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

JAN 19 2012

OFFICE OF THE REGIONAL ADMINISTRATOR

Amy Lueders
Bureau of Land Management
1340 Financial Boulevard
Reno, Nevada 89520

Subject: Draft Environmental Impact Statement (EIS) for the Phoenix Copper Leach Project, Lander County, Nevada [CEQ #20110357]

Dear Ms. Lueders:

The U.S. Environmental Protection Agency (EPA) has reviewed the above referenced document. Our review and comments are provided pursuant to the National Environmental Policy Act (NEPA), the Council on Environmental Quality's (CEQ) NEPA Implementation Regulations at 40 CFR 1500 - 1508, and our review authority under Section 309 of the Clean Air Act, as well as the May 21, 2008 Memorandum of Understanding between the Bureau of Land Management (BLM) and EPA. I appreciate the time and effort that you and your staff are devoting to discussing with EPA this proposed project and the need to ensure the availability of adequate funding for the centuries of monitoring and management that will be required at mining sites such as this one after their closure in order to protect both the environment and the taxpayer.

The proposed Phoenix Copper Leach Project would expand the existing Phoenix Mine, adding 902 acres of new disturbance to the 7,210 acres that are currently permitted. The project includes copper leaching/beneficiation of copper oxide rock material that BLM previously permitted for disposal in waste rock facilities at the Phoenix Mine in a November 2003 Record of Decision. According to the Draft EIS, the mine is expected to operate for 24 years, followed by 13 years of reclamation, after which drain down fluids from the proposed copper leach pads would be managed in evaporation ponds for at least 500 years. As solids accumulate in the evaporation ponds throughout that lengthy post-closure period, ponds would be reclaimed and new ponds would be constructed and monitored.

The Draft EIS clearly states that, following closure, long-term care will be necessary to protect water quality and wildlife at the Phoenix Mine, and indicates that BLM would require a long-term funding mechanism to cover the cost of post-closure monitoring and management of the heap leach facilities and evaporation ponds. The Draft EIS lacks, however, critical information regarding the nature and adequacy of that funding mechanism, and, based on our analysis of BLM's recent practice and current guidance regarding financial assurance for mining operations, we believe it is likely that the long-term post-closure monitoring and management of the proposed project will be underfunded and, therefore, ineffective. Leachate from the spent copper ore will be acidic and is expected to contain concentrations of aluminum, arsenic,

beryllium, cadmium, copper, iron, manganese, nickel, sulfate, total dissolved solids, and zinc that exceed water quality standards. If heap leach facilities and evaporation ponds are not properly managed over the long-term, the project could result in significant and long-term degradation of surface water and/or groundwater quality, as well as wildlife exposure to acute or chronic toxicity from several of these parameters.

EPA has rated the Phoenix Copper Leach Project Draft EIS as "**3 – Inadequate Information**" (see Enclosure 1: "Summary of Rating Definitions and Follow-Up Action") because it does not disclose any detail on how funds will be available as long as they are needed to implement the closure and post-closure obligations. The information that EPA believes is needed includes: (1) the amount needed to cover the costs of the post-closure obligations for the proposed project, (2) a detailed description of the proposed long-term funding mechanism that would be established for the proposed project; and (3) the updated reclamation/closure bond amount needed for the project. We recommend that BLM determine the appropriate level of funding for the reclamation/closure bond and the proposed long-term funding mechanism for the proposed Copper Leach Project; analyze the adequacy of the funding amount and mechanism, including associated uncertainties; and circulate this information in a Supplemental Draft EIS for public comment, in accordance with NEPA and CEQ's NEPA Implementation Regulations. The Supplemental Draft EIS should evaluate the anticipated effectiveness, and risks, of the Phoenix Mine closure and post-closure commitments, and consider whether the proposed trust fund ensures that sufficient funds will be available to implement the post-reclamation obligations for as long as they are needed. EPA respectfully requests the opportunity to review this information and provide BLM our feedback before you publish the Supplemental Draft EIS. EPA's detailed comments on the Draft EIS are enclosed (Enclosure 2).

The availability of adequate resources to ensure effective reclamation, closure, and post-closure management is a critical factor in determining the significance of the project's potential impacts and its environmental acceptability. An adequate reclamation/closure bond and post-closure funding mechanism are needed to ensure that the costs of stabilizing, reclaiming, and managing the site after closure are covered by the mine operator for as long as they may be needed. In other words, if mitigation funds will not be adequate to effectively protect environmental resources from significant and long-term degradation, the project would be environmentally unacceptable. Such assurances could make the difference between the project being sufficiently managed over the long-term by the site operator, versus an unfunded or under-funded contaminated site that becomes a liability for the federal government and taxpayers, e.g., under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

BLM and EPA agree that adequate financial assurance at mines is important to safeguard the environment and taxpayers. Metal mining and protection of taxpayers from long-term liability is an EPA priority, and EPA continues to believe that the adequacy of financial assurance is a critical element to be addressed in the NEPA process and should be disclosed. Without this information, EPA believes that federal officials will not have important information concerning the likelihood that sufficient resources will be available for closure and post-closure mitigation, and the public may not understand the potential environmental and fiscal consequences of this proposed project.

As you know, BLM Nevada did include financial assurance information in the 2002 EIS for the Phoenix Mine.[1] Furthermore, such disclosure is consistent with CEQ guidance, which states that all relevant, reasonable mitigation measures that could improve the project are to be identified in an EIS and, to ensure that environmental effects of a proposed action are fairly assessed, the probability of the mitigation measures being implemented should also be discussed.[2] CEQ guidance views a discussion of funding for implementation of mitigation commitments as critical to ensuring informed decision making, and has stated that agencies should not commit to mitigation measures if it is not reasonable to foresee the availability of sufficient resources to ensure the performance of the mitigation.[3]

We also note that BLM's Instruction Memorandum (IM) 2009-153: Financial Guarantees for Notices and Plans of Operations requires that, if the state director allows the use of other financial instruments not listed under 43 CFR 3809.555, he/she must document and make available to the public the decision and criteria used for accepting financial instruments not listed under 43 CFR 3809.555. We believe the NEPA process is an appropriate mechanism for this disclosure as well.

We appreciate the opportunity to review this Draft EIS and look forward to working with BLM to resolve the issues outlined in this letter. We will call to arrange a meeting with you to discuss plans for completing the NEPA process. In the meantime, if you have any questions, please call me at (415) 947-4238 or have your staff contact Jeanne Geselbracht, our lead NEPA reviewer for this project, at (415) 972-3853. Please send a copy of the Supplemental Draft EIS to this office (mailcode CED-2) at the same time it is filed with our Washington, D.C. office.

Sincerely,

Jared Blumenfeld
Regional Administrator

Enclosures:
(1) Summary of Rating Definitions and Follow-Up Action
(2) EPA's detailed comments on the Phoenix Copper Leach Project Draft EIS

cc: Doug Furtado, BLM-Battle Mountain District Office
Colleen Cripps, Nevada Division of Environmental Protection

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[1] In light of the large disparity between EPA's and BLM's estimates of initial funding needed for the original Phoenix Mine trust fund ($33.5 million vs. $408,000), EPA's November 25, 2002, comment letter on the Phoenix Project Final EIS recommended that BLM engage an independent third party to analyze BLM's cost estimate and financial predictions and adjust the trust fund accordingly during the first triennial review.

[2] CEQ, Memorandum for Federal NEPA Liaisons, Federal, State and Local Officials and Other Persons Involved in the NEPA Process, Question 19b, March 16, 1981.

[3] CEQ, *Appropriate Use of Mitigation and Monitoring and Clarifying the Appropriate Use of Mitigated Findings of No Significant Impact.* 76 Fed. Reg. 3843, 3848-3849 (Jan. 21, 2011).

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."

Phoenix Copper Leach Project Draft EIS
EPA Detailed Comments
January, 2012

The Phoenix Copper Leach Project Draft EIS describes the closure and post-closure phases for management of the proposed Phoenix copper leach facilities. EPA has also reviewed *Closure Options Evaluation Phoenix Copper Leach Project* ("Closure Options Evaluation"),[4] which includes cost estimates for several closure/reclamation and long-term monitoring and maintenance options for the proposed copper leach project. Option 4 in the Closure Options Evaluation is similar to the closure options assessed in the Draft EIS, and this cost information was available well in advance of publication of the Draft EIS. For the most part, the Option 4 closure/ reclamation and post-closure costs appear to be appropriate. We believe significant issues should be remedied, however, to ensure that the costs assigned to the closure/reclamation plan and the costs assigned to the long-term monitoring and maintenance plan allow the closure/reclamation bond and the long-term funding mechanism (LTFM) for the proposed project to effectively respond to funding needs as they arise. The Draft EIS does not identify the cost estimates for the closure/reclamation bond or the LTFM or analyze the adequacy and uncertainties associated with these funding amounts. Nor does the Draft EIS describe or analyze the actual funding mechanism (or funding options) in any detail to demonstrate how it will ensure that the costs of post-closure monitoring and mitigation will be covered for as long as needed.

We understand that the 2012 LTFM would be separate from the existing Phoenix Project long-term trust fund (2004 LTTF), which was established in 2004 to cover the cost of implementing the Phoenix Mine *Contingent Long-Term Groundwater Management Plan* (CLTGMP) to which BLM committed in the 2003 Phoenix Project Record of Decision; however, we believe there are lessons to be learned from the 2004 LTTF that are applicable to the 2012 LTFM, given the inadequacies, in our opinion, of the 2004 LTTF. As we stated in our November 25, 2002 comment letter on the original Phoenix Project Final EIS, we believe that the assumptions proposed to establish the original trust fund were flawed because the method used to calculate the funding amount significantly underestimated the likely need and was based on overly optimistic rates of return, and that the allowable investment instruments were unduly risky. We concluded, therefore, that the original Phoenix Project appeared to be environmentally unacceptable and the Final EIS inadequate because the trust fund assumptions used were flawed, making effective implementation of the CLTGMP infeasible.

EPA has analyzed, with EPA contractor assistance, the Phoenix Project Long-Term Contingent Fund Agreement and the Phoenix Project Irrevocable Trust, which together established the 2004 LTTF, as well as documents BLM provided us after the Record of Decision. In addition, in the absence of specific information in the Phoenix Copper Leach Project Draft EIS regarding financial assurance, we have reviewed BLM's Instruction Memorandum (IM) 2009-153 to examine how BLM may establish the long-term financial assurance for this project. Based on this review, we have concerns that, when established, the 2012 LTFM for the proposed Copper Leach Project could be significantly underfunded and unavailable over the long term to cover the costs of the post-closure obligations associated with the copper leach facilities.

[4] Closure Options Evaluation Phoenix Copper Leach Project, JBR Environmental Consultants, Inc., August 19, 2011

As described in more detail below, we recommend that BLM determine the appropriate level of funding for the closure/reclamation bond for the mine and disclose the specific long-term funding mechanism that will be established for the proposed Copper Leach Project; analyze the adequacy of the funding amount and mechanism; and circulate this information in a Supplemental Draft EIS for public comment. The following information should be addressed in the Supplemental Draft EIS.

Adequacy of the 2012 LTFM

There is no single right way to establish a trust; however, the overall goal is clear: ensuring that the trust has sufficient assets to cover the costs for which it was established, for as long as needed. BLM's current guidance, as embodied in IM 2009-153, differs from the approach BLM took in establishing the Phoenix Project's LTTF in 2004. If the LTTF were to have been developed following the procedures in the IM 2009-153, the project proponent would have had to increase its investment. Even with that improvement, we believe IM 2009-153 may allow a degree of flexibility in investment instruments that unnecessarily increases the risk that adequate funds will not be available when needed.

Recommendation: We recommend BLM consider the following approaches to help ensure that the new Phoenix Copper Leach trust covers the costs of monitoring, managing the heap leach facilities and drain down fluids, and other post-closure obligations in perpetuity.

- **Shift to current value trusts or use more realistic discount rates.** BLM uses net present value (NPV) trusts. EPA allows for current value trusts (i.e., cost estimates calculated in current dollars) in many situations, and under this approach, the trust is fully funded immediately. Where NPV trusts (i.e., cost estimates calculated using a discount rate) are used, the single most important factor in calculating the beginning amount of the trust corpus (and therefore, the value of the trust in the future) is to use an appropriate discount rate. Overly aggressive discount rates "backload" contributions to the trust over time, and also limit true-up contributions. EPA suggests that BLM consider the use of current value trusts or NPV trusts with a standard benchmark discount rate as opposed to an individually negotiated rate. For example, EPA has authorized the 30-year Treasury Constant Maturity return for some trusts that allow for NPV.

- **Shift to annual true-up cycle.** BLM requires adjustments, or "true-ups", to trust funds every three years if they are not meeting their growth performance goals. EPA strongly supports the idea of a true-up requirement, but recommends that BLM consider using an annual true-up cycle rather than a 3-year cycle, to address both problematic investment performance and the risk of grantor bankruptcy or other corporate failure more often. Catching either of these problems quickly (i.e., with a shorter true-up cycle) would ensure that the trust is better positioned to secure the appropriate funds to make the trust whole.

- **Consider a more conservative investment portfolio requirement.** BLM imposes few limitations on the types of investments allowed for its trust funds. EPA generally imposes significant limitations on potential investments, especially when the trust is an NPV trust. We acknowledge that there is a downside to conservative investment strategies (namely, that the grantor contribution would likely increase), but believe, given

the adverse consequences of trust failure for future taxpayers and/or the environment, that a conservative approach may be appropriate in this instance.

Contingencies for closure earlier than planned

During the past 25 years, there have been four price cycles for copper, with each cycle lasting an average of 5.5 years. The average price change between peak and trough for each cycle was 49.5 percent, demonstrating the volatility of the copper market. At the Phoenix Mine, metal prices at any given time will influence whether mine rock is assigned to a gold processing circuit, a copper processing circuit, or a waste rock facility. The Draft EIS does not estimate the economic threshold for recovery of Phoenix copper oxide ore or discuss whether or how revenue-based ore control decisions regarding gold processing versus copper processing could affect the life of the copper leach operations. Accordingly, BLM should plan for the contingency that the copper leach facilities may close significantly earlier than planned in the Plan of Operations, and take that into account in establishing the LTFM. For example, based on a discount rate of 2.6 percent, the present value of the long-term monitoring and maintenance obligations identified in the Closure Options Evaluation after 24 years of operation is $7.9 million. At this discount rate, the present value after 12 years, however, is $10.7 million. Therefore, if the copper leach facilities were to operate for only half as many years as planned, the amount needed in the LTFM at the start of the project would be almost $3 million greater than the amount needed if closure occurred, as planned, after year 24. This difference, however, does not account for the smaller reclamation area and maintenance costs that a 12-year build-out would require relative to a 24-year build-out. In addition, EPA is not recommending these present values per se. They are provided here only to illustrate the relevant information needed for a fully informed decision on the adequacy of financial assurance and effectiveness of the proposed mitigation.

> **Recommendation:** The Supplemental Draft EIS should estimate the economic threshold for recovery of Phoenix copper oxide ore and discuss whether and how revenue-based ore control decisions regarding gold processing versus copper processing could affect the life of the copper leach operations.
>
> The Supplemental Draft EIS should include an evaluation of how earlier closure dates and smaller leach pad sizes could affect the timing and funding needs of the various elements of the post-closure plan (drain down rates, closure and construction of evaporation ponds, bird netting, etc.).
>
> We also recommend that any costs currently assigned to the 2012 LTFM but which would occur during the 13-year closure/reclamation period be instead assigned to the closure/reclamation bond. In the event that one or both copper leach pads closed earlier than projected in the Plan of Operations and Newmont were unavailable to satisfy these obligations, they would be covered by the closure/reclamation bond and would not affect the corpus of the trust if it is not fully funded by that date.

Additional long-term monitoring and maintenance activities and costs

After the proposed copper leach operations are completed, the closed Phoenix Copper Leach Pad, located on an alluvial fan and proximal to Willow Creek, will be a permanent fixture on the landscape. The Willow Creek Floodplain Evaluation conducted by AMEC (May, 2011) analyzed

the 100-year, 24-hour flood event to determine the propensity of Willow Creek to intercept the Phoenix Copper Leach Pad. Based on the 100-year, 24-hour event, the western perimeter berm of the Phoenix Copper Leach Pad was relocated toward the southeast. While this appears to be an appropriate analysis and relocation for the operational and closure timeframe, lower probability events, such as the probable maximum flood, have not been analyzed. Low probability events over the long-term post-closure period (e.g., a 500-yr event, rain-on-snow storm event, or a wet period preceding a large storm) could lead to slope failure and/or failed covers resulting in increased surface runoff and sedimentation and increased leachate reporting to the evaporation cells. In light of the potential problems posed by severe storm events and/or an inadequately maintained closed leach pad, it will be important to ensure that the closed Phoenix leach pad is conservatively maintained and meets performance standards in perpetuity. In the discussion of post-closure obligations, however, the Draft EIS (section 2.4.5) does not identify regular inspection, maintenance, or replacement of the leach pad cap and cover system. Moreover, the long-term monitoring and maintenance cost estimate in Appendix C of the Closure Options Evaluation includes only a one-time installation of the impermeable cap and no replacement costs. Regular inspections will be important, especially after storms and spring snowmelt, and repairs will be needed to maintain the leach pad cap, cover and conveyance systems.

> **Recommendation:** The Supplemental Draft EIS should include regular inspection, maintenance and replacement of the cap, cover and conveyance system in the post-closure obligations. The long-term monitoring and maintenance cost estimate should include the costs of maintenance of the original cover and conveyance systems to meet performance standards relative to stormwater controls and cover infiltration, including regular inspections, repairs, and replacement of the impermeable cap every 50 to 100 years.

The Draft EIS (section 2.4.5) identifies long-term monitoring and maintenance obligations that would be covered by the LTFM. We were unable to find some of these activities and their associated costs in Appendix C of the Closure Options Evaluation, however, such as road and culvert maintenance; erosion repair and revegetation; maintenance of stormwater channels, retention ponds, and best management practices; groundwater monitoring and sampling; site security; and associated equipment, materials and labor costs. In light of the monitoring, operation and maintenance needs to maintain the assumed performance during the post-closure period, we assume that a crew consisting of two full time employees and equipment and materials, as necessary, may be needed. This requirement in particular may be necessitated by the large amount of bird-netting being deployed at the project and the accompanying need to attend such features on a regular basis. Furthermore, the markups for indirect costs appear lower than we would expect for the long-term operation and maintenance. Based on several other western mines where government agencies oversee the post-closure operation and maintenance, we recommend a multiplier of 0.5 (50%).

> **Recommendation:** The costs identified above should all be covered by the LTFM. If any of these costs would, instead, be covered under, or overlap with, the original Phoenix Mine 2004 LTTF, this should be clarified in the LTFM. The Supplemental Draft EIS

should also clarify which post-closure obligations and costs, if any, would overlap with and/or be covered under the existing Phoenix Project 2004 LTTF.

It appears from the cost estimate that bird netting would be replaced only every 15 years. We were unable to find the basis for the netting costs and cannot discern how frequently netting would be inspected and repaired. We believe bird netting should be inspected at least monthly and will likely need frequent repair.

> **Recommendation:** EPA recommends that the costs of frequent inspection and repair of bird netting and/or other bird exclusion methods be covered under the LTFM and committed to in the Supplemental Draft EIS. Given the toxicity and large size of the evaporation ponds, as well as the potential for nets to frequently tear and trap avifauna, we also recommend that Newmont investigate alternative methods to exclude birds from the evaporation ponds in a safer, more effective, and efficient manner.

Updated reclamation bond amount for the entire Phoenix Mine

The Draft EIS does not provide the estimated cost of the reclamation/closure obligations for the proposed Copper Leach Project that will be added to the overall Phoenix Mine reclamation/ closure bond. EPA believes transparency in the EIS regarding this information is important because it addresses whether financial resources will be adequate to meet closure/reclamation obligations and ensure protection of water quality and biological resources.

> **Recommendation:** The Supplemental Draft EIS should include the estimated cost of the closure/reclamation obligations for both the proposed Copper Leach Project and the Phoenix Mine as a whole.