez Gold Mines and to its Pipeline Project. I firmly believe that hard rock mining presents, as it presently is being conducted throughout northern Nevada, is an excellent and absolutely necessary resource. Further I firmly believe that the environmental consequences of such activities are totally manageable so that long term impacts, if in fact they do exist, can be successfully litigated. However, to be successful, it is essential that all efforts be put forth in advance planning so that potential impacts can in fact be identified, and successfully litigated. In this regard, a correct and factual EIS is of utmost importance. The key issue in Crescent Valley is water. It would have been my hope that a clear and precise water balance or budget for the involved water basin in Crescent Valley and Carico Valley would have been presented in the EIS. I could not find any such clear set plans. On the contrary, I find massive amounts, massive array of data, facts, discussion and observation are being totally confused. Further, I find a considerable amount of this information either not factual or presented in a manner that is not understandable. Admittedly, I have not had the time or opportunity to research the supportive documents to see if in fact the baseline data is presented. However, I am not aware of the fact that the reader of an EIS, this EIS or any EIS, for that matter, must in fact research his or her own data to draw correct conclusions. I believe the purpose of an EIS is to present the information in a way that the reader can rapidly come to his or her own conclusions of support or non-support, as the case may be.

EL-1

Some of my concerns involving water and water related items are as follows:

On page 341 - Districts ?. The DEIS indicates that only one trout was found in any creek and nowhere else and likely was found from an illegal planting. Nor that the trout streams were identified as being involved within the area with the exception of possibly Elder Creek which is not really in the area. I'm told by residents of Crescent Valley that there are, have been five streams in the vicinity that have had trout populations. These would include Frenchie, Dove, Rock, Cottonwood, and Indian Creeks. Further I personally caught trout in Frenchie, Rock and Cottonwood. The recent drought may well have destroyed some of these fisheries, however from a historical perspective, these must be considered. Further, within the last year, I personally seen fish in both .... Creek and Frenchie Creek.

EL-2

Page 323 - Ground Water Discharge. The EIS discusses the annual evapo/transpiration rate as being in the order of 1 to a 3 year, quote unquote. What is meant by this statement, what is 1 foot per year per what. The EIS indicates that the total annual evapo/transpiration is 2800 acre feet per year for 250 square miles. This amounts to 57 acre feet per year. How does this relate to the order of 1 foot per year. The Pipeline Project will be a user of water resources in Crescent Valley. It is difficult to ascertain

EL-3

to what degree, especially considering the following points:

On 420 - Lowering of Water Table Due to Pit Dewatering. Pumping will be at the rate of 30,000 gallons per minute, with 2000 of that to be used in the process, in processing. The assumption is made that the remaining 28,000 gallons per minute will be infiltrated. Is this pumping and use continuous over a 24 hour basis, 365 days a year. If so 2,000 gallons per minute will result in an annual use of some 3,200 in 18 acre feet. EL-4

On page 4, 102 through 105 - Preliminary and Location of Re-Infiltration Basins. I can not find information in the DEIS dealing directly with the amount of infiltration that will occur. However, I believe that to be about 28,000 gallons per minute. EL-5

On page 4, 102 ..... infiltration system will not disturb more than a 126 acres at a time, however if this map is drawn to scale as well as subsequent maps, then the... version filtration ponds represent close to 80 acres, and Cortez partial site represents 360 acres, while the Robinson infiltration site would be around 587 acres. How do these sites relate to the statement that 126 acres would be the maximum disturbance. What is not addressed is the amount of evaporation that will occur at these sites. Depending upon which site is used and assuming that annual evaporation will be at least 4 to 8 inches annually, water lose will be somewhere between 320 to 2348 acres/feet. Coupled with the annual evaporation and the annual operational use of 3218 feet, the projected use by Pipeline Project will be at least somewhere between 3538 and 5566 acres/feet. If one took the averages of these two figures, 4452 acre/feet, this would represent 28% of the annual yield of water for Crescent Valley Basin, or Basin 54, as estimated by the State Water Engineer. EL-6 EL-7

On page 4-102: The amount of dewatering to occur is 28000 gallons per minute and is re-infiltrated into a pond never exceeding 126 acres, then the daily infiltration per unit of space must be essentially one foot per day. In other words, an infiltration pond consisting of one acre filled one foot deep, must infiltrate this entire amount of water daily. Due to the high water table at Crescent Valley, with does not seem possible. More likely, the infiltration ponds will ultimately be much larger, resulting in much greater evaporation, and subsequentially much greater loss of water in Crescent Valley. EL-8

One page 3-21, Ground Water Elevations: Considerable discussion is presented concerning ground water elevations as recorded in wells. No where in this discussion can I find supporting tables or discussion of supporting tables .. in fact that a number of wells on the Dean Ranch are in fact artisan. Further, significant acreages .... have developed because of these resources. What will be the impact on these artisan wells as dewatering drops the water table. These wells are within the 7 mile radius from site, how is impact being mitigated. EL-9

Page 3-23 thru 3-24, Ground Water Discharge: The EIS indicates the combined flow rate of all springs in the valley is somewhere between 200 and 250 gallons per minute. There are springs on the Dean Ranch along that would account for that amount of water. EL-10

Page 3-33 - Wet Lands: The EIS states that approximately 16 seeps and springs supporting 40.5 acres of wetlands are located within the study area. Incidently the study area includes the entire Dean Ranch. There are several hundred acres of wetlands alone located on the Dean Ranch entirely supported by seeps and springs. EL-11

Page 3-28 through 29 - Shoshone and Cortez Mountain Ranges: The EPI (?) indicates that ... collection for drainages from these mountains was collected August and September of 1992. Further, 1992 was a far from average year within the confines of the study area, and secondly no useable stream flow data or any drainage data for that matter, could reasonably be expected to be collected during August and September in Crescent Valley. EL-12

C20 - Estimated Recharge Rate for Crescent Valley: This table estimates an approximate annual recharge of 24,500 acres feet per study area. However, the State Water Engineer estimates the yield from Crescent Valley, Station #54, at some 16,000 acre/feet. That basis, incidently, estimated by the State is somewhat larger than the study area reported in this EIS. Further, the adjacent Carico Lake Basin, #55, uses only 4,000 acres/feet. How is it possible for this EIS to come up with an annual basis thousands of acre/feet of water in excess of what the State Water Engineer recognizes for this area. EL-13

3-76, Summary of Wells: There are 11 listed wells on the Dean Ranch, actually there are close to 30 that are permitted and well documented in the State Water Engineer's office. The above discrepancies leaves sufficient doubt as to the validity of this EIS. However, it is far greater disregard of factual information has been interjected to bias this EIS and that is the existing use of surface water rights. EL-14

LP: Um, before you start on Surface Rights, working the time factor,if we have time at the end you can come back up and do those, or you can just wind it up right now.

TL: I can wind it up fairly fast.

The entire subject of surface water right is dealt with in one seven line paragraph on page 323 under surface water right. Some .... as having surface water rights. I can find no additional information .... EIS of the extent of these water rights and ... acres involved much less the number of acres/feet of ground water submitted. Far greater significance is given to springs and wells. The Dean Ranch alone, has certified surface right for 7,558 acres and some 29,195 acre/feet of water. Further , the very legitimate case can and will be developed for an additional vested rights for another 3,060 acres representing an additional 11,640 acre/feet. Historical documentation exists to support all of these facts. Further the ASDS recognizes and certifies up to nearly 5,000 acres of this area is legitimate crop land, irrigated solely by surface water. It is inconceivable, that any EIS can be presented in good faith to the public of this state with complete and utter disregard to these facts. Further, none of these figures I have just presented take into account any of the water rights held by the Dean Ranch and currently being used for crop irrigation. Very little else in the State of Nevada is as important or perhaps even sacred as vested certified by water rights. There are presently two Nevada lawsuits EL-15

against the Federal Government currently being heard at the US Courts Federal Claims based on this fact. Further there are several other claims pending. Today, the county of Elko in conjunction with the resident ranch is taking action against the United States Forest Service, basically over water. The involved counties in this project, Lander and Eureka, have both made definitive statements in regards to movement to both local downstream, of water downstream in the Humboldt Basin. In the light of the current philosophy, the importance of water, as well as the legitimate and historical rights for that water within Nevada, it would seem to me incredible, that first an EIS of this importance would be developed with complete disregard to the legitimate water rights of all users within the impacted area, and secondly that the BLM would allow an erroneous document to go forth pertaining to .... The Dean Ranch alone holds water rights equivalent to several times the annual recharging basin. These are legitimate rights, and must be dealt with. I would remind Cortez Gold Mines, the preparers of this EIS would ..... and their subcontractors, as well as the BLM, the resent failures the draft EIS Sierra Pacific Thousand Springs project was ultimately from the presentation of erroneous water right data. I would suggest that you are facing some problems in this current document. No one wants to see the Pipeline Project fail, certainly not me, to avoid that it is absolutely essential that all factual information concerning the water balance of Crescent Valley is fairly and honestly dealt with in this EIS. As additional information supporting my statement, I am including a signed affidavit by Mr. Mike Buschelman, who is a professional engineer, attesting to his conversations with the late Dan Fillippini.

EL-15

Thank you.

LP: Thanks, Tony. Like to remind everybody, ground rule #5. If you have more than 10 minutes worth of comments, break it up or, or save some of them for later, if we have time we'll get back to you. This will give everyone a chance to voice their comments. Thanks. Next is R. Lee Chapman.

LC: Thank you, and I'll do my best to get you back on time. My name is Lee Chapman and I'm chairman of the Elko County Commissioners, and I'm here tonight to talk to you about the benefits, mainly the economic benefits involved with the acceptance to the project like the Pipeline Project. See in 1993, the mining industry in Nevada set a record by selling 2.7 billion dollars worth of metals on world market. This activity is lead to the maintenance of 13,500 direct jobs and 40,000 indirect jobs in the state of Nevada alone. As many of you know, Nevada leads the nation in population growth, and is in the top ten states as far as living standards are concerned. This is important because the mining industry plays a key role in the success and therefore the quality of life offered by our state. The mining industry pays the highest wages in the state, and the Pipeline Project is no exception to this rule. In this current state of anti-mining and anti-use of our public lands in Nevada, it should come as a pleasant thought to the citizens of Nevada and the nation, that the following advantages will occur as a result of this project. While the mining industry is often accused of being a boom and bust industry, the reverse is true. This industry provides careers, not jobs. The Pipeline Project exemplifies this by being located in an area that has supported mining projects for not just generations but for well over a century. And I might ask, what better place

EL-16

to find a mine but right next to one that's already there. The people factor must be calculated in any equation, to not lay off 200 people, to not negatively affect our many, many local businesses is certainly a plus. In this era of foreign investment, it's nice to see people willing to invest in Nevada, invest in the United States, and invest in our region. Major investments of this type in our area are good for everyone, and again provides the quality of life that we're so proud of. To have such a fine company and group of people interested in investing and proving out a reserve in our area, in our times, is quite a plus. Placer US and the Cortez group are among the finest mining people in the world. They're not only committed to this area, but they're also committed to responsible mining, and that's why we're here tonight. The legal process itself is designed to bring out opportunities and concerns that any mining project may have. I would suggest that we look at this project as an opportunity to do what's right. An opportunity to discuss concerns and opportunities and work toward solutions to the various challenges that we may have in front of us, because the overlaying economic benefits are so great. Our area in northeast Nevada exemplifies what a healthy industry can do. In the northeastern part of Nevada, we currently have 5,000 direct mining jobs, and another 10,000 indirect mining jobs. If you were to compare the mining activity in this region to Elko County, you would find that mining in our area covers about 36,000 acres, or .3% of all the land within Elko County. This activity on .3% of all our land generates 24% of all our jobs, and 57% of all our personal income within the county. Quite a use of not only our resources, our space, our water, and our people. While the Pipeline Project is located outside of Elko County, many of their employees will live within the county, and most of the support industry is located within our borders as well. During this legal process, you'll hear concerns about wildlife, plants, and mainly water, among other problems. All of these problems and opportunities, I might add, have a common thread. These can all be overcome. Solutions can be found if reasonableness and common sense are allowed to prevail. You have a project here that will provide an enormous economic benefit to our area, is located in a district where mining has been ongoing for more than a hundred years. You have one of the very finest companies and very professional group of people working with you. You have a process here that allows you to define your concerns and opportunities that lay ahead. And you have a project that will most certainly proceed on its own merits and certainly be successful. I'd like to welcome all of you that aren't from Elko to the best small town in America. And I'd like to submit to you that projects like the Pipeline Project are just one of the many reasons why people believe this statement to be true. Thank you.

LP: Thanks, Lee. Jim and Maynard, are you doing your comments together or ? Ok, Jim.

JA: Hello, my name is Jim Alves, my father is Maynard Alves who owns the Dean Ranch, Crescent Valley, Nevada. First, I'd like to enter into evidence two maps. One map shows the water rights that belong to the Dean Ranch, and the Dean Ranch private property. The Dean Ranch private property is in green, the water rights are marked in blue, as well as the vested creeks, the vested water rights creeks. Down here in the red color, is the pit area and disturbance area of the Pipeline deposit. I just wanted to that so the proximity, each one of these sections is a mile. The Dean Ranch consists of just under 50,000 acres of private property, and close or exceeding 100 water filings I'd like

to submit that as evidence. Also, the other map shows Dean Ranch private property in contrast to BLM land. This second map also shows that the Dean Ranch is the nearest, largest owner of private property to the Pipeline Deposit. Again, this is the Dean Ranch private property marked in red, here's Gold Acres site here, the new Pipeline discovery is here. This is all Bureau of Land Management land, this shows that we are one of the largest private property owners in the Crescent Valley area, closest to the Gold Acres pit.

Now for a brief history of the Dean Ranch. The Dean Ranch of Crescent Valley, Nevada is approximately 130 years old. Joe Dean started his ranching operation in Crescent Valley in the 1860's. Prior to 1885, the meadows and hayfields of the Dean Ranch were fenced by Joe Dean. The waters that irrigate these meadows and hayfields came first from the mountain creeks. These creeks are: Indian Creek, Frenchie Creek, Sod House Creek, Duck Creek, Little Cottonwood Creek, Cottonwood Creek, Brock Canyon, Mule Canyon, Four Mile Canyon, Mill Canyon Creek and Coyote Creek. These creeks were used for irrigation prior to 1900, making these creeks vested water rights to the Dean Ranch. Yet, this environmental impact statement, the EIS, refuses to recognize these vested water rights as surface rights belonging to the Dean Ranch. Please see table 3.4-2 Surface Water Rights Within the Study Area, on page 3-78 of the EIS. Also, please see the map on page E-16 of the EIS. In the lower right hand corner of the map, the EIS states that, quote, "no surface water rights exist in map area." This is crazy. The Dean Ranch is on this map, thousand of acres of surface vested water rights belong to the Dean Ranch. Someone did not do their homework in preparing this EIS. The Dean Ranch holds water rights to approximately 55 springs in the Crescent Valley area. According to the EIS, page D-9, only 24 springs will be monitored, and only a percentage of those 24 springs belong to the Dean Ranch. Do the rest of the springs that belong to the Dean Ranch not exist? Once a spring dries up, it can not be drilled deeper to save its use. Man can not duplicate Mother Nature. These springs are the source for stock water on the Dean Ranch, and a necessity for wildlife. On page 3-75 of the EIS, quote, "Summary of Wells in Crescent Valley" unquote, only 11 wells are shown belonging to the Dean Ranch. The Dean Ranch holds water rights to approximately 30 wells. Some of these wells have vested water rights. Of the wells on the Dean Ranch, 14 are artisan wells. Some of these artisan wells are only about 80 foot deep. The domestic well at the Dean Ranch main house has a static water level of 15 feet below the ground surface. Many water wells on the Dean Ranch are for irrigation, irrigation that is vital to the operation of the Dean Ranch. If any water rights belonging to the Dean Ranch are affected in any way, caused by the dewatering of the Pipeline gold deposit, it will have a destructive influence upon the Dean Ranch, its operation, the livelihood of its owners, the livelihood of its employees, the wildlife that lives on the Dean Ranch, and its history. Other ranches will also be adversely affected by the dewatering of the Pipeline deposit. C (?) Ranches, the Fillippini family, the Dann Ranch. The Dann family has a history in Crescent Valley, in this entire area, that is much longer than any of ours. Not only will water in Crescent Valley area be disturbed, so will grazing. The EIS talks of this on page 4-69. Grazing is why the ranches are in the Crescent Valley area. If the Pipeline deposit harms grazing, it will then harm the ranches, and the families that operate those ranches.

EL-17

EL-18

EL-19

EL-20

EL-21

In looking over the things in this EIS that affect the Dean Ranch, I have found many flaws and miss-facts. If this EIS as a part or as a whole, is based on miss-information, then the complete EIS is of no use. It is a joke. The EIS should be trashed and a new EIS should be completed from scratch, using fact. The scariest thing about this is the negative affect that it will have on any and all water in the Crescent Valley area.

I would like close with what I feel the only line in this EIS that holds any truth. The one line of truth is found on page 4-19 of the Cortez Pipeline Gold Deposit Environmental Impact Statement. Quote, "The resulting water table draw down in the area has been estimated using a computer model, but the actual extent would not be known until the dewatering system is operating" unquote. That would be too late. This proves that the people who wrote this really have no idea what they're doing. EL-22

Thank you for your time. You did want a copy. Here, I'll let you have those.

LP: Thank you, Jim. Maynard Alves.

MA: Hello, my name is Maynard Alves, I own the Dean Ranch in Crescent Valley. I have some documents here I'd like have presented, if you would please. I'd like to read just a little bit of one, if we have limited time. It says here for example, present pumping at the Beets (Betze) pit, I believe that's how you'd pronounce it, it a mine there in Carlin, had decreased the water table at the Dee Mines, five miles away, by over 500 feet, this is documented. An undisputable fact. There are many things in here, in these documents, that substantiate many of my concerns. Now, I'd like to make this understood, in the beginning here, that I'm not here to try to run off anybody from their jobs, or create a problem to the human resources in Nevada. I am here because I am extremely concerned for myself, my investment, and my family, my livelihood. I have a lot of years work, a lot of sacrifice in what I have put together, and I will not by any means stand by and watch somebody destroy it, by whatever means it may be. The very important pictures that they show here today, that I do not agree, I believe they are conjecture and theory. And the report that I am presenting there is definite documentation of water tables being dramatically dropped and springs drying up from dewatering. The gentlemen said that the water up high will not be affected as they are springs on higher ground. I was under the assumption that water ran downhill, and when there was a void, water ran that is higher will run to that void. I am extremely disturbed at the mistakes, or important things purposely left out of the EIS, such as our water rights, etc. And we have documentation here, as Mr. Lesperance and my son have presented today, to show that we have these water rights. We can document, they are undisputable. Yet, in the EIS, it says we do not have any. Anything that's a grave mistake to that nature would have to lend me to think that there are many more flaws in this statement. If there are that many discrepancies, I'd like you to think about this, in this portion, how many are in the rest of the EIS. And, you know I've heard about the mine trading jobs, and that's great, but I want you to remember something. The companies are not here to make jobs, they came here to make money. Jobs to them are a secondary. Item: If they could mine without human labor, they would surely do so because it would increase their profitability. So don't ever think that they came here just

EL-23

EL-24

to help you, they came here for money. Now, that's fine if this process creates jobs and helps people. That's very good. I am... I think, I'd like to reiterate. I am not here to destroy anybody's livelihood, or hurt anyone personally in any way, shape or form, or to destroy the Pipeline Project. I am here just to protect my interest and my concerns. And I won't take up any more of your time. As far as closing, I ask that this EIS be rejected. Thank you very much. Here's the documents that substantiate these things that I .....

LP: Thank you, Maynard. That's all the pre-registered comments I have. Now we'll open the floor to anyone else that would like to make a comment.

ZM: Thank you .... Pardon me, ..I've got a throat infection..... My name is Zane Miles, district attorney of Lander County. My comments tonight are personal, and as individually representing members of the Board of County Commissioners. Because of our time schedule, and the requirements of the open meeting law, ... has not been able to hold a formal meeting with the board to be able to submit its comments at this time, we will be submitting written comments ....subsequentially

Just a couple of things I'd like to say. One is that Lander County has been extremely pleased with the approach that has been taken by the Cortez consortium in the planning development of the Pipeline Project. The very beginning, these people came to Lander County and asked us what we wanted in the way of protection of the water resources in the area. And the county commissioners told them that they wanted the water reinjected as much as possible and reinfiltrated directly back into the basin. And the company agreed to do that, and that is the direction they have taken in the Environmental Impact Statement. I can't sit here and tell you that every detail in the Environmental Impact Statement is absolutely correct. There are factual errors will occur. But I can tell you that the planning, the ultimate planning as set forth in the Environmental Impact Statement exactly mirrors what Lander County asked these people to do and what the law of Nevada requires as far as water resources is concerned. I only wish that every deep mining operation in north central and north eastern Nevada was as environmentally conscious and as concerned about protecting the ranchers who will be here after the mines have gone, as Cortez has been in this operation. The, uh, one thing, pardon me, one thing that has to be remembered is that Crescent Valley is what the State Engineer terms a water deficient basin. That doesn't necessarily mean that it doesn't have any water, the means that there are more organized water rights and annual recharge, and the water may very well be utilized in one place, or be surplus in one area of the basin, and not available in another area. Personally, I'm greatly impressed the plan that calls for the reinfiltration system to be broken be, between the major water be pumped and the .... agricultural area which is the Dean Ranch. If there is any possible way to reduce the impact of the mining dewatering on the Dean Ranch, that location of the re-infiltration system is all that can be done. That's the right way to do it. And again, these people have done it. And again, I only wish that all of our mines in northeast Nevada were as conscious of the effect of what they were doing.

EL-25

For the record, I can say that Lander County wishes that this hearing were being held

in Lander County, since we're the county that is, we're substantially affected. The BLM seems to hold the hearing in Reno and one in Elko, but it certainly ..... if the BLM would consider holding the hearings in the county that actually is affected. We will be submitting the full written comments, and we appreciate the help that we have incurred. Thank you. EL-26

LP: Thank you. Chris ???

Chris Sewell: Could I speak from here or should I get up front?

LP: That's fine.

CS: Again, Chris Sewell, I'm a volunteer for the Western Shoshone Defense Project in Crescent Valley. I've been there for a year and a half. The support the Dann family in Crescent Valley there, and we're to protect and preserve Western Shoshone rights and responsibilities in the Crescent Valley area. We have a lot of problems with this document. We feel, with the Alves, there's very deficient and lacking a lot of information.

First of all, I'm going to reiterate the point I made last night, was that there was no consultation done with the Western Shoshone people regarding this project. And that's downright inappropriate right there. EL-27 Also, regarding the modeling. The modeling for the dewatering was done for a period of ten years, and it's my understanding that the mine will be dewatering for at least twelve years. It's also quite apparent that the mine will expand into the South Pipeline and continue dewatering for, who knows, another decade, perhaps longer. EL-28 And this needs to be taken into account, and it hasn't been. Also, I'm concerned with the infiltration ponds, and, um, it's claimed that they will be used to litigate the damages to springs and seeps and such. What happens when the mine stops dewatering, those re-infiltration ponds are not filled up any more, and the pit begins refilling. EL-29 My understanding, there will be a gradient form, and that pit will continue to sump water from the surrounding area, in those springs and will dry those springs up, and that's for a period of, they say what, 90 years for the pit to refill. When there's no mitigation of any of the dewatering effects that will continue. That's the really big problem. Also, in terms of litigation, there's at least 75 springs in the general area, at least. Only 25 of those right now are scheduled to be monitored, and if any of those 25 that are monitored, they appear to be affected by the dewatering, then according to the document, they'll undertake a detail study to determine if in fact that spring is being affected by the mine per say. EL-30 And then, if it is determined to be affected, they will build another re-infiltration pond, or something to that extent. From what I see, that is a long, long process, and that won't mitigate any short term impacts of dewatering once it happens. And I see problems both to, economically seems to be grazing rights, and stuff but also to wildlife in the area. EL-31

And finally, concerns about the tailing/ heap leach facility. The clay liner beneath it, my understanding reading the document, that the dewatering will cause the ground to subside, in areas, up to 20 inches. According to the documents, those areas will subside

the most are directly underneath the tailings/heap leach facility, so I call into question the imperviability of that clay liner if the ground is sinking 20 inches at parts beneath that liner. That's a major concern there. EL-32

Also, concerns that once you have this pit there, and it refills and becomes a lake, that's permanent. The document claims that there is a low potential for metals and such to leach into the water. But according to the document, it's only monitored for thirty years by Nevada Department of Environmental Protection. I guess my question for the mine is, a hundred years, five hundred years down the road, if metal and stuff are leaching from those walls, you know, what are they going to do about, they probably won't even be around. EL-33

And we'll be submitting written comments, that's all I have to say right now.

LP: Appreciate your comments.

Judy Rosenthall

My name is Judy Rosenthall, I am an interested party, represent the Utah Alliance of the Western Shoshone Defense Project, and also to a great degree, I would like to ali myself with the ranchers and the mine workers who are going to be involved with this project. I think, one issue which has to be addressed here, and that we have to remember, is that Nevada and many places out west was built not only by mining interest but also by ranchers. And the minute that you turn one against the other you start defeating one important, especially if you look at the fact that the ranchers here have, are bringing in money which comes from US industry and stays within US industry unlike many mining interests today which are multi national, and which entail money going out of the country, you have to look at this as a US issue, and not just a local issue. That the miners are workers as the ranchers and the miners are all workers, and that if the ranchers can be put out, if these issues are not addressed, as we've seen them tonight, and if they aren't taken into consideration, the miners may well be put out as well. Ten to twelve years from now, granted, we may be able to find another mine or we may not. And will Placer Dome be there to replace these people or to put them in new places. One can only hope but we're not really sure. We need to take into consideration what's going on here, which is if you start to displace people if you don't listen to their needs, and I would ask the people of Placer Dome and Kennecott, who are not represented tonight, to consider that they've got to look at everybody's needs in this situation. And that you must address the considerations which have been stated here. There is a huge industry which comes from cattle ranching in this state, and if people haven't realized that, half of you are cattle ranchers. We know that the money that comes in not only from the beef, but all the equipment that goes into it, and all of the people that are hired because of it, and all the truckers and everybody else that are involved, have to be taken into consideration in this case. This isn't just a situation where it's isolated ranchers, this goes on all over this state, it goes on all over the state of Utah where I'm from, and its just too easy to say, Oh, this is just one rancher that's having a problem. Again, the miners are involved here too. You know what it's like to be transferred from place to EL-34

place. You know what it's like to drink bottled water. You know what it's like to bathe in water that may or may not be contaminated. I would urge you all again, to please review this environmental impact statement and to ask how it this going to affect me personally, because it is, it's going to affect each one of us in some way that may well be detrimental to us. And to not let this fly quite so easily. And to not say, "Well, guys you know my job's at stake," well your job's at stake, but your family is at stake, too, if you're a miner. You're living out there and you're drinking that water, you'd better darn well make sure that those liners stay in place and intact, and already tonight we've had some questions about that. And if you're a rancher, you'd better darn well make sure that there's not some mining interest that's in there and ... "humm, this looks like a good area, and don't worry we'll take care of your water," because there's enough places that we've seen, and there's been enough evidence brought up this evening, by the Alves, that these issues are very important, they are very real, and they are very dangerous to you, as individuals. Thank you.

LP: Thank you. Any other comments?

Royce Hackworth:

I'm Royce Hackworth, I'm president of the miner's support group in Elko. We are also concerned about water in the state of Nevada and making sure it's taken care of. In addressing the EIS, I'm sure these points will be addressed and readdressed, that's what this comment period's about. It's about the way things are and those they involve. However, you state the mining industry is one where we're always concerned about longevity. Longevity is part of finding another resource. In the process of finding a resource, we try to put some stability into the business of being here in the Unites States, based in the states, I commend Placer Dome for finding some deposits within our own state. There's very few companies that want to spend money in the United States because of the environmental issues and permitting processes that are being involved today. It's not an easy process to permit a mine, and in the process of permitting these mines, we are addressing what we consider everybody's issues, whether it be environmental, social, economic impacts. One thing about it is, is we need to work to make sure that mining industry does stay liable, and if you read the EIS, in the process ... they are addressing these issues. Place Dome has proven itself to be a good neighbor and trying to do what's right. I want to make sure that you understand, that this company has been in existence for a long time, as the mining district down in Crescent Valley has. The idea that this area has been mined for over a hundred years, and their efforts to try to pursue and continue on mining the area is of utmost importance. They are making a commitment. They're making a commitment through the EIS to address your problems, and I understand the concerns about water in the state of Nevada, and they have addressed the issue of trying to reintroduce it versus trying to ship the water out in another basin, and I believe that this process that they're going through is to bring out everybody's concerns. I feel Placer Dome, being the type of neighbors they are, will address these concerns and will try to do what's right. Thank you.

EL-35

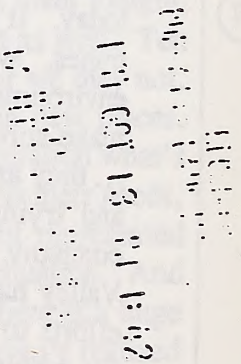
LP: Thank you.

Debbie McAlexander

My name is Debbie McAlexander, and I'm a resident of Crescent Valley, and ....evaluating what happened. My interest is very small, so my comments fairly small. I work in the mining industry, except I find myself on the other side of the fence here, looking at now from my backyard. I am obviously for mining, but what I'm obviously concerned about is water, like everybody else.

My only comment after..... it's been my position where I'm at to actually review an environmental impact statement that was done for a mine outside of Carlin, I found this one rather hard to read and try to describe what could be missing here. Basically because admittedly I haven't been in the area long enough. Everybody else here knows and appreciates the problems a lot better than I do. The one comment that I would have that would be ..... is considering the proximity of Carlin, being a much larger town actually than Crescent Valley, a well was drilled for them, and I think it would be appropriate to have a backup well also drilled for Crescent Valley at least. And also the monitoring..... monitoring, because reinjection could bring on injuries..... That's my only suggestion. EL-36

LP: .... Any other comment on the draft? Ok, thank you for coming with your views. Just want to remind you that you have through November 4th to get your written comments into us. Those comments will all be reviewed. We'll decide what path we're taking on the final, final of the EIS documental draft.



Great Basin Agriculture, Inc.

"Dedicated to Nevada's Natural Resources"

P.O. Box 2744 • 651 Silver Street, Elko, Nevada 89801

(702) 738-8560

September 29, 1994

to: **DAVE DAVIS**
BUREAU OF LAND MANAGEMENT
BATTLE MOUNTAIN DISTRICT
P.O. BOX 1420
BATTLE MOUNTAIN, NV 89820

from: **ANTHONY L. LESPERANCE**
GREAT BASIN RESOURCE MANAGEMENT
P.O. BOX 2744
ELKO, NV 89803 Anthony L Lesperance

re **CORTEZ PIPELINE GOLD DEPOSIT**
DRAFT
ENVIRONMENTAL IMPACT STATEMENT

I wish to make the following comments concerning the above draft EIS:

1. I have only been aware of certain provisions within the draft EIS for the last 48 hours. Further I have only been provided a copy of the draft EIS during the last 36 hours, consequently, my review is of a limited nature

2. I am familiar with the Crescent Valley area, Cortez Gold Mine and related agriculture. In this regard I offer the following:

From 1972 until 1984 I was in charge of and lived at the Gund Research and Demonstration Ranch, (which belonged to the University of Nevada, Reno), located in Grass Valley, approximately 15 miles south of the Cortez Gold Mine and 20 miles south of the Dean Ranch.

In addition to being a neighbor to these enterprises, I had additional reason to frequent both enterprises, as our earth-ground telephone line ran directly through the Dean Ranch including its headquarters, as well as the entrance to Cortez Gold.

Throughout this period I frequently helped the Bauman's and other neighboring cattle ranches gather cattle from the Cortez Mountains, as well as Carico and Crescent Valleys.

The Dean Ranch became the property of the First Security Bank of Utah during the late 1970's. After repeated attempts to sell the property, it was transferred to its subsidiary First Security Leasing, and subsequently leased. Our firm, Great Basin Resource Management (GBRM), was retained by FSL to work closely with the lessee to re-develop the property along the lines originally conceived by Dan Filippini. In that regard, Mr. Filippini spent considerable time at the Ranch during late 1983 and 1984 helping to re-establish the original irrigation system and entire cropping system. Much of my historical perspective of the Dean Ranch is based upon my discussions with Mr. Filippini.

In 1985, FSL decided to sell the Ranch, consequently, the lease arrangement with the lessee was terminated. GBRM was retained by both FSL and the lessee to arrange for accurate appraisal of existing values. Upon termination of the arrangement between FSL and the lessee, the property was actively merchandised. GBRM visited the property twice during 1986 and 1987 on the behalf of potential buyers. In 1993, GBRM was retained by the present owners, Maynard and Jacolyn Alves to develop accurate cropping statistics, including acreages and yields, for ASCS reporting.

Great Basin Resource Management was also retained by Cortez Gold Mine to assist in preparation of their reclamation plan during 1990-91. Further, the sister organization of GBRM, Great Basin Agriculture and Mining Supply has assisted in the actual reclamation of Cortez, including doing the actual interim seeding on the Pipeline Site.

3. I wish to go clearly on record as being totally in support of the expansion of Cortez Gold Mine into its Pipeline Project. I firmly believe that hard rock mining, as it presently is being conducted throughout northern Nevada, is an excellent and absolutely necessary economic resource. Further, I firmly believe that the environmental consequences of such activity are totally manageable so that long term impacts, if in fact they do exist, can be successfully mitigated. However, to be successful, it is essential that all efforts be put forth in advance planning so that potential impacts can in fact be identified, and successfully mitigated. In this regard a correct and factual EIS is of upmost importance.

4. The key issue in Crescent Valley is water. It would have been my hope that a clear and precise water balance, or budget, for the involved water basins of Crescent Valley and Carico Valley would have been presented in the EIS. I can not find any such clear cut plan. On the contrary, I find a massive array of data, facts, discussion and observations that leave me totally confused. Further, I find a considerable amount of this information either not factual, or presented in a maner that is not understandable. Admittedly, I have not had the time nor opportunity to research the supportive documents to see if in fact the base line data is presented. However, I am not aware of the fact that the reader of this EIS, or any EIS for that matter, must in fact research his/her own data to draw correct conclusions. I believe the purpose of an EIS is to present the information in a way that the reader can rapidly come to his/her own conclusions of support or non-support as the case may be. Some

of my concerns involving water and water related items are as follows:

a) 3-41 Fisheries: The EIS indicates that only one trout was found in Indian Creek, and no where else, and that likely was from an "illegal planting". No other trout streams were identified as being involved in the area, with the exception of possibly Elder Creek, which is not really in the area. I am told by residents of Crescent Valley that there are, or have been, five streams in the vicinity that have had trout populations. These would include Frenchy, Duff, Brock, Cottonwood and Indian Creeks. Further, I personally have caught trout in Frenchy, Brock and Cottonwood. The recent drought may well have destroyed some of these fisheries; however, from an historical perspective, they must be considered. Further, within the last year, I have personally seen fish in both Frenchy Creek and Frenchy Reservoir.

b) 3-23 Groundwater Discharge: The EIS discusses the annual evapotranspiration rate as being in the "order of 1 foot per year". What is meant by this statement? What is one foot per year per what? The EIS indicates that the total annual evapotranspiration is 2,800 acre feet per year for 250 square miles. This amounts to 57 AF/year per acre. How does this relate to the "order of 1 foot per year"?

c) The Pipeline project will be a user of the water resources of Crescent Valley. It is difficult to ascertain to what degree, especially considering the following points.

4-20 Lowering of Water Table Due to Pit Dewatering: Pumping will be at the rate of 30,000 GPM, with 2,000 of that to be used in process. The assumption is made that the remaining 28,000 GPM will be infiltrated. Is the pumping and use continuous over a

24 hour basis, 365 days a year? If so the 2,000 GPM will result in an annual use of 3,218 AF.

4-102-105 Preliminary Locations of Reinfiltration Basins: I can not find information in the EIS dealing directly with the amount of infiltration that will occur; however, I believe that to be 28,000 GPM. On page 4-102 a discussion at the bottom of the map indicates that the infiltration system will not disturb more that 126 acres at a time. However, if this map is drawn to scale, as well as the subsequent maps, then the Altenburg Infiltration Ponds represent a total of 80 acres. The Cortez Parcels site represents a 360 acre site, while the Robertson Infiltrates site would be around 587 acres. How do these sites relate to the statement that 126 acres will be the maximum disturbance? What is not addressed is the amount of evaporation that will occur from these sites. Depending upon which site is used, and assuming that annual evaporation will be at least 48 inches, annual water loss will be somewhere between 320 to 2,348 AF. Coupled with the annual operational use of 3,218 AF, the projected use by the Pipeline project will be at least somewhere between 3,538 and 5,566 AF. If one took the average of these two figures, 4,452 AF, this would represent *28% of the annual yield of water from the Crescent Valley Basin* (#54) as estimated by the State Water Engineer.

4-102: If the amount of dewatering to occur is 28,000 GPM, and it is to be infiltrated in a pond never exceeding 126 acres, then the daily infiltration per unit of space must be essentially one foot per day. In other words, an infiltration pond consisting of one acre and filled one foot deep must infiltrate this entire amount of water <u>daily</u>. Due to the high water table of Crescent Valley, this does not seem possible. More likely, the infiltration ponds will ultimately be much larger,

resulting in much greater evaporation, and subsequently much greater loss of water to Crescent Valley.

d) 3-21 Groundwater Elevations: Considerable discussion is presented concerning groundwater elevation as recorded in wells. Nowhere in this discussion, or supporting tables is the fact that a number of wells on the Dean Ranch are artesian. Further, significant acreages of meadows have developed because of these resources. What will be the impact on these artesian wells as dewatering drops the water table. These wells are within the 7 mile radius from the site. How will this impact be mitigated?

e) 3-23-24 Groundwater Discharge: The EIS indicates that the combined flow rate of all springs within the Valley is somewhere between 200 and 250 GPM. There are springs on the Dean Ranch alone that would account for this amount of water.

f) 3-33 Wetlands: The EIS states that approximately 68 seeps and springs supporting 40.5 acres of wetlands are located within the study area. There are several hundred acres of wetlands alone located on the Dean Ranch, entirely supported by seeps and springs.

g) 3-28-29 Shoshone-Cortez: The EIS indicates that field collection of data for drainages from these mountains was collected in August and September of 1992. First, 1992 was not a good year within the confines of the study area, and secondly no usable stream flow data, or any drainage data for that matter, could be collected in Crescent Valley during August and September of any year.

h) C-20 Estimated Recharge Rates for Crescent Valley:

This table estimates an approximate annual recharge of some 24,500 AF for the Study Area. However, the State Water Engineer estimates the yield from the Crescent Valley Basin (#54) at some 16,000 AF. The Basin (#54) estimated by the State is somewhat larger than the Study Area reported in the EIS. Further the adjacent Carrico Lake Basin (#55) yields only 4,000 AF. How is it possible for this EIS to come up with, on an annual basis, thousands of acre feet of water in excess of what the State Water Engineer recognizes for this basin?

The above discrepancies leave sufficient doubt as to the validity of this EIS. However, a far greater disregard of factual information has been interjected to bias this EIS, and that is the existing use of surface waters. The entire subject is dealt with in one 7 line paragraph on page 3-32 under surface water rights. Some nine creeks are simply listed as having surface water rights. I can find no additional information in the text of the EIS as to the extent of these water rights, who holds them, acres involved, much less the number of acre feet of water committed to these resources. Far greater significance is given to springs and existing water wells in this EIS than is ever given to surface water rights.

The Dean Ranch alone has certificated surface water rights for 7,558 acres and some 29,195 acre feet of water. Further, a very legitimate case can, and will be developed, for an additional vested right for another 3,060 acres, representing an additional 11,640 AF. Historical documentation exists to support all of these facts. Further, ASCS recognizes and has certified up to nearly 5,000 acres of this area as legitimate cropland, irrigated solely by surface waters. It is inconceivable that any EIS can be presented in good faith to the public of this State, with complete and utter disregard of these facts. Further, none of these figures take into account any of the water rights held by the Dean Ranch, and currently being used for pump

irrigation. In addition to the Dean Ranch, there are several other agricultural enterprises within the area that also hold surface rights. Further, surface rights in one form or another exist with at least three additional canyons that are never mentioned in this EIS; they being Four Mile, Mule and Little Mule Canyons.

Additionally, the mitigation section only briefly and vaguely deals with mitigating action. Reference is made that somehow water will be delivered to users if they are impacted. No reference is made to how this will be accomplished, when, or a variety of other questions that could be raised.

Very little else in the State of Nevada is as important, or perhaps even as sacred as vested and certificated water rights. There are presently two Nevada law suits against the Federal Government currently being heard in the U.S. Cour of Federal Claims based on water. Further, there are several other claims pending. Today, the County of Elko in conjunction with a resident ranch is bringing action against the United States Forest Service, basically over water. The involved counties in this project, Lander and Eureka, have both made definitive statements in regard to movement of local waters downstream in the Humboldt Basin. In light of the current philosophy of the importance of water, as well as the legitimate and historical rights to that water within Nevada, it would seem to me incredible that, first, an EIS of this importance would be developed with complete disregard for the legitimate water rights of all users within the impacted area, and secondly, that the BLM would allow such a erroneous document to go forth for public review. The Dean Ranch alone holds water rights equivalent to several times the annual recharge of the Basin. These are legitimate rights and must be dealt with.

I would remind Cortez Gold Mine, the preparers of this EIS, Woodward-Clyde, as well as the BLM, that the recent failure of the Draft EIS for Sierra Pacific's Thousand Springs Project was ultimately from the presentation of erroneous water right data. I would suggest

that you are facing the same problems in the current document. No one wants to see the Pipeline Project fail. To avoid that, it is absolutely essential that all factual information concerning the water balance of Crescent Valley be fairly and honestly dealt with in the supporting EIS.

As additional information supporting my statement, I am including a signed affidavit by Mr. Mike Buschelman, PE, attesting to his conversations with the late Dan Filippini.

AFFIDAVIT OF MICHAEL D. BUSCHELMAN, P.L.S, W.R.S.

I, Michael D. Buschelman, P.L.S., W.R.S., am a licensed Professional Land Surveyor in the State of Nevada and an appointed Water Right Surveyor for the Nevada State Engineer, Division of Water Resources, State of Nevada.

This affidavit is intended to certify that the attached "Affidavit of Mr. Dan Filippini" is a true and accurate summary of the vested water rights for the Dean Ranch as related to me by Mr. Filippini.

I met with Mr. Dan Filippini of Elko, Nevada on December 3, 1985 and February 3, 1986 to obtain historical information about water use on the Dean Ranch located in Crescent Valley, Nevada. Mr. Filippini's statements were to be used to verify the existence of vested water rights for irrigation and stockwatering uses on the Dean Ranch. As a result of our meetings, I prepared an affidavit for both Mr. Filippini and my signature. Mr. Filippini had reviewed drafts and approved the attached affidavit titled "Affidavit of Mr. Dan Filippini".

Mr. Filippini past away suddenly after our February 3, 1986 meeting and he was not able to sign the attached affidavit. I have recently researched the Nevada State Engineer records and water right files in an effort to locate a recorded copy of the attached affidavit. I was unable to locate a recorded copy as of September 28, 1994. The attached unsigned affidavit was obtained from Chilton Engineering water right files for the Dean Ranch.

PROFESSIONAL LAND SURVEYOR STATE OF NEVADA
MICHAEL D. BUSCHELMAN
9-27-94
No. 7463

Michael D. Buschelman, P.L.S., W.R.S.
1366 Express Street
Sparks, Nevada 89434
702-355-8087

STATE OF NEVADA)
) SS
COUNTY OF WASHOE)

On this 29th day of September, 1994, Mr. Michael D. Buschelman, personally appeared before me, the undersigned, a Notary Public in and for Washoe County, Nevada who acknowledged that he executed the above affidavit.

Notary Public

LYNN E. WALTERS
Notary Public - State of Nevada
Appointment Recorded in Washoe County
MY APPOINTMENT EXPIRES JAN. 12, 1997

AFFIDAVIT OF MR. DAN FILIPPINI

SUBJECT: Interview with Mr. Dan Filippini to gather information concerning the historical use of water on the Dean Ranch located in Crescent Valley, Nevada.

DATE: Interviews took place on December 3, 1985 and on February 13, 1986, with Dan Filippini who is a previous owner of the Dean Ranch. Interview was conducted by Michael D. Buschelman, at Chilton Engineering, Elko, Nevada.

1. Dan Filippini personal history
   a. Dan's father (Angelo Filippini) and mother immigrated to the USA in 1871 from Switzerland and settled in Eureka, Nevada.
   b. His father hauled mountain mahogany to Cortez Gold Mine by mules.
   c. Dan Filippini was born in 1893 according to the 1900 census in the mining town of Cortez, Nevada.
   d. Dan attended school in Beowawe, Nevada.
   e. While Dan was going to school, his father bought the Johnson and McConnell Ranches located just west of Beowawe.
   f. Dan's father also hauled supplies from Beowawe train depot to Cortez by mule trains.
   g. Dan is very familiar with the Crescent Valley area and has remained in this area most of his life.
   h. He presently lives in Elko, Nevada at the Stockmen's Motor Lodge.

2. Dean Ranch, aka Half Circle Ranch
   a. The Dean Ranch, as shown on the USGS topo maps, is commonly known as the Half Circle Ranch or Happy Daze Ranch.
   b. Dan is very confident that the Dean Ranch was a well established and working ranch much before 1900.
   c. The Dean Ranch was a stagecoach stop for the coach that ran from the railroad in Beowawe to Cortez.
   d. There were large barns at the ranch for storage and protection of the freight trains that traveled from Beowawe to Cortez.
   e. The ranch also provided mules, horses and feed.
   f. The Dean Ranch harvested native hay that was irrigated by Indian Creek.
   g. Dan feels that the Indian Creek water was used by the Dean Ranch prior to his father immigrating into the Crescent Valley area in 1871.
   h. Dan Filippini purchased the Dean Ranch in 1937.

3. Indian Creek
   a. The Dean Ranch was using all of the water from Indian Creek to irrigate native hay and meadow near the home ranch shown on the USGS topo maps prior to 1871.
   b. The town of Bullion, now known as the Lander Ranch, began using water from Indian Creek later in time than the Dean Ranch.
   c. The Lander Ranch irrigated land on both sides of Indian Creek and was owned by the Kattinhorn family in the late 1800's.
   d. The Lander Ranch irrigated pasture on the south side of Indian Creek and alfalfa on the north side. Dan said that Flora Dean Hobert claimed the Lander Ranch would

produce a 100 ton of hay, but Dan felt it produced more.

e. Dan mentioned that there is always water at the Lander Ranch and by diverting all of Indian Creek to irrigate the fields he could see no affect on the flow at the Dean Ranch.

f. Dan purchased the Dean Ranch in 1937 and, utilizing the existing ditch systems, cut 80+ acres of alfalfa hay right at the home ranch, plus many more acres of native hay in the areas further from the ranch.

g. Indian Creek always irrigates several sections of ground that was either cut and put into stack yards or left for pasture.

h. Dan put in another 100+ acres of alfalfa that was irrigated by Indian Creek which brought the total of alfalfa hay to 180+ acres, plus many more acres of native hay and meadow.

4. Indian Creek Pipeline

a. The Dean's had constructed a redwood pipeline from the mouth of Indian Creek Canyon to the Dean Ranch.

b. The date of construction is unknown, but the Dean's paid taxes for a right-of-way to both Lander and Eureka counties.

c. Water from the pipeline was used for irrigation of the hay fields, gardens, household water and stockwater for the corrals.

5. Indian Creek Levee

a. When Dan purchased the Dean Ranch in 1937, and diverted water was directed to a levee located approximately in Section 25, T. 28N., R. 47E., which diverted the water to pasture areas south of the Dean Ranch.

b. Dan enlarged this levee in the late 1940's, early 1950's and put in a headgate.

c. The water diverted by this levee irrigated native hay and pasture from Section 25, T. 28N., R. 47E., through Sections 19, 20, 16, 17 and 9, T. 28N., R. 48E.

d. Dan can recall having at least 4 hay corrals in the fields south of the Dean Ranch. Each hay corral would hold 35 to 40 tons of hay cut from the South Pasture/Hay Field.

e. The area not cut for hay was very good pasture and meadow.

6. Mill Canyon Creek

a. Dean family put the first ditch system from Mill Canyon Creek to pasture/meadow area in Section 21, 28, 32 and 33, T.28N., R.48E.

b. Dan put in a pipeline from the mouth of the canyon to the head of the fields.

7. Brock and Cottonwood Creeks

a. Flora Dean Hobert had told Dan that she had filed vested water rights on these two sources.

b. Dan has cut a lot of good hay from the fields below these creeks and the irrigation ditches were there before he bought the Dean Ranch and they appeared to be very old.

c. Dan put in a pipeline from Brock Creek to the head of his ditches.

d. There was also many acres of pasture/meadow in addition to the hay.

8. Little Cottonwood Creek
   a. Little Cottonwood irrigates Section 7, T.28N., R.49E.
   b. The Edgar's from Battle Mountain followed a survey done by Bill Settlemeyer and dug a ditch to Section with a caterpillar in the 1940's.
   c. Before Dan put this ditch in the water from Little Cottonwood was not used for, irrigation.

9. Duff Creek
   a. History well established in Decree.

10. Sod House Creek
   a. When Dan bought the Dean Ranch, this creek had an established irrigation ditch system that was quite old.
   b. There were also remnants of an old pipeline apparently used for irrigation.
   c. Dan put in additional irrigation ditches and irrigated hay and pasture.
   d. Dan installed a 4" pipeline from the upper spring to the lower spring at the mouth of the canyon which helped to insure water to ditches.

11. Frenchie Creek
   a. Dan only remembers a diversion structure (dam) in the Frenchie Creek channel and not a structure capable of storage.
   b. This diversion dam was there when he purchased the Dean Ranch and he repaired it several times.
   c. The water diverted was utilized to irrigate the hay fields and orchard.
   d. The orchard had apples and pears that Dan Filippini's father purchased in Beowawe
   e. This would show use of water prior to 1900.
   f. The original Frenchie Ranch was 80 acres, which was covered by hay crops that were cut and harvested.
   g. All of the Frenchie Creek water was used to irrigate this field.
   h. Dan put in a pipeline to keep the water longer and enable him to irrigate all of the 80 acres.
   i. During spring runoff, the water was spread over more than just the 80 acres and land used for pasture.
   j. Joe Dean of the Dean Ranch homesteaded the Frenchie Creek Ranch.

12. General Comments
   a. Bill Settlemeyer surveyed all of Dan Filippini's improvements and there may be records in his files.
   b. Molly Knudsen (McGee), in Grass Valley, has written several books and articles on the history of Grass Valley, Crescent Valley and surrounding areas. These books and her notes may be another valuable source.
   c. Lander and Eureka County tax records may also help.
   d. Dan Filippini is in good health for a man that has celebrated his 92nd birthday. He has a Nevada State Driver's License and his memory is very keen. I very much enjoyed taking these interviews.
   e. Dan is presently living at the Stockmen's Motor Lodge and Casino in Elko, Nevada and can be reached by calling the Reservation Desk.

_____ _____

Dan Filippini Date
c/o Stockmen's Hotel
Elko Nevada 89801

_____ _____

Michael D. Buschelman - Interviewer Date
Chilton Engineering
421 Court Street
Elko, Nevada 89801

State of Nevada)
) ss
County of Elko)

On this _____ day of _____, 19___, personally appeared before me, a Notary Public, Dan Filippini and who acknowledged to me that he executed the foregoing document.

_____
Notary Public

State of Nevada)
) ss
County of Elko)

On this _____ day of _____, 19___, personally appeared before me, a Notary Public, Michael D. Buschelman and who acknowledged to me that he executed the foregoing document.

_____
Notary Public

RESPONSE TO COMMENT EL-1

A presentation of the water balance for Crescent Valley is included in Table 3.4-3, Figure 3.4-6, and Section 3.4-4 of the FEIS.

RESPONSE TO COMMENT EL-2

Brook and brown trout occur in Frenchie and Duff Creeks, and dace have been recorded in Brock Canyon Creek. A pond near the Cortez Mine has been stocked with bass.

No additional fisheries have been found in streams within the cumulative impact assessment area. Modeling indicates that none of the streams would be impacted by dewatering. The statement regarding perennial streams in the vicinity of the Proposed Action may be confusing. No perennial streams exist within areas directly affected by mine construction activities (i.e., within the footprint of the mine and mine facilities).

RESPONSE TO COMMENT EL-3

The information on page 3-23 of the DEIS is not correct and is not presented clearly. The amount of evapotranspiration for Crescent Valley is clarified in Section 3.4.4 and on Figure 3.4-6 of the FEIS.

RESPONSE TO COMMENT EL-4

The commenter is correct, assuming continuous consumptive use of 2,000 gpm, this would equate to an annual use of about 3,220 acre-feet/year.

RESPONSE TO COMMENT EL-5

The commenter is correct, as stated on p. 2-18 of the DEIS, about 28,000 acre-feet/year would be returned to the basin by reinfiltration.

RESPONSE TO COMMENT EL-6

Please refer to the revised infiltration description provided for the project description section in Section 2.2.2 (subheadings Infiltration Site Locations and Infiltration Design) of the FEIS. The initial dewatering infiltration system is proposed to be constructed on public lands administered by BLM and a disturbance estimate for this activity has been provided. Other possible infiltration sites exist on property owned by Cortez Gold Mines, which could be used during the course of mine dewatering should operational conditions warrant. See related response L-13.

RESPONSE TO COMMENT EL-7

Please see related responses F-18 and L-13. The difference of 46 acres of disturbance between the acreage cited in the FEIS and that cited in response F-18 is that the F-18 response refers only to infiltration ponds and does not include other ponds, conveyance pipes, fences, and other disturbances.

RESPONSE TO COMMENT EL-8

Please refer to the revised infiltration description provided for the project description in Section 2.2.2 (subheadings Infiltration Site Locations and Infiltration Design) of the FEIS. The 126-acre figure represents total disturbance including the conveyance line corridor and infiltration basin construction disturbance. This was disclosed in Section 2.2.2 (page 2-19) of the DEIS. Also stated in Section 2.2.2 of the DEIS is the observed pilot-scale infiltration rate of 7 feet per day and the conservative design approach to be taken. For a discharge rate of 28,000 gpm, 17.7 acres of water surface would be required if an infiltration rate of 7 feet per day were realized, and 30.9 acres if 4 feet per day were realized. Given an annual lake evaporation rate of 50 inches per year and an annual precipitation rate of 8 inches per year, the net annual

evaporation rate is 42 inches per year or 3.5 feet per year. Dividing by 365 days per year, an evaporation value of 0.0096 feet per day is derived. The evaporation rate can then be calculated as 0.14 percent of the pilot-scale infiltration rate (7 feet per day) and 0.24 percent of the full-scale design infiltration rate (4 feet per day). Infiltration basin evaporation losses are calculated at 39.2 gpm (63.2 acre-feet per year) for the 7 feet per day case and 67.2 gpm (108.4 acre-feet per year) for the 4 feet per day case. The same approximate values can be arrived at by relating the 3.5 feet per year net evaporation loss to the infiltration basin water surface areas of 17.7 acres (62 acre-feet per year) and 30.9 acres (108 acre-feet per year).

RESPONSE TO COMMENT EL-9

Well descriptions and groundwater elevation data appear in Table 3.4-1 and Appendix Table C-1 of the DEIS. Please refer to responses BM-8 and EL-17 and Appendix Table C-4 regarding the comment on wells, artisan or otherwise. Recharge of the groundwater basin by infiltration of dewatering discharge is proposed as an effective means of controlling drawdown, which would otherwise result in greater potential groundwater impacts.

RESPONSE TO COMMENT EL-10

The collective flows from all of the inventoried springs was not measured and could only be estimated. The estimated 200 to 250 gpm may be a conservatively high estimate. Zones (1961) estimated a total spring flow discharge of about 100 gpm for Crescent Valley. These estimates represent long-term annual averages; during brief net periods, flows may be greater. Please see related responses EL-11 and EL-14.

RESPONSE TO COMMENT EL-11

There are 68 springs supporting 40.5 acres of wetlands on public and private lands within the study area. Some springs located on private lands were not surveyed if permission to enter private property was not granted.

Also, refer to related response L-16 for a discussion of springs on the Dean Ranch. Please also note that some of the "wetlands" referred to on the Dean Ranch may be flood-irrigated agricultural fields. These do not qualify as "wetlands."

RESPONSE TO COMMENT EL-12

Comment noted. The reviewer is correct that streamflow was observed during a dry period. The information is therefore useful to indicate perennial streams in the study area.

RESPONSE TO COMMENT EL-13

The quantity of average annual groundwater recharge cited in the DEIS (24,500 acre-feet/year) is calculated by the Maxey-Eakin method, which is the currently accepted methodology of the Nevada State Engineer's office. The published basin yield quantity (16,000 acre-feet/year) referenced by the commenter was derived from an estimate by Zones (1961). Considering the inherent inaccuracies in estimating basin yield or recharge, these two estimates are in reasonably close agreement. The 24,500 acre-feet/year figure cited in the DEIS is considered to be more representative because it is based on the currently accepted methodology and considers additional climatic and hydrologic data that have become available since the Zones (1961) report was published. Also, the estimate of Zones does not include the area of Crescent Valley below 5,500 feet elevation or the Dry Hills area that drains north to the Humboldt River. The comparison with this published information is noted and has been considered in preparing the FEIS.

RESPONSE TO COMMENT EL-14

The EIS attempts to relate accurate information, from the public files, on water rights associated with those water resources that could be affected by the proposed action. See also the first paragraph of Response to Comment EL-17.

RESPONSE TO COMMENT EL-15

See related response to EL-17.

RESPONSE TO COMMENT EL-16

Comment noted.

RESPONSE TO COMMENT EL-17

The referenced claims of vested right are not documented in the DEIS because they do not appear in the Nevada Division of Water Resource records generally available to the public from which the DEIS information was derived. Because there has been no contest to the use or ownership of the referenced claim of rights, the Nevada State Engineer has not conducted adjudication proceedings to establish a record of the vested rights. It should be noted that the DEIS and FEIS were not intended to be a complete compendium of the water rights of the Crescent Valley hydrographic basin. Rather, as required by NEPA, the DEIS and FEIS reflect impacts to those water rights projected to be impacted by the project.

As stated by the commenter, the source of water for the claimed rights is surface water originating in perennial and intermittent drainage flow from the Cortez Mountains. Analysis in the DEIS has determined that this source of water is not expected to be impacted by the proposed action; also, the manner and place of use of the claimed surface water rights would not be affected. Furthermore, the statutory public notice was provided for the dewatering appropriation applications filed by Cortez, and a hearing was held in Crescent Valley by the Nevada State Engineer's Office. Official protests were filed by Lander and Pershing counties, but were subsequently retracted after the counties had sufficient time to review Cortez's plans and a stipulation to return dewatering pumpage (less consumptive use) to the Crescent Valley groundwater basin was agreed to. No other protests or comments were filed with the Nevada State Engineer's Office.

For accuracy, a statement has been added to the FEIS to clarify that claims of vested right exist in the area that may not appear in the public record. It is also important to note that the source of water and point of diversion are the principal water right parameters that were used in the assessment of water resources within the area of potential effect.

As discussed in the FEIS, Section 4.4.5, a monitoring program would be implemented that is intended to identify and verify any impacts beyond the projected parameters used in the two documents. Finally, Nevada State Water Law specifically protects existing users from infringement on their water rights by Cortez.

RESPONSE TO COMMENT EL-18

All of the 68 inventoried springs in Crescent Valley will be monitored for flow semi-annually. A selected group of 28 springs that are the closest to the proposed project is shown in Table D-1 in the FEIS, will be monitored more frequently, and will have monitoring wells monitored for drawdown in addition to springflow. See also related responses EL-11 and EL-14.

RESPONSE TO COMMENT EL-19

See related response to EL-17. Mitigation of potential impacts to wells and springs is described in Section 4.4.5 of the FEIS.

RESPONSE TO COMMENT EL-20

See related response to EL-9

RESPONSE TO COMMENT EL-21

Regarding surface disturbance, 95 AUMs (0.2 percent of permitted AUMs in allotment) would be lost in the Carico Lake Grazing Allotment due to the Proposed Action. The permittees for this area would be sent a notice that their permits would be evaluated in 2 years, and at that time the permits would be adjusted to reflect this loss. However, after the area is reclaimed (except

the 235 acres of the open pit), the permits are expected to be adjusted back to current levels (Floyd Thompson, Battle Mountain BLM).

Dewatering impacts are addressed in Section 4.4.3 of the FEIS. Mitigation measures addressing dewatering impacts include 4.4.5-1 and -2.

RESPONSE TO COMMENT EL-22

The comment is noted. The uncertainty in predicting groundwater impacts has been considered in developing the monitoring program and providing appropriate flexibility in design of mitigation measures as described in Section 4.4.5 of the FEIS. To allow for the inherent uncertainty of the hydrologic impact predictions, potential mitigation measures have been included even where impacts are not specifically predicted to occur.

RESPONSE TO COMMENT EL-23

As stated on p. 4-37 of the DEIS, springs from bedrock flow systems in the Cortez Mountains are not expected to be affected because of hydraulic barriers to flow caused by faults and discontinuous fractures, and because the bedrock springs receive recharge from areas of higher elevation. The applicant has, however, committed to monitor, and if necessary, mitigate impacts to these springs.

RESPONSE TO COMMENT EL-24

See related response to EL-17.

RESPONSE TO COMMENT EL-25

Comment noted.

RESPONSE TO COMMENT EL-26

At the County Commissioner's request, two more hearings were held. The first was held in Battle Mountain at the BLM District Office on October 26, 1994. The second was held at Crescent Valley at the Ranch House Restaurant on October 27, 1994.

RESPONSE TO COMMENT EL-27

Please refer to related response I-8.

RESPONSE TO COMMENT EL-28

Please refer to previous response M-9. Analysis of impacts was also carried out for a dewatering rate of 55,000 gpm in modeling the hydrologic impacts to estimate the cumulative impacts of the South Pipeline area being mined at the same time.

RESPONSE TO COMMENT EL-29

Please refer to previous response D-5.

RESPONSE TO COMMENT EL-30

Please refer to revised Section 4.4.2 (subheading Effects of Lowering Water Table on Surface Drainage Infiltration and Springs) in the FEIS. Monitoring and mitigation measures are presented in Sections 4.4.5-1 and 4.4.5-2 of the FEIS.

RESPONSE TO COMMENT EL-31

Comment noted.

RESPONSE TO COMMENT EL-32

The commenter is referred to Sections 4.2.2 and 4.2.4 of the FEIS. Section 4.2.2 addresses land subsidence impacts.

RESPONSE TO COMMENT EL-33

Cortez has committed to a long-term monetary contingency fund to cover potential costs of monitoring and mitigation beyond the 30-year post-closure period.

RESPONSE TO COMMENT EL-34

Potential impacts to livestock in terms of forage loss and effects of dewatering on water supplies for ranching and cattle raising are discussed in Section 4.10.3 of the DEIS. Additional mitigation for potential impacts due to dewatering has been added to the FEIS under Section 4.10.3.1.

RESPONSE TO COMMENT EL-35

Available data indicate that the Proposed Action has potential to cause an increase in the concentrations of some groundwater quality constituents within a short, but undefined, distance from the operations. Such potential impacts are not likely to cause these waters to become unsuitable for their present beneficial users, which are for agriculture and livestock.

Draft Environmental Impact Statement Meeting
September 28, 1994
Reno, Nevada

After introductions were made, Mr. Quayle Lusty, Mine Manager of Cortez Gold Mines, made a brief presentation, including slides, to provide a background and summary of the proposed Pipeline Project.
Following that presentation, the floor was opened for questions, the format of which was explained by Mr. Dave Davis of the BLM.

Dave Davis: Let me qualify that, please limit your questions at this time to Quayle's presentation. If you'd like clarification about some aspect of the project. We'll get into the comments on the EIS and the analysis following those questions. If you'd stand up please and state your name if you have any questions for Quayle or any of his staff.

Unknown speaker: What's the mine life again.

Quayle Lusty: The mine life is anticipated at 10 to 12 years. Do you want to state your name please.

Unknown speaker: Yes, Todd Process (?)

Quayle Lusty: Thank you.

Randy Seriff: I was wondering, when you were talking about moving water from one of the mine sites and putting it into another, uhm, another site five miles down the road. What will be your response be if it does affect the water table at that time.

Quayle Lusty: We have the uh, we have the ability to put that infiltration gallery (coughing in background.....) into any location and arc around the mine so that as we start monitoring the water table drawdown, wherever we see the effects of the water table drawing down the worst, then we can put the water back in the water table in that direction, so we counter that drawdown with the mounding of the water table in that direction. That's the nice part about this whole scheme, is that we have the flexibility to counteract any, any impacts in the hydrologic basin. I should clarify that, that there is a consumptive use here, about 2,000 gallons per minute, it's just plant use that will be lost by normal evaporation in the plant and in the tailings pond and that sort of thing. We have water rights for that 2,000 gallons.

Yes, sir.

Mark List: There, we have conducted a spring and seep inventory, and we have a monitoring program organized for that. As it turns out, there are no springs or seeps located within the projected or simulated, model simulated area of affect from this pumping operation. The springs that do occur in the area, there would be peripheral to what we have anticipated as being an area of effect, originates from, as waters that, that report from drainage from higher elevations, from rock or geologic systems that wouldn't be affected by pumping irrigation .....

Marjorie Sills: And would you be monitoring those to be sure that there is no effect.

Mark List: Absolutely. It's a project commitment stipulation that we have in accordance with our water rights, approvals as well as with, I anticipate that to be part of our discharge permit authorization from the Nevada Division of Environmental Protection and it's quite likely that the Bureau of Land Management would also expect to see a monitoring program finalized as part of the completion of this EIS.

Dave Davis: We have a detailed monitoring plan working with Cortez. We knew that was an issue up front, and our handbook, NAPA (?) handbook mandates that we work with the proponents that limit through the building of the proposal as many impact in the environment as we can, if we work extensively for the last few years to insure an adequate monitoring program is part of the proposal, so that is, that is their contract with the bureau in the plan of operations, that that monitoring plan of those specific seeps and springs down on Rocky Pass will be monitored prior to implementation, I believe this monitoring well's in place now, isn't it?

Quayle Lusty: That's correct.

Dave Davis: To get, gather baseline data.

Yes, sir,..ma'am.

Unknown Lady 2: .....You had said earlier in answer to Mr.... questions that, uh, any depletion of the water table beyond five miles is nil, that was what you were anticipating anyway and yet you implied by the slide that you would be monitoring wells all over the valley. I believe you said 20 wells or from one end of the valley to the other. What's that monitoring? Is that water that's come from drawdown and quality or .....

Quayle Lusty: Both, both. We just want to absolutely sure that we know exactly what's happening when we start pumping. We have background data now so we know what, what the situation is before we start pumping.

Lady 2: And what would you do if you discovered the water quality ....

Quayle Lusty: We are obligated to clean the water up before we start re-infiltrating back into the water system.

Lady 2: What would you do about the water that was already destroyed ...

Mark List: I guess I wouldn't expect it, that process really to take place that quickly. It would be so intensely monitored that any change in water quality would be, would be, would be noted and the necessary changes to the operating plant would be made.

Quayle Lusty: The water that we pump out of the ground is monitored before it is reinjected into the ground, it has to meet drinking water qualities before we put it back in so there's no way we could destroy any ground water by putting drinking water back in.

If the water we're pumping out of the pit becomes contaminated or has some, something in it that's worse than the drinking water standards then we have to clean that up before we put it back in the ground. That's part of the Nevada Division of Environmental Protection Regulations.

Yes, sir.

Unknown Man: Another question is, in the area I know pumping x number of gallons, and then other mines up there is pumping far more per gallons per minute than you guys are. Water tab.., water table starts to fall and you're blaming it on them. Does your process stop?

Quayle Lusty: There are no other mines in the Crescent Valley that are ....

Unknown Man: No, I'm speaking of further north, and I know the water tables are related up there.

Quayle Lusty: I'd don't believe they are, sir .....

Unknown Man: Or is there a study done on that?

Mark List: Well, as it stands right now, ... Excuse me.

Unknown Man: Who are you?

Mark List: My name's Mark List, I'm the environmental engineer for Cortez Gold.

Unknown Man: Has BLM done anything with this?

Mark List: Yes, BLM has as well as Cortez initiating a process where for a number of regulatory reasons, part of that, part of that program was to, to develop a basin-wide hydrologic numeric model that established to a better extent than what the State Engineer's record show, as to what the hydrologic boundaries where in that basin and what the water balance was, how much, what the perennial yield was into the basin and how much water was actually being pumped from that basin. So that was one of the reasons why you see this, this 20 odd wells or so showing up throughout the Crescent Valley hydrographic basin was first to characterize the water conditions in the basin so that the numeric model could be developed to analysis that. So that particular model has been worked with for approximately two years now and the BLM has been involved in reviewing that, that model and work as well as the State Engineer using that model as the basis for granting the, the water rights for this project.

Unknown Man: The reason I ask, I attended a state legislative meeting on public lands here a couple of days ago, and the mining people were there and they were discussing the number of gallons other mines in that area were pumping at that time. And they were talking 30,000 gallons a minute, some of the mines up there. Now how's this gonna affect, is it gonna affect in your area, or vise versa.

Mark List: We don't believe, and in fact we think we've demonstrated from, from investigations and modeling that the Crescent Valley hydrographic basin which is designated by the State Engineer as such, is not directly related to other hydrographic basins and the sub basins to the Humboldt River. Now there are other mines, there are other mines pumping from sub basins, or basins of the Humboldt River, but the Crescent Valley hydrographic basin is referred to us as semi-enclosed basin, which, which does have some interaction along the Humboldt River, but the extent to which this pumping stress would have any affect on that is such that it wouldn't influence that interaction. The pumping, the drawing on resulting from this pumping operation, we can show from modeling, would not influence that, that ground water interaction of the Humboldt River. And, and because of that, we think, we feel that we can demonstrate that our, our pumping operations are not an incremental addition to some other mines pumping operation in an adjacent basin.

Chris Sewell: I have a question. Say the document that I read, first of all that there are only 2,000 gallons of consumptive use, and that all the rest of the water will be returned to the basin. Where as in the EIS I read, that the infiltration basins are only going to infiltrate 90% of that water, so that would be still a net loss of 4900 acres/feet a year from Crescent Valley, so I'm wondering, you know, if that's correct....

Quayle Lusty: 90%

Chris Sewell: Yeah, that's what it says in the document, guesstimate 90% reinfiltration.

Mark List: At least 90%. And again if, if the pumping rates fluctuate between a certain range then that actual value would change, but, but, that uh, I believe that the actual infiltration rates are going to, to uh, to basically offset any evaporative loss. Evaporative loss is quite small because the infiltration rates are quite high. We're lucky to have that sort of system working in our favor in those gravels. There will be a portion of water lost, that is consumed, that is the 2,000 gallons a minute, ultimate consumptive use rate for the milling process as well a small evaporative loss from the transfer and infiltration of water. That volume of water is included in our water right analysis that the State Engineer granted. There is the basin analysis, the basin water balance has been analyzed based on that loss, so there, there is anticipated no net loss to the, to the volume of water in the Crescent Valley hydrographic basin.

Chris Sewell: I also have a question regarding the aquifers, and uh, this document describes two general aquifers, alluvium aquifer in a deeper carbonate aquifer. And I want to know what the relationship is between the water in those two aquifers, because the document, it says 60 to 75% of the pumping is going to be out of the carbonated deep aquifer for the dewatering, and the water's going to be returned to the alluvium aquifer in .....basin.

Mark List: I don't, I don't believe that ratio is correct, if it, if it appears that way in the EIS, it is not correct, because the bulk of flow of water pumped over the duration of this pumping operation will originate from the source which is the basis ..... aquifer. If you, if you recall the geometry of this system, the pit would be excavated through shallow alluvium into bedrock, and, and because of the, the orientation of the ground water table, with respect to that, ground water would flow once the drawdown cone begins to develop, ground water would flow back toward that pumping center from the basin fill material. Then possibly infiltrate, infiltrating through, perhaps through the faults, toward the pit. That, that's the reasoning behind installing a different types of wells, to keep them ..... alluvial wells station. I'd have to check the document now, and I'll make sure I do that, but that might be an inaccuracy in the document, because the bulk of the water will come from the alluvium basin.

Chris Sewell: Ok, cause in the document, that's what I had read and my understanding was that 60 to 75% .. bedrock wells shallow and deep, and that would also due to that carbonate layer is closer to the surface at the Pipeline site.

Mark List: That's exact.. that's, that's correct. A window exists there, ... the surface .... map, geological map of the surface ...

Chris Sewell: But I'm wondering what the relationship is for that water in that alluvial aquifer, and that carbonate aquifer, whether or not the water in that alluvial aquifer ... does that recharge the carbonate...

Mark List: That's correct, it does.

Chris Sewell: Ok.

Dave Davis: We're bordering on EIS issues and issues related to the proposal. Do we have anything else more specific on the proposal, before we get into comments on the EIS. Yes, ma'am.

Unknown Lady: (Couldn't understand much of what she said)
One more question .... one of you had mentioned twice in your speech or your talk that Cortez .... has quite a history in the Valley .....

Quayle Lusty: No, not Cortez Gold Mines. The old Cortez mining district.

Unknown Lady: And then later you mentioned that, that uh, because of your long history with water rights your have a right ..... and the gentlemen here made a point that whether you have the right or not..... correct. I just wondered whether you are aware of the 1863 treaty with the valley, if this mill has a right to do that.....

Dave Davis?: We're not going to address that issue in this format.

Unknown Lady: It predates your .....

Dave Davis: Ma'am, ma'am, excuse me. We're not going to address that issue now, thank you.

Yes sir. Yes, Chris.

Chris Sewell: Yeah, I have a question, ... project in what is the relationship of the Pipeline Project to the current Crescent Pit, which is being dug right now. Looking at the document for the Crescent Pit, it appears that the Crescent Pit is going to be part of the larger Pipeline Pit. Did you also talk about the future expansion of the Pipeline and South Pipeline Project?

Quayle Lusty: To the second part no, because we're not ready to present any plan of operation yet for South Pipeline. The Crescent Pit is not part of the Pipeline Pit. It's a separate ore body, it's located to the south of the Pipeline, the proposed Pipeline plan of operation and pit.

Chris Sewell: You said in the EA for the Pipe, for the Crescent Pit they have the Pipeline Project superimposed over the schematic for the Crescent Pit and

the pits run together.

Quayle Lusty: The pits do run together, but they're separate ore bodies. It just happens that the high walls do overlap a little bit.

Dave Davis: Any other question about the proposal?

Unknown Man 3: .....how much gold do you, planning on taking out, what is your estimated profit ....

Quayle Lusty: I don't want to comment on our estimated profit. And I don't think we're obligated to talk about the amount of gold we're going to produce, are we?

Dave Davis?: You have some published reserves announced. You can go that far.

Quayle Lusty: We have a published reserve of 19 million tons, at .19 ounces per ton in the Pipeline Pit.

Unknown Man 3: But you don't have any clear idea of profit.

Quayle Lusty: Sure we do, we wouldn't be proposing a mine if we didn't.

Unknown Man 3: How much beyond federal taxes and states taxes are you planning on putting into upgrading the .....

Quayle Lusty: We're responsible a citizen, we like to do what we can to the community to mitigate the impacts that we have on the community. We are good citizens, so we do donate to schools, and we donate to funds, and we donate to community colleges. I don't want to be more specific because most of the things we do are on a request basis and they come up, and we evaluate them with the present operation and the present profit situation and the present price of gold and all those types of things .. We like to help when we can.

Dave Davis: Thank you, Quayle. Once again I'm asking that everybody, I apologize, on a normal, this is about the 3rd or 4th time we've been through this, we're consider ourselves fortunate if we get three or four comments at a meeting. I understand we had a brief pre-registration form for commenting and we ran out of those, that will not eliminate anybody from commenting on , those people who did fill out a comment, a pre-registration comment form, if you could pass those to the center and pass them up we'll take those at a random order and give you an opportunity to comment on the EIS. I'd like to take one more minute, and go over the ground rules again and emphasize that this meeting is for the purpose

of commenting on the findings in the Draft Environmental Impact Statement. We're asking that you stand up, please state your name and affiliation if you have one, ...if you're an individual, I'm an individual, just say so. And preferably one speaker at a time. We don't need anybody interrupting anybody else, we want to have a nice clear record so we can make sure and address any comments or concerns, in the final EIS, and we would, if there are a large number of speakers, technically we're suppose to be done at nine o'clock, we do have the room until ten, so we can go till then if necessary. I would prefer if possible to limit your comments, total comments, to ten minutes. If we have any free time at the end, we will provide additional time for somebody that has additional comments. Please limit your comments to the EIS, the draft EIS. That document analyze primarily the impacts to ground water and the soci/economic impacts of the construction work force to the region along with accumulative impacts, soci/economic impacts from a number of other mines that are going to be expanding or are being planned about the same time as the Pipeline is. We focus on a number of other minor issues, wildlife, air quality, but the two main issues that we focused, the significant issues, were again the ground water hydro/geology, the impacts of that and as well as the soci/economics. Is there no one else that has any of these forms filled out. One comment, I don't understand. Ok, Heidi Blackeyes, please.

Heidi Blackeyes

Thought we'd never get to this part. I'm Heidi Blackeyes, and I work with the Citizen Alert Native American Program in Reno. We're an environmental watchdog for the Great Basin tribes in the region, ... Paiute and Shoshone, that's just to let you know. And, uh, I would like to comment on that the Treaty of 1863 is relevant, it's what Shoshone land, and if you could show me that it was legally taken, then I'd like to see it, beside the Supreme Court ruling. RE-1

Ok, now. The Citizen Alert Native American Program is present at this hearing to address two issues for the Cortez Pipeline Project. They are the draft environmental Impact Statement Cortez Pipeline Gold Deposit Project and the Native American Consultation that was not inducted in reference to this project. As the result, the Citizen Alert Native American Program is opposed to this project. The reasons for this opposition are clarified as follows:

First, this report entirely omits the cumulative impacts of the environmental, cultural, and resource considerations that this report was suppose to address. The study neglects to use sufficient information that addresses the cumulative impact caused by mining. For example, there are contradictions throughout the book making comments of RE-2

cumulative...of cumulative impact in one area then in another part of the book it denies the fact that there would be any cumulative impact in the area. This conflict was the reason for doing an environmental study in the first place. For this draft environmental impact statement to be sufficient in covering the short and long term effects this information can not be ignored. If it is and the BLM does not reissue an accurate draft EIS report, it will prove to be neither credible or accountable to the public's interest or welfare. And therefore, we request for another DEIS to be completed for the Cortez Pipeline Project. RE-2

Second, there is the Native American Consultation which was not conducted concerning this Cortez Pipeline Project. There is a paragraph located on page 3 6 2 in the DEIS that refers to another previous Cortez project, when consultation was conducted. Unfortunately, this other project does not even mention the existence of the Pipeline Project. Is this considered viable consultation? To consult with the Native Americans or others who are asked questions concerning these different projects, where different concerns would be raised, this is not acceptable or credible consultation. An addition ..... recommends that a consultation process should be conducted by the Battle Mountain BLM staff. This is not the first time Native People were left out in the process. The Citizen Alert Native American Program would like to request that training be provide....be..be provided for all federal agencies on how to conduct consultation with Native People. We are aware of the BLM manual 8-8160-1, General Procedural Guidance for Native American Consultations, that gives information on how to conduct the consultation. We recommend that this manual be used as your guide. We hope you address these concerns to create better relations between your federal agency and the Native People. Also, once you begin the consultation, the Native American Program will assist the BLM to conct... to contact the Natives that should be consulted concerning this project. These are oral comments addressing the.... problems this project and later ..... comments that will supply a technical overview of the impacts, the environment, the indigenous cultural and national resources, natural resources. If you have any questions, you can talk to me after the meeting. RE-3 RE-4

Dave Davis: Would it be possible to get a copy of that statement? submitted? or...

Heidi Blackeyes: Yeah, you can have, this is oral, I don't even have any technical, you can have a copy.

Dave Davis: You're welcome to add anything in writing ...

Heidi Blackeyes: What's your name again.

Dave Davis: Dave Davis, I'm the.....team leader.

Heidi Blackeyes: Ohhhhh. Ok. I'll give you a copy

Dave Davis: I had about 10 or 15 of those back there and they said they're all missing. Is there no one else that had any comments this evening. Last chance from Reno (?).....

Chris Sewell: I have a comment.

Dave Davis: OK, Chris .... I believe. Would you like to come up here or do you feel comfortable....

Chris Sewell: Um, I feel comfortable right here. I've lived in Crescent Valley for about a year and a half now. I've been to the Dann family, the Western Shoshone people who live about 15 miles away from the proposed pit. My comments right now are as an individual.

First of all, I just want to reiterate, I think what Heidi had said, that there was no consultation done with the Dann's about this project. The consultation that they mention in the document was done for an expansion of the current Cortez Mine, that had nothing to do with dewatering. So I find the findings in the EIS that says there are no Native American concerns based on that previous consultation about a completely different project, I can see there's a big problem with that. RE-5

Also, in terms of the ground waterflow, you made a comment ... asserted in the document that there'll be no net loss to the Humboldt Basin or flow into the basin, but at the same time you said that it was unclear, the nature of how much flow came from the Crescent Valley Basin into the Humboldt River, having to do with the irrigation ditches and stuff down around Horseshoe. So I, what I'm wondering, I guess this isn't a question, it's a statement, is that, with your infiltration into the basin, re-infiltration basin, you describe ground water mounding which is going to reverse the gradient of ground water flow in that general area. And it seems to me, if you're reversing the flow, which is generally a northerly direction towards the Humboldt River, that there will be a net loss of less water traveling into the Humboldt River from Crescent Valley due to that ground water mounding from the reinfiltration basin. So those I guess right now, those would be my only two comments, but I want to make that known. RE-6

Dave Davis: Thank you. Any other comments on the EIS or the analysis. Yes, ma'am.

Marjorie Sills: Marjorie Sills and I can speak from here, I think I can be heard. I, I did not receive a copy of the EIS, I seem to have not indicated sufficiently to the Battle Mountain district that I would like a copy of a major proposal

like this. I've been receiving them from Winnemucca district and Elko district but I have not received from Battle Mountain district. And I just borrowed it from my neighbor, but I find some things disturbing and I will try to look at the EIS and put in some written comments.

First of all I did a crude calculation, you claim no net loss of water, but I figure that if the operation ran for ten years, then what you're projecting in gallons per minute that there would be a net loss of 10 billion, 512 million gallons and while this might be insignificant I don't know. Why there certainly is going to be a net loss here and if other projects are built then the accumulative effects could be extremely serious to the seeps and springs and you do say in your, on reading....something like 64 seeps and springs within the project area. My concern is always for the wildlife that uses these seeps and springs and I notice that there is a very remote area as the gentlemen pointed out but to the wildlife it is not a remote area, it is a very important area. And water is, is the limiting factor for these species out there and I really would like to see a little better analysis of the water loss. RE-7 RE-8 RE-9

The second thing, on your cultural resources, I read the pages 360 and 361 and 362 and you say that an intensive cultural resource surveys were conducted on land to encompass a somewhat greater area than the area proposed to development, the result of these inventories are provided in cultural resources technically ..... filed in the Battle Mountain BLM District Office. Well, most of us don't live in Battle Mountain have no access to technical reports from Battle Mountain. I think that this kind of things needs to be summarized just exactly what is found, and I would guess in an area where you then have seeps and springs out there and that you have the geyser at Beowawe, why I would imagine that there probably were many Native American sites out there and I would certainly like to see that section amplified so that it is more understandable to anyone reading the EIS. Because just to say something is on file means absolutely nothing. That's all I had time to pick up because I've just been standing for 10 minutes. But,uh, if there are other kinds of laps in the document I will try to point them out and I would hope that you have a copy of the document to give me tonight. RE-10

Dave Davis: No ma'am, we didn't bring any, we were under the assumption that everybody had, that was here would have taken the opportunity to read it and have it. But we will get you one. I'm a little confused, did you put your current address, when you registered, in back there.

Marjorie Sills: Yes.

Dave Davis: Ok, I'm responsible for the mailing list and I am .... quite certain that

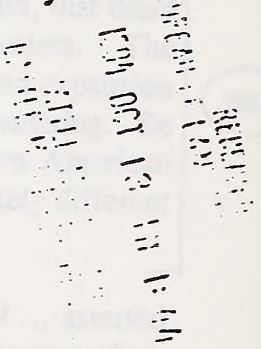
your name is on it, we've had a number of correspondence from you, but apparently you did not....

Marjorie Sills: I did not receive the document.

Dave Davis: Yes, ma'am, I believe you. I'd like to, what I will do is check the address and when I get back to the office tomorrow I'll express mail you a copy.

Marjorie Sills: Thank you very much.

Dave Davis: Yes, ma'am. I apologize, I can't explain what happened but I know you're on our mail list. Are there any other comments this evening, on the EIS. Nothing at this time, ok. We thank you for participating. Again, I would encourage everyone to take, I know it's a lengthy document, take some time and read it. We have until November 4th of this year to provide written comments to the district and the State Director. I encourage you to take that opportunity to write any additional comments you have. Thank you for coming, and have a good evening.



RESPONSE TO COMMENT RE-1

The commenter is referred to Response to Comment L-1.

RESPONSE TO COMMENT RE-2

Section 5.0, Cumulative Impacts, addresses cumulative impacts for all potentially impacted resources and meets the BLM/NEPA standards for cumulative assessment. Section 5.3, pages 5-17 through 5-35 specifically evaluate cumulative impacts for each resource due to the Pipeline Project. Please note revisions to the water resources section for cumulative impacts.

RESPONSE TO COMMENT RE-3

Refer to Response to Comment I-8.

RESPONSE TO COMMENT RE-4

Please see related response I-8.

RESPONSE TO COMMENT RE-5

Refer to Response to Comment I-8.

RESPONSE TO COMMENT RE-6

The reversed groundwater gradient is localized near the infiltration ponds; the gradient near the river will not be significantly changed. Therefore, no effect on flow of the Humboldt River or Humboldt Basin is predicted. Please see the discussion in Section 4.4.3 of the FEIS and related response I-6.

RESPONSE TO COMMENT RE-7

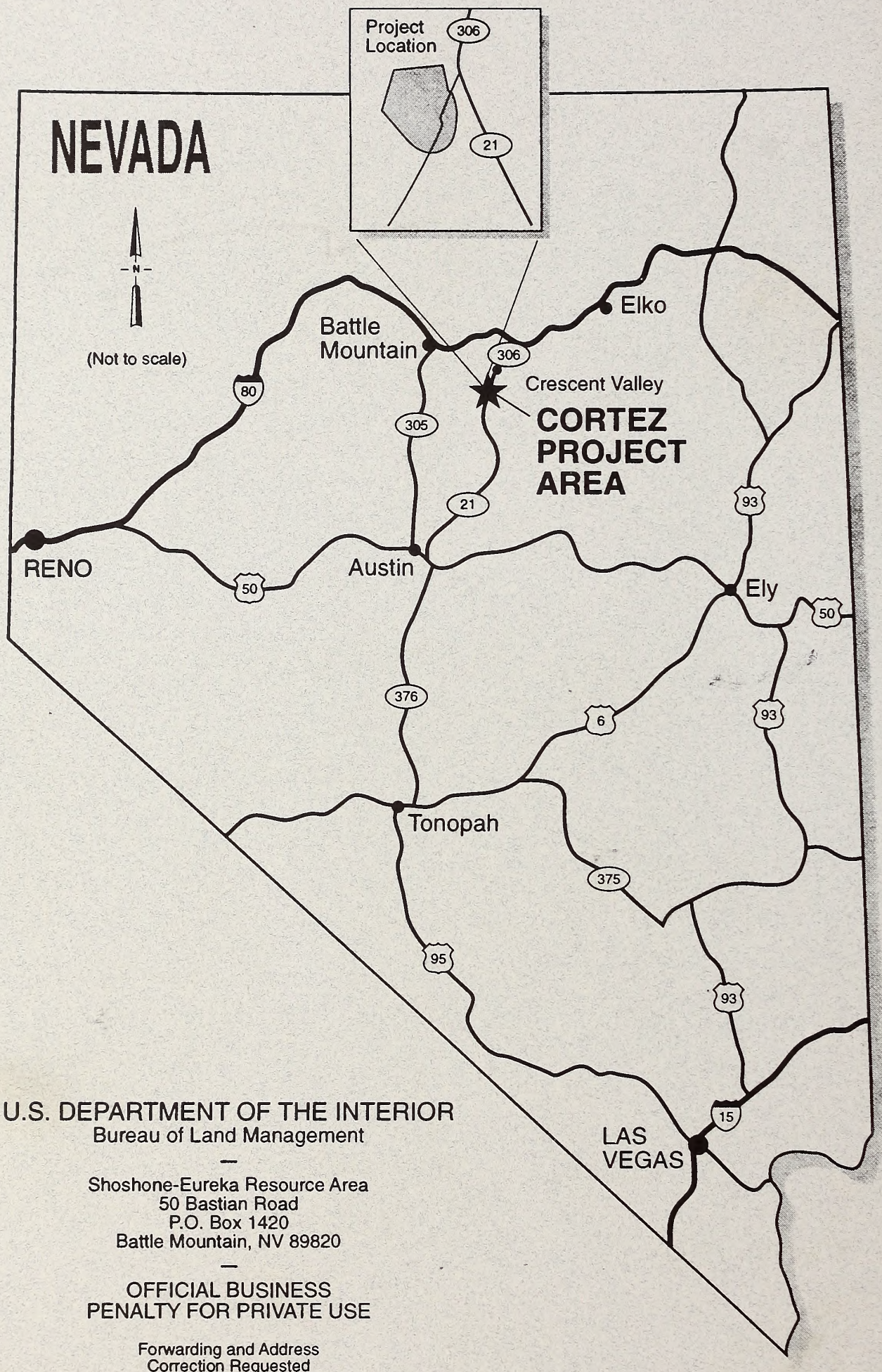
Page 2-18 of the DEIS does indicate and account for process and evaporation water losses of up to the consumptive use of 2,000 gpm.

RESPONSE TO COMMENT RE-8

The concerns with cumulative effects and upon seeps and springs are noted. This issue has been addressed in greater detail in the FEIS through an evaluation using an expanded groundwater model and more specific spring monitoring and mitigation measures. These are addressed in Sections 4.4.2, 4.4.5, and 5.3.4 of the FEIS.

RESPONSE TO COMMENT RE-9

Please see Sections 4.4.5 and 4.6.3.1 of the FEIS for mitigation applicable to springs and wildlife.



U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

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Shoshone-Eureka Resource Area
50 Bastian Road
P.O. Box 1420
Battle Mountain, NV 89820

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Correction Requested