Letter 1

UNITED STATES ENVIRONMENTAL PROTECTION
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

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ACTION

Helen Hankins
Bureau of Land Management
Elko Field Office
3900 E. Idaho Street
Elko, NV 89801

Dear Ms. Hankins:

The U.S. Environmental Protection Agency (EPA) has reviewed the Draft Supplemental Environmental Impact Statement (DSEIS) for the Betze Project, Elko and Eureka counties, Nevada. Our comments are provided pursuant to the National Environmental Policy Act (NEPA), the Council Environmental Quality's NEPA Implementation Regulations at 40 CFR 1500-1508, and Clean Air Act Section 309.

Following issuance of BLM's 1991 Record of Decision on construction of the Betze Project by Barrick Goldstrike Mines, Inc., groundwater pumping, water management activities, and monitoring provided significant new information regarding groundwater pumping requirements and potential impacts of operations. Barrick has built a water treatment plant and buried pipeline and open conveyance system to discharge up to 70,000 gallons per minute to the Humboldt River. Barrick has also submitted an application to the BLM to amend an existing right-of-way (ROW) to allow installation of a second pipeline across federal lands in order to improve the efficiency of Barrick's water distribution system. This DSEIS analyzes the potential impacts of Barrick's existing and future water management operations and of the proposed buried pipeline, which is the Proposed Action. A No Action alternative is also analyzed.

We have rated this DSEIS as EC-2 - Environmental Concerns-Insufficient Information (see enclosed "Summary of Rating Definitions and Follow-Up Actions"). Although only a small pipeline project is proposed in this DSEIS, the document analyzes the impacts of water management operations at the mine. We have concerns regarding the direct and cumulative impacts to biological resources and recommend additional information in the Final Supplemental Environmental Impact Statement (FSEIS) regarding the ecological risk assessment, cumulative impacts and mitigation. We also recommend that the proposed project be better described and an alternative be considered that could mitigate impacts to some springs and streams. Our specific comments are enclosed.

Letter 1 Continued

We appreciate the opportunity to review this DSEIS. Please send a copy of the FSEIS to this office when it is officially filed with our Washington, D.C., office. If you have any questions, please call me at (415) 744-1584 or Jeanne Geselbracht at (415) 744-1576.

Sincerely,

David J. Farrel, Chief
Federal Activities Office

003493

Enclosures

cc: Dave Gaskin, NDEP
Stan Wiemeyer, U.S. Fish and Wildlife Service

Letter 1 Continued

SUMMARY OF EPA RATING DEFINITIONS

This rating system was developed as a means to summarize EPA's level of concern with a proposed action. The ratings are a combination of alphabetical categories for evaluation of the environmental impacts of the proposal and numerical categories for evaluation of the adequacy of the EIS.

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 public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potentially unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the 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 analysed 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 analysed in the draft EIS, which should be analysed 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."

Letter 1 Continued

Betze Project Draft Supplemental EIS
EPA Comments – November, 2000

Proposed Project

1-1 The proposed project is not completely described in Chapter 2; therefore, it is unclear whether other alternatives exist or are worth exploring. The FSEIS should describe in detail the pipeline from one end to the other, including the components located on private land. Figure 2-1 should be redrawn to indicate the full extent of the new pipeline, including that which is not on public land.

1-2 For example, several water management alternatives are discussed on pages 1-25 and 1-26 of the DSEIS. One alternative involves infiltration or injection of water, but was eliminated because Barrick argued that it would be impractical to infiltrate water upgradient of the area being dewatered. However, instead of piping the water for irrigation purposes in Boulder Flat, Barrick could pipe this water to areas where impacts to perennial streams and springs could be mitigated. An overlay of Figures 3.2-7 and 5-5 indicate that areas in upper Boulder Creek basin and/or southeast of the Betze Pit could accommodate surface water or groundwater replenishment without a direct impact on the dewatering operations. The FSEIS should analyze this possibility for discharging excess water.

Ecological Risk

The ecological risk assessment discussion concludes that potential harm to the Humboldt Sink and the lakes along the Humboldt River from the proposed project is likely to be small but cannot be accurately predicted from ecotoxicology. We agree. The report's inability to predict risk stems largely from the environmental and meteorological variability involved in evaluating

1-3 such a large area. In order to arrive at a more robust conclusion, the assessment should consider predicted changes in the toxicity of river water at the existing and proposed discharge points on the Humboldt River. That is, an ecotoxicology analysis at the local scale should be conducted. This analysis must be based on media concentrations (water and possibly sediment chemistry) or doses to receptors compared to toxicity benchmarks. This would give a much more robust assessment of the potential impact of the proposed actions on the aquatic habitat, with much less influence of the confounding factors involved in looking at predicted impact in distal locations such as Humboldt Lake. We have the following additional comments:

1-4 Using comparisons to median predicted concentration (DSEIS, Table 3.4-1), the risk assessment indicates a very low probability of future impact from the pit lake. However, it is questionable whether the median values of predicted pit lake aquatic chemistry are the best metric. In general, the median of a data set is the least useful measure of central tendency. Comparisons to the mean and either the maximum value or the 95% upper confidence limit of the mean, with a subsidiary discussion of any modality in the distribution, would be preferable.

1

Responses to Letter 1

1-1 Barrick and Elko Land and Livestock Company (ELLCO) have withdrawn the application for a right-of-way grant amendment to construct a second water pipeline across BLM lands in Boulder Valley; therefore, the buried pipeline is no longer the Proposed Action.

1-2 Potential impacts and mitigation for potential impacts to perennial streams and springs in the upper Boulder Creek watershed area were previously addressed in the Betze Project EIS (Bureau of Land Management [BLM] 1991b) and Meikle Mine Environmental Assessment (EA) (BLM 1993a). One of the principal purposes of the Supplemental EIS (SEIS) was to reevaluate and update the predictions of potential impacts to water resources anticipated from Barrick's mine dewatering and water management operations. As shown by the comparison in Figure D-6 and as discussed in Section D1.2 in the Draft SEIS, the updated ground water flow model predicts that the areal extent of ground water drawdown will be smaller than earlier predictions identified in the Betze Project EIS and Meikle Mine EA. The estimated impacts to water-dependent resources would correspondingly be reduced. For example, the estimated acreage of riparian habitat that potentially could be impacted from pumping at the mine has been reduced from 330 acres (as estimated in the original Betze Project EIS) to 137 acres (as estimated in the SEIS). In summary, the SEIS does not predict greater impacts to water resources resulting in the need for ground water replenishment.

Relative to the areas suggested for ground water replenishment, reinjected water in these areas (upper Boulder Creek and/or southeast of the Betze Pit) would eventually flow back to the dewatering system, requiring additional pumping at both the Goldstrike Mine and Newmont Gold Company's mines located southeast of the Betze Pit. Therefore, these areas are not practicable sites for ground water replenishment. In addition, there are no perennial streams in the area of potential effect to the southeast of the mine. For these reasons, the BLM has decided not to further evaluate reinjection alternatives in the Final SEIS.

1-3 Impacts of Barrick's dewatering discharges to the Humboldt River are addressed in the Draft SEIS. Barrick has a National Pollutant Discharge Elimination System (NPDES) permit from the Nevada Division of Environmental Protection (NDEP) authorizing dewatering discharges to the Humboldt River. The effluent limitations are designed such that water quality constituents would not exceed stream water quality standards established for protection of identified beneficial uses. No violations of numerical effluent limitations were documented during the historic discharge period for the mine (September 1997 to February 1999). In addition, Barrick does not anticipate future discharges; however, if discharges do occur, they would meet the effluent limitations set forth in the NPDES permit. Barrick has agreed to provide $25,000 to the Humboldt River study for years that Barrick discharges.

Responses to Letter 1

1-4 The predicted water chemistry of the future pit lake(s) was calculated using the MINTEQA2 model, the results of which are presented in a Radian International (1997a) report. The MINTEQA2 model is used to "simulate the interactions of the numerous geochemical reactions . . . that take place as the pit lake evolves and eventually reaches a steady-state condition." The output of the model is a probability (including the 50th percentile) continuum of predicted water quality. Therefore, there is no mean or confidence limits. Since the median represents the best estimate of water quality, the BLM believes it is appropriate for use in the risk assessment. The assessment is already highly conservative, since it assumes 100 percent exposure to the pit lake water and makes the comparison using a "no effects level" (NOAEL). A comparison to the 95th percentile would make the assessment much more conservative, but it also would greatly increase the model uncertainty and thus, it would not provide additional insight into potential realistic risks to wildlife.

Letter 1 Continued

1-5 Table 3.4-3 in the DSEIS indicates that Humboldt Lake water under premining conditions is not a threat. However, the conclusions made in the text regarding water quality are not supported in Table 3.4-4, which indicates that selenium and boron are sufficiently elevated in tissues form organisms in Humboldt Lake to cause concern under premining conditions.

1-6 Furthermore, Table 3.4-5 in the DSEIS should have included the calculated hazard quotients. Otherwise, it can not be determined whether the cumulative risk from doses to wildlife is a concern. The statement in the text on page 3-184 that no hazard quotient is above 1 is not sufficient.

Mitigation

1-7 Specific mitigation measures are not identified or described for post-mining impacts such as: soil salinity accumulations on formerly saturated lands below TS Ranch Reservoir, as well as the resultant saline and/or alkaline runoff conditions; or accelerated eolian or surface water erosion on 10,000 acres of agricultural land that will be taken out of production after dewatering ceases. These measures should be identified and described in the FSEIS, and the bonds for these activities should be itemized.

Cumulative Impacts

In our October 26, 2000, letter to you, EPA commented on the BLM's "*Cumulative Impacts Analysis of Dewatering and Water Management Operations for the Betze Project, South Operations Area Project Amendment, and Leeville Project*" (April, 2000). We expressed our concern that safe yield will be exceeded by dewatering activities in the cumulative impact area. About 30 percent of the groundwater pumped will be removed from the hydrologic system, and it is stated that the regional water balance will be out of equilibrium. It is unclear that the resulting ecological disruption will be appropriately mitigated. We commented that the analysis lacks some important information, discussed below, which should be addressed in a follow-up or supplemental analysis, as well as in each of the individual EISs for the cumulative impact area, including the Betze Project FSEIS.

1-8 The cumulative impact of mine dewatering activities to surface water quality in the Humboldt River and Humboldt Sink was limited to arsenic, copper, zinc, fluoride, boron, and total dissolved solids (TDS). In terms of cumulative impacts, the three metals of most concern, cadmium, mercury and selenium, were not included in the analysis. Figure 3-29 in the analysis estimates the potential increase in pollutant loading at the Rye Patch Gage. The text states that this estimate is based on very limited pre-mine data. Due to the lack of data points and information on bioaccumulative metals, this analysis is not sufficient to determine the potential impacts of the dewatering operations on aquatic organisms and terrestrial wildlife.

Responses to Letter 1

1-5 Tables 3.4-3 and 3.4-4 in the Draft SEIS represent two different sources of potential contaminants and two different routes of exposure: water ingestion and food ingestion, respectively. This separation is consistent with laboratory toxicity studies that usually deal with only one exposure route at a time. Chemicals ingested via water or food are often assimilated differently and thus may promote very different effects. For that reason, it makes sense toxicologically to separate water and food into different exposure routes, especially during a screening-level risk assessment. The assessments represented by these two tables are not inconsistent with each other or with the text and simply represent a comparison of measured concentrations to the best available toxicity data for that particular exposure route. As stated on page 3-180 of the Draft SEIS, because some of the measured concentrations of some metals in tissues collected from Humboldt Lake were higher than benchmarks, a more detailed assessment using multiple exposure routes was completed.

1-6 Tables 1-6a and 1-6b below provide estimated environmental doses, toxicity reference values, and hazard quotients for surrogate wildlife species in a screening-level risk assessment of constituents in the Humboldt Sink based on mean and maximum water, sediment, and tissue concentrations, respectively.

Table 1-6a
Estimated Environmental Doses (EED), Toxicity Reference Values (TRV), and Hazard Quotients Based on Mean Water, Sediment, and Tissue Concentrations

Constituent	Species	EED (mg/kg/d)[1]	TRV (mg/kg/d)[2]	Hazard Quotient
Arsenic	Mule Deer	0.004467	0.02	0.2233
	Great Blue Heron	0.0399163	5.14	0.0078
	Mallard Duck	0.4703017	5.14	0.0915
	Bald Eagle	0.040308	5.14	0.0078
Boron	Mule Deer	0.188732	7.05	0.0268
	Great Blue Heron	0.6383732	28.8	0.0222
	Mallard Duck	9.7837475	28.8	0.3397
	Bald Eagle	0.636024	28.8	0.0221
Chromium	Mule Deer	0.000066	4.43	<0.0001
	Great Blue Heron	0.2339545	1.0	0.2340
	Mallard Duck	0.2878932	1.0	0.2879
	Bald Eagle	0.2323824	1.0	0.2324
Copper	Mule Deer	0.000099	0.12	0.0008
	Great Blue Heron	0.0972497	27.5	0.0035
	Mallard Duck	1.0619748	27.5	0.0386
	Bald Eagle	0.8752356	27.5	0.0318
Lithium	Mule Deer	0.030938	2.37	0.0131
	Great Blue Heron	2.3974326	5.81	0.4126
	Mallard Duck	3.6188938	6.91	0.5237
	Bald Eagle	2.866248	5.2	0.5512
Mercury	Mule Deer	0.000004	0.17	<0.0001
	Great Blue Heron	0.0205145	0.45	0.0456
	Mallard Duck	0.0076313	0.45	0.0170
	Bald Eagle	0.0239552	0.45	0.0532
Molybdenum	Mule Deer	0.001411	0.12	0.0118
	Great Blue Heron	0.6130711	11.77	0.0521
	Mallard Duck	0.088784	11.77	0.0075
	Bald Eagle	0.62628	11.77	0.0532
Selenium	Mule Deer	0.000038	0.05	0.0008
	Great Blue Heron	0.097191	0.5	0.1944
	Mallard Duck	0.1675059	0.5	0.3350
	Bald Eagle	0.2006688	0.5	0.4013
Zinc	Mule Deer	0.000423	17.02	<0.0001
	Great Blue Heron	3.9585657	14.49	0.2732
	Mallard Duck	4.878645	14.49	0.3367
	Bald Eagle	5.298324	14.49	0.3657

[1]Estimated environmental dose through all ingestion pathways deemed appropriate.
[2]Toxicity reference values for this screening risk assessment were No Observed Adverse Effects Levels (NOAELs)

Table 1-6b
Estimated Environmental Doses (EED), Toxicity Reference Values (TRV), and Hazard Quotients Based on Maximum Water, Sediment, and Tissue Concentrations

Constituent	Species	EED (mg/kg/d)[1]	TRV (mg/kg/d)[2]	Hazard Quotient
Arsenic	Mule Deer	0.009874	0.02	0.4937
	Great Blue Heron	0.0526695	5.14	0.0102
	Mallard Duck	0.79443	5.14	0.1546
	Bald Eagle	0.053268	5.14	0.0104
Boron	Mule Deer	0.253899	7.05	0.0360
	Great Blue Heron	0.7297908	28.8	0.0253
	Mallard Duck	10.504715	28.8	0.3647
	Bald Eagle	0.7482	28.8	0.0260
Chromium	Mule Deer	0.000094	4.43	<0.0001
	Great Blue Heron	0.2447766	1.0	0.2448
	Mallard Duck	0.8401817	1.0	0.8402
	Bald Eagle	0.242004	1.0	0.2420
Copper	Mule Deer	0.000094	0.12	0.0008
	Great Blue Heron	0.1368268	27.5	0.0050
	Mallard Duck	1.4192767	27.5	0.0516
	Bald Eagle	1.719912	27.5	0.0625
Lithium	Mule Deer	0.033383	2.37	0.0141
	Great Blue Heron	2.5868954	5.81	0.4452
	Mallard Duck	3.8992667	6.91	0.5643
	Bald Eagle	3.09276	5.2	0.5948
Mercury	Mule Deer	0.000009	0.17	0.0001
	Great Blue Heron	0.025917	0.45	0.0576
	Mallard Duck	0.0136319	0.45	0.0303
	Bald Eagle	0.0309432	0.45	0.0688
Molybdenum	Mule Deer	0.002069	0.12	0.0172
	Great Blue Heron	1.8011515	11.77	0.1530
	Mallard Duck	0.1209652	11.77	0.0103
	Bald Eagle	1.817184	11.77	0.1544
Selenium	Mule Deer	0.000094	0.05	0.0019
	Great Blue Heron	0.1404251	0.5	0.2809
	Mallard Duck	0.2114052	0.5	0.4228
	Bald Eagle	0.328992	0.5	0.6580
Zinc	Mule Deer	0.00094	17.02	0.0001
	Great Blue Heron	4.3188954	14.49	0.2981
	Mallard Duck	7.0203817	14.49	0.4845
	Bald Eagle	5.89872	14.49	0.4071

[1]Estimated environmental dose through all ingestion pathways deemed appropriate.
[2]Toxicity reference values for this screening risk assessment were No Observed Adverse Effects Levels (NOAELs).

Responses to Letter 1

1-7 As stated in the Draft SEIS, irrigated lands in Boulder Flat consist primarily of privately owned land within the TS Ranch controlled by ELLCO, a subsidiary of Newmont Gold Company; these lands are not under the BLM's jurisdiction or Barrick's control. Although Barrick delivers excess mine water to ELLCO for irrigation, ELLCO has its own water rights in Boulder Flat (see Appendix A, Betze Project Draft SEIS). ELLCO water rights allow for pumping ground water for irrigation to supplement or replace the water supply provided by Barrick after mine dewatering ceases at the Goldstrike Mine.

As described in Section 1.4.3.7 of the Draft SEIS, Barrick constructed three embankments across the Sand Dune drainage in Boulder Flat to manage storm water runoff. The area of saturation in Boulder Flat (including the area downstream from the Sand Dune, Green, and Knob springs) is located entirely on private land and is administered under agreements between Barrick and Newmont.

1-8 As explained in Section 3.3.8.3 in the Cumulative Impact Analysis (CIA) report (BLM 2000b), the BLM relied on the U.S. Fish and Wildlife Service (USFWS) during scoping to provide a list of constituents of concern for use in the Humboldt Sink loading analysis. In addition, the BLM in consultation with the USFWS agreed that this analysis would be based on approximations using available water quality data. The intent of the evaluation, as stated in the CIA, was to provide an approximation of the potential increases in loads to the Humboldt Sink resulting from mine discharges. The USFWS constituents of concern included mercury and selenium but not cadmium. As stated in the CIA, meaningful loads for mercury and selenium could not be calculated because the majority of the water quality data available for the mine discharge streams and Humboldt River stations indicated concentrations of these constituents below detection limits. Comparisons between upstream and downstream stations (Carlin, Rye Patch, and at a point of discharge into the Sink), suggest that concentrations of mercury and selenium do not increase substantially between Carlin and the Humboldt Sink.

As stated previously, cadmium was not included in the list of constituents of concern provided during scoping. In addition, cadmium concentrations for the mine discharge are not available because Barrick, in accordance with their NPDES permit, was not required to monitor for cadmium. Although cadmium was not included in the evaluation, it is likely that, as with other heavy metals included in the analysis such as copper and zinc, dissolved loads of cadmium (in the mine discharge) would decrease from precipitation and absorption processes during transport between the mine discharge point and the Sink.

Letter 1 Continued

Betze Project Draft Supplemental EIS
EPA Comments – November, 2000

1-9 The cumulative impact analysis lacks sufficient water quality, sediment, macro-invertebrate and fish tissue data. Concentrations of selenium that are acutely toxic to nesting waterfowl can accumulate quickly in closed systems such as the Humboldt Sink. The additional mine dewatering discharges to the agricultural run-off flowing to the Humboldt Sink increase the risk that metals such as cadmium and selenium could reach levels acutely toxic to wildlife. Biological samples from fish and wildlife using the Humboldt sink area should also be analyzed on a regular basis to determine if the uptake of bioaccumulative metals is increasing. At the very minimum, the operation of these dewatering facilities should incorporate a long-term monitoring plan to assess the cumulative impact of increasing cadmium, mercury and selenium loadings in the Humboldt Sink. Any monitoring plan to determine long term cumulative impacts should incorporate water and sediment chemistry, fish tissue analysis and macroinvertebrate bioassessments for monitoring points both above and below the mine operations and the Humboldt Sink.

3

Responses to Letter 1

1-9 As stated in the Draft SEIS, Barrick currently does not plan to discharge to the Humboldt River. However, should Barrick discharge to the Humboldt River, the BLM and NDEP would evaluate future monitoring requirements. Barrick has committed to contribute $25,000 during each future year of discharge for monitoring of fish and wildlife for uptake and bioaccumulation of metals in the Sink, in the event that Barrick reinitiates discharges.

Letter 2

United States Department of the Interior

U.S. GEOLOGICAL SURVEY
Reston, Virginia 20192

In Reply Refer To:
Mail Stop 423

MEMORANDUM

To: Kirk Laird, Bureau of Land Management
Elko, Nevada

From: James F. Devine
Senior Advisor for Science Applications

Subject: Review of Draft Supplemental Environmental Impact Statement for Barrick Goldstrike Mines Inc, Betze Project, Elko and Eureka Counties, Nevada.

The U. S. Geological Survey (USGS) has reviewed the subject Draft Supplemental Environmental Impact Statement (SEIS) and offers the following comments.

SPECIFIC COMMENTS:

Page 1-25, Section 1.5.2 Additional Infiltration or Injection:

2-1 "The hydrologic characteristics of the rocks situated east of the Post Fault are very different than the characteristics of the rocks in the highly transmissive area between the Post and Siphon Faults. Pumping experience demonstrates that wells in the highly transmissive area can produce from 2,500 to 3,000 gpm, while wells in the area east of the Post Fault produce only 50 to 300 gpm". This quoted information and that in the remainder of Section 1.5.2 is based on a study by Barrick Goldstrike Mines, Inc.

The information given in Table 3.2-3, "Summary of Hydrostratigraphic Unit Hydraulic Properties," (page 3-28); Figure 3.2-5, "Major Hydrostructural Features," (page 3-31); Figure 3.2-6, "Hydrogeologic Cross Section Through Ranch Dam and Betze Post Pit," (page 3-32); and text discussions on Marine Carbonate Rocks, Marine Clastic Rocks, and Volcanic Rocks (pages 3-28 and 3-29), however, indicates that the rocks in the area between the Post and Siphon Faults have lower hydraulic conductivity than the rocks adjacent (east and west) to the area between the faults. The pumping rates of wells in the area between the Post and Siphon Faults are reported to yield 10 to 1,000 gpm. This range falls outside the range (2,500-3, 000 gpm) given in page 1-25. The information on Table 3.2-3, Figure 3.2-5, Figure 3.2-6, and pages 3-28, and 3-29 is based on studies by McDonald Morrissey Associates (1996a, 1996b, and 1998) and Maurer et al (1996).

Responses to Letter 2

2-1 The discrepancies regarding the hydraulic conductivity and the range of well yields have been corrected to address the comment. Specifically, the conceptual hydrogeologic cross section provided in Figure 3.2-6 has been corrected to clearly illustrate that 1) the relatively higher permeability marine carbonate rock unit occurs within a compartment bounded between the Siphon and Post faults, and 2) the lower permeability marine clastic rock unit occurs east of the Post Fault. The discrepancy in Figure 3.2-6 did not affect the conclusions. The typical well yields for these two units have been revised (pages 1-25 and 3-28, Draft SEIS) to be consistent with the values presented in Tables 1 and 5 in McDonald Morrissey Associates (1998).

Letter 2 Continued

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2-1 The discrepancies in well yields, hydraulic properties, and geologic attributes of the area between the Post and Siphon Faults and the hydrostratigraphic units that are adjacent (east and west) of the area between the faults as described by Barrick and McDonald Morrissey Associates need to be reconciled. All other discussions, analyses, and interpretations presented in the Draft SEIS that deal with ground-water hydrology (direction of ground-water movement, water-level drawdown and recovery, infiltration, recharge, discharge, and so forth) before, during, and after mining (including short- and long-term predictions of water-level drawdown and recovery) that may hinge on the noted discrepancies need to be reexamined for verification purposes. The discrepancies noted above could have introduced additional discrepancies elsewhere in the Draft SEIS.

Page 3-30, Siphon Fault:

2-2 The head difference between NA-50D and NA-7D indicates a barrier to flow only if the wells are open boreholes. If they are not open holes, then what are the depths of the screens and are they open to confined or unconfined aquifers? It would be helpful to plot these two wells on Figure 3.2-5 (page 3-31).

Page 3-30, Post Fault:

2-3 Again, it would be helpful to plot the two wells, PZ96-1D and PZ96-2D, on Figure 3.2-5 (page 3-31). Are these wells open boreholes?

Page 3-30, and 3-33, Geothermal System:

2-4 The temperature of the dewatering water needs to be included.

Page 3-34, Figure 3.2-7 Unconfined Ground-Water Levels, 1990-1991:

2-5 The previous section on page 3-30 explains in detail that the Siphon and Post faults are barriers to ground-water flow, yet the equipotential contours and flow lines in Figure 3.2-7 are drawn without regard to these faults. In fact, from Figure 3.2-7 it would appear that ground-water flows perpendicularly to both the Post and Siphon Faults. Clarification is needed.

Page 3-39, left column, second paragraph:

2-6 The hot springs mentioned here need to be labeled and plotted on Figure 3.2-9 (page 3-38). In addition, a map of the springs in Figure 3.2-9 with contours for water temperature would be helpful. This would also aid in later discussions regarding the source of water to the springs.

Page 3-47, Table 3.2-6 Drinking Water Standards Applicable to Ground Water:

2-7 The term 'semimetal' is incorrect. The chemically correct term for As and Sb is "metalloid" and Se is a nonmetal.

Responses to Letter 2

2-2 & 2-3 The information requested regarding monitoring wells NA-50D, NA-7D, PZ95-1D, and PZ96-2D is provided in Table 2-2 below. Detailed information on the completion and location for all of the monitoring wells is provided in the monitoring reports submitted as part of the Boulder Valley Monitoring Plan (BVMP) (Barrick 1999a). The BVMP was incorporated by reference into the Draft SEIS. Figure 3.2-22 in the Draft SEIS shows the locations (without annotation) of all of the monitoring wells included within the BVMP and the areas and magnitude of drawdown and mounding as of the fourth quarter of 1998. The wells cited in the text were intended to provide an example of the variations in water levels that have been observed on either side of the Siphon and Post faults. Many other monitoring wells located on either side of these faults show similar trends and were used to develop an understanding of the hydrostratigraphic and hydrostructural conditions. Detailed hydrographs of monitoring wells distributed throughout the study area indicate that both the Siphon and Post faults inhibit ground water flow. Comparison of Draft SEIS Figures 3.2-5 (Hydrostructural Features) and 3.2-22 (Drawdown and Mounding, End of 1998) indicates the observed water level changes on either side of the faults. The Siphon Fault separates highly permeable Tertiary rhyolite rocks west of the fault from highly permeable Paleozoic marine carbonate rocks east of the fault. Well hydrographs indicate that water levels have risen in the rhyolite located west of the fault, due to infiltration through the TS Ranch Reservoir; at the same time, water levels have dropped due to dewatering in the carbonates east of the Siphon Fault (Barrick 1999a). Well hydrographs also record substantially different rates of water-level decline in Paleozoic rocks located on either side of the Post Fault; drawdown is much greater west of the fault than it is east of the fault (Barrick 1999a).

Table 2-2
Monitoring Well Descriptions

Monitoring Well	Collar Elevation (feet)	Screen Top Elevation (feet)	Screen Bottom Elevation (feet)	Geologic Unit
NA–50D	5,204.92	3,784.92	3,684.92	Marine Carbonate
NA-7D	5,109.60	4,689.60	4,649.60	Tertiary Volcanics
PZ95-1D	5,486.07	4,593.07	4,493.07	Marine Clastics
PZ96-2D	4,853.53	4,093.53	4,073.53	Marine Clastics

2-4 The temperature of the dewatering wells is discussed in the last paragraph on page 3-30 of the Draft SEIS. The majority of the dewatering water is from the carbonate aquifer that has a reported temperature at the wellhead of 140°F to 145°F. No changes were made to the SEIS in response to the comment.

2-5 Figure 3.2-7 represents pre-dewatering equilibrium conditions and depicts unconfined water levels on a regional scale. The faults are evident in Figure 3.2-7 in the two areas of the steepest hydraulic gradient in the center of the map. However, the faults are more obvious in Figure 3.2-22, which represents recent conditions.

Responses to Letter 2

2-6 There are actually four springs classified as either hot or warm in the hydrologic study area. Three of the hot and warm springs occur along the Humboldt River downstream from Carlin. The other hot spring occurs in the Susie Creek watershed. All of these springs are located a considerable distance outside of areas projected to be impacted by drawdown from Barrick's water management activities. For this reason, it is not necessary to discuss the characteristics of the springs, source waters, or present temperature contours for the purposes of the SEIS analysis. However, in response to the comment, the text (page 3-39) has been modified to list the specific hot and warm springs by Newmont spring designation number and incorporate them by reference. Refer to the Newmont South Operations Area Project Amendment Final EIS (BLM2002) for map locations.

2-7 The term "semimetal" is correct; it appears on published periodic tables, and is defined in college chemistry text books and glossaries. For example, The Purdue University on-line Glossary of Chemical terms (http://chemed.chem.purdue.edu/genchem/glossary/) defines a semimetal as "An element, such as silicon or arsenic, with chemical and physical properties that fall between the extremes associated with metals and nonmetals. Also called a metalloid."

Selenium (Se) falls in the nonmetals section of the periodic table, near the transition between metals and nonmetals, and one of two forms of Se has metallic properties. Therefore, Se could be considered a "semimetal" or metalloid. No changes were made to the SEIS in response to the comment.

Letter 2 Continued

Page 3-52, Betze-Post:

2-8 This page is a discussion of water chemistry from within the various lithographic units near Betze-Post. However, it refers to concentrations of Si, Ba, Cr, Cu, Ni, Ag, and Cd that are not included in Table 3.2-7 (page 3-49 and 3-50). If these elements are to be part of the discussion, then they should be included in Table 3.2-7.

Page 3-52, Alluvium:

2-9 It is unclear why ground-waters from the alluvium and the volcanic rocks are described as having no dominant cations. In the cation triangle on page 3-51, Figure 3.2-13, the alluvium waters plot on top of waters from the carbonate, volcanic and Carlin Formation lithologies.

Page 3-67, Table 3.2-14 Mean October Gains and Losses in the Humboldt River (cfs):

2-10 Are these numbers all plus (+) if not denoted by a minus (-)?

Page 3-70, Table 3.2-15 Historical Changes in Humboldt River Configuration:

2-11 It would be helpful to include post-1985 data in this table. Also, it is unclear where the locations are for the beginning and ending points that were used to measure river length between study sites shown in this table.

Page 3-75, right column, third paragraph:

2-12 It would be useful to add this information on the Lovelock and Rye Patch gages to Table 3.2-10, Table 3.2-11, and Table 3.2-12 on page 3-65.

Page 3-78, General Surface Water Quality:

2-13 Flow decreases are attributed to evaporation and diversions out of the river in this section; however on page 3-63 to 3-66, in a discussion on gaining and losing reaches of the Humboldt, infiltration into the alluvial aquifer is also noted as a cause of flow loss. Could some of the loss mentioned in this section be due to infiltration to ground-water? These two sections of the Draft SEIS should be consistent with one another.

Page 3-80, Table 3.2-20 Humboldt River Water Quality:

2-14 Again, the term 'semimetals' is incorrect.

Page 3-100, left column, first paragraph:

2-15 More information is needed on how the chemical and isotopic signature from monitored springs was used to assess the potential impact of ground-water drawdown to the springs.

Responses to Letter 2

2-8 As explained in the Draft SEIS (page 3-45, second to the last paragraph), Table 3.27, provides a summary of the "…. general ground water chemistry for the six hydrostratigraphic units for the region…." The region, as used in this context, refers to the entire hydrologic study area. Conversely, the water quality discussion provided under the heading "Betze-Post Pit Area" referenced in the comment is a summary of the water quality characteristics in ground water near the Betze-Post Pit, as provided in the Radian International, LLC and Baker Consultants, Inc., (1997b) report referenced in the Draft SEIS. No changes were made in response to the comment.

2-9 The text (page 3-52) describing volcanic rocks and alluvium has been revised to remove the statement regarding no dominant cation.

2-10 Tables 3.2-13 and 3.2-14 have been modified as a point of clarification in accordance with the comment.

2-11 Post-1985 data were not available at the time of document preparation and were not considered essential for this analysis. This information is not considered necessary to address the point of the discussion (that the river geometry has changed substantially over the last several decades prior to major mine discharge activities). With respect to the measurement points, the information presented in Table 3.2-15 is a summary derived from the Nevada Division of Wildlife baseline reports cited at the bottom of the table. For additional information on the measurement points, please refer to the cited sources.

2-12 This information was not included in the tables referenced in the comment, since it would encourage numerical comparisons that are not warranted. There are major differences in infrastructure and data availability from the flow conditions above Imlay and below Imlay, which would limit comparisons between the two areas. Therefore, the discussions of different river reaches are presented in the Draft SEIS to make the reader aware of these differences and to indicate that conditions below Imlay or Rye Patch have been generally inferred.

2-13 For consistency, the text was modified on page 3-78 of the Final SEIS to acknowledge that reductions along the river are attributable to diversions, reservoir management, evaporative losses, and seepage into the alluvial aquifer.

2-14 See the response to comment 2-7 above.

Letter 2 Continued

4

Page 3-113, Pit Lake Water Quality Modeling:

2-16 The modeling of major geochemical reactions needs to take into account evapoconcentration and resulting precipitation/complexation reactions.

2-17 The model of pit water quality for the first 233 years (that is, the filling phase of the pit) is inadequate. Model simulations of pit water quality for after the 233-years period, once a balance has been established between ground-water inflow and evaporation, are also needed.

2-18 Additionally, a model of the response of TDS (total dissolved solids) to evapoconcentration is needed, especially for when the pit has filled to its maximum level.

Page 3-114, Table 3.2-25 Median Predicted Betze-Post Pit Lake Chemical Concentrations:

2-19 Predicted concentrations of HCO_3 (bicarbonate) need to be added to the table. This is important because it could be the dominant anion.

Page 3-116, left column, third paragraph:

2-20 The discussion does not mention a decrease in O_2 in the bottom of the pit, due to degradation of organic matter. Is this expected and if not, why not?

Page 3-121, Projected Future Impacts:

2-21 There needs to be more discussion of projected future impacts. Based on Figures 3.2-23 through 3.2-26 (pages 3-87 through 3-90), ground water within the cone of depression will flow to the pit. Presumably, in premining times this water flowed to the Humboldt River. How is it that this change in ground-water flow direction will not affect baseflow to the Humboldt River?

Page 3-130, Figure 3.2-28 Estimated Average Annual Premine Loads at the Carlin and Rye Patch Gages:

2-22 What are the dates over which the annual averages have been calculated? These dates need to be added to this figure caption.

Page 3-131, left column, second paragraph:

2-23 Arsenic and boron form 'oxyanions' in solution, not 'negatively charged oxides'

Page 4-3, Chapter 4 Affected Environment and Environmental Consequences of the Proposed Action, 4.4 Vegetation, Including Threatened, Endangered, Candidate, or Sensitive Species, 4.4.2, Environmental Consequences, 4.4.2.1, Proposed Action:

2-24 The report states that approximately 18 acres of big sagebrush/grassland vegetation type would be disturbed by project construction, and that because the site would be reseeded (with an approved seed mix) "herbaceous species would re-establish rapidly, while shrub species would re-establish within 5 to 10 years."

Responses to Letter 2

2-15 As stated in the Draft SEIS, various factors were considered to identify areas where impacts to perennial surface waters potentially could occur. These factors included model results and reported descriptions and laboratory analyses from inventoried and annually monitored springs, including: 1) the drawdown projected from the ground water model; 2) information on the hydrogeologic setting (surface elevation, hydrostratigraphic unit, regional ground water elevations); 3) geochemical characteristics (particularly ionic concentrations); and 4) tritium concentrations. With respect to ionic and tritium isotope concentrations, in general, waters characterized with low ionic concentrations (<200 milligrams per liter [mg/L]) and higher tritium concentrations suggest that the perennial waters represent discharge from a local recharge source (or perched aquifer) with a very short residence time (few years or less). In contrast, waters with significantly higher ionic concentrations (>300 to 600 mg/L) and very low tritium concentrations (<1 TU) in this setting represent waters discharged from a more regional aquifer. The higher ionic concentrations and lower tritium concentrations reflect the longer flow path and residence time in the aquifer since initial recharge.

2-16 As discussed under the heading Pit Lake Water Quality (pages 3-110 to 3-116 in the Draft SEIS), the pit lake water quality modeling accounted for evapoconcentration, precipitation, and other chemical reactions.

2-17 The geochemical modeling was conducted to the point in time when the pit lake is projected to reach 95 percent of the final steady-state elevation (233 years after dewatering ceases). The 95 percent final steady-state criterion is considered by the BLM to provide a reasonable time frame for evaluation of trends in pit lake water quality. Because it is not possible to predict future climatic conditions, long-term prediction of water quality made over hundreds of years in the future should be considered uncertain approximations. However, these predictions do provide an indication of relative trends that are likely to occur in the pit lake water quality.

2-18 The modeling did account for evapoconcentration effects to the year 233. Regarding the duration of modeling and the suggestion to extend modeling past year 233, see the response to comment 2-17.

2-19 For pit lake water quality, the primary issues identified during scoping and by the interdisciplinary interagency team were: 1) potential risk to wildlife, waterfowl, and humans; and 2) potential degradation of the ground water aquifer downgradient of the pit. Bicarbonate was not considered a constituent of concern, and was therefore not considered relevant to the issues identified during scoping. Bicarbonate concentrations in the pit water are not relevant to the impact assessment, since bicarbonate is not considered a potentially toxic substance in water.

Letter 2 Continued

2-24 However, in the semiarid-arid climate of the proposed Betze project, rainfall and other precipitation is sparse and sporadic, and adequate soil moisture availability for seed germination and survival is not ensured. It is recommended that shrub saplings be planted at the disturbed site and watered or replanted until established. The shrubs will provide microhabitats to conserve water for easier sprouting of grass and forb seeds that should be sown among the established shrubs. Mulch, perhaps straw, should be applied to the revegetation site to conserve soil moisture. These precautions will help decrease the spread of rapidly establishing weedy species, such as cheatgrass and Russian thistle, at the site.

Thank you for the opportunity to review and comment on the Draft SEIS.

REFERENCES:

Commercial native seed sources and information on technology for revegetation of arid and semiarid regions with native plants can be found from **The Arboretum at Flagstaff, Flagstaff, Arizona. The website address is** http://www.thearb.org.

For further information about nonindigenous plant species and research and monitoring to combat them, reading of work done by the **Federal Interagency Committee for the Management of Noxious and Exotic Weeds** is suggested. The Committee's first report is cited as follows:

Westbrooks, R. 1998. *Invasive plants: changing the landscape of America: Fact book.* Federal Interagency Committee for the Management of Noxious and Exotic Weeds (FICMNEW), Washington, D.C. 109 pp.

Information can be accessed at the FICMNEW URL:
http://refuges.fws.gov/FICMNEWFiles/FICMNEWHomePage.html

Copy to: Office of Environmental Policy Compliance

Responses to Letter 2

2-20 Variations in oxygen content throughout the lake column over time (and seasonally) were simulated using the CE-QUAL-W2 model. Details regarding the pit lake modeling and results of the CE-QUAL-W2 modeling are provided in Radian International, LLC and Baker Consultants, Inc. (1997a). Based on the modeling results in the early years (prior to year 28), when there would be two separate lakes, both lakes are predicted to remain oxygenated throughout the year. After the two lakes merge to form a single lake (year 28), the pit lake water is projected to be well oxygenated with dissolved oxygen concentrations predicted to remain in the 3.5 to 8 mg/L range throughout the water column all year. The lower dissolved concentration is predicted to occur during late summer when decaying algae would reduce near surface oxygen concentrations. For additional details, refer to the Radian International, LLC and Baker Consultants, Inc. report (1997a) available at the BLM Elko Field Office.

2-21 As described in the Draft SEIS, water would flow into the pit and form a pit lake in the Betze-Post Pit after dewatering ceases. Water flowing into the pit would consist of ground water inflow, surface runoff from the pit walls, and direct precipitation onto the lake surface. The ground water inflow component would include two distinct water types: 1) warm, bicarbonate rich waters associated with the marine carbonate aquifer on the west side of the pit; and 2) cooler, more silicic water derived from the igneous intrusive, Carlin Formation, and marine clastic units exposed on the east and south sides of the pit. The marine carbonate aquifer has a higher transmissivity than the other units. Because of the higher transmissivity, the marine carbonate aquifer is anticipated to produce the greatest ground water inflow to the pit.

The comment suggests that water that would eventually flow into the pit lake previously discharged to the Humboldt River as baseflow. The inferred predewatering ground water elevations indicate that most of the water captured by the dewatering system, and ground water that would be discharged to the pit after mining ceases, previously flowed southwest toward Boulder Flat (Maurer et al. 1996, Plate 3). As shown in Table 3.2-4 (Draft SEIS), the Humboldt River loses an estimated 29,000 acre-feet/year of streamflow in Boulder Flat (McDonald Morrissey Associates, Inc. 1998). In other words, ground water captured by the mine (and later in the pit lake) in the Boulder Flat Hydrographic Area (HA) does not appear to be a source of baseflow to the Humboldt River. To the contrary, a portion of the streamflow along the Humboldt River through Boulder Flat infiltrates and recharges the ground water system. As presented in Table 3.2-4 (Draft SEIS) and discussed in recent USGS reports (Maurer et al. 1996; Berger 2000) most of the discharge from the bedrock and alluvial basin-fill aquifers occurs as evapotranspiration in lower Boulder Flat. Since the projected drawdown cones for the Goldstrike Mine do not intersect the Humboldt River, and ground water impacted by this drawdown previously did not discharge to the Humboldt River, ground water drawdown and inflow from the bedrock aquifers into the pit lake is not expected to reduce baseflow in the Humboldt River.

Responses to Letter 2

2-22 The premine water quality database for the Carlin and Rye Patch gage used in the analysis is discussed on page 3-129 of the Draft SEIS. A footnote has been added to Figure 3.2-38 for clarification.

2-23 Regarding the description on page 3-131 of the Draft SEIS: "… dissolved arsenic and boron generally form negatively charged oxides (Hem 1992; Drever 1997)," the term "oxyanion" would be correct in the context of a detailed discussion of the formation of the specific chemical complexes. However, in more general discussions (particularly to the layperson) the terms "oxide" or "negatively charged oxides" are commonly used. Regardless of the terms used, this modification to the text would not affect the discussion or conclusions of the analysis presented in the SEIS.

2-24 Barrick and ELLCO have withdrawn the pipeline application; therefore, no reclamation will be required.

Letter 3

United States Department of the Interior

FISH AND WILDLIFE SERVICE

NEVADA FISH AND WILDLIFE OFFICE
1340 FINANCIAL BOULEVARD, SUITE 234
RENO, NEVADA 89502-7147

Memorandum

To: Field Manager, Bureau of Land Management, Elko Field Office, Elko, Nevada (Attn: Kirk Laird)

From: Field Supervisor, Fish and Wildlife Service, Nevada Fish and Wildlife Office, Reno, Nevada

Subject: Draft Supplemental Environmental Impact Statement, Betze Project, Barrick Goldstrike Mines Inc.

We have reviewed the Draft Supplemental Environmental Impact Statement (DSEIS) for the Betze Project dated September 2000. This DSEIS analyzes impacts associated with existing and future water management operations of Barrick Goldstrike Mines Inc. (Barrick) and a proposal to amend an existing right-of-way to allow installation of a second pipeline across public land. The following comments and recommendations are provided for your consideration.

GENERAL COMMENTS

3-1 The cover letter to this DSEIS indicates that the purpose of the DSEIS is 1) to re-analyze the effect of dewatering for the mine because the dewatering rates and total volume dewatered have been much greater than predicted in the 1991 EIS for the project and 2) to analyze impacts due to the proposed construction of a pipeline across a portion of federal land. With regard to dewatering, the cover letter states in the third paragraph that this document addresses issues and concerns raised over the last several years. The cover letter also states that by analyzing the impacts of Barrick's dewatering activities, the Bureau of Land Management (BLM) will propose mitigation measures to address the predicted impacts which are greater than previously discussed. We believe it is critical to minimize and mitigate impacts to resources to the maximum extent practicable. Because of the potentially far-reaching but uncertain impacts, it is extremely important that mitigation and monitoring activities be

Responses to Letter 3

3-1 Comment noted. The BLM and USFWS have completed informal consultation; see Appendix C.

Letter 3 Continued

Field Manager

File No. BLM 6-4
EC 32.7

3-1 carefully considered. We ask to be included in any discussions and decisions on monitoring and mitigation where our trust resources may be potentially impacted.

SPECIFIC COMMENTS

CHAPTER 1. INTRODUCTION

3-2 Section 1.4.3. Water Management Operations. Page 1-16. The first paragraph states that Barrick lowered water elevations more than projected in 1990 and in half the time, so that pumping rates exceeded the projections presented in the 1991 Betze EIS. An explanation should be provided on why this was permitted to happen without further National Environmental Policy Act (NEPA) analysis and review. We are aware that Barrick's operations are currently located primarily on private lands. However, at the time BLM noted that dewatering rates and hydrologic conditions were substantially different from those anticipated in the Betze EIS, Barrick's operations were located entirely on public lands and were authorized under a Plan of Operations approved by the BLM.

3-3 Section 1.4.3.1. Wells and Collection System. Page 1-17. This section should state that BLM permitted conveyance of water in the existing pipeline pursuant to a right-of-way held by TS Ranch Joint Venture and the date of the right-of-way grant.

3-4 Section 1.4.3.9. Monitoring. Page 1-24. The last sentence in the third paragraph indicates that the Fish and Wildlife Service (Service) will prepare a report on results of the Humboldt River Aquatic Biota Monitoring study in the year 2000. This report will not be completed until sometime in the year 2001. Analytical results for samples collected in 1999 were not received until the end of August 2000. This coupled with the availability of left-over analytical funds, which are being used for the analysis of samples collected in 2000 from four sites, has delayed completion of the study. A U.S. Geological Survey (USGS) report dealing primarily with water quality issues in the lower Humboldt River Basin near the Humboldt Sink, as part of the above study, should be completed in early 2001. We hope to have a preliminary report on results of biota sample analyses, for samples that were collected in 1998 and 1999, completed by early 2001 and share those results with cooperators and interested parties shortly thereafter.

3-5 Section 1.6.1. Monitoring Programs. Page 1-26. The DSEIS states that the extent of the 10-foot drawdown contour would reach a maximum approximately 100 years post-mining. Barrick will continue spring and seep monitoring until 2030, approximately 20 years after mining is projected to be completed. The document needs to describe how impacts to seeps and springs will be detected during the 80 years when Barrick will have ceased monitoring, but when the cone of depression is still expanding. We believe monitoring for a longer period is

Responses to Letter 3

3-2 The following environmental reviews were conducted of Barrick's dewatering operations after the 1991 Betze Project EIS. In 1993, the increased dewatering rates were analyzed in an EA prepared in connection with Barrick's development of the Meikle Mine (BLM 1993a). In January 1994, BLM initiated consultation with the USFWS and submitted a Biological Assessment/Biological Evaluation (BA/BE) (BLM 1994b). The 1994 BA considered increased dewatering rates for an increased period of time. On April 14, 1994, the USFWS issued its Biological Opinion. This SEIS was initiated with a public scoping period commencing in August 1994. Dewatering operations have been extensively monitored and analyzed by the BLM, USGS, NDEP, and Nevada Division of Water Resources (NDWR) during the time this SEIS was in preparation. The results of the 1993-1994 analyses and this SEIS analysis have projected dewatering impacts similar to those projected in the original Betze Project EIS (BLM 1991b).

3-3 The text (page 1-17) has been modified to reflect this information.

3-4 Comment noted.

3-5 The Record of Decision (ROD) for the initial Betze Project EIS (BLM 1991d) required the establishment of an interest-bearing, $250,000 account to provide for payment of the direct costs of conducting long-term monitoring of the project (after 2030). As ofJune 28, 2002, the value of this long-term monitoring account had grown to $477,144. The ROD also specified that Barrick would establish a $1,000,000 interest-bearing environmental contingency fund account "for the purpose of funding the review, monitoring, and mitigation of adverse environmental impacts associated with its project not evident during the course of operations or following reclamation." As ofJune 28, 2002, the value of the contingency fund had grown to $1,835,199. Under the current agreements, both of these funds will continue to grow and be available to fund long-term (post-Barrick) monitoring.

Letter 3 Continued

Field Manager

File No. BLM 6-4
EC 32.7

3-5 necessary.

3-6 Section 1.6.2. Mitigation Measures. Page 1-27. This section should state the extent to which the monies spent on mitigation measures to date have mitigated for impacts that have occurred or are projected to occur.

3-7 We desire additional information on the fund to research issues related to post-mining pit water quality that is mentioned here. First, please provide titles and a very brief description of the two studies funded to date. Second, are a portion of the funds to be held for actual monitoring of the pit lake following its formation or are all monies to be expended in predictive studies?

3-8 Long-term monitoring of water quality, aquatic community development, uptake of metals and trace elements in the food chain, and wildlife use of the pit lake is needed.

3-9 Section 1.7.1.2. Other Projects and Activities. Page 1-34. A long-term water supply for restoration of Argenta Marsh could be provided by Barrick after cessation of mining by the purchase of water rights in the amount that will annually evaporate from the pit lake (i.e., 2,900 acre-feet). These water rights could then be donated to the Nevada Division of Wildlife for maintenance of marsh habitat at Argenta Marsh or other sites in the Humboldt River Basin and be considered mitigation for the evaporative loss from the basin. This should be considered as a mitigation measure in section 3.2.3.

CHAPTER 2. PROPOSED ACTION AND ALTERNATIVES

3-10 Section 2.1. Proposed Action (Buried Pipeline), Table 2-1, Page 2-3. The seed mixture should include non-natives only when they are needed for soil stabilization early in revegetation, and where they would naturally die out later.

CHAPTER 3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES FOR WATER MANAGEMENT OPERATIONS

3-11 Section 3.0. Affected Environment and Environmental Consequences for Water Management Operations. Page 3-1 to 3-2. It is not clear why Air Quality and Hazardous or Solid Wastes were eliminated as nonrelevant when the period of mining would be extended beyond that analyzed in the earlier EIS, the pit would be expanded, and additional materials would be placed on a waste rock dump(s) and in a tailings facility. Also, mercury emissions from stacks at the mine have been ongoing and are now reported under Toxic Release Inventory requirements. The media has reported significant estimated emissions from this Barrick facility. The potential effects of these emissions have not been analyzed in previous NEPA documents. Mercury, especially in its organic (i.e., methyl) form is highly toxic, is readily biomagnified through the food chain, and may have adverse effects on fish and wildlife

3

Responses to Letter 3

3-6 The BLM has used the Mule Deer Habitat Fund provided by Barrick for several projects, including rehabilitation of areas burned in wildland fires. Deer appear to be heavily using these areas. NDOW has found that deer in the area rely heavily on these rehabilitated areas. (NDOW 1998d).

The BLM has installed water guzzlers using the Wildlife Water Source Fund provided by Barrick. These guzzlers have resulted in an increased distribution of upland game species, primarily chukar, and upland species are remaining at higher elevations for longer periods of time. Although NDOW does not have specific statistics for the wildlife use associated with the guzzlers funded by Barrick, NDOW has indicated they are very satisfied with the overall success of these water sources (Ken Gray, NDOW, personal communication January 26, 2001).

3-7 Two studies were conducted to research post-mining pit water quality issues:

- Investigations of Pit Water – Pit Wall Interactions in Nevada Precious Metal Mines. University of Nevada and University of Alabama. December 1, 1996.
- The Aqueous Geochemistry of Arsenic. University of Idaho and Stanford University. October 8, 1999.

These two reports are available from the BLM Elko Field Office.

3-8 Comment noted.

3-9 As described in Section 3.2.2.2 of the Draft SEIS and in the response to comment 2-21, dewatering effects, including evaporative losses from the pit lake, are not projected to affect Humboldt River flows. There is no connection between the Argenta Marsh restoration project and mitigation for evaporation from the pit lake surface. Also, Barrick is committing to off-site habitat enhancement for Lahontan cutthroat trout (LCT) streams and associated riparian habitat (see Appendices A and B of the Final SEIS.

3-10 See the response to comment 2-24.

3-11 The Proposed Action did not include pit, waste rock, or tailings expansions on public land. To the extent such activities would occur in the future on private lands, they are beyond the scope of this SEIS.

The Goldstrike processing facilities from which mercury emissions were reported under the Toxic Release Inventory are located on private lands and were not part of the Proposed Action. It should be noted, however, that mercury air emissions are regulated by the NDEP under authority delegated by the U.S. Environmental Protection Agency (USEPA) under the Clean Air Act.

Letter 3 Continued

Field Manager

File No. BLM 6-4
EC 32.7

3-11 resources. We recommend efforts to reduce emissions and monitoring of actual emissions as well as environmental monitoring in downwind and background areas.

3-12 Section 3.2.1.2. Hydrologic Study Area for Dewatering and Localized Water Management Activities, Surface Water, Surface Water Flows and Channel Characteristics, Local Watersheds. Pages 3-43 to 3-44. The text indicates that there are periods of no flow in portions of Suzie Creek. These statements do not appear to be consistent with Figures 3.2-1 and 3.2-9, which show Suzie Creek to be perennial throughout.

3-13 Section 3.2.2.1. Impacts from Mine Dewatering and Localized Water Management Activities, Impacts to Groundwater Levels, Impacts to Date (1991 - 1998), Figure 3.2-22. Page 3-84. More monitoring wells to the north and northeast of the pit may be needed to adequately monitor groundwater levels in possible areas of impact to Lahontan cutthroat trout (LCT), Columbia spotted frog, and springsnails.

3-14 Section 3.2.2.1. Impacts from Mine Dewatering and Localized Water Management Activities, Water Quality Impacts, Pit Lake Water Quality, Pit Water Balance and Final Pit Lake Configuration. Page 3-111. The ultimate pit bottom elevation of 3,990 feet above mean sea level (amsl) for the West Bazza-Screamer Area and the elevation of the rise between the East and West Areas in the text is not consistent with the information provided in Figure 3.2-33.

3-15 Section 3.2.2.1. Impacts from Mine Dewatering and Localized Water Management Activities, Water Quality Impacts, Pit Lake Water Quality, Pit Lake Water Quality Modeling Results. Pages 3-113 and 3-114. It would be helpful to provide information on the range of values predicted for various measurements of water quality. For example, are they in the 20 to 50 percent range around the values reported or are they in the range of orders of magnitude? Also, the text indicates a potential for initial pH to be 4, but medians in Table 3.2-25 at year 10 are about pH 8.

3-16 In Table 3.2-25, mercury is not expected to be detected in water, but the lack of detection in water at the detection limit used might not adequately predict mercury in biota because of high rates of biomagnification. Adverse effects to biota may be found when they contain elevated concentrations. Slightly elevated concentrations of selenium are predicted in pit lake water. Selenium may be bioaccumulated in biota and adverse effects in biota may occur when elevated concentrations are present. It should also be noted that the predicted silver concentration is more than three times higher than the aquatic life standard.

3-17 The continued predicted increasing degradation of water quality in the pit lake for the foreseeable future (i.e., 233 years) is of considerable concern and should not be dealt with lightly.

Responses to Letter 3

3-12 Figures 3.2-1 and 3.2-9 have been modified to show that the lowermost reach of Susie Creek is ephemeral.

3-13 As shown in Figure 3.2-22, and presented in the quarterly reports for Barrick's Boulder Valley Monitoring Plan, Barrick has installed and monitors a series of wells located to the north and east of the Betze-Post Pit. Fourteen wells were installed as recommended in conservation recommendation No. 1 of the USFWS Biological Opinion (USFWS 1994). Also, it should be noted that Barrick has installed two additional monitor wells north of the mine in the Antelope Creek area. In addition, as described in the Mitigation Plan (Appendix A), if the current groundwater monitoring system indicates that the cone of depression is advancing toward the LCT streams in the Maggie Creek basin (Beaver, Coyote, Jack, and Little Jack creeks), Barrick will install and monitor additional monitoring wells to measure changes in water levels between the mine and the LCT streams. The Long-term Environmental Monitoring and Mitigation Fund also would be available for use in establishing new monitoring points (such as monitoring wells) if the drawdown were to unexpectedly advance toward LCT habitat or other sensitive species.

3-14 In response to the comment, the elevations of the ultimate pit surface have been rechecked, and the numbers (page 3-111) have been modified, as necessary. It is important to note that Figure 3.2-33 illustrates the pit configuration using a single, representative cross-section. The text, however, is based on elevations provided in a detailed contour map of the entire ultimate pit surface that was used for the pit lake study (Radian International, LLC and Baker Consultants, Inc. 1997a). Since the cross-section was not drawn to intersect the lowest elevation at each of the three points discussed in the text, the elevations illustrated in Figure 3.2-33 and discussed in the text on page 3-111 do not correlate.

3-15 The text and tables in the SEIS are intended to provide a brief summary of the results and conclusions of the pit lake study (Radian International, LLC and Baker Consultants, Inc. 1997a). As stated in the SEIS, the pit lake water quality simulation results are presented as a probability distribution and include predicted concentrations at 5 percent, 50 percent (or median), and 95 percent probability for selected time frames. Providing a complete set of results with these probabilities (for different time intervals and different segments of the pit) would have required the addition of several pages of tables within the SEIS, but would not have changed the conclusions stated in the SEIS. In addition, the complete pit lake study was incorporated by reference in the SEIS and is available for review at the BLM Elko Field Office. With respect to pH, as explained in the SEIS, the median predictions at year 10 indicate that the two initial (east and west) pit lakes would have a near neutral pH. However, predictions at the 5 percent confidence level indicate that the pH at year 10 would be less than 4. In other words, the predictions indicate that water within the pit is unlikely to be acidic. However, there is a small chance that the pit lake water could be acidic in the early years of formation until inflowing ground water could add sufficient buffering capacity to neutralize the pit water.

Responses to Letter 3

3-16 It has long been recognized that mercury and selenium tend to bioaccumulate in organisms. In fact, water quality criteria for these two metals already take into account their tendency to bioaccumulate. However, there is a general consensus that water-borne selenium concentrations, for example, are a poor predictor of toxic effects (USEPA 1998). A study by Canton and Van Derveer (1997) of the Arkansas River in Colorado (which receives discharge from historical mining operations) found no relationship between water-borne selenium concentrations and fish community health, even when selenium concentrations exceeded the acute criterion of 20 micrograms per liter (µg/L). Therefore, the current acute and chronic criteria for selenium and mercury should be sufficiently protective of aquatic organisms.

Silver is a hardness-dependent metal. The predicted median hardness of the pit lakes (from 10 to 233 years) varied from about 321 to 558 milligrams per liter (mg/L) as $CaCO_3$. For any given Betze Pit lake scenario, the median predicted silver concentration presented in Table 3.2-25 is less than the Nevada silver acute aquatic life standard. For example, in the West Pit Lake at 26 years, the predicted silver concentration is 0.028 mg/L; the standard is 0.0374 mg/L.

3-17 The comment is noted; no change was made.

Letter 3 Continued

Field Manager

File No. BLM 6-4
EC 32.7

3-18 Section 3.2.3.1. Mine Dewatering and Localized Water Management Activities. Pages 3-136 and 3-139. We are concerned that the proposed mitigation measures for perennial springs, seeps, and streams could have adverse consequences on some biological resources (although they may benefit others) during the period of project impact. Potential measures listed are: 1) Augmenting flow, and 2) on-site or off-site improvements of springs or streams to enhance water yield. Developing other nearby springs or streams may cause adverse impacts on biological resources as well. Implementation of a mitigation plan may require NEPA compliance if it would result in any adverse impacts, and the final SEIS should so state.

3-19 In cases where flow is augmented, the quality of the water to be used must be first assessed and be of equal quality, including both major and minor constituents, to that of the original flow.

3-20 We are also concerned that by the time impacts to springs are detected through annual monitoring, sensitive biological resources (such as springsnails) may already have been lost. More frequent monitoring of specific springs may be warranted.

3-21 We also recommend mitigation of the evaporative loss of water from the pit lake. This could be accomplished by the purchase of water rights and their donation to the Nevada Division of Wildlife for the purpose of providing habitat for wetland dependent species in the Humboldt River Basin.

3-22 Section 3.3.2.1. Impacts from Mine Dewatering and Localized Water Management Activities. Page 3-153. As discussed in this section, "...limitations inherent in hydrologic modeling and the uncertainty regarding the hydrologic interconnection between the streams and the regional water system, the actual extent and magnitude of impacts to riparian vegetation are uncertain." We are concerned with the potential impacts to riparian vegetation and the resultant impacts to listed species, particularly LCT.

3-23 Section 3.3.2.1. Impacts from Mine Dewatering and Localized Water Management Activities. Page 3-154. The document states that noxious weed species could become established in stream channels affected by ground water drawdown, but that riparian vegetation would likely dominate these areas after water levels return to premine conditions. We do not agree with that conclusion. There are many cases to illustrate that noxious weed species, once established, will dominate a site until effective control measures are implemented. Mitigation measures should be developed to ensure that noxious weed species do not become established in riparian areas.

3-24 Section 3.4.2.2. Impacts from Mine Dewatering and Localized Water Management Activities. Pages 3-172 and 3-175. The paragraph beginning at the bottom of column one on page 3-172

Responses to Letter 3

3-18 The BLM acknowledges that further analysis and regulatory permitting may be required for project-related mitigation measures that may result in effects to biological resources.

3-19 Regarding spring and stream flow augmentation water quality, any water used for flow augmentation would be required to meet the water quality criteria for the applicable beneficial uses. Under most circumstances, it may not be feasible to provide supplemental waters that exactly match the ionic and trace metal concentrations of the original perennial waters. The compatibility of waters (that meet the applicable water quality standards for designated beneficial uses) to support the survival of specific organisms is unknown. Text has been added (page 3-217) to Section 3.6.4 (Threatened, Endangered, Candidate, and Sensitive Species, Residual Adverse Impacts) of the Final SEIS to acknowledge that residual impacts could occur to special status species (if flow augmentation were required, and the physical and chemical characteristics of the water used to augment flows were incompatible with survival of specific sensitive organisms). Note that Barrick's Mitigation Plan (Appendix A) includes a $50,000 research grant to study springsnails.

3-20 Springs are monitored annually with field observations and flow measurements conducted during the low-flow period in late September or early October. It is important to understand that spring, seep, and perennial stream flows in the region generally exhibit dramatic seasonal variations. Spring flows in winter, spring, and early summer are strongly influenced by seasonal precipitation. As a result, flow measurements recorded during these periods typically represent a combination of surface water runoff and ground water discharge. Conversely, spring flow measurements recorded during the late summer through early fall period typically represent or approximate baseflow conditions (measurement of the ground water discharge component with minimal influence from surface runoff). For these reasons, the BLM believes that the annual flow measurements taken during the late summer or early fall are the most useful for either verification that a water source has not been impacted or detection of potential impacts to perennial water sources.

It should be noted that monitoring of ground water elevations over the past decade has indicated that expansion of the cone of drawdown into new, distal areas has occurred at a relatively slow rate. The goal of the ground water and surface water monitoring network is to detect drawdown and potential impacts to areas prior to the impacts actually occurring within specific sensitive resource areas. Using this approach, impacts to sensitive water-dependent resources can be more effectively mitigated.

Responses to Letter 3

3-21 The focus of the original Betze Project EIS and the SEIS was to evaluate potential impacts associated with mine dewatering and water management activities on water-dependent resources. As summarized in the response to comment 2-21, ground water drawdown and inflow to the pit are not expected to reduce baseflow in the Humboldt River. In addition, as explained in the response to comment 3-5, funds have been established for use in monitoring and mitigating long-term impacts to water-dependent resources resulting from long-term residual drawdown that results in part, from pit lake evaporation. Barrick also has established a Riparian Habitat Mitigation Fund, which was valued at $1,059,635 as ofJune 28, 2002. Since mitigation measures have been established to offset anticipated or unanticipated impacts to water resources, additional mitigation for evaporative loss from the pit lake is not warranted. In addition, the Nevada State Engineer is solely responsible for administering water rights in the State of Nevada, and therefore, the BLM has no authority over the administration or transfer of water rights.

3-22 As explained in the response to comment 1-2, based on the analysis in the Betze Project SEIS the areal extent of impacts is projected to be less than originally predicted in the Betze Project EIS and the Meikle Mine BA/BE. Barrick's dewatering operations are not projected to affect LCT. In addition, as discussed in the responses to comments 3-5 and 3-21, mitigation funds established by the ROD for the Betze Project (BLM 1993d) address both anticipated and unanticipated impacts to water resources. Please also see the details provided in the Mitigation Plan (Appendix A of the Final SEIS) and the Upper Willow Creek Habitat Enhancement Plan (Appendix B of the Final SEIS).

3-23 Text regarding the potential establishment of noxious weeds and noxious weed monitoring measures has been added to Section 3.3.2.1 (page 3-154), Impacts from Mine Dewatering and Localized Water Management Activities, and Section 3.3.3 (page 3-157), Monitoring and Mitigation, respectively.

3-24 The intent of the information presented in the referenced paragraph was to provide an overview of the potential effects to terrestrial wildlife species from a reduction in surface water resources and associated riparian habitats. The common avian species that may occupy these areas were identified in Section 3.4.1 (Affected Environment) and were not repeated for the impact analysis. The species described in the SEIS "affected environment" section, including resident and migratory raptors, songbirds, waterfowl, shorebirds, and upland game birds, were analyzed in the impact assessment presented in Section 3.4.2.2 of the SEIS. In addition to the species information presented in the SEIS text, Appendix E of the SEIS contains detailed species-specific data from the Nevada Division of Wildlife on waterfowl species recorded for the dewatering areas and the Humboldt River drainage.

Regarding the comment on "specific information on sensitive species," when site-specific data were available for both aquatic and terrestrial special status species addressed in Section 3.6.2, the data were presented in the SEIS. As discussed in the SEIS, it was assumed that several special status species could occur in the dewatering area and along the Humboldt River, although they may not have been detected there, and the impact analysis was based on this assumption. A BA/BE under Section 7 of the Endangered Species Act was prepared and submitted to the USFWS. The USFWS' memorandum of concurrence with the determinations of the BA/BE is included in Appendix C.

Letter 3 Continued

Field Manager

File No. BLM 6-4
EC 32.7

3-24 describes impacts that may occur to a species as a result of loss of surface water. We concur with the conclusions expressed in this paragraph. We are particularly concerned with species trending toward listing and with migratory birds, but the document does not provide enough information on the species of birds that breed in this area or specific information on sensitive species that occur there.

3-25 In the second to last paragraph on this page the assumption is made that the riparian communities are currently at carrying capacity. The DSEIS earlier indicated that riparian conditions in many areas were poor (section 3.3.1.1), including areas outside of the predicted area of impact. Therefore, if conditions were improved (e.g., through reduced grazing) the carrying capacity could be increased in these areas. Mitigation of the adverse effects of lowered groundwater in predicted areas of impacts could be conducted in these predicted non-impacted areas. This should be done prior to additional dewatering impacts so that mammals and birds could move to improved habitat in mitigation areas. The Wetland Mitigation Fund (section 1.6.2, page 1-27) could be used for this purpose.

3-26 The extent to which existing committed protection measures referenced on page 3-175 would partially mitigate the anticipated impacts to terrestrial wildlife resources would depend on the extent to which the lost habitat would be replaced. We recommend the document provide information on the extent to which this would occur.

3-27 The last sentence in the paragraph dealing with songbirds stated that "Loss of an active nest site, eggs, young, or adult birds from changes in water availability would be in violation of the [Migratory Bird Treaty] Act..." We disagree; this would not be a violation.

3-28 Section 3.4.2.3. Impacts Associated with the Pit Lake. Page 3-176. We do not agree with selection of species for the pit lake risk assessment. We recommend the inclusion of one or more aquatic species such as a duck and/or grebe and the results of the assessment with the use of such species.

3-29 We also recommend that the risk assessment include exposure through the ingestion of food from the pit lake because some constituents may bioaccumulate or biomagnify through the food chain, leading to increased exposure.

3-30 The selenium concentration in water (i.e., 6 μg/L from Table 3.4-1) is above the predicted lower effect concentration for sensitive species when bioaccumulation through the food chain is considered.

3-31 Section 3.4.2.4. Impacts to the Humboldt River. Page 3-178. Information in the last paragraph of this section indicated that water quality in the Humboldt River would be improved during periods of the mine's discharges. This information has not been documented in previous sections of the DSEIS. To the contrary, information was presented on increased loads of various constituents during periods of mine discharge.

Responses to Letter 3

3-25 Comment noted. Note that the Upper Willow Creek Habitat Enhancement Plan (see Appendix B of the Final SEIS). It would provide off-site riparian habitat prior to the occurrence of an impact. Barrick also has established a Riparian Habitat Mitigation Fund, which was valued at $1,059,635 as of June 28, 2002.

3-26 It is not possible to specifically quantify the future extent of lost or disturbed terrestrial habitats to be affected by changes in water availability. The intent of this summary statement was to show that Barrick and the BLM have developed extensive monitoring and mitigation programs to address these resource issues. As stated in the SEIS, existing programs and committed measures to implement future programs would offset direct and indirect impacts to terrestrial species from the loss or reduction of available water, riparian habitats, and wetland communities. Monitoring and mitigation measures are identified in Appendix A of the Final SEIS, Mitigation Plan, and in Appendix B, the Upper Willow Creek Habitat Enhancement Plan.

3-27 In response to the comment, the text (page 3-175) has been revised to remove the statement regarding the Migratory Bird Treaty Act.

3-28 Water ingestion NOAELs for a duck or grebe are not included in Sample et al. (1996). However, there are NOAELs for a great blue heron; these NOAELs have been added to Table 3.4-1 and the text (page 3-176) appropriately revised.

3-29 As stated in the Draft SEIS, it was assumed that primary production in the pit lake would be so low as to preclude use of the lake as a substantial food source by wildlife. The BLM believes this is a reasonable assumption.

3-30 The selenium concentration of 5 µg/L is the USEPA's criterion continuous concentration (CCC), or chronic criteria. It does not represent a "lower effect concentration" as stated in the comment. In fact, this CCC is based on field studies from Belews Lake, North Carolina, which showed no effects to fish in an area of the lake where the selenium concentration was at this level. As indicated in the response to comment 3-16, more recent studies indicate that exposure to much higher concentrations does not cause significant effects. Therefore, the BLM does not believe that the predicted concentration of 6 µg/L is of particular concern.

3-31 The issue of loading is a concern for the Humboldt Sink and not the river itself. As stated on page 3-128 of the Draft SEIS, assuming future mine discharges would be in accordance with permit limitations, impacts to water quality in the river are not anticipated. The water quality impact analysis provided in Section 3.2 focused on the potential for degradation of water quality and increased chemical loading to the Humboldt River and Humboldt Sink. The water quality analysis did not evaluate the potential for improved river water quality resulting from mine discharges. Therefore, for consistency with Section 3.2, the statement on page 3-178 regarding improved water quality during periods of mine discharge referenced in the comment was removed in the Final SEIS.

Letter 3 Continued

Field Manager

File No. BLM 6-4
EC 32.7

3-32 Section 3.4.2.5. Impacts to the Humboldt Sink, Table 3.4-6. Page 3-186. The data presented here only deals with dissolved constituents. It is possible for some constituents to be transported in the total fraction (i.e., non-filtered samples). This should also be acknowledged in the section on water quality (starting on page 3-128).

3-33 Section 3.4.3. Monitoring and Mitigation. Page 3-187. No mention is made of continued support on the Service's Humboldt River Aquatic Biota Monitoring study. We recommend that continued support be required. We request the opportunity to discuss this issue with you following completion of a preliminary report dealing with biota samples collected in 1998 and 1999 and completion of the USGS report on their portion of the study.

3-34 Section 3.5.1.4. Humboldt River Basin. Page 3-192. At the end of the second full paragraph on this page, please note that additional samples were also collected at some sites (i.e., Carlin gage to Golconda) in the year 2000 as part of this monitoring program.

3-35 Section 3.5.2.2. Impacts to the Humboldt River. Pages 3-194. The first paragraph on page 3-194 discusses effects of increased flows on fish, both native and introduced. The document states that increased flows would particularly benefit some of the introduced game species. We believe improved reproduction and/or survival of introduced species would result in increased competition with and/or predation on the native fishes. Contrary to the statement in paragraph two on page 3-194, we would expect that expanded populations of introduced game species would affect the composition of the fish community in the river. Appropriate monitoring and mitigation for this impact should be developed.

3-36 Section 3.5.3. Monitoring and Mitigation. Page 3-195. The document states that if native fish habitat in the Boulder Creek and upper Antelope Creek drainages is impacted due to dewatering activities, off-site enhancement mitigation may occur. Off-site mitigation could include fencing to limit grazing in areas near upper Rock, Toe Jam, and upper Willow Creeks. Improvements in riparian vegetation and streambank stability in these areas could also occur. Please keep in mind that these areas may contain LCT and any impacts to LCT, either direct or indirect, beneficial or adverse, should be addressed under the Endangered Species Act's section 7 consultation process.

3-37 Section 3.6.1.2. Aquatic Species, Springsnails. Page 3-208. This section could be improved by adding quantification. We recommend the document state how many springs and seeps are located within the maximum model-predicted 10-foot drawdown contour, how many of those springs and seeps have been surveyed for springsnails, and what percentage of springs and seeps with suitable springsnail habitat has been surveyed.

Responses to Letter 3

3-32 A more detailed description of the database used in the loading evaluation is provided on pages 3-90 and 3-91 of the Cumulative Impact Analysis (BLM 2000b). Concentrations for the river were calculated using available dissolved constituent concentrations. Concentrations used for the mine discharges are reported as either dissolved, total recoverable, or total. However, regardless of whether the concentrations were reported as dissolved, total recoverable, or total, for the purpose of this analysis they were assumed to be dissolved loads to allow for comparison to dissolved loads calculated in the Humboldt River. This assumption is reasonable, since ground water discharged from the mines is dominated by the dissolved fraction of constituents. In addition, since total recoverable and total loads include the dissolved fraction, the loads calculated for the mine discharges are considered conservative when compared to the dissolved loads in the river.

3-33 Please see the response to comment 1-9 regarding Humboldt River monitoring. Barrick will make a $25,000 contribution to Humboldt River monitoring during each year that it discharges water to the Humboldt River.

3-34 A sentence has been added (page 3-193) that indicates additional macroinvertebrate samples were collected in 2000 at some sites from the Carlin gage to Golconda.

3-35 A 0.8- to 1-foot increase in river depths could result in a wider dispersal of nonnative fish in localized areas of the river; however, these flow changes are within the typical fluctuations that presently occur. For this reason, no dramatic changes in fish composition are anticipated. Even if fish monitoring were conducted in the Humboldt River, it would be difficult to identify changes in fish populations that are not considered natural fluctuations.

3-36 The effects of implementing off-site enhancement activities on LCT and other listed species are addressed in the BA/BE prepared for the U.S. Fish and Wildlife Service, in compliance with the Endangered Species Act. The USFWS' memorandum of concurrence with the determinations of the BA/BE is provided in Appendix C. Refer to Appendix A of the Final SEIS, Mitigation Plan, for a description of mitigation measures for sensitive species.

3-37 Figure 3.6-2 shows known springsnail locations in relation to the 10-foot drawdown contour. Six known springsnail sites in upper Antelope Creek are located just outside the 10-foot drawdown contour. However, due to their close proximity to the contour, the impact analysis identifies potential effects on water levels in these springs. Mitigation is provided by a $50,000 research grant to study springsnail relocation techniques.

Letter 3 Continued

Field Manager

File No. BLM 6-4
EC 32.7

3-38 3.6.2.1 Terrestrial Species. Page 3-210. The document states that BLM, as the Federal lead agency, is currently working with the Service under the informal section 7 consultation process for Barrick's water management operations. As stated in the DSEIS, on Summary Page i, the Service issued a biological opinion, dated April 14, 1994 (file number 1-5-94-F-81) which concluded that Barrick's dewatering operations to an elevation of 4160 feet amsl would not likely jeopardize LCT. However, the project has now changed. As indicated on page 1-29, Barrick plans to lower the ground water level in the area of the Betze-Post and the Meikle mines to 3,576 feet amsl. The maximum drawdown is now proposed as 1,689 feet rather than 1,160 feet. In addition, mining would continue until 2011 as opposed to 2001 as addressed in 1994, and a greater volume of water would be pumped from the area (285,000 acre-feet to 1,085,000 acre-feet). As a result, the Service believes it is appropriate for BLM to consult further under the Endangered Species Act, as amended.

3-39 Section 3.6.3.2. Spotted Frog. Page 3-216. The document states that if potential habitat for the spotted frog in the upper Antelope Creek drainage is impacted due to dewatering activities, off-site mitigation may include improving riparian vegetation and streambank stability in upper Rock, Toe Jam, and upper Willow Creeks. Please keep in mind that these areas may contain LCT and any impacts to LCT, either direct or indirect, beneficial or adverse, should be addressed under the Endangered Species Act's section 7 consultation process.

3-40 Section 3.6.3.3. Springsnails. Page 3-216. This section discusses flow augmentation or relocation of springsnails if necessary, but does not mention the need to ensure that water used for flow augmentation and springsnail receiving waters must be of equal quality, including both major and minor constituents, to that of the original flow or springsnail habitat.

3-41 Section 3.7.1. Affected Environment. Page 3-221. Information provided at the end of the last paragraph indicates that no livestock grazing occurs in the Humboldt and Carson Sink areas because they are associated with Wildlife Management Areas (WMA). This is not entirely accurate. We have seen cattle or evidence of the recent presence of cattle at least on the northern portions of the Humboldt WMA in recent years. See also a similar statement in section 3.7.2.2.

3-42 Section 3.7.2.1. Impacts from Mine Dewatering and Localized Water Management Activities. Pages 3-222 and 3-223. Based on a comparison of Figures 3.7-1 and 3.7-2, perennial waters within the Maggie Creek Watershed Restoration Project area could be impacted by the proposed drawdown. A discussion should occur on how this will impact LCT restoration efforts in this area.

Responses to Letter 3

3-38 A BA/BE was submitted to the USFWS that addresses Barrick's water management operations. The BA/BE also addresses impacts of other interrelated projects, water management operations of other mines and other activities potentially affecting baseline conditions, i.e., water use, grazing, culverts, roads and restoration of the Argenta Marsh. The USFWS' concurrence with the determinations of the BA/BE is provided in Appendix C.

3-39 See the response to comment 3-36 regarding off-site mitigation and comment 3-38 for a description of the Section 7 consultation process.

3-40 See the response to comment 3-19 regarding the quality of water used for flow augmentation.

3-41 Text (page 3-221) in Section 3.7.1, Affected Environment, has been revised to indicate that no authorized livestock grazing occurs in the Humboldt Wildlife Management Area. However, unauthorized grazing has occurred in the northern portion of the Humboldt Wildlife Management Area in recent years (Gephardt 2001).

3-42 As described in Section 3.5.2.1 of the Draft SEIS, based on the results of the hydrologic modeling and geological characteristics of the various water resources, ground water drawdown is not expected to affect perennial streams and springs on the eastern slope of the Tuscarora Mountains. As shown in Figure 3.7-2, the predicted maximum extent of the 10-foot drawdown contour extends beneath portions of the Lower Northern Native Pasture, which is included in the Maggie Creek Watershed Restoration Program (MCWRP) area. As explained on page 3-102 of the Draft SEIS, surface waters in the area where the maximum 10-foot drawdown contour extends beyond the eastern slope of the Tuscarora Mountains occur as isolated or perched systems that are not believed to be hydraulically connected to the deeper regional ground water system. Therefore, impacts to perennial streams and springs in LCT restoration areas from Barrick's dewatering activities are not anticipated.

Letter 3 Continued

Field Manager

File No. BLM 6-4
EC 32.7

3-43 In comparing these two figures, we note that the current 10-foot drawdown contour along Maggie Creek north of the Gold Quarry Pit extends nearly to the confluence of East Cottonwood Creek with Maggie Creek. This exceeds the area of the predicted maximum 10-foot drawdown contour that is not expected until many years in the future. The current area of impact also exceeds the predicted area of impact in other locations. This lessens our confidence in the model used and suggests that future drawdowns may occur in a far wider area than currently predicted. This could potentially increase the area of impact to LCT and other important resources such as riparian vegetation and wildlife.

3-44 Section 5.2.2. Humboldt River. Page 5-17. We concur with and support the need to mitigate for potential future reductions in Humboldt River flows during low flow periods.

3-45 Section 5.3.1.2. Rock Creek Watershed. Page 5-20. The acreage of riparian vegetation reported here (i.e., 1,685) is not in agreement with that reported on page 5-19 (i.e., 1,705).

3-46 Section 5.4.2. Humboldt River. Page 5-24. The last sentence of this section reinforces the need for continued monitoring along the river (supported by the statement regarding possible increased metal concentrations in sediments near out falls) and at the Humboldt Sink, similar to that which has been conducted by the Service. Both Barrick and Newmont should contribute to periodic monitoring efforts in these areas.

3-47 Section 5.5.1. Mine Dewatering and Localized Water Management Activities. Page 5-24. The uncertainty of model-predicted surface water reductions reinforces the need for long-term (i.e., >100 years) monitoring as well as mitigation of impacts, if needed. Contingency funds for these activities should be made available prior to closure of the mines.

We appreciate the opportunity to comment on this draft document. If you have any questions or need clarification on our comments, please contact Stanley Wiemeyer at (775) 861-6300 in relation to environmental contaminants issues, and Marcy Haworth at (775) 861-6300 or Laura Berglund at (775) 623-1526 in relation to threatened and endangered species issues.

for Robert D. Williams

cc:
Administrator, Nevada Division of Wildlife, Reno, Nevada

9

Responses to Letter 3

3-43 The comment references Figures 3.7-1 and 3.7-2 and the extent of the current drawdown versus the projected maximum drawdown. The comment is unclear as the figures referenced (3.7.1 and 3.7.2) illustrate the maximum extent of the projected drawdown cone and do not indicate the location of the current 10-foot drawdown contour.

The confluence of Cottonwood Creek and Maggie Creek is near the boundary of the Hadley Allotment and the T-Lazy S Allotment, which lies well to the east of the maximum 10-foot drawdown contour. No revision was made.

3-44 It is important to reiterate the discussion on page 5-17 stating that the cone of depression resulting from the Goldstrike Mine dewatering is not predicted to extend to (or result in reductions in flow to) the Humboldt River. Therefore, the Goldstrike Mine is not predicted to contribute to potential reductions in river baseflow.

3-45 The riparian vegetation acreage of 1,685 acres provided in Section 5.3.1.2 (page 5-20), Rock Creek Watershed, has been revised to 1,705 acres.

3-46 Barrick currently does not anticipate that future Humboldt River discharges of excess mine water will be necessary. However, any discharge would necessarily meet the conditions, effluent limitations, and outfall monitoring requirements set forth in the existing NPDES permit. In addition, as presented in the Mitigation Plan (Appendix A of the Final SEIS), if Barrick discharges in the future, it would contribute funds to the USFWS (during the discharge period) for additional water quality and biological monitoring along the Humboldt River and at the Sink. As indicated in the response to comment 1-9, Barrick will make a $25,000 contribution to Humboldt River monitoring during each year that it discharges water to the Humboldt River.

3-47 As stated in the responses to comments 3-5 and 3-21, monitoring and mitigation contingency funds are already in place to address potential long-term impacts.

Letter 3 Continued

Field Manager

File No. BLM 6-4
EC 32.7

Administrator, Nevada Division of Environmental Protection, Carson City, Nevada
State Director, Bureau of Land Management, Reno, Nevada
Chief, U.S. Army Corp of Engineers, Reno, Nevada
Chief, Office of Federal Activities, Environmental Protection Agency (CMD-2), San Francisco, California (Attn: Jeanne Geselbracht)
Assistant Regional Director, Ecological Services, Fish and Wildlife Service, Portland, Oregon (Attn: Don Steffeck)
Operations Manager, CA/NV Operations Office, Fish and Wildlife Service, Sacramento, California

Letter 4

KENNY C. GUINN
Governor

STATE OF NEVADA

JOHN P. COMEAUX
Director

DEPARTMENT OF ADMINISTRATION
209 E. Musser Street, Room 200
Carson City, Nevada 89701-4298
Fax (775) 684-0260
(775) 684-0209

November 13, 2000

Bureau of Land Management
Elko Field Office
Attn: Kirk Laird, SEIS Coordinator
3900 E. Idaho St.
Elko NV 89801

Re: SAI NV # E2001-032

Project: DSEIS for Barrick Goldstrike Mines, Inc., Betze Project

Dear Mr. Laird:

Enclosed are the comments from the Nevada Divisions of Water Resources, Minerals and Wildlife, and the Bureaus of Mines and Health Protection Services and the Office of Historic Preservation concerning the above referenced report. 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. If you have questions, please contact me at 684-0209.

Sincerely,

Heather K. Elliott

Heather K. Elliott
Nevada State Clearinghouse/SPOC

Letter 4 Continued

Responses to Letter 4

NEVADA STATE CLEARINGHOUSE
Department of Administration
Budget and Planning Division
209 East Musser Street., Room 200
Carson City, Nevada 89701-4298
(775) 684-0209
fax (775) 684-0260

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OCT 16 2000
DEPT OF ADMINISTRATION
DIRECTOR'S OFFICE

DATE: **September 25 , 2000**

Governor's Office	Legislative Counsel Bureau	Conservation-Natural Resources
Agency for Nuclear Projects	Information Technology	Director's Office
Agriculture	Emp. Training & Rehab Research Div.	State Lands
Business & Industry	PUC	Environmental Protection
Energy	Transportation	Forestry
Minerals	UNR Bureau of Mines	Wildlife
Economic Development	UNR Library	Region 1
Tourism	UNLV Library	Region 2
Fire Marshal	Historic Preservation	Region 3
Human Resources	Emergency Management	Conservation Districts
Aging Services	Office of the Attorney General	State Parks
Health Division	Washington Office	Water Resources
Indian Commission	Nevada Assoc. of Counties	Water Planning
Colorado River Commission	Nevada League of Cities	Natural Heritage
		Wild Horse Commission

Nevada SAI # **E2001-032**
Project: **DSEIS for Barrick Goldstrike Mines, Inc Betze Project**

___Yes ___No ___Send more information on this project as it becomes available.

CLEARINGHOUSE NOTES:
Enclosed, 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 10, 2000**. Use the space below for short comments. If significant comments are provided, please use gency letterhead and include the Nevada SAI number and comment due date for our reference. Questions? Heather Elliott, 684-0209.

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)

AGENCY COMMENTS:

4-1 The proposed pipeline is the only proposed action analyzed in the DSEIS. The Nevada Division of Water Resources supports the construction of the proposed pipeline as delineated in the DSEIS.

Signature s:\shardat\clear\clear.doc Agency Date

Tim Wilson Staff Engineer II, Division of Water Resources 10/12/00

4-1 Comment noted.

Letter 4 Continued

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DIRECTOR'S OFFICE

NEVADA STATE CLEARINGHOUSE
Department of Administration
Budget and Planning Division
209 East Musser Street., Room 200
Carson City, Nevada 89701-4298
(775) 684-0209
fax (775) 684-0260

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SEP 26 2000
Div. of Minerals

DATE: September 25 , 2000

Governor's Office	Legislative Counsel Bureau	Conservation-Natural Resources
Agency for Nuclear Projects	Information Technology	Director's Office
Agriculture	Emp. Training & Rehab Research Div.	State Lands
Business & Industry	PUC	Environmental Protection
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Indian Commission	Nevada Assoc. of Counties	Water Planning
Colorado River Commission	Nevada League of Cities	Natural Heritage
		Wild Horse Commission

Nevada SAI # E2001-032
Project: DSEIS for Barrick Goldstrike Mines, Inc Betze Project

Yes No Send more information on this project as it becomes available

CLEARINGHOUSE NOTES:
Enclosed, 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 10, 2000**. Use the space below for short comments. If significant comments are provided, please use gency letterhead and include the Nevada SAI number and comment due date for our reference. Questions? Heather Elliott, 684-0209.

THIS SECTION TO BE COMPLETED BY REVIEW AGENCY:

4-2 [___No comment on this project
X Proposal supported as written
___Additional information below
___Conference desired (See below)
___Conditional support (See below)
___Disapproval (Explain below)

AGENCY COMMENTS:

Doug Dressner
Signature s:\shardat\clear\clear.doc

MINERALS
Agency

11-8-00
Date

Responses to Letter 4

4-2 Comment noted.

Letter 4 Continued

KENNY C. GUINN
Governor

STATE OF NEVADA
DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES
DIVISION OF WILDLIFE
1100 Valley Road
P.O. Box 10678
Reno, Nevada 89520-0022
(775) 688-1500 • Fax (775) 688-1595

PETER G. MORROS
Director
Department of Conservation and Natural Resources

TERRY R. CRAWFORTH
Administrator

October 30, 2000

Heather Elliott
Nevada State Clearinghouse
Department of Administration
Budget and Planning Division
209 East Musser Street, Room 200
Carson City, NV 89701-4298

RE: SAI# E2000-032, Draft Supplemental Environmental Impact Statement, Betze Project, Barrick Goldstrike Mines Inc. - BLM

Dear Ms Elliott:

4-3 We appreciate the opportunity to provide comments on the subject document. On pages 3-157, 3-187, 3-195 and 3-216, the document indicates Barrick would coordinate and implement specific changes on the land use of the Squaw Creek allotment to provide mitigation opportunities for several resources being impacted by Barrick's operations. Wildlife and fisheries populations and habitat are two of the resources being directly impacted by dewatering operations in Boulder Valley. Land use changes mitigating wildlife and fisheries values should include Division input. The Division would appreciate the opportunity to participate in the development of these land use changes.

4-4 On page 3-158, the document indicates the BLM is implementing reclamation and reseeding programs to improve range conditions and to minimize cheatgrass invasions. The Division is also actively cooperating with the BLM, private landowners, industry and wildlife groups to accomplish the same goals. Much of the work being accomplished is in the vicinity of this project.

4-5 On page 5-20, under the heading 5.3.1.1, Maggie Creek Watershed, the last sentence in the last paragraph indicates that water augmentation projects have been proposed as a consequence of the Maggie Creek Watershed Restoration Project. This proposal would compensate for the potential loss or reduction of ground water in the area. Has some project been implemented in the Maggie Creek watershed that will mitigate future reductions in stream flow caused by lowering the water table? If so that what are these projects and who has proposed them? This information should be included in this discussion.

Responses to Letter 4

4-3 Comment noted. The BLM has and will continue to involve the Nevada Division of Wildlife (NDOW) in monitoring and mitigation discussions regarding wildlife and fisheries resources.

4-4 Comment noted.

4-5 Text regarding proposed water augmentation projects for the Maggie Creek watershed has been added to Section 5.3.1.1 (page 5-20), Maggie Creek Watershed, as a result of the comment.

Letter 4 Continued

If there are any questions or comments regarding this input, please contact me.

Sincerely,

Rory E. Lamp
Biologist III
1375 Mountain City Highway
Elko, NV 89801
(775) 738-5332

RL/rl

cc: Habitat Bureau
Region II
File

Letter 4 Continued

Sent By: NEVADA BUREAU OF MINES; 775 784 1709; Nov-9-00 12:44PM; Page 2

Review of

Draft Supplemental Environmental Impact Statement, Betze Project
September 2000, Barrick Goldstrike Mines Inc.

by the U.S. Bureau of Land Management, Elko Field Office

Nevada SAI#: E2001-032
Due: November 10,2000

Reviewed by: Lisa Shevenell, Nevada Bureau of Mines and Geology (November 9, 2000)

Portions of this document related to water resources and modeling were reviewed. Comments, many relatively minor, related to this document are included below.

4-6 Page iii: "Several" springs are noted to have dried up or had reductions in flows. The number of each should be specified.

4-7 Page iv: A statement indicates that base flow impacts to the Humboldt River are not anticipated. See comment for page 3-121 below, where the document indicates that the impacts will not be "significant."

4-8 Page 1-22: In order to clarify the past and future water management practices, a table should be added showing annual amounts of water pumped, consumed in operations, discharged via irrigation, infiltration, injection, and to the Humboldt River. Annual projected values should also be included in the table. The amount of current capacity, or permitted amounts, for each of the categories should be included. Also on this page, it should be stated at what depth, and in what lithology the re-injection has been and will be occurring.

4-9 Page 2-1: There is a statement that on 5/2/97, Barrick and ELLCO requested an expansion of a right of way to install a second pipeline. This supplemental EIS document is a bit ambiguous as to its overall purpose (e.g., evaluate on-going water management operations and installation of a buried pipeline as the proposed action (pg 1.1)). Was the document prepared largely to discuss current knowledge surrounding the water management practices, with the "Proposed Action" of an additional pipeline put in as a small add-on to the document? These two activities, while related, are of totally different magnitudes. If the supplemental EIS document was prepared mainly to justify the construction of the additional ≈4000 feet of pipeline adjacent to a current pipeline (with a delay time of over three years from the time of the action request), the document content and size, and delay time, seem excessive for such a relatively minor activity. Clarification of these issues would be helpful.

4-10 Page 3-6, Fig. 3.1-3: Some of the groundwater flow arrows are dashed in the carbonates. What is the significance of this different symbol for the flow lines?

4-11 Page 3-34: Figure 3.2-7 shows numerous wells and contoured water levels. Are water levels available for all wells depicted? If not, the ones with pre-mining water level data should be

Responses to Letter 4

4-6 This section is intended to be a brief summary of impacts. A discussion of specific spring flow reductions and possible mine impacts would require a duplication of the text provided on page 3-9 of the Draft SEIS. Details regarding the spring flow reductions observed to date are presented in Table 3.2-22.

4-7 The text on page 3-121 has been revised to delete the word "substantial."

4-8 Pertinent information regarding Barrick's water management activities (including pumping periods and rates, drawdown, pumped volume, reinfiltration volume, and Humboldt River discharge periods, rates, and volumes) are provided in the Draft SEIS in Table 1-4 (pages 1-29 and 1-30) and Table 1-5 (page 1-31). Additional details regarding pumping, infiltration, and discharge are provided in the reports submitted as part of the BVMP (Barrick Goldstrike Mines, Inc. 1999a), which were incorporated by reference into the Draft SEIS (in accordance with 40 Code of Federal Regulations [CFR] 1502.21).

4-9 A more detailed discussion of the background and purpose for the SEIS is provided in the Summary section of the Draft SEIS. In essence, Barrick's water management operations and ground water monitoring have provided new information regarding the pumping requirements and potential environmental impacts of Barrick's ground water pumping operations at the Goldstrike Mine. Thus, this SEIS was prepared both to address these potential impacts as well as the impacts of the proposed buried water pipeline. See also the response to comment 1-1 regarding the water pipeline.

4-10 As stated in the text, the information provided on the regional geologic cross-section is from Maurer et al. (1996). In response to the comment, an explanation has been added to Figure 3.1-3, which indicates that the ground water flow lines are dashed where the direction of flow is uncertain.

4-11 As explained in the text (Draft SEIS, page 3-30), the unconfined water levels are from Maurer et al. (1996) and represent water levels recorded only in wells monitored by the USGS prior to active dewatering. The information provided in Maurer et al. indicates all of the points (well locations) represent monitoring wells used to construct the contour map. The statement regarding "only limited data exist to define the ground water elevation (or potentiometric surface) throughout the region" refers to distribution of premine well data. For example, premine monitoring wells did not exist over much of the Sheep Creek Range, Antelope Creek drainage, and Tuscarora Mountain areas.

Letter 4 Continued

4-11 highlighted with a different symbol, because statements on 3-33 indicate there were limited data for constructing the pre-mining piezometric surface.

4-12 Page 3-114: Table 3.2-25 shows predicted water chemistry in the pit lakes. In all cases, the models apparently predict As concentrations <0.001 mg/L. However, data reported for groundwaters in the various hydrostratigraphic units on Table 3.2-7 show higher As concentrations for all units (minimum listed value is 0.002 mg/L), with values in groundwater of up to 0.41 mg/L. Much greater explanation of these low predicted As concentrations is required. Which groundwater chemistry was used as inflow to the pits in the model, and why is As decreasing in the pit lakes relative to concentrations in surrounding groundwaters (e.g., adsorption of As to Fe oxy-hydroxides and settling out of the water column?)? How does evapoconcentration affect As concentrations?

4-13 3-121: On this page it is stated that there will not be "substantial" impacts to the base flow to the Humboldt River due to dewatering. This needs to be quantified. Based on all of the various water management practices, it seems likely that some impacts to the base flow would result. Because the river is over-appropriated, any loss to base flow might be important. The document states that the loss from the pit lake from evaporation after the pit is full will be about 2700 acre-ft per year. What percentage is this loss (and other anticipated losses) relative to the modeled pre-mining base flow to the Humboldt River from the Boulder Flat basin?

Responses to Letter 4

4-12 The text and tables in the Draft SEIS are intended to summarize the complete results and conclusions of the pit lake study (Radian International, LLC and Baker Consultants, Inc. 1997a). The technical document (Radian International, LLC and Baker Consultants, Inc. 1997a) was incorporated into the Draft SEIS by reference and was made available for review by the public at the BLM Elko Field Office. A detailed explanation of ground water inflow water types used as input to the model is described in the referenced pit lake report. Chemical controls on arsenic and other trace metals also are described in this report. Over the 233-year model period, arsenic and other trace metal concentrations are predicted to be controlled by sorption onto amorphous ferric hydroxide, which is predicted to precipitate out of the water column. During this time frame, evapoconcentration is not predicted to affect arsenic concentrations. For additional details, please refer to the referenced report.

4-13 See the responses to comments 2-21, 3-34, and 4-7.

Letter 4 Continued

11- 1-00;11:52AM;DWSRF ;775 687 3218 # 1/ 7

FAX TO HEATHER @ 684-0260

JON

NEVADA STATE CLEARINGHOUSE
Department of Administration
Budget and Planning Division
209 East Musser Street., Room 200
Carson City, Nevada 89701-4298
(775) 684-0209
fax (775) 684-0260

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SEP 26 2000
HEALTH PROTECTION SERVICES

DATE: **September 25 , 2000**

Governor's Office	Legislative Counsel Bureau	Conservation-Natural Resources
Agency for Nuclear Projects	Information Technology	Director's Office
Agriculture	Emp. Training & Rehab Research Div.	State Lands
Business & Industry	PUC	Environmental Protection
Energy	Transportation	Forestry
Minerals	UNR Bureau of Mines	Wildlife
Economic Development	UNR Library	Region 1
Tourism	UNLV Library	Region 2
Fire Marshal	Historic Preservation	Region 3
Human Resources	Emergency Management	Conservation Districts
Aging Services	Office of the Attorney General	State Parks
Health Division	Washington Office	Water Resources
Indian Commission	Nevada Assoc. of Counties	Water Planning
Colorado River Commission	Nevada League of Cities	Natural Heritage
		Wild Horse Commission

Nevada SAI # **E2001-032**
Project: **DSEIS for Barrick Goldstrike Mines, Inc Betze Project**

[redacted]

CLEARINGHOUSE NOTES:
Enclosed, 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 10, 2000**. Use the space below for short comments. If significant comments are provided, please use gency letterhead and include the Nevada SAI number and comment due date for our reference. Questions? Heather Elliott, 684-0209.

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)

AGENCY COMMENTS:

4-14 ANY EXPANSION OF/OR CONSTRUCTION OF PUBLIC WATER SYSTEMS MUST BE IN ACCORDANCE WITH APPLICABLE NEVADA REVISED STATUTES AND NEVADA ADMINISTRATIVE CODE.

Signature s:\sbardat\clear\clear.doc

BHPS
Agency

11-1-00
Date

Responses to Letter 4

4-14 Comment noted.

Letter 4 Continued

Responses to Letter 4

NEVADA STATE CLEARINGHOUSE
Department of Administration
Budget and Planning Division
209 East Musser Street., Room 200
Carson City, Nevada 89701-4298
(775) 684-0209
fax (775) 684-0260

RECEIVED
NOV 8 2000

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SEP 26 2000
State Historic Preservation Office

DATE: September 25, 2000

Governor's Office	Legislative Counsel Bureau	Conservation-Natural Resources
Agency for Nuclear Projects	Information Technology	Director's Office
Agriculture	Emp. Training & Rehab Research Div.	State Lands
Business & Industry	PUC	Environmental Protection
Energy	Transportation	Forestry
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Colorado River Commission	Nevada League of Cities	Natural Heritage
		Wild Horse Commission

Nevada SAI # E2001-032
Project: DSEIS for Barrick Goldstrike Mines, Inc Betze Project

Yes ___ No ___ Send more information on this project as it becomes available.

CLEARINGHOUSE NOTES:
Enclosed, 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 10, 2000**. Use the space below for short comments. If significant comments are provided, please use gency letterhead and include the Nevada SAI number and comment due date for our reference. Questions? Heather Elliott, 684-0209.

THIS SECTION TO BE COMPLETED BY REVIEW AGENCY:

4-15 [___No comment on this project ___Conference desired (See below)
___Proposal supported as written ___Conditional support (See below)
___Additional information below ___Disapproval (Explain below)

AGENCY COMMENTS:

Rebecca L Palmer
Signature s:\shardat\clear\clear.doc

Historic Preservation
Agency

11/6/00
Date

4-15 Comment noted.

Letter 5

NOV-14-2000 TUE 03:34 PM FAX NO. P. 01

STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

RECEIVED
BUREAU OF LAND MANAGEMENT
ELKO FIELD OFFICE
2000 NOV 14 PM 2:20

1410 North Hilton • Boise, Idaho 83706-1255 • (208) 373-0502

Dirk Kempthorne, Governor
C. Stephen Allred, Director

November 14, 2000

Kirk Laird
Elko Field Office
Bureau of Land Management
3900 Idaho Street
Elko, NV 89801

Dear Mr. Laird:

5-1 This letter is in response to the Federal Register (Vol. 65, No. 180; September 15, 2000) Notice of Availability of the Betze-Post Project Draft Environmental Impact Statement (EIS) in Eureka County, Nevada. The following comments address air quality issues related to the use of prescribed fire. Prescribed fire needs to be conducted consistent with the Federal Clean Air Act, and any associated federal, state, and local policies and regulations.

The DEIS does not indicate how the vegetation removed during pipeline construction will be disposed. If prescribed fire will be used as the method of disposal, the DEIS should include a discussion of the smoke management program that will be followed. An air quality analysis should at least include: an estimate of maximum number of acres to be burned in a day, acres per burn unit, maximum duration of burns, and maximum daily and burn unit PM_{10} and $PM_{2.5}$ emissions; smoke sensitive areas; predominant meteorological patterns; smoke monitoring procedures; emission and smoke impact reduction techniques; public notification process; mitigation actions during smoke intrusion episodes; alternatives to burning considered and used; and coordination with other burn activity. The enclosure provides related information.

We support a coordinated effort between state, interstate, federal, tribal, and local agencies. All prescribed fire activities must include careful consideration of air quality impacts and requirements. Thank you for the opportunity to comment and if you have any questions, please contact me by phone at (208)373-0214, by e-mail at driley@deq.state.id.us, or at the Department of Environmental Quality.

Sincerely,

Diane Riley
Air Quality Analyst
Air Quality Management Unit

DR/bwm c:\data\word\laird.doc

Enclosure

cc: COF
Prescribed Fire Correspondence File

Responses to Letter 5

5-1 See the response to comment 1-1 regarding Barrick's withdrawal of its right-of-way application for a buried water pipeline.

Comment Letter Enclosure

Idaho Department of Environmental Quality

The Idaho Department of Environmental Quality (DEQ), State Air Quality Program Office specifically, has the primary responsibility to carry out the requirements of the Federal Clean Air Act (CAA) in Idaho. DEQ has a state office in Boise and six regional offices (Boise, Coeur d' Alene, Idaho Falls, Lewiston, Pocatello and Twin Falls). The state office staff oversee air quality compliance and enforcement, and support ambient air quality monitoring and planning activities. The regional office air quality staff issue air quality permits, operate the monitoring sites, conduct source inspections, work with the local communities, handle complaints, and prepare and implement plans.

DEQ is concerned about smoke emissions for several reasons. The state of Idaho is 64 percent federal lands and is surrounded by states where wildland and prescribed fires can be a major source of emissions. The Federal Wildland Fire Management Policy and Program Review Implementation Action Plan Report (May 1996) calls for an expanded program to reintroduce fire in fire-dependent ecosystems. This may mean a ten fold or more increase in the use of wildland and prescribed fire. EPA regulations and policies have increased the need for managing fire emissions. The following paragraphs discuss the most relevant regulatory issues for wildland and prescribed fire.

National Ambient Air Quality Standards

The National Ambient Air Quality Standards (NAAQS) are established by EPA to protect human health and welfare. There are NAAQS for the following six air pollutants: carbon monoxide, ozone, nitrogen dioxide, sulfur dioxide, lead, and particulate matter. An area that violates any of the NAAQS is designated nonattainment for the specific NAAQS. Of the six, particulate matter (PM) is the pollutant of most concern for smoke emissions. There are four forms of the PM NAAQS. Prior to July 1997, there were only two, the annual and 24-hour PM_{10} NAAQS. PM_{10} stands for PM less than 10 micrometers in aerodynamic diameter which is equivalent to 1/25,000th of an inch. Last July 1997, EPA promulgated new PM NAAQS. In addition, there is now an annual and 24-hour $PM_{2.5}$ NAAQS. $PM_{2.5}$ stands for PM less than 2.5 micrometers in aerodynamic diameter which is 1/4 the size of PM_{10}. Attainment/nonattainment designations for the new $PM_{2.5}$ NAAQS will begin in the year 2002.

Once an area has been designated nonattainment, DEQ must prepare an attainment plan to meet the NAAQS by EPA specified deadlines. A nonattainment area plan can take several years to complete and generally includes: background information, air quality and meteorological assessments, emissions inventories, control measures, modeled attainment demonstrations, and contingency measures for the specific nonattainment area. Idaho state currently has three nonattainment areas for PM_{10}: Portneuf Valley (Pocatello area); Pinehurst; and Sandpoint. A portion of Kootenai County (Coeur d'Alene area) is a proposed PM_{10} nonattainment area. Fort Hall Indian Reservation is a tribal/EPA nonattainment area for PM_{10}. The NAAQS violations are the result of exceedences of the 24-hour PM_{10} NAAQS in the winter as well as an exceedence of the annual PM_{10} NAAQS in Portneuf Valley.

There is also a statewide State Implementation Plan (SIP). The statewide SIP includes information on DEQ's general authority to regulate air quality, stationary source permitting, compliance, enforcement,

and monitoring programs, nonattainment area plans, rules, statewide emissions inventory, and air stagnation advisories.

Health Effects

$PM_{2.5}$ can lodge deeply in the lungs and are more likely to cause health effects than PM_{10}. The majority of PM from smoke emissions is composed of organic and elemental carbon, and inorganic ash in the $PM_{2.5}$ size class. Toxic gases such as polynuclear aromatic hydrocarbons (PAH) can condense and absorb into particles. DEQ believes that the new $PM_{2.5}$ NAAQS will be more difficult to meet compared to the PM_{10} NAAQS, particularly for wildland and prescribed fire.

Monitoring

DEQ operates an extensive ambient air monitoring network to monitor for the NAAQS. Sites are located in Idaho's major urban areas as well as a few remote areas. The data from DEQ's network is available to the public.

General Conformity

The 1977 CAA amendments made it very clear that the Federal Government is subject to the CAA requirements. Section 118(a) states that any air polluting activity under the jurisdiction of the Federal Government "shall be subject to, and comply with, all Federal, State, interstate, and local requirements, administrative authority, and process and sanctions respecting the control and abatement of air pollution in the same manner, and to the same extent as any nongovernmental entity."

The 1990 CAA amendments added that the above shall apply to any requirement whether substantive or procedural, any fees or charges imposed by state and local agencies to defray program costs, and any federal, state, or local exercise of authority, process, or sanctions. The 1990 amendments also required EPA to establish the transportation and general conformity regulations. The general conformity rule, promulgated in November 30, 1993, applies to non-transportation related federal activities such as prescribed fire. A conformity determination must be made for projects emitting air pollutants over specified de minimis levels to show that the projects will not contribute to any NAAQS violations. If a project is found to contribute to NAAQS violations, then emissions must be reduced or offset (another source's emissions are reduced).

Visibility

The 1977 CAA amendments, section 169A, established the following national visibility goal: "Congress hereby declares as a national goal the prevention of any future, and the remedying of any existing, impairment of visibility in mandatory Class I Federal areas which impairment results from manmade air pollution." One hundred and fifty six Class I areas were established in 1977 and included all national parks greater than 6,000 acres, all wilderness areas greater than 5,000 acres, and a few other areas. Class I areas are subject to the most stringent restrictions on how much additional pollution (increment) can be allowed. States containing Class I areas are to develop state visibility plans including long term strategies and monitoring programs to meet this national goal. Only seven states have approved visibility plans. All other states, including Idaho, are under federal

implementation plans. Idaho has all or portions of five Class I areas: Selway-Bitterroot; Hell's Canyon; Sawtooth; Craters of the Moon; and Yellowstone.

In the mid-1980's, the IMPROVE (Interagency Monitoring of Protected Visual Environments) network began operation. These sites monitor visibility through optical, particle, and visual measurements. This data is also available to the public. The data are used to establish background visibility levels, identify chemical species and emission sources, and document long-term visibility trends for assessing progress toward the national visibility goal.

The 1990 CAA amendments established the Grand Canyon Visibility Transport Commission (GCVTC) which issued a report to Congress with recommendations in 1996 on how to address visibility for 16 Class I areas in the Colorado Plateau. Southwestern Idaho was identified as a clean air corridor for these Class I areas. The Western Regional Air Partnership includes federal, state, tribal, private, and public representatives from ten western states. It was formed to implement the recommendations from the GCVTC report. The recommendations were used by EPA to develop the new regional haze regulations which were published on July 1, 1999. The regulations require all states to develop visibility plans to address regional haze impairment to Class I areas within their state and to Class I areas outside their state which may be affected by emissions from within their state.

Prevention of Significant Deterioration (PSD)

Part C, Subpart 2, of the Clean Air Act establishes maximum allowable increases (or increment) over baseline for PM_{10}, SO_2, and NOx for Class I and Class II areas. Baseline concentrations are established when the first major emitting facility (as defined by the Clean Air Act) is granted a PSD permit in the airshed. An increment consumption analysis would be conducted when the second major emitting facility applies for a permit to construct. The analysis would take into account the proposed facility's emissions as well as all other new emissions since the baseline was established, including prescribed fire emissions. If the analysis shows the increment has been consumed, then the facility can either provide offsets (install control equipment on other sources, etc.), reduce the emissions for the proposed facility, or not build the proposed facility. In general, this provision is not applicable to wildland and prescribed fires because fires are considered temporary activities and not stationary sources.

Smoke Management

Idaho Code includes two advisory programs related to smoke management. 1) The air quality advisory program is primarily to address woodstove and fireplace emissions during the winter. There are air quality advisory programs in Coeur d'Alene, Pinehurst, Sandpoint, Ada County, and Pocatello. 2) An air stagnation advisory issued by DEQ bans all open burning and can apply to any area in the state experiencing critical air quality levels (IDAPA 58.01.01.550-562). An air stagnation advisory is issued when a NAAQS violation is possible or occurring. There are also restrictions for burning of some materials such as trade waste, residential solid waste, garbage, tires, and plastics (IDAPA 58.01.01.600-616). Idaho prefers to have voluntary rather than mandatory smoke management programs. A Memorandum of Understanding (MOU) between DEQ and the U.S. Forest Service (USFS) Regions 1, 4, and 6 has been in effect since 1988. The MOU is an agreement for the agencies to share information with each other.

Idaho and Montana have a joint smoke management program for forest and range prescribed burning. The purpose of the program is to minimize smoke impacts from prescribed fires. The program is voluntary in Idaho. Burners submit planned burn lists at the beginning of the calendar year and individual burns are reported the day prior to ignition. A full-time meteorologist uses burn activity, weather, and air quality information to make burn go/no go recommendations. Burn restrictions are usually issued by "airshed" and elevation. Idaho is divided into 16 airsheds. An airshed is a geographic area with similar topography and meteorology in which the air flow is contained the majority of the time (similar to a watershed).

EPA released its "Interim Air Quality Policy on Wildland and Prescribed Fires" (Interim Policy) in May, 1998. The objective of the Interim Policy is to provide for fire to function naturally in the wildlands while protecting public health and welfare. The Interim Policy provides great incentive for states and federal land managers to work together to develop state smoke management programs. The programs, certified to EPA, can be voluntary or mandatory at the state's choice, and will not be a required component of a SIP. If a NAAQS violation occurs due to wildland or prescribed fire emissions and there is a certified state smoke management program, EPA will have the discretion to not designate an area nonattainment or, if the area is already a nonattainment area, to not require a mandatory smoke management program. In addition, if fire emissions are managed within a state smoke management program, then general conformity requirements are met.

The Interim Policy establishes the basic components of a state smoke management program: burn authorization; emission reductions; non-burning alternatives; public education and awareness; and surveillance and enforcement. In addition, the policy requires burn plans include: emission reduction actions; smoke dispersion evaluation; public notification; public exposure reduction; and air quality monitoring.

Wildfires are covered under EPA's Natural Events Policy (NEP) (May, 1996), which addresses PM_{10} NAAQS violations from wildfires. The NEP does not cover wildand fires or prescribed fires that, upon escape, are converted to wildfires. Those are covered under the Interim Policy described above. Under the NEP, a state may develop a Natural Events Action Plan (NEAP) in order to exclude PM_{10} air quality data that are attributable to the uncontrollable event of a wildfire. The NEAP must contain programs for: public notification and education; minimize public exposure to high PM_{10} from future events; minimize fire hazards and abate other burning activities during wildfire events; identify and study mitigation measures; and periodic evaluation.

Additional Sources of Information

The USFS has prepared the following documents: "A Screening Procedure to Evaluate Air Pollution Effects in Region 1 Wilderness Areas, 1991"; "Guidelines for Evaluating Air Pollution Impacts" (1992); "National Strategic Plan for Air Resources Management" (1994); "A Desk Reference for NEPA Air Quality Analysis" (1995); "Air Quality Conformity Handbook" (1995); "When and How to Monitor Prescribed Fire Smoke: A Screening Procedure" (1997); "Describing Air Resource Impacts from Prescribed Fire Projects in NEPA Documents" (2000); and "An Introduction to Smoke Emissions and Dispersion Modeling" (ongoing USFS training course). The Interior Columbia Basin Ecosystem

Letter 5 Continued

The U.S. EPA has prepared the following documents: "Prescribed Burning Background Document and Technical Information Document for Prescribed Burning Best Available Control Measures" (U.S. EPA, 1992); "Interim Air Quality Policy for Wildland and Prescribed Fire" (1998); and "Regional Haze Regulations" (64FR35713, 7/1/99).

There are several web sites for further information:

ftp://alta_vista.cira.colostate.edu (download IMPROVE data)
http://www.4cleanair.org (STAPPA/ALAPCO)
http://www.aos.wisc.edu (weather forecasts)
http://www.aqd.nps.gov/natnet/ard/impr/index.htm (IMPROVE newsletter)
http://www.atmos.washington.edu/mm5rt/00latest/latest.html (ventilation index)
http://www.boi.noaa.gov (fire weather forecasts)
http://www.dri.edu/Programs/CEFA (Program for Climate, Ecosystem and Fire Applications)
http://www.epa.gov/airlinks (most recent EPA air activities)
http://www.epa.gov/airnow/statedata.html (state real-time air quality data)
http://www.epa.gov/airs/nonattn.html (nonattainment areas)
http://www.epa.gov/airsweb (EPA AIRS database)
http://www.epa.gov/oar/vis/index.html (EPA visibility site and regional haze rule)
http://www.epa.gov/ttn/oarpg/t1pgm.html (interim policy on wildland and prescribed fire and natural events policy)
http://www.epa.gov/oar/oaq_caa.html (Clean Air Act)
http://www.epa.gov/r10earth (EPA Region 10)
http://www.epa.gov/ttn/chief/ap42.html#chapter (emission factors)
http://www.epa.gov/ttn/oarpg/naaqsfin/ (new ozone and particulate matter standards)
http://www.fire.org (USFS fire management tools)
http://www.fs.fed.us/r6/aq (USFS national air resources program)
http://www.fs.fed.us/r1/fire/nrcc/Smoke_web_pages/intro.htm (ID/MT smoke management program web site #2)
http://www.fs.fed.us/rl/gallatin/air/guidance.shtml (USFS Northern Region air resources program)
http://www.icbemp.gov (ICBEMP reports)
http://www.nifc.doi.gov/joint_fire_sci/index.html (Joint Fire Science Program)
http://www.nifc.gov/fireinfo/nfn.html (national fire news)
http://www.odf.state.or.us/fireprot.htm (OR smoke management program)
http://www.osei.noaa.gov/ (satellite imagery)
http://www.smokemu.org (ID/MT smoke management program web site #1)
http://www2.state.id.us/adm/adminrules/rules/IDAPA58/58INDEX.HTM (Idaho DEQ air quality rules)
http://www.state.id.us/deq (Idaho DEQ)
http://www.state.nv.us/ndep/bao/smoke1.htm (NV smoke management program)
http://www.utahsmp.net (Utah smoke management)
http://www.wa.gov/ecology/air/airhome.html (Washington Dept. of Ecology)
http://www.wrapair.org (WRAP, successor to GCVTC)

Letter 6

Pyramid Lake Paiute Tribal Cour
Post Office Box 256
Nixon, Nevada 89424
Telephone: (775) 574-1000 / 574-1001 / 574-1002
FAX (775) 574-1008

2001 NOV 22 AM 7:30

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Kirk Laird, SEIS Project Manager
U.S. Department of the Interior
Bureau of Land Management
Elko Field Office
3900 E. Idaho Street
Elko, Nevada 89801

Dear Kirk Laird,

The Pyramid Lake Paiute Tribe would like to enter these comments in the record for the Draft Environmental Impact Statement Betze Project and the Cumulative Impact Analysis of Dewatering and Water Management Operations for the Betze Project, South Operations Area Project Amendment, and Leeville Project. Although this project does not directly impact the Pyramid Lake Paiute Tribe, the precedent it sets cannot be ignored.

6-1 Dewatering practices by mining companies in the Carlin Trend have impacted the Native American aboriginal homelands for years. The proposal in the supplemental EIS to increase the amount of dewatering does not address the cumulative impacts on Native American Resources. This increase must not be allowed until the impacts are measured to confirm the modeling and have an acceptable mitigation plan in place before the Record of Decision is final.

6-2 An impact to BLM designated traditional cultural property as predicted by the groundwater modeling is totally unacceptable. These lands were identified to protect them from encroachment from the mining activities. By allowing dewatering to continue at such a pace and to also increase the activity, the BLM has neglected their trust responsibility to the Western Shoshone people. This trust responsibility is very important in keeping the traditional life ways and traditional religious practices. The springs and streams are part of this culture and any degradation of water quality or quantity violates the BLM's trust responsibility for protecting the environment and cultural resources.

6-3 Dewatering has allowed groundwater resources to be relocated from one basin to another without any regard for the long-term impacts of this unnatural migration of water resources. The Betze project will contribute to this increasing problem in the Carlin Trend. The impacts from dewatering and transporting water outside the basin will be a long-term process to stabilize the water balance and the net effect of lowering the

Responses to Letter 6

6-1 Through the Native American consultation process, the BLM has worked with the Native American community to identify and analyze potential site-specific and cumulative impacts to resources of concern to Native Americans. The resource analyses are based on both ground water modeling and ground water monitoring over a period of more than 10 years. Based on the results of these analyses, the BLM and Barrick have identified measures to mitigate potential impacts to these resources.

6-2 Model simulations used for the cumulative impact analysis suggest that reductions in baseflow could occur in lower Rock Creek in the vicinity of the Rock Creek traditional cultural property (TCP). However, Barrick will implement monitoring in this area to identify baseflow reductions in advance of potential impacts to the area of concern in Rock Creek. To mitigate this potential impact, Barrick will convey a 1.5 cubic foot per second in-stream flow right to the BLM and the Nevada Division of Wildlife (see Appendix A, Mitigation Plan). Perennial springs, seeps, and streams located in the immediate vicinity of the Tosawihi Quarry TCP are considered to have a low probability of being impacted; therefore, impacts to water resources at or in the near vicinity of the Tosawihi Quarry TCP are unlikely. The text has been revised on page 5-37 of the Final SEIS.

6-3 The Goldstrike Mine is located in the Boulder Flat Hydrographic Area (HA). A portion of the dewatering water is consumed at the mine, while the remaining portion is either reinfiltrated or consumed for crop production in Boulder Flat. None of the water captured in the Goldstrike Mine dewatering system is currently transported outside of the Boulder Flat HA; the excess mine water is put back into the ground water system within the Boulder Flat HA. Instituting a reinjection system in the areas suggested in the comment would require additional ground disturbance by constructing pipelines, access roads, and well pads. As described in the SEIS, existing data indicate that the bedrock systems in these areas generally have low transmissivity and storage properties; therefore, only a small percentage of the total dewatering water could be reinjected into these areas.

Letter 6 Continued

6-3 regional water table. The EIS must look at the storage capacity of the upland soils above the pit. By allowing the water to be stored within the basin the long-term impacts to the ground water in the basin will be minimal. It must be an option to have the water remain in the natural basin from which it is extracted.

6-4 Dewatering will also have a long-term impact on the downstream recipient of the dewatering process water. This water carries salts and some heavy metals such as Arsenic to the terminus water body. By depositing Arsenic in the Carson and Humbolt sink will increase the load. The new Arsenic rule will cause a burden to individual and small communities to have drinking water comply with EPA regulations. But more important by mobilizing these metals the down gradient water users are put at risk by increasing the chance that their drinking water quality is degraded by dewatering activities in the Carlin Trend.

6-5 The Pyramid Lake Paiute Tribe respectfully requests the Draft Supplemental Environmental Impact Statement Betze Project not be approved due to the projected and inherent damage that will occur to Tribal, Traditional cultural, and public lands. The discharge water must meet drinking water standards as to minimize the loading and migration of metals in the terminus water bodies. Thank you for considering our concerns.

Sincerely,

Norman Harry
Tribal Chairman
Pyramid Lake Paiute Tribe

Responses to Letter 6

6-4 As explained in the SEIS, (Section 3.2.2.2), Barrick has a NPDES permit that stipulates effluent limitations such that water quality constituent concentrations would not exceed stream water quality standards established for the protection of identified beneficial uses. Barrick's Humboldt River discharge ended in February 1999. All discharges to-date were monitored and were within their permit limitations. Although it is unlikely that Barrick will need to discharge in the future, any future discharges also would be required to meet the constituent concentration limitations stipulated in the NPDES permit. Therefore, impacts to Humboldt River water quality and potential impacts to downstream users are not anticipated. See the response to comment 3-46 regarding potential impacts to the Humboldt Sink.

6-5 As stated in the Draft SEIS, Barrick discharged excess mine dewatering water to the Humboldt River over an approximately 1.5-year period (September 1997 through February 1999). During this period, the discharge met the effluent limitations set forth in the NPDES permit. Barrick's current plans indicate that it is unlikely that the mine will discharge to the river in the future. As analyzed in the Draft SEIS, if the mine were to discharge at some point in the future, impacts to water quality in the river are not anticipated, since any discharge would be conducted in accordance with the permit's numeric effluent limitations.

Letter 7

TE-MOAK TRIBE OF WESTERN SHOSHONE

WELLS BAND COUNCIL
P.O. Box 809
Wells, Nevada 89835
(775) 752-3045
Fax (775) 752-2179

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Tuesday, November 14, 2000

Attention: Mr. Kirk Larid
Elko Field Office
Bureau of Land Management
3900 East Idaho Street
Elko, Nevada 89801

RE: Betze Project

Mr. Kirk Larid,

7-1 We the Wells Band Council would like you to accept the following comments on the Betze Project. We as Western Shoshone people want the Bureau of Land Management to know that we see water as life, without water there will be no life for our children that have yet to be born. You as Public servants know this to be true, but yet you let the mining companies come into our land and allow the rape, plunder, and pillage of our Traditional Lands. Why? Our environmental Specialist has informed us of the dewatering project that is going to implemented and at this time, we as Western Shoshone deplore this action by the involved mining companies. The dewatering will not only impact the lowering of the water table but will also effect our traditional pinenut gathering areas as well as our hunting areas, as large game will move to an area that has water. Reeds and willows used for basket weaving will no longer be available in certain TCP areas. We have kinship with the land, the destruction of the land and the springs, especially, are steps to genocide for the traditional Western Shoshone people. To modify, change, the aquifer in the Carlin Trend area is to help in the destruction of the way of life for our Traditional Western Shoshone people and for hundreds of years to come!

7-2 Wells Band Council also support the comments submitted by all Te-Moak Tribal Bands as well as the Western Shoshone Defense Project and Great Basin Mine Watch folks.

7-3 In closing, Wells Band Council agree that the comment period wasn't long enough to give any program sufficient time to prepare for comments as the information was all to abundant for the allowed comment period. We stand strong, that we do not want mining companies in our traditional Shoshone lands not because of not receiving royalties, But due to the long range (100 years +) effects the mining process will leave us to contend with, acid water, scars left on our land, mercury contamination, etc. These reasons are why we do not want mining to continue in the Carlin Trend area, in our beautiful Pequop Mountains, or any of our Traditional Shoshone Lands.

Sincerely,

Nevada P. Penoli - Chairperson

Kenneth Yazzie - Environmental Specialist

CC: Charlotte Healey - Wells Band Administrator

Responses to Letter 7

7-1 The BLM notes the strong objections of the Wells Band to the proposed project. However, the effects identified in the letter are considered unlikely to occur. The majority of springs and spring-fed streams in the dewatering area of potential effect are not anticipated to be affected. Major changes to vegetation are not anticipated. The project is not expected to cause wildlife to concentrate in areas such as TCPs or pine-nut gathering areas more than they would naturally. The BLM recognizes the sacred nature to the Western Shoshone of the landscape, water, and general plant and animal communities that exist in northern Nevada. It also acknowledges that it cannot protect all acreage, water, and plant and animal resources from acceptable public uses. The BLM and the mining companies will work together to ensure that the Traditional Cultural Properties (TCPs), including Rock Creek, continue to have the identified natural resources necessary for continued traditional practices in the Western Shoshone over the long-term.

7-2 Comment noted. Refer to the responses to the comments in letters 8 and 9.

7-3 Comment noted.

Letter 8

WESTERN SHOSHONE DEFENSE PROJECT
P.O. Box 211308, Crescent Valley, Nevada 89821
phone: 775-468-0230, fax: 775-468-0237, email: wsdp@igc.org

2000 NOV 15 AM 7: 30

November 14th, 2000

Kirk Laird, SEIS Project Manager
Bureau of Land Management
Elko Field Office
3900 E. Idaho St.
Elko, Nevada 89801

Re: Comments on Supplemental EIS Barrick Goldstrike Mines Inc. Betze Project.

Dear Mr Laird,

We are hereby submitting the following comments in response to the Supplemental EIS Barrick Goldstrike Mines Inc. Betze Project. The Western Shoshone Defense Project is a Western Shoshone directed organization advocating for the protection and promotion of Western Shoshone rights and lands for present and future generations based upon our cultural and spiritual traditions. These comments are in addition to the comments previously submitted for the Newmont SOAPA and the Cumulative Impact Analysis which both the Betze and South Operations documents are keyed to. Thus comments submitted previously are relevant and important to this SEIS. We want to make sure that you address our previous comments in relation to this SEIS. We do not feel you have provided enough time for a proper analysis of the SEIS. Considering that you have taken 8 years to prepare this document, 8 weeks of review time, much of that overlapping with review time period for the South Operations DEIS, is not nearly enough to provide proper input.

8-1 We are concerned that the SEIS does not provide the public with an adequate or accurate analysis of the impacts of continued dewatering at the Betze Mine. Contradictions in data are confusing. At one point the claim is made that "Drawdown would not affect flows or water quality in the Maggie Creek subbasin or Rock Creek." (SEIS 3-215) Yet in the notes on Table 3.3-1 indicate the potential of impacts to Rock Creek stating "monitoring wells exhibiting drawdown (SEIS 3-145). Data in the CIA also contradicts assertions made throughout the SEIS. We concur with technical comments concerning the hydrology and modeling as presented by Doctor Tom Myers of Great Basin Minewatch.

Lack of Alternatives

8-2 The SEIS does not present reasonable alternatives to the current water management scheme. Two paragraphs dismissing additional reinjection or infiltration based on the drilling of several test holes over an 8 year period does not reflect a good faith effort to explore water management alternatives. Despite having on record the importance of the Tosawihi and Rock Creek areas to Western Shoshone, no plans have been developed that would prevent impacts to these areas.

Responses to Letter 8

8-1 The statement on page 3-215 (Draft SEIS), under the heading of California Floater, "Drawdown would not affect flows or water quality in the Maggie Creek subbasin or Rock Creek" is correct. The Water Resources and Geochemistry section of the Draft SEIS (Section 3.2) indicates that the current drawdown cone from the Goldstrike Mine extends into the Rock Creek subbasin (see Figure 3.2-22). Future drawdown is projected to expand in the Rock Creek subbasin, and eventually extend into the western margin of the Maggie Creek subbasin (see Figure 3.2-29). However, the hydrologic analysis indicates that drawdown from the Goldstrike Mine is unlikely to impact flows or water quality in Maggie Creek, and impacts to Rock Creek baseflows would likely be negligible (or not measurable). Therefore, impacts to perennial waters in the Maggie Creek subbasin and in Rock Creek are not anticipated. Footnote 5 on Table 3.3-1 was not relevant to the table, and therefore it was deleted.

8-2 The BLM has explored reasonable alternatives to Barrick's water management operations. As Barrick's pumping rate has declined to less than 31,000 gallons per minute, additional reinjection or infiltration is not considered necessary to mitigate potential impacts; the existing reinjection and infiltration capacity exceeds the pumping rate. Barrick's dewatering program is not projected to directly affect the Tosawihi Quarry TCP. The monitoring and mitigation measures proposed by the BLM and Barrick (see Appendix A, Mitigation Plan) are designed to address potential cumulative impacts to the Rock Creek TCP of concern to Native Americans.

Letter 8 Continued

Lack of Adequate Monitoring and Mitigation

8-3 Publication of the SEIS without definite monitoring and mitigation plans presents the public with an incomplete document. Mitigation can not be planned when there is no data to assess impacts from. This lack of data is reflected in both the water monitoring program as well as wildlife monitoring as represented in the sage grouse analysis. Of the 23 springs identified as monitoring points in Table 3.3-1, 5 have already dried up, and a 6th is dropping in flow. Yet nowhere can we find a discussion about what was lost at these springs and how that has been mitigated. Have new monitoring points been added to make up for ones now dry? On the same table 65 additional springs have at least a moderate chance of being impacted, yet most have not been measured since 1989. The lack of monitoring provides no baseline data, which in turn makes it difficult to impossible to determine if dewatering has affected these springs. the SEIS states that the BLM will conduct an inventory to determine the "areal extent and magnitude of impacts to flow in springs, seeps, or perennial stream reaches that may have been impacted." SEIS 3-139 Yet how will a one time inventory identify any changes if all these springs are not yearly monitored? There is no way to determine if mitigation is necessary because there is no data continuity.

8-4 Because the BLM relies upon mitigation to offset the potential impacts of dewatering, a detailed analysis of both past, present, and future mitigation is necessary. This is not provided. There is no analysis of the results of mitigations already employed. Do we see sage grouse using areas that have been seeded for their benefit? Who knows. While dewatering mpacts are predicted over 100 years into the future monitoring is only required for 30 years. What kind of assurance is that. We are not convinced that the sums deposited for mitigation by Barrick are adequate to cover the real costs. If monitoring is non-existent then there will no way to determine if there is a need for mitigation. We are left with several EIS's stating that potential significant widespread impacts may occur, but don't worry because we will figure out what to do when it happens. Considering the track record of the U.S in honoring long term promises and agreements, this is hardly an adequate assurance.

Sage Grouse

8-5 Western Shoshone representatives have expressed again and again, the importance of sage grouse to our cultural survival. At one meeting with the BLM we were told of the existence of a previously active sage grouse dancing ground in the vicinty of the Betze Mine. Subsequent monitoring indicated abandonment of the lek after mining commenced. Nowhere is this discussed. There is little data presented to assess the past and present impacts of mine operation on sage grouse in the area, thus making any predictions of future impact impossible. The SEIS reads "Because of recent wildlife events and ongoing mining operations along the Carlin Trend, it is unknown whether the majority of these sites is currently active." (SEIS 3-200) If the information is not available then the BLM has an obligation to get the required information. Considering the potential listing of the sage grouse, it is disturbing that the BLM has not seen fit to provide an adequate consideration of sage grouse.

2

Responses to Letter 8

8-3 The Record of Decision (ROD) for the Betze EIS (BLM 1991d) included monitoring and mitigation measures to address potential impacts to springs. The ROD established several mitigation funds, including the Wetland Mitigation Fund, for onsite enhancement of replacement of riparian and wetland areas; the Long-term Monitoring Trust Fund for monitoring after year 2030; and the Long-term Environmental Monitoring and Mitigation Fund for monitoring and mitigation of unexpected impacts not predicted by the 1991 EIS. A mitigation plan developed by the BLM and Barrick to mitigate potential impacts associated with the Goldstrike Mine and potential cumulative impacts is presented in Appendix A of the Final SEIS. Under this plan, (in addition to the funds established in 1991), Barrick will improve up to 15 springs over a 3-year period following issuance of the Final SEIS.

As described in Section 3.2 of the Draft SEIS, two seep and spring inventories have been conducted for the project to define all perennial springs within (or in the vicinity of) the potential drawdown area. The initial inventory identified and characterized all seeps and springs located within a 10-mile radius of the Betze-Post Pit (JBR 1990a); a follow-up inventory extended the coverage to characterize all seeps, springs, and streams located within an approximate 600-square-mile region. Representative springs and streams within each area have been monitored annually since 1991. The existing funds and proposed mitigation measures are intended to provide for continued monitoring and mitigation of impacts to water resources during the mining and postmining periods.

8-4 As explained in the response to comment 3-5, Barrick's financial monitoring obligation will extend to the year 2030, after which the Long-Term Monitoring Fund will be used for monitoring costs. The BLM considers the long-term monitoring fund and long-term mitigation fund adequate to cover monitoring after that date.

8-5 The BLM recognizes the importance of sage grouse to Native Americans. The original Betze Project Draft EIS (BLM 1991a) identified likely disturbance to sage grouse leks near proposed mine activities (page 4-126, paragraphs 5 and 6). The BLM's ROD for that EIS delineated Barrick's obligation to mitigate the effects of the project on sage grouse (Measure #6).

It should be noted that during a February 1999 meeting between the Western Shoshone Tribal representatives and the BLM, the BLM biologists provided a status summary of sage grouse presence along the Carlin Trend, reiterating that Barrick has provided mitigation funding as a result of the original Betze Project EIS to minimize impacts to sage grouse. Information also was provided during this meeting regarding the dramatic improvement of riparian and meadow habitats for sage grouse from the Newmont SOAP mitigation in the Carlin Trend area. The mitigation discussion in the SEIS reflects the mitigation funds established for the on- and off-site protection and restoration of sage grouse affected by Barrick's mining activities. Refer to Appendices A (Mitigation Plan) and B (Upper Willow Creek Habitat Enhancement Plan) for additional specific sage grouse mitigation measures.

Letter 8 Continued

Environmental Justice

8-6 Potential impacts expressed in the SEIS, CIA and SOAPA disproportionately impact the Western Shoshone Nation, because of our dependence on these lands for traditional cultural practices. This is an environmental justice issue. Elko is identified as the nearest minority community aand is apparently the only source contacted for data. The Western Shoshone communities in Crescent Valley and Battle Mountain are approximately the same distance from the Betze mine as Elko.

The Amendment Violates the Requirement to "Prevent Unnecessary or Undue Degradation"

The mine, as proposed, and cumulative impacts in the Carlin Trend represent *undue and unnecessary degradation* and may not be permitted. Neither the Gold Quarry Expansion, nor the Betze-Post Project should be allowed to continue without significant mitigation of the dewatering which includes reinfiltration into the Tertiary formations and reinjection into bedrock.

The degradation caused by this and any future mine dewatering in the Carlin Trend is undue for the following reasons, inter alia:

1. Beaver Creek, Little Beaver Creek, Coyote Creek, Little Jack Creek, Indian Creek, Cottonwood Creek, Lynn Creek, Simon Creek, Willow Creek, Rock Creek, Boulder Creek, Bell Creek, Brush Creek, Rodeo Creek, Upper Antelope Creek (and its tributaries), Squaw Creek, Marys Creek, Susie Creek and Maggie Creek may all experience significant decreases in baseflows. Neither the Nevada Water Pollution Control Act (NWPCA), nor the Clean Water Act (CWA) allow a project to eliminate or degrade a beneficial use in a stream. Under the BLM's
8-7 §3809 regulations, the BLM cannot approve a mining plan of operations that will violate water quality standards. Since the maintenance of all beneficial uses is a water quality standard, the failure to fully maintain all uses cannot be authorized.

2. There are over 67 springs potentially affected by the drawdown. Dried riparian areas and seeps cannot be adequately mitigated.

3. Cumulatively, there are over 30,000 acres of disturbance in the Tuscarora Mountains. Mines have disrupted migratory routes for many species, eliminated nesting areas for sensitive species, destroyed sage grouse breeding areas (leks), and dried springs. While some reclamation will occur, the final product is never a replacement for undisturbed natural ecosystems. Reclamation of waste rock, tailings and cyanide heaps is simply a cover over a toxic dump. "Reclamation is like putting lipstick on a corpse."

4. There is a substantial likelihood that the pit lakes will violate water quality standards. The Betze-Post Pit is predicted to exceed Nevada drinking water standards.

5. The BLM and NDEP must assure that no seepage from tailings or waste rock will reach any surface water, now or in the future. Failure to do so violates the Clear Water Act (CWA) and contributes to the undue degradation.

3

Responses to Letter 8

8-6 The BLM contacted regional tribes and bands to solicit information on these issues and to provide results of the analyses conducted for the SEIS during a 3.5-year period of Native American consultation. The text has been revised in Chapter 2.0 to acknowledge these additional groups. These groups were contacted during Native American consultation.

8-7 Number 1 – As explained in Section 1 of the Draft SEIS, the SEIS is intended to provide an updated evaluation of potential impacts to water resources and water-dependent resources associated with dewatering and water management activities at the Goldstrike Mine. The dewatering activities associated with the Goldstrike Mine were previously authorized by the BLM (BLM 1991d, 1994c). The maximum extent of the 10-foot drawdown cone resulting from dewatering at the Goldstrike Mine, and areas where perennial waters could potentially be impacted within the drawdown cone, are shown on Figure 3.2-29. This figure and the discussions under the heading "Impacts to Perennial Springs and Streams" in the Draft SEIS describe springs and streams that could be impacted. The SEIS analysis indicates that many of the streams listed in the comment, including Beaver, Little Beaver, Coyote, Little Jack, Indian, Cottonwood, Lynn, Simon, Willow, Rock, Marys, Susie, and Maggie creeks are unlikely to be affected by Barrick's dewatering operations. Some of these streams are located within the cumulative drawdown area, which represents the combined drawdown associated with the Goldstrike, Gold Quarry, and Leeville Mines (see Section 5.2 of the Draft SEIS). As described in the response to comment 8-3, the BLM believes that the monitoring and mitigation measures stipulated in the Betze Record of Decision (BLM 1991d), including the Wetland Mitigation Fund (to pay for enhancement of replacement of riparian and wetland areas), the Long-term Monitoring Trust Fund (for monitoring after year 2030), and the Long-term Environmental Monitoring and Mitigation Fund (for monitoring and mitigation of unexpected impacts not predicted by the 1991 EIS), combined with the additional spring and stream mitigation measures contained in Appendix A, would mitigate potential anticipated and unanticipated impacts associated with Barrick's dewatering.

The Clean Water Act defers to the states the authority to allocate quantities of water [33 U.S.C. § 1251(g)]. The Clean Water Act is directed at protecting water quality through the regulation of pollutant discharges into waters of the U.S. Barrick has obtained the necessary permits and authorizations from the Nevada State Engineer's Office for the water associated with its dewatering operations. Discharges of pollutants to waters of the state are regulated by a water pollution control permit issued by the NDEP. The BLM believes that with the appropriate monitoring and mitigation measures and financial sureties in place, the currently permitted project should not cause unnecessary or undue degradation to public lands or violate federal or state water quality laws.

Number 4 - The State of Nevada has not established water quality standards specific to pit lakes. Water quality standards for specific waters are based on the beneficial use of the water. As explained in the Draft SEIS, the pit lake is not intended to be a drinking water source for humans or livestock or used for recreational swimming. Therefore, standards to protect the lake as a drinking water source, livestock water supply, or for recreational swimming, are not applicable. Potential impacts on waterfowl or wildlife have been addressed in Section 3.4.2.3 in the Draft SEIS. Therefore, the pit lake is not expected to exceed or violate applicable water quality standards.

6. Cummulatively, mine dewatering along the Carlin Trend will significantly impair traditional cultural practices and adversely impact the integrity of National Register eligible properties. The BLM's failure to both adequately consult and mitigate will result in violations of, inter alia, the National Historic Preservation Act and the Trust Responsibility.

An inadequate review period precludes a thorough exploration of the above referenced issues. However, several issues will be more fully explored below.

BLM's regulations describe unnecessary or undue degradation as follows:

Unnecessary or undue degradation means surface disturbance greater than what would normally result when an activity is being accomplished by a prudent operator in usual, customary, and proficient operations of similar character and taking into consideration the effects of operations on other resources and land uses, including those resources and uses outside the area of operations. Failure to initiate and complete reasonable mitigation measures, including reclamation of disturbed areas or creation of a nuisance may constitute unnecessary or undue degradation. Failure to comply with applicable environmental protection statutes and regulations thereunder will constitute unnecessary or undue degradation.
43 CFR § 3809.0-5(k).[1]

8-7 The relevant standards for beneficial uses follow.

1. The following standards are intended to protect both existing and designated beneficial uses and must not be used to prohibit the use of the water as authorized under Title 48 of NRS:
(a) Watering of livestock. The water must be suitable for the watering of livestock without treatment.
(b) Irrigation. The water must be suitable for irrigation without treatment.
(c) Aquatic life. **The water must be suitable as a habitat for fish and other aquatic life existing in a body of water**. This does not preclude the reestablishment of other fish or aquatic life.
(d) Recreation involving contact with the water. There must be no evidence of manmade pollution, floating debris, sludge accumulation or similar pollutants.
(e) Recreation not involving contact with the water. The water must be free from:
(1) Visible floating, suspended or settled solids arising from man's activities;
(2) Sludge banks;
(3) Slime infestation;
(4) Heavy growth of attached plants, blooms or high concentrations of plankton, discoloration or excessive acidity or alkalinity that leads to corrosion of boats and docks;
(5) Surfactants that foam when the water is agitated or aerated; and
(6) Excessive water temperatures.
(f) Municipal or domestic supply. The water must be capable of being treated by conventional methods of water treatment in order to comply with Nevada's drinking water standards.

[1] It should also be noted that the BLM's revised 3809 regulations will be issued in the coming month(s). The eventual decision whether to approve the Plan of Operations for this Project must comply with any new definition of "unnecessary or undue degradation," as well as other requirements. See U.S. BLM, Final EIS, Surface Management Regulations for Locateable Mineral Operations," October 2000.

(g) Industrial supply. The water must be treatable to provide a quality of water which is suitable for the intended use.
(h) Propagation of wildlife. **The water must be suitable for the propagation of wildlife and waterfowl without treatment**.
(i) Waters of extraordinary ecological or aesthetic value. The unique ecological or aesthetic value of the water must be maintained.
(j) Enhancement of water quality. The water must support natural enhancement or improvement of water quality in any water which is downstream.
NAC 445A.122, emphases added.

Assuming the measurements provided for Dunphy pertain to this reach, excessive water loss precludes the water use for aquatic resource and propagation of wildlife beneficial uses. Because some of the loss to the Humboldt River stems from the decreased flows in Maggie Creek, the sum of the lost flows will be seen from the confluence of the Humboldt with Susie Creek to the point in Boulder Flat that seepage from the irrigation recharge mounding begins to increase flows in the Humboldt River.

Decreasing flow rates in a stream by amounts varying from 50 to 100%, including the complete dessication of streams for several months, violates Nevada state water law. The standards on the previous page apply at least to all streams which are listed in NAC 445A.123 to NAC445A.127. Maggie Creek, its' tributaries and the Humboldt River are listed.

8-7

Because NAC 445A.121 extends standards to other waters, which would include Susie and Rock Creek, it is possible that dewatering them is also illegal. This is especially true because dewatering causes massive temperature increases which violate NAC 445A.121(4). Temperature increases occur because the surface area of the stream decreases much less than the flow rate. Sunlight heating the surface therefore inputs as much radiation to a smaller water volume.

Complete drying of a stream eliminates all habitat. This will undoubtedly occur on portions of several creeks during many years. The concomitant habitat decrease will violate the beneficial use requirements of the creeks and must not be allowed by the BLM.

Thus, the evidence is undisputed that all or portions of streams will be eliminated due to the operations currently under review by the BLM. Under FLPMA, the § 3809 regulations, and the Clean Water Act, these operations cannot be approved. All mining operations "shall comply with applicable Federal and State water quality standards...." 43 CFR § 3809.2-2(b).

Current Betze Dewatering and the Proposed Amendment Violates the Clean Water Act

The elimination of any waters due to mining operations violates the water quality standards for those stream reaches and thus could not be permitted. The goal of the Clean Water Act (CWA) is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." 33 U.S.C. § 1251(a). "The word 'integrity'. . . refers to a condition in which the natural structure and function of ecosystems [are] maintained." H.R. Rep. No. 92-911, at 76 (1972); see also Minnehaha Creek Watershed Dist. v. Hoffman, 597 F.2d 617, 625 (8th Cir. 1979). The legislative history of the Clean Water Act defines "natural" as "that condition in existence before the activities of man invoked perturbations which prevented the system from returning to its original state of equilibrium." H.R. Rep. No. 92-911, at 76. "Any change induced by man which

8-8

5

8-8 See the response to comment 8-7 (Number 1) regarding compliance with the Clean Water Act. The BLM believes that the currently permitted dewatering operations at the Goldstrike Mine will not violate federal or state water quality laws.

overtaxes the ability of nature to restore conditions to 'natural' or 'original' is an unacceptable perturbation." H.R. Rep. No. 92-911, at 77.

According to Congress, a primary goal of the CWA is to maintain the natural structure of streams. Such an interpretation is supported by case authority which holds that the "Clean Water Act should be construed broadly to encompass deleterious environmental effects of projects." Riverside Irrigation Dist. v. Andrews, 568 F. Supp. 583, 588 (D. Colo. 1983), aff'd 758 F.2d 508 (10th Cir. 1983). Dewatering a live stream violates the natural structure of the stream. As one recent case stated:

The Clean Water Act (CWA) was "a bold and sweeping legislative initiative," United States v. Commonwealth of P.R., 721 F.2d 832, 834 (1st Cir. 1983), enacted to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." 33 U.S.C. §1251(a)(1994). "This objective incorporated a broad, systematic view of the goal of maintaining and improving water quality: as the House report on the legislation put it, 'the word "integrity" ... refers to a condition in which the natural structure and function of ecosystems [are] maintained.'" United States v. Riverside Bayview Homes, Inc., 474 U.S. 121, 132, 106 S.Ct. 455, 462 (1985) (quoting H.R.Rep. No. 92-911, at 76 (1972) U.S. Code Cong. & Admin.News 1972, at 3744).

Dubois v. U.S. Department of Agriculture, 102 F.3d 1273, 1294 (1st Cir. 1996).
Here it is clear that the elimination of streams and stream reaches noted above does not "maintain the natural structure and function of the ecosystem" in that watershed.
8-8 Under the CWA, states must adopt water quality standards for all water bodies within the state. 33 U.S.C. § 1313.

These standards include three components: (1) designated uses for each body of water, such as recreational, agricultural, or industrial uses; (2) specific limits on the levels of pollutants necessary to protect those designated uses; and (3) an antidegradation policy designed to protect existing uses and preserve the present condition of the waters.

National Wildlife Fed'n v. Browner, 127 F.3d 1126, 1127 (D.C. Cir. 1997) (citing 40 C.F.R. §§ 131.10 - 131.12).

"A water quality standard defines the water quality goals of a water body, or portion thereof, by designating the use or uses to be made of the water and by setting criteria necessary to protect the uses." 40 C.F.R. § 131.2. EPA implementing regulations define designated uses of water as "those uses specified in water quality standards for each water body or segment whether or not they are being attained." 40 C.F.R. § 131.3(f). The minimal designated use for a water body is the "fishable/swimmable" designation. See 33 U.S.C. § 1251(a)(2).

As noted above, many waters that will be severely degraded or outright dried-up by the operations are classified for beneficial uses by the State of Nevada. The U.S. Supreme Court has squarely held that:

The text [of the CWA] makes it plain that water quality standards contain two components. We think the language of § 303 is most naturally read to require that a project be consistent with *both* components, namely, the designated uses *and* the water quality criteria. **Accordingly, under the**

Letter 8 Continued

8-8 **literal terms of the statute, a project that does not comply with a designated use of the water does not comply with the applicable water quality standards.**

PUD No. 1 of Jefferson County v. Washington Department of Ecology, 511 U.S. 700, 714-715, 114 S.Ct. 1900 (1994)(italics emphasis in original, bold emphasis added).

8-9 The dewatering also violates state and federal antidegradation regulations. According to federal regulation, applicable antidegradation policies "shall, at a minimum, be consistent with . . . [e]xisting instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected." 40 C.F.R. § 131.12(a)(1). Under this regulation, "'**no activity is allowable . . . which could partially or completely eliminate any existing use**.'" PUD No. 1, 511 U.S. at 718-19, 114 S.Ct. at 1912 (emphasis added)(citing EPA, Questions and Answers on Antidegradation 3 (Aug. 1985)). Therefore, the antidegradation policy must be implemented in a manner consistent with the existing uses of all streams. Any activity which would even *partially* eliminate those uses is not permitted.

8-10 Under the CWA, the minimum designated use for navigable water is the "fishable/swimmable" designation, which "provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water." 33 U.S.C. § 1251(a)(2). But the protection is not limited to streams which support fish: A water body composed of solely plants and invertebrates is also protected under the antidegradation policy. Bragg v. Robertson, 72 F. Supp.2d 642, 662 n.38 (S.D. W. Va. 1999) (citing EPA, Water Quality Standards Handbook § 4.4). Under federal regulations, limited degradation is permitted only where (1) the quality of the water exceeds levels necessary to support the fishable/swimmable use designation, and (2) the quality of water necessary to protect all existing uses is maintained. 40 C.F.R. § 131.12(a)(2).

By dewatering the streams, which by their very nature could not then support aquatic life, the operations would violate the stream standards and antidegradation policy. The quality and quantity of water necessary to protect existing aquatic life and other designated uses **must** be maintained. See 40 C.F.R. § 131.12(a)(2). Because dewatering all or portions of these streams would essentially turn the relevant portions of live streams into dead streams, incapable of supporting plants, fish and other wildlife, the operations cannot be authorized.

8-11 **Treaty Relationship and the Trust Responsibility**

The U.S. entered in to a Treaty of Peace and Friendship with the Western Shohsone Nation in 1863. This is an agreement between sovereigns, and continues to be in full force and effect. The current policy of the U.S. towards the Western Shoshone ignores this Treaty based relationship, denying the Western Shoshone the rights and responsibilities of a sovereign. In addition to violating the spirit of the Treaty of Ruby Valley the U.S. has failed to uphold its self proclaimed trust responsibility to Indian people. The Supreme Court has recognized the undisputed existence of a general trust relationship between the United States and the Indian people. Northwest Sea Farms v. U. S. Army Corps of Engineers, 931 F. Supp. 1515 (W.D. Wash. 1996) (quoting United States v. Mitchell, (*Mitchell II*) 463 U.S. 206, 225, 103 S. Ct. 2961, 2972, 77 L.Ed.2d 580 (1983). This obligation has been interpreted to impose a fiduciary duty owed in conducting any federal government action which relates to Indian Tribes. Nance v. Environmental Protection Agency, 645 F.2d 701, 711 (9th Cir.), cert. denied, 454 U.S. 1081 (1981). In a leading case, the

Responses to Letter 8

8-9 See the response to comment 8-7 (Number 1) regarding evaluation of environmental impacts and compliance with the Clean Water Act. The BLM believes that the currently permitted dewatering operations at the Goldstrike Mine will not violate federal or state water quality laws.

8-10 See the response to comment 8-7 (Number 1) regarding compliance with the Clean Water Act and comment 8-9 regarding compliance with antidegradation regulations. As stated previously, the BLM believes that the currently permitted dewatering operations at the Goldstrike Mine will not violate federal or state water quality laws.

8-11 Resolution of the Ruby Valley Treaty is a matter for the federal court system, not regulatory land management agencies or the NEPA process. As no specific resources are identified by treaty and no formal trust lands are involved, the BLM's actual fiduciary or trust responsibility is minimal. The BLM is required under federal law, regulation, and executive order to make a good-faith effort to seek information in the consultation process with federally recognized tribal governments and from tribal organizations (such as the Western Shoshone Defense Project) that may possess or have access to traditional knowledge. The BLM has satisfied this requirement, and the BLM and Barrick have developed a Mitigation Plan (Appendix A of the Final SEIS) to address the identified issues.

Letter 8 Continued

8-11 United States Supreme Court stated: [U]nder a humane and self-imposed policy...[the federal government] has charged itself with moral obligations of the highest responsibility and trust. Its conduct, as disclosed in the acts of those who represent it in dealing with the Indians, should therefore be judged by the most exacting fiduciary standards. Seminole Nation v. United States, 316 U.S. 286, 296-97 (1942).

8-12 The BLM has documents on file from both Shoshone leadership and traditional cultural practitioners indicating the importance of Rock Creek, Tosawihi Quarries and associated waters that date to at least the early 1980's. The BLM was involved in the beginning a review process for a Rock Creek reservoir in the mid 1990's, further documenting the continuing importance of these areas to traditional Western Shoshone cultural/spiritual practice.
Yet in the 8 years of preparing this document and the monthly information meetings over the past years, there is not a single monitoring or mitigation item which we can identify as being implemented to address Western Shoshone concerns. It is not enough to document what we feel, do something to respect it!

8-13 Because of the downstream impacts of dewatering and the potential to impact wildlife in the Humboldt/ Carson Sink areas, the BLM should consult with downstream Native communities who have use or have cultural affiliations with these areas. This would probably include communities in Winnemucca, Lovelock, Fallon, and perhaps Pyramid Lake.

8-14 After having reviewed the Draft Supplemental Environmental Impact Statement (DSEIS) for Barrick's Betze-Post Project, as well as the Draft EIS for Newmont's SOAPA and the Cumulative Impact Analysis (CIA) for the Carlin Trend, we are left with the uneasy feeling that the federal government, as represented by the BLM, has failed to conduct itself in accordance with the most exacting fiduciary standards. This failure is evidenced throughout the three environmental review documents. Models of questionable accuracy are continually relied upon, significant impacts are played down or ignored, reasonable alternatives summarily dismissed, and adequate mitigation measures inadequately discussed.

While we have not been able to perform a complete evaluation of these documents we hope that you will address our concerns.

Sincerely,

Carrie Dann
citizen, Western Shoshone Nation
acting director, WSDP

8

Responses to Letter 8

8-12 See the responses to comments 6-2 and 8-2 regarding potential impacts to these resources and the associated monitoring and mitigation measures.

8-13 The BLM has not received an indication of Native American interest from most of the communities noted during the NEPA process for the Betze SEIS. The Pyramid Lake Paiute Tribal Council has participated in the NEPA process (see Letter 6).

8-14 Your opinion regarding these issues is noted.

Letter 9

November 14, 2000

Great Basin Mine Watch

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Re: Betze-Post Supplemental Environmental Impact Statement (SEIS)

Dear Mr. Laird:

Thank you for this opportunity to review the Betze-Post SEIS. We submit these comments on behalf of ourselves and the Mineral Policy Center. We included comments on the Cumulative Impacts Analysis for dewatering in the Humboldt River (CIA) in our SOAPA DEIS comment letter. Please consider those comments as they pertain to Betze-Post.

These comments are postmarked by November 14, 2000, and are therefore timely based on the summary and abstract in the SEIS.

We are very disappointed that the BLM released this document to coincide with the release of the SOAPA document. The SEIS has been in preparation for seven years while the SOAPA DEIS was in preparation for five years. It is more than coincidental therefore that they came out at the same time. The information in both is very complex and it was not possible to give both of these documents a thorough review at the same time. For example, we received copies of the Betze-Post Pit Lake model to review but will have had insufficient time to complete the review. Therefore, we reserve the right to submit additional and supplementary comments in the future on the FSEIS and at other opportunities.

As we wrote in our comments on the SOAPA DEIS, **mining in the Carlin Trend has reached the point of "undue degradation"**. This includes the drying of streams which violates the Clean Water Act and drawdown which affects resources far offsite. There is no question that Barrick is one of the two primarily responsible parties for this degradation. In fact, existing violations are primarily the fault of Barrick.

Proposed Mitigation

9-1 It is not possible to mitigate decreased flows in a river or spring; it is only possible to replace the water with an existing water right if the loss occurs at the right location. Augmenting or replacing flows by drilling wells or piping water from other sources" does not maintain the functionality of the spring or riparian areas. It may protect a water right holder, but riparian areas and aquatic resources do not have water rights.

The same holds for springs. It may be impossible to mitigate the loss of a spring. Piping water would cause more degradation and not maintain the character of the spring. Drilling a well near the site to provide water would just exacerbate the problem. Guzzlers disturb land

Every truth passes through three stages before it is recognized. In the first, it is ridiculed. In the second, it is opposed. In the third, it is regarded as self-evident. Schopenhauer

Responses to Letter 9

9-1 The BLM believes it may be possible to mitigate decreases in stream or spring flows; flow augmentation at an appropriate location may maintain the functionality of a stream or spring and its riparian area.

There are several reasons why piping water to upper Maggie Creek for reinjection was not considered in the SEIS, as explained below. The piping and reinfiltration system would require movement of excess mine dewatering water from the Barrick dewatering system located in the Boulder Flat HA, for reinfiltration/reinjection into the Maggie Creek HA. Barrick's current water management system is designed to keep excess mine dewatering water within the Boulder Flat HA where the pumping occurs, as required by the State Engineer. Based on the ground water model results, the aquifer does not have the capacity to hold additional water from reinjection in this area. In addition, as explained in the response to comment 1-2, the areal extent of impacts associated with Barrick's mine dewatering and water management system is projected to be less than originally predicted and mitigated for in the original Betze Project EIS and the Meikle Mine EA. As discussed in the response to comment 3-5, interest-bearing funds were established in1991, as required by the Betze Project EIS ROD, to provide for monitoring and mitigation of predicted and unforeseen impacts to water-dependent resources resulting from mine-induced drawdown. In summary, the BLM's evaluation has concluded that the long-term monitoring and mitigation funding, other monitoring and mitigation measures in place, and additional measures outlined in Appendix A of the Final SEIS, will provide adequate protection for water-dependent resources in the upper Maggie Creek basin.

The Mitigation Plan (see Appendix A of the Final SEIS) provides on-site and off-site mitigation for potential riparian impacts, in addition to the existing Riparian Mitigation Fund.

Letter 9 Continued

and use only runoff from precipitation; they would not adequately replace a spring. Thus, the impacts of losing springs are unmitigable.

9-1 There are two truly satisfactory methods of mitigating the dewatering in the Carlin Trend by both Barrick and Newmont. The first is to **recharge dewatering water** in the upstream part of Maggie Creek. This proposal was described in detail in our SOAPA DEIS comments. For the purposes of brevity, we refer you to that document. However, to be most effective, more water than Newmont is pumping is required. Therefore, Barrick should provide some water for the recharge operations. It could be piped into the Maggie Creek area along the access road from Maggie Creek to minimize disturbance.

9-2 For Barrick, an alternative is to recharge or reinject water in such a way that Rock Creek and Antelope Creek will be protected. We have not worked this out in as much detail as we did the concept in Maggie Creek, but clearly the injection of water into the upper Antelope Creek watershed and the Sheep Creek Range near where the expanding drawdown cone reaches would help protect these streams.

9-3 The second necessary mitigation is the **restoration of the Argenta Marsh**. This concept is mentioned in the SEIS, but not fully proposed. Because Barrick has and will continue to destroy riparian and wetland habitat, it has a moral and legal responsibility to replace this habitat. Current dewatering water could be used to restore the Argenta Marsh. Because the water will not be permanently available, the restoration should include two additional aspects. First, Barrick should dedicate some of its surface water rights to the long-term use at the marsh. This could supplement other available rights, say those owned by the Bureau of Reclamation or Pershing County Water Conservancy. Second, the restoration should include a well restored channel with riparian vegetation. It should not be a braided, wetland type channel that would require much water. A meandering (sinuosity of around 2.0) channel vegetated with willows and cottonwoods (if native in this reach) would provide a valuable habitat on a river that has been totally degraded over many years. The dewatering water will provide the consistent source needed to establish new vegetation that will be able to survive after the extra water is not available. The final open water surface may also be narrowed so that evaporation losses are less.

9-4 The BLM should include in the final SEIS an analysis of these mitigation alternatives. For the reinjection alternatives, the analysis should include detailed groundwater modeling. For the Argenta Marsh restoration, the analysis should consider the required water rights, the consumptive use of the ultimate project, and the amount of restored habitat.

The Betze-Post mine violated and continues to violate the Clean Water Act by drying Rodeo and Brush Creek.

9-5 The SEIS basically describes several violations of the Clean Water Act. "Noticeable changes to seasonal streamflow durations are evident for Rodeo Creek and Brush Creek in the vicinity of Betze-Post Pit. Formerly perennial or frequently flowing intermittent reaches of these streams **are now dry during much of the year**." SEIS at 3-98, emphasis added. "These or similar impacts **were predicted in the Betze Project final EIS**, and related mitigation measures were identified in Section 2.3.4 of that document. Id, emphasis added, citation omitted. Thus, the BLM in its original approval of this project approved an illegal plan. The drying has already had substantial negative impacts. "The flow and vegetation in Brush Creek, a tributary to Rodeo Creek, have changed substantially since 1993, indicating that this drainage has been impacted by mine dewatering. **Brush Creek has been dry** since 1994. Wetland species have been **eliminated**, and **vegetation coverage has been reduced** from 79 percent in 1993 to less than 24 percent in 1998." Id, emphases added, citations omitted.

2

Responses to Letter 9

9-2 With respect to Rock Creek, as shown in Figure 3.2-22 of the Draft SEIS, Barrick's historic infiltration and reinjection activities have resulted in the mounding of ground water in the bedrock aquifer in portions of the Boulder Creek HA and Sheep Creek Range southwest of the mine. This mounding will tend to reduce the potential for drawdown to propagate toward the lower perennial reach of Rock Creek. In addition, Barrick's calibrated model was used to simulate the mine-induced drawdown associated with the Goldstrike Mine. The results in Figures 3.2-23 through Figures 3.2-26 of the Draft SEIS show that drawdown from the Goldstrike Mine is not projected to extend to Rock Creek. Barrick's modeling results for the cumulative drawdown scenario (which includes the Goldstrike, Gold Quarry, and Leeville mines, presented in Appendix D 1.0 in the Cumulative Impact Analysis, BLM 2000b) also indicate that the cumulative cone of drawdown is not projected to extend to Rock Creek. Based on Barrick's monitoring and modeling results, impacts to flows in Rock Creek appear unlikely. As explained in the Draft SEIS and in the CIA (BLM 2000b), simulations using Newmont's numerical model for the combined dewatering at the Goldstrike, Gold Quarry, and Leeville mines suggest that flows in lower Rock Creek could be reduced. Although Barrick disagrees with the conclusions of the Newmont model, under the SEIS Mitigation Plan (Appendix A), Barrick has committed to mitigate potential reductions in lower Rock Creek flows by conveying a 1.5 cfs in-stream flow right to the Nevada Division of Wildlife and BLM.

Regarding Antelope Creek, as shown in Figure D-6 of the Draft SEIS, the NEPA analysis for the 1994 Meikle Mine (BLM 1994a,c) indicated that the Goldstrike Mine drawdown cone was projected to eventually encompass perennial sections of Antelope Creek. The recalibrated model simulations used for the SEIS also indicate that drawdown could affect this area; however, the projected drawdown is less extensive than previously predicted in the 1994 EA. As presented in Appendix A of the Final SEIS, ground water levels will be monitored through the mine life and for an extended period postmining to track the cone of drawdown between the Goldstrike Mine and Rock and Antelope Creeks. The BLM has mitigation funds under the original Betze Project EIS ROD to address potential impacts to water resources and riparian habitat. These funds could be used in a variety of ways (including onsite and offsite mitigation) to offset impacts to water-dependent resources.

9-3 Barrick's dewatering operations are not predicted to affect either the Humboldt River or the Argenta Marsh. The Argenta Marsh was purposely drained, and the water rights were acquired for the Rye Patch Reservoir prior to the onset of Goldstrike Mine operations. There is no connection between the Argenta Marsh Restoration Project and the Goldstrike Mine. See the response to comment 3-9 regarding restoration of the Argenta Marsh and the response to comment 3-21 regarding potential mitigation for pit lake evaporation. The BLM and Barrick have developed offsite mitigation measures (see Appendix A of the Final SEIS) for riparian enhancement.

9-4 Additional analysis of reinjection or evaluation of an alternative that would include restoration of the Argenta Marsh is not warranted; see the responses to comments 9-1, 9-2, 9-3, and 3-21 for a more detailed discussion.

9-5 See the response to comment 8-7 regarding the Clean Water Act.

Letter 9 Continued

The elimination of any waters due to mining operations violates the water quality standards for those stream reaches and thus could not be permitted. The goal of the Clean Water Act (CWA) is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." 33 U.S.C. § 1251(a). "The word 'integrity'. . . refers to a condition in which the natural structure and function of ecosystems [are] maintained." H.R. Rep. No. 92-911, at 76 (1972); see also Minnehaha Creek Watershed Dist. v. Hoffman, 597 F.2d 617, 625 (8th Cir. 1979). The legislative history of the Clean Water Act, in turn, defines "natural" as "that condition in existence before the activities of man invoked perturbations which prevented the system from returning to its original state of equilibrium." H.R. Rep. No. 92-911, at 76. "Any change induced by man which overtaxes the ability of nature to restore conditions to 'natural' or 'original' is an unacceptable perturbation." H.R. Rep. No. 92-911, at 77.

According to Congress, a primary goal of the CWA is to maintain the natural structure of streams. Such an interpretation is supported by case authority which holds that the "Clean Water Act should be construed broadly to encompass deleterious environmental effects of projects." Riverside Irrigation Dist. v. Andrews, 568 F. Supp. 583, 588 (D. Colo. 1983), aff'd 758 F.2d 508 (10th Cir. 1983). Dewatering a live stream violates the natural structure of the stream. As one recent case stated:

> The Clean Water Act (CWA) was "a bold and sweeping legislative initiative," United States v. Commonwealth of P.R., 721 F.2d 832, 834 (1st Cir. 1983), enacted to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." 33 U.S.C. §1251(a)(1994). "This objective incorporated a broad, systematic view of the goal of maintaining and improving water quality: as the House report on the legislation put it, 'the word "integrity" ... refers to a condition in which the natural structure and function of ecosystems [are] maintained.'" United States v. Riverside Bayview Homes, Inc., 474 U.S. 121, 132, 106 S.Ct. 455, 462 (1985) (quoting H.R.Rep. No. 92-911, at 76 (1972) U.S. Code Cong. & Admin.News 1972, at 3744).

9-6

Dubois v. U.S. Department of Agriculture, 102 F.3d 1273, 1294 (1st Cir. 1996). In this case, the elimination of Brush and Rodeo Creeks destroys "the natural structure and function of the ecosystem" in that watershed.

Under the CWA, states must adopt water quality standards for all water bodies within the state. 33 U.S.C. § 1313.

> These standards include three components: (1) designated uses for each body of water, such as recreational, agricultural, or industrial uses; (2) specific limits on the levels of pollutants necessary to protect those designated uses; and (3) an antidegradation policy designed to protect existing uses and preserve the present condition of the waters.

National Wildlife Fed'n v. Browner, 127 F.3d 1126, 1127 (D.C. Cir. 1997) (citing 40 C.F.R. §§ 131.10 - 131.12).

> "A water quality standard defines the water quality goals of a water body, or portion thereof, by designating the use or uses to be made of the water and by setting criteria necessary to protect the uses." 40 C.F.R. § 131.2. EPA implementing regulations define designated uses of water as "those uses specified in water quality standards for each water body or segment whether or not they are being attained." 40 C.F.R. § 131.3(f). The minimal designated use for a water body is the "fishable/swimmable" designation. See 33 U.S.C. § 1251(a)(2).

Responses to Letter 9

9-6 See the response to comment 8-7 regarding the Clean Water Act.

The U.S. Supreme Court has squarely held that:

> The text [of the CWA] makes it plain that water quality standards contain two components. We think the language of § 303 is most naturally read to require that a project be consistent with *both* components, namely, the designated uses *and* the water quality criteria. **Accordingly, under the literal terms of the statute, a project that does not comply with a designated use of the water does not comply with the applicable water quality standards.**

PUD No. 1 of Jefferson County v. Washington Department of Ecology, 511 U.S. 700, 714-715, 114 S.Ct. 1900 (1994)(italics emphasis in original, bold emphasis added).

The waters that have been severely degraded or outright dried-up by the operations are classified for beneficial uses by the State of Nevada by NAC 445A.121. These would include Brush and Rodeo Creek; dewatering them is illegal.

The dewatering also violates federal antidegradation regulations. According to federal regulation, applicable antidegradation policies "shall, at a minimum, be consistent with . . . [e]xisting instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected." 40 C.F.R. § 131.12(a)(1). Under this regulation, "'**no activity is allowable . . . which could partially or completely eliminate any existing use**.'" PUD No. 1, 511 U.S. at 718-19, 114 S.Ct. at 1912 (emphasis added)(citing EPA, Questions and Answers on Antidegradation 3 (Aug. 1985)). Therefore, the antidegradation policy must be implemented in a manner consistent with the existing uses of all streams. Any activity which would even *partially* eliminate those uses is not permitted.

9-6

Under the CWA, the minimum designated use for navigable water is the "fishable/swimmable" designation, which "provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water." 33 U.S.C. § 1251(a)(2). But the protection is not limited to streams which support fish: A water body composed of solely plants and invertebrates is also protected under the antidegradation policy. Bragg v. Robertson, 72 F. Supp.2d 642, 662 n.38 (S.D. W. Va. 1999) (citing EPA, Water Quality Standards Handbook § 4.4). Under federal regulations, limited degradation is permitted only where (1) the quality of the water exceeds levels necessary to support the fishable/swimmable use designation, and (2) the quality of water necessary to protect all existing uses is maintained. 40 C.F.R. § 131.12(a)(2).

By dewatering the Brush and Rodeo Creek, which, as evidenced by the SEIS, has eliminated aquatic life, the operations violate stream standards and antidegradation policy. The quality and quantity of water necessary to protect existing aquatic life and other designated uses **must** be maintained. See 40 C.F.R. § 131.12(a)(2). Current dewatering activities are illegal because they failed to protect the existing aquatic life.

Because the operations do not comply with state water quality standards either, the dewatering violates Section 313 of the Clean Water Act which requires compliance with "all Federal, State, interstate, and local requirements" for the discharge or runoff of pollutants on federal land. 33 U.S.C. § 1323. This section places a duty on federal agencies to comply with federal CWA requirements, in addition to state water quality standards. Additionally, CWA § 313 applies to both point source and nonpoint source discharges on federal land. See, e.g., Oregon Natural Desert Assoc. v. Dombeck, 172 F.3d 1092, 1098 (9th Cir. 1998) ("§ 1323 ... directs federal agencies 'engaged in any activity which may result in the discharge or runoff of pollutants' to comply with applicable water quality standards. 33 U.S.C. § 1323(a).").

Letter 9 Continued

9-6 Cumulatively, mines in the Tuscarora Mountains will eliminate portions of streams in the region[1]. An HCI study[2] predicts that the Post-Betze mine will cause a 1.5 cfs reduction in the 6.2 cfs baseflow of Rock Creek. (Please incorporate our comments on the SOAPA DEIS for additional discussion about how the study determined base flow averages.) The discussion of Rock Creek in SEIS ignores this prediciton and is generally devoid of much information. SEIS at 3-43. Continued dewatering by Betze-Post may result in a future violation of the Clean Water Act which also violates FLPMA, but the SEIS fails to discuss the possibility.

Moreover, under BLM regulations "[f]ailure to comply with applicable environmental protection statutes and regulations thereunder will constitute unnecessary or undue degradation." 43 CFR § 3809.0-5(k). Failure to prevent "unnecessary or undue degradation" mandates rejection of a mining plan of operations. "If there is unnecessary or undue degradation, it must be mitigated. See 43 CFR 3809.2-1(b). If unnecessary or undue degradation cannot be prevented by mitigating measures, BLM is required to deny approval of the plan. 43 CFR 3809.0-3(b)." Kendall's Concerned Area Residents, 129 IBLA 130 (1994).

The flow monitoring of Antelope Creek is insufficient and fails to protect its aquatic habitat.

9-7 The document describes monitoring along Antelope Creek. SEIS at 3-42. There were a series of streamflow measurements made along the upper reaches of Antelope Creek during 1993. The BLM concluded that "these (the measurements) suggest that perennial flows exist on these streams in the locale". Id. At the furthest downstream point, "the stream was dry". Id. Remarkably, this dry point is the one chosen as the "most upstream monitoring station" in the monitoring plan. Id. Because the site was dry in 1993, it is likely that this location is downstream of any point where the water table intersects with the stream. Flow monitoring at this point, and all of the further downstream points, merely monitor snowmelt and flood runoff. These components of runoff are only slightly impacted by dewatering. Thus, monitoring of Antelope Creek **completely fails to detect the impacts** of dewatering. It is likely that **CWA standards have also been violated** on Antelope Creek.

The BLM should **completely revise the monitoring plan** for Antelope Creek and any other creek that may have perennial flow upstream of the monitoring points.

The modeling of Antelope Creek may preclude its consideration for impacts due to drawdown.

9-8 Antelope Creek is a river boundary in the groundwater model. (MacDonald-Morrisey, Figure 25). If the water table intersects the boundary, the level is set by the boundary. This limits the expansion of the drawdown cone in the vicinity of the rivers.

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[1]Hydrologic Consultants Inc., 1999. Prediction of Potential Hydrologic Impacts of Dewatering Operations Along North Carlin Trend, HCI-878. May, 1999. Table 2. This report analyzed the cumulative and individual impacts from different mines in the Tuscarora Mountains. We have been told that this report was released prematurely, but we also point out that the Cumulative Impacts Analysis references it. Also, the report is based on the version of the groundwater model used for the DEIS and CIA; if there is anything wrong with the analysis in this report, there is also something wrong with the groundwater modeling in the DEIS. Therefore, we conclude that these numbers are still correct.

[2]Id.

Responses to Letter 9

9-7 In response to the comment, an additional stream flow monitoring station has been established in the perennial reach of Antelope Creek. The monitoring station is located between ANT-1 and the confluence of Antelope Creek and Squaw Creek. The results of monitoring at this new station along Antelope Creek will be incorporated into the Boulder Valley Monitoring Plan. The location of the station and inclusion into the Boulder Valley Monitoring Plan are discussed in the Mitigation Plan, Appendix A of the Final SEIS.

9-8 Antelope Creek was simulated as a river boundary using the RIV2 package in the BGMI Modflow model. This type of boundary is not a constant head boundary and therefore does not provide an unlimited water supply that would prohibit expansion of the cone in the vicinity of the creek as suggested in the comment. The cone of drawdown described in Figure 3.2-25 in the Draft EIS shows that the drawdown crosses the creek, demonstrating that the creek is acting as a boundary, rather than as a barrier.

Letter 9 Continued

9-9 **The current water management keeps less water in the basin than the analysis indicates.**

Barrick credits itself with reinfiltrating more than 60%, of the total pumped volume. "At closure, the total pumped volume would be approximately 1,085,000 acre-feet with an estimated 645,000 acre-feet reinfiltrated to the ground water system through water management activities..." SEIS at 3-82. Even if this water is technically stored in the ground, even in the same State Engineer designated basin, it will not be available to fill the pit lake or the drawdown cone created by the dewatering. Partially, this is due to the reinfiltration and irrigation occurring in Boulder Flat downgradient from the open pit. However, the drawdown is so extensive that it would reverse the gradient. Because the reinfiltration occurs downgradient of the Siphon Fault and, to a lesser extent, the Boulder Narrows Fault, the reinfiltrated water will be prevented from flowing back to the northeast to replenish the deficits. "[T]he fault acts as a pronounced barrier that separates the drawdown cone developed from mine dewatering activity north of the fault from the ground water mound developed from the infiltration activities south of the fault." SEIS at 3-30.

The final document should estimate the flow from the reinfiltration mounds to the northeast using the groundwater model. This would verify whether the model simulates the conceptual model of little flow across the faults. When discussing the reinfiltration, it should also **emphasize that reinfiltrated water will not be available** to replenish the deficit. After mining and the reinfiltration ceases and water levels in the Boulder Flat return to premining levels, the mound will dissipate. Because the faults prevent its northeasterly movement, it **must flow to the south and southwest into the Humboldt River**. The BLM **failed to consider the impacts of this discharge** to the Humboldt River. Seepage may require a NPDES permit; Barrick's current discharge permit apparently does not include seepage to the river. Please refer to our comments on the SOAPA DEIS for discussion of the Clean Water Act requirements on this seepage.

9-10 In addition to the faults, the discussion does not acknowledge that dewatering is from bedrock aquifers while reinfiltration is mostly to the alluvial aquifers. Depending on the connection between aquifers, little of the reinfiltration water may actually reach the bedrock. The discussion should indicate the amount of water that flows from surface layers to lower layers in the model.

9-11 **Discussion of flow statistics are overly simplistic.**

The SEIS makes several references to how unrepresentative the mean flow actually is. "For example, from Table 3.2-11 the average peak flow (June flow) at Argenta from 1946 to mid-1990 is 1,146 cfs; the standard deviation for the same month over the same period is1,037 cfs." SEIS at 3-63. This is a coefficient of variation of almost 1.0. In a normal distribution the mean plus or minus the standard deviation contains about 66% of the data. The remainder lies outside of this range with half being higher and half being lower. When the CV is 1.0, to be less than the mean minus the standard deviation would be to be less than 0.0. "Average monthly flows on the river are exceeded between 20 and 40 percent of the time." Id. Both of these quotes indicate that the monthly flows are exponentially distributed. The mean is a less useful descriptor for considering the long-term trends. In this SEIS, the mean is used to compare the impacts due to dewatering. We encourage the BLM to use the median, mode and 80% exceedence values to determine the Humboldt River gains and losses in Tables 3.2-13 and 3.2-14. It will probably be seen that the gains and losses are as variable as the flows and depend on the antecedent conditions.

9-12 **Pit Lake Modeling**

As discussed above, we did not have sufficient time for a detailed review of the pit lake model. The results reported in the SEIS are contradictory however. TDS values indicated on Table 3.2-25 do not match those

Responses to Letter 9

9-9 As illustrated in Figure 3.2-22 in the Draft SEIS, this hydrostructural feature segregates the current drawdown cone from the area of mounding. Over the long term, the model simulations indicate that approximately 23,000 acre-feet (Barrick 2001a) of the total estimated 645,000 acre-feet of reinfiltrated water would move across the structure from the southwest.

As explained in the Draft SEIS and in the response to comment 2-21, recent studies by the USGS have shown that the Humboldt River loses baseflow as it flows across Boulder Flat. Discharge from the bedrock and alluvial basin-fill aquifer system in the Boulder Flat HA primarily occurs as evapotranspiration in lower Boulder Flat (Maurer et at. 1996; Berger 2000). Accordingly, an increase in the water table in Boulder Valley (due to the infiltration of excess mine water) is projected to result in a corresponding increase in evapotranspiration in Boulder Valley. Hence, the model simulations do not predict that the ground water mound formed in Boulder Valley will intersect the Humboldt River or increase baseflows in the river. Ground water elevation data from lower Boulder Valley also have confirmed that the existing mound has not propagated toward the Humboldt River (Barrick 1999a).

9-10 The Draft SEIS text beginning on pages 3-82 and 3-85 explains that most of the water is removed from the carbonate rocks in the hydrologic compartment bounded between the Siphon and Post faults, whereas reinfiltration is occurring in both the rhyolite bedrock and alluvial basin fill sequence in Boulder Valley.

Monitoring data provided in the BVMP (Barrick 1999a) indicate that most of the excess mine water has been reinfiltrated to the rhyolite bedrock aquifer rather than the alluvial system. Mounding and recharge to the alluvium has occurred due to lateral movement of ground water from the rhyolite bedrock to the alluvial aquifer, and to a lesser extent, from crop irrigation at the TS Ranch. For information regarding the movement of water between layers in the model, see McDonald and Morrissey Associates, Inc. model report (1998).

9-11 The comment implies that the mean historic flows for the Humboldt River were used as the sole baseline reference for evaluating impacts to the river, and that the assessment should have used the median, mode, and 80 percent confidence intervals for evaluating baseline conditions and determining impacts. As stated on page 3-120 of the Draft SEIS (and illustrated in Figures 3.2-36 and 3.2-37), and as explained in detail in the referenced report (RTi 1998), the analysis of potential changes to flows in the Humboldt River resulting from mine discharge were based on comparisons of simulated river flows with peak mine discharges occurring during the historic average year, historic low-flow year, and high-flow year based on streamflow records for 1946 through 1990. By using the historic average, low, and high flows as the basis for comparisons, the evaluation addressed the relative magnitude of flow changes that could potentially occur under an extreme range of natural, historic background river flow conditions. The use of the alternative statistical values suggested in the comment is another approach that could have been used in the evaluation. However, this approach would not have provided a frame of reference for evaluating the incremental increase in flows representing the mine discharges during the historic low- and high-flow years. The use of these statistical parameters would not have changed the overall conclusion of the analysis.

Letter 9 Continued

9-12 discussed on page 3-116. The table suggests that concentrations would decrease, a result inconsistent with the conclusion that the pit lake will be terminal with no flow-through. However, the discussion suggests a final (year 233) TDS equaling 740 mg/l.

9-13 The fact that the early years may have high acidity indicates that more initial inflow is through oxidized rock. Later, higher alkalinity groundwater will begin to neutralize the acidity. The implication is that all of the acid producing potential will be leached into the lake early in the process. All of our comments on the structure of the pit lake model in the SOAPA DEIS apply herein as well.

General Comments

9-14 1. There is a "circular sinkhole approximately 4 feet deep and 30 feet across located near spring 6". SEIS at 3-16. Dewatering has lowered the water table by over 1,100 feet. Id. What has been the effect on flow at the spring?

9-15 2. The discussion of the fracture in the TS Ranch Reservoir indicates that a "fraction of the water stored ...flowed out...through the fracture". Id. The document should specify the fraction.

9-16 3. Does the estimated 8,600 acre-feet/year of groundwater discharge from the Maggie, Marys and Susie Creek basins all enter the Humboldt River or does some of it become underflow along the river?

9-17 4. The BLM should document the incidence of drying on Susie Creek or remove it from the document. SEIS at 3-44.

9-18 5. In the discussion on surface water rights, the BLM should define the various water rights statuses including "ready for action", "certificated", "permits", "proofs", and "reserved".

9-19 6. The groundwater sample that has a low pH should be better explained. SEIS at 3-53. Is it an anomaly or does it represent the water in a certain region?

9-20 7. The document should specify the amount of water consumed by evaporation from ditches and reservoirs. SEIS at 3-57,58. Is the estimate based on an assumed duty?

9-21 8. The consumptive use of surface water in 1995 in the basin is about 540,000 acre-feet which is less than the total decree. SEIS at 3-58. The decree allows the use of 667,000 acre-feet per year. Please specify whether that is consumptive or total diversions. Also, the BLM should discuss this decree in some detail because the implication is that impacts of dewatering are small because it is a small proportion of the decreed rights. The Humboldt River is overappropriated by more than 200 percent and there is almost no way in which the total amount of decreed rights will ever be available for an entire year. Note that full decree rights would have to be met all year with no supplemental water for the total amount to be used.

9-22 As a part of a new discussion of the decreed rights, there should be additional discussion of the ability of the river to meet priorities. Most of the decreed diversions occur between March 15 and April 28 with much less occurring in later periods. Id. Do surface water rights on the Humboldt have supplemental groundwater rights? If so, what is the proportion of supplemental? The proportions presented on 3-58 indicate that on average the decree is not met.

This is important because SEIS uses this large number of decree rights to suggest that the dewatering

7

Responses to Letter 9

9-12 The total dissolved solids (TDS) values presented in Table 3.2-25 in the Draft SEIS are consistent with the referenced pit lake modeling report (Radian International, LLC and Baker Consultants, Inc. 1997a). However, the TDS and sulfate concentrations in the text on page 3-116 were corrected to be consistent with the values provided in Table 3.2-25.

9-13 Comment noted.

9-14 The spring name (Spring 6) has been revised to Spring JBR6 for consistency. As discussed on page 3-91 and presented in Table 3.2-22, Spring JBR6 has been dry since 1992.

9-15 As of November 2000, an estimated 436,000 acre-feet had infiltrated through the fracture (Barrick 2001a). Barrick has an NDEP permit for infiltration through the fracture.

9-16 As noted at the bottom of Table 3.2-4 in the Draft SEIS, the estimated 8,600 acre-feet/year of ground water discharge from the Maggie Creek, Marys Creek, and Susie Creek areas to the Humboldt River is from the USGS report by Maurer et al. (1996). According to Maurer et al., this value represents the estimated ground water that discharges directly to the river channel from the three areas.

9-17 The statements in the text of the Draft SEIS that indicate that the USGS gaging station near the mouth of Susie Creek dries up in the summer on an annual basis are based on the USGS gaging data as summarized in Maurer et al. (1996, Figure 5B).

9-18 The status of surface water rights is identified in Table A-2 of the Draft SEIS. The terminology used to define water rights and applications for water rights in the Draft SEIS is based on the terms used by the Nevada Division of Water Resources (NDWR) and Nevada State Engineer and defined in the Nevada Statutes. The water rights information provided in the Draft SEIS was intended to summarize the water rights within the hydrologic study area. For explanations and definitions of the individual water rights (and applications for water rights) statuses, please refer to the NDWR and Nevada Statutes.

9-19 Additional text (page 3-53) was added to indicate that the two springs with low pH values (taken below a historic waste rock pile in the Beaver Creek drainage area, outside of the area of current mining activities) were anomalous when compared to the other 399 analyses for springs in the region.

9-20 The Draft SEIS discussion of water uses on pages 3-58 and 3-59 is a general description of background conditions in the Humboldt River basin. Published estimates of evaporation losses from Rye Patch and Pitt-Taylor reservoirs are provided on page 3-59. The consumptive use information presented in the Draft SEIS text and in Appendix C is based on information published by the Nevada Department of Conservation and Natural Resources, as referenced. Regional evaporation estimates are presented on pages 3-22 and 3-27. As discussed in the text and the references cited, consumptive use estimates vary considerably among sources, times, and locations. The SEIS assessment is based on reasonable approximations of these factors for the purpose of making comparisons. Further detail regarding evaporative losses from ditches and reservoirs would not add substantial new information to the impact assessment and is unlikely to change its outcome. Evaporative losses vary substantially from time to time and location to location along the river, depending on irrigation practices, ditch characteristics, flow rates, and weather.

Responses to Letter 9

9-21 The estimate of 540,000 acre-feet of consumptive use is based on 49 percent of the total surface water withdrawal for 1995 (1,111,100 acre-feet), as shown in Table C-4 in Appendix C of the Draft SEIS and presented in Horton (1988). This value is presented as a general approximation based on the information published by the State of Nevada Division of Water Planning in late 1998. The 667,000 acre-feet of decreed and permitted water usage in the basin is described in the reference Humboldt River Water Distribution, Part 1 - Problems (Hennen 1964), which is cited in the Draft SEIS. This amount is the decreed and permitted supply based on the potential fulfillment of priorities for the crops and acreage of land under irrigation. Further information on Humboldt River surface water rights is presented in the Draft SEIS on page 3-77, as a subsection of the description of the Humboldt River affected environment. Additional references on this subject are cited in the Draft SEIS for those readers who are interested in pursuing additional information.

The Draft SEIS does not imply that impacts of dewatering are small because the dewatering amounts are a small proportion of the decreed water rights. This is an incorrect interpretation of the conclusions of the analysis provided in the SEIS. The river is over-appropriated, and under those circumstances any flow reductions could result in impacts to water rights. However, as stated previously, Barrick's dewatering and drawdown is not expected to impact baseflows in the Humboldt River.

9-22 A detailed discussion of water rights along the Humboldt River, including water right decrees, is not necessary for the purpose of the SEIS. As stated in the Draft SEIS, Barrick is not currently planning further discharges to the river. However, if future discharges to the river do occur, a large percentage of the water would likely be taken up in most years by irrigation demand under the condition of over-appropriation that already exists. In most years, there is not enough water to meet priorities. In addition, as stated in the response to other comments and in the Draft SEIS, drawdown associated with the Goldstrike Mine is not predicted to impact or decrease baseflow within the river. Therefore, Barrick's dewatering and mine-induced drawdown are not anticipated to reduce the water available to satisfy existing water rights.

In general, surface water supplies in Nevada are often supplemented with ground water supplies by a landowner or other user. However, separate applications and permits for separate points of diversion are required for this to occur; the ground water rights do not automatically activate to supplement a shortfall in surface water supply. Both sources are adjudicated in Nevada and are administered by the State Engineer in accordance with priority and proven beneficial use.

Letter 9 Continued

9-22 amounts are small.

9-23 9. The assumptions in the return flow discussion require much additional explanation. Id. Both return flow amounts and their monthly distribution depend on substantial **assumptions** that are provided without reference or explanation.

9-24 10. There should be a discussion of available irrigation diversion records. All of the analyses of flow losses would be improved if diversions were included because estimates natural and irrigation losses would be included. See for example the discussion on 3-72.

9-25 11. Is Betze-Post required to reclaim the areas being irrigated? If not, when they stop irrigation, they will likely become weed-infested. See SEIS at 3-105.

Thank you for considering our comments. We look forward to receiving the FSEIS with an analysis of the proposed mitigation.

Sincerely,

Tom Myers

Tom Myers, Ph.D.
Director

Enclosures

cc:
Roger Flynn, Western Mining Action Project

Responses to Letter 9

9-23 The assumptions about return flow amounts are clearly stated in the Draft SEIS on page 3-58. The fraction of diverted water that was assumed to be returned to the river (30 percent) was based on conversations with the Nevada State Engineer's Office (2001), and review of published information (Hennen 1964). The SEIS analysis used a reasonable approximation between these values, which were available at the time of the investigation. Historically, there has been disagreement over the return flow percentage (Hennen 1964), but it is known to vary widely with a number of factors and to be generally decreasing due to changes in agricultural crops grown in the basin. The return flow from all ranches is contained within the State Engineer's inventory of water available for distribution and is not monitored in the basin. Furthermore, diversions are not monitored in the Humboldt River basin (Hennen 1964; Nevada State Engineer's Office 2001); therefore, data on return flows as a fraction of diverted flows are not available.

The return flow timing is based on the parameters used in the Glover analysis, as summarized on page 3-58 in the Draft SEIS. These parameters likely vary throughout the basin, but they are thought to be reasonable approximations for the purpose of analyzing potential impacts for the SEIS.

9-24 Research by the EIS team during preparation of the SEIS indicated that accurate diversion records were not available for the portion of the Humboldt River basin evaluated. In addition, recent conversations with the Nevada State Engineer's Office (Nevada State Engineer's Office 2001) have confirmed that irrigation diversion records are not available. It is important to note that even if diversion records existed, natural and irrigation losses would be difficult to determine without accurate gaging data from both the headgate and the drain.

9-25 The irrigated croplands would not be reclaimed since these lands are privately owned properties. Refer to the response to comment 1-7 for a discussion of the irrigated lands.

Letter 10

NEWMONT MINING CORPORATION
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Reno, Nevada 89501
(775)-784-8182 phone
(775)-784-8185 fax

2000 NOV 15 AM 10: 16

November 14, 2000

Kirk Laird, SEIS Coordinator
Bureau of Land Management
Elko Field Office
3900 East Idaho Street
Elko, NV 89801

Dear Mr. Laird:

Newmont Mining Corporation submits these comments on the Bureau of Land Management's Draft Supplemental Environmental Impact Statement for Barrick Goldstrike Mines Inc.'s Betze Project, dated September 2000 ("draft SEIS").

10-1 At page 5-6, the draft SEIS explains that, in several drainages, the difference between the predicted maximum projected groundwater drawdown from the Goldstrike Mine alone, compared to the projected drawdown resulting from all of the projects that were considered in the Cumulative Impact Analysis ("CIA") is the result of the different models that were used to evaluate Goldstrike Mine-only dewatering and cumulative dewatering. However, at other places in Chapter 5, the draft SEIS identifies potential cumulative impacts to groundwater levels and surface flows from mine dewatering in particular drainages, such as Maggie Creek and its tributaries, and simply states that the Goldstrike Mine is not projected to contribute to these impacts. Modeling has also shown that dewatering at Gold Quarry and Leeville will not have a direct effect on any groundwater drawdown in either the upper Maggie Creek tributaries or Rock Creek drainage. The SEIS should be revised to avoid any misunderstanding as to the potential effects of the other mine projects evaluated in the CIA.

Thank you for the opportunity to comment on the draft SEIS.

Sincerely,

John K. Mudge
Director, Environmental Affairs

Responses to Letter 10

10-1 The referenced section discusses the incremental contribution of dewatering at the Goldstrike Mine to the cumulative drawdown cone. Within this context, this section also discusses the uncertainty associated with the CIA cumulative drawdown cone. This section only discusses Barrick's incremental contribution to the cumulative drawdown, and does not attempt to address or discuss the direct impacts associated with the other projects within the cumulative drawdown area. The direct, indirect, and cumulative impacts associated with the Gold Quarry and Leeville mines is addressed in each of their respective project EIS documents.

Letter 11

Bureau of Land Management
Elko Field Office
1300 East Idaho St.
Elko, NV 89801

2001 NOV 13 PM 2:30

Attention:

KIRK LAIRD, SEIS COORDINATOR

Re:

MINE DEWATERING AFFECTS ON ALFALFA FARMERS

In recent newspaper articles, regarding the dewatering effects of mining within the Humboldt River basin, the focus seems to be primarily on wildlife, ranching, and downstream river concerns. However, this issue can have an extremely negative impact on small farming communities that also exist within this area. My family and I are members of one of those farming communities.

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So we would like to know whether any consideration is being given to farmers regarding the negative impact of continued mine dewatering, and what recourse do we have, if any?

Sincerely,

Russell Parker — signature

11-10-00 — date

Name:	Russell + Tammy Parker
Address:	P.O. Box 129 Valmay Nev. 89820
Phone:	(775) 738-3921 (775) 635-9236

Responses to Letter 11

11-1 Monitoring performed pursuant to the BVMP has demonstrated that dewatering activities at the Goldstrike Mine have not affected the Clovers Area ground water basin; see also Figure 3.2-22 in the Draft SEIS. Numerical model simulations project that the maximum extent of the 10-foot drawdown contour resulting from dewatering activities at the Goldstrike Mine will not extend into (or near) the Clovers Hydrographic Area (HA) (see Figure 3.2-25 in the Draft SEIS). In addition, model simulations of the combined effects of dewatering at the Goldstrike, Gold Quarry, and Leeville mines also indicate that the combined (or cumulative) drawdown cone is not expected to extend into the Clovers HA. Therefore, mine dewatering from these mines is not expected to result in measurable drawdown of the water table or impacts to water supply wells in the Clovers HA.

11-2 Comment noted.

11-3 Barrick has been required by the State Engineer's Office to return as much dewatering water from the Goldstrike Mine as practicable to the subsurface in Boulder Valley and to provide water in substitution of valid irrigation water rights.

11-4 Although Barrick provides water in substitution of valid irrigation water rights, Barrick does not grow hay; hay is grown on the TS Ranch by ELLCO. The socioeconomic impacts of hay produced with dewatering water are discussed on page 3-228 of the Draft SEIS. The amount of hay produced with water from the Goldstrike Mine is expected to decline beginning with the 2001 irrigation season as Barrick's pumping rate declines. The operator of the hay fields may, however, continue the same level of hay production using his/her own water rights and wells.

Letter 12

Bureau of Land Management
Elko Field Office
1300 East Idaho St.
Elko, NV 89801

2000 NOV 13 PM 2:30

Attention:

KIRK LAIRD, SEIS COORDINATOR

Re:

MINE DEWATERING AFFECTS ON ALFALFA FARMERS

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12-1 Our farm is located in the Clovers Area just north of Battle Mountain, Nevada, and we farm alfalfa hay using irrigation wells and pivot irrigation systems. We are totally dependent on groundwater, and suspect that mine dewatering, on top of drought years, has resulted in an overall drop in the water table level and in the natural recharge capacity of our watershed. When you take into consideration, that most farm irrigation wells in this area are only around 200-250 feet deep, a drop in just tens of feet can have a significant economic impact on farmers.

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12-4 Furthermore, their alternative to not "wasting" water has been to acquire their own pivot irrigation systems and to use the water in growing hay. However, this does nothing to replenish the groundwater source, and just further exacerbates the issue for the small farmer. It is not enough that the mines may be threatening our livelihood, they are also creating undue competition for the small farmer.

So we would like to know whether any consideration is being given to farmers regarding the negative impact of continued mine dewatering, and what recourse do we have, if any?

Sincerely,

Russell Parker — signature

11-10-00 — date

Name:	Russell + Tammy Parker
Address:	P.O. Box 129 Valmy Nev. 89820
Phone:	(779-738-3921 (775) 635-9236

Responses to Letter 12

12-1 Please see the response to comment 11-1.

12-2 Comment noted.

12-3 Please see the response to comment 11-3.

12-4 Please see the response to comment 11-4.

Letter 13

Bureau of Land Management
Elko Field Office
1300 East Idaho St.
Elko, NV 89801

RECEIVED
BUREAU OF LAND MANAGEMENT
ELKO FIELD OFFICE
2000 NOV 13 PM 2:31

Attention:

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So we would like to know whether any consideration is being given to farmers regarding the negative impact of continued mine dewatering, and what recourse do we have, if any?

Sincerely,

Claudette McCain — signature

11-11-00 — date

Name:	Claudette McCain
Address:	HC 61 Box 30
	Battle Mountain NEV 89820
Phone:	(775) 635-3198 (775) 575-1866

Responses to Letter 13

13-1 Please see the response to comment 11-1.

13-2 Comment noted.

13-3 Please see the response to comment 11-3.

13-4 Please see the response to comment 11-4.

Letter 14

Bureau of Land Management
Elko Field Office
1300 East Idaho St.
Elko, NV 89801

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BUREAU OF LAND MANAGEMENT
ELKO FIELD OFFICE
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Attention:

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So we would like to know whether any consideration is being given to farmers regarding the negative impact of continued mine dewatering, and what recourse do we have, if any?

Sincerely,

signature — date 11-13-00

Name:	Gregory L. Taylor
Address:	HC 61 Box 15
	Battle Mtn, NV 89820
Phone:	775-635-2888

Responses to Letter 14

14-1 Please see the response to comment 11-1.

14-2 Comment noted.

14-3 Please see the response to comment 11-3.

14-4 Please see the response to comment 11-4.

Letter 15

Bureau of Land Management
Elko Field Office
1300 East Idaho St.
Elko, NV 89801

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BUREAU OF LAND MANAGEMENT
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2000 NOV 13 PM 2:31

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Sincerely,

Leslie H. Brooks — signature

11-12-00 — date

Name:	Leslie H. Brooks
Address:	P.O. Box 520 Battle Mtn, Nv. 89820
Phone:	775-761-7759

Responses to Letter 15

15-1 Please see the response to comment 11-1.

15-2 Comment noted.

15-3 Please see the response to comment 11-3.

15-4 Please see the response to comment 11-4.

Letter 16

Bureau of Land Management
Elko Field Office
1300 East Idaho St.
Elko, NV 89801

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ELKO FIELD OFFICE
2000 NOV 13 PM 2:31

Attention:

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Sincerely,

Max Lenaburg — signature

11-9-00 — date

Name:	Max Lenaburg
Address:	HC 61 Box 60
	Battle Mtn Nev 89820
Phone:	775-635-9234

Responses to Letter 16

16-1 Please see the response to comment 11-1.

16-2 Comment noted.

16-3 Please see the response to comment 11-3.

16-4 Please see the response to comment 11-4.

Letter 17

Bureau of Land Management
Elko Field Office
1300 East Idaho St.
Elko, NV 89801

RECEIVED
BUREAU OF LAND MANAGEMENT
ELKO FIELD OFFICE
2000 NOV 13 PM 2:31

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Sincerely,

Erik M. Taylor
signature

11-12-00
date

Name:	Erik Taylor
Address:	HC61 Box 20
	Battle Mtn., NV 89820
Phone:	775-635-8608

Responses to Letter 17

17-1 Please see the response to comment 11-1.

17-2 Comment noted.

17-3 Please see the response to comment 11-3.

17-4 Please see the response to comment 11-4.

Letter 18

BATTLE MOUNTAIN BAND COUNCIL
37 MOUNTAIN VIEW DRIVE #C
BATTLE MOUNTAIN NV 89820
(775) 635-2004
FAX (775) 635-8016

November 14, 2000

Mrs. Helen Hankins
Bureau of Land Management
3900 East Idaho ST
Elko NV 89801

Subject: BETZE-POST PROJECT

Dear Ms. Hankins:

We received a copy of the Draft SEIS for the Betze Project. This is an important issue which will affect a large radius and will impact upon the Western Shoshone people into the future centuries.

18-1

The traditional areas of Rock Creek and Tosawihi will be affected by the method of dewatering. The cumulative effects will dry up the spring and creeks where our people currently plus prehistorically and historically pray and practice religious rituals. Under the earth, our ancestors still lie. We have practice our religion on these lands and the springs and other bodies of water are part of this religion. We have not relinquished our practices upon the coming of the White Man. The churches of the Newe people are not grounded to a certain place. We find it very difficult to pinpoint these areas out to Federal agencies because the confidentiality and respect issues are not treated as such.

With the impact of the springs and other bodies of water, whether on the surface or underneath the earth, will come the gradual genocide of the Western Shoshone people. Because our beliefs are connected with the well being of the earth, we have no choice but to protest these genocidal issues.

Therefore, when the water is lessened and mines are allowed to waste billions of gallons in one day, we must document our concerns and must protest the wanton waste of water. Of course, we are also aware that the Federal agencies feel this is "insignificant" but for us, this is of utmost significance!

Sincerely,

Bernice A. Lalo, M.Ed.
Tribal Environmental Coordinator

Responses to Letter 18

18-1 See the responses to comments 6-2, 7-1, and 8-2 regarding potential impacts to areas of concern to the Western Shoshone people.

Letter 19

United States Department of the Interior

U.S. FISH AND WILDLIFE SERVICE
911 N.E. Eleventh Avenue
Portland, Oregon 97232

IN REPLY REFER TO:
AES/HC

ELKO DISTR
DM
DM
LAN/NEPA
ENF
CON-REN
NEWAR

December 13, 2000

Memorandum

To: SEIS Project Manager, Bureau of Land Management
Elko Field Office, Elko, Nevada
(Attn: Kirk Laird)

From: for Assistant Regional Director, Ecological Services
Region 1, Portland, Oregon

Subject: Review of SEIS Barrick Goldstrike Mines, Inc. - Betze Project
(EC 00/0040)

19-1 In response to your September 20, 2000, Memorandum, the U.S. Fish and Wildlife Service has reviewed the proposed SEIS for the Betze Project, Barrick Goldstrike Mines, Inc. Please refer any comments to Julie Concannon, Regional Environmental Specialist at (503) 231-2068.

We have no comment.

Responses to Letter 19

19-1 Comment noted.