



# STATE OF NEVADA

Department of Conservation & Natural Resources

DIVISION OF ENVIRONMENTAL PROTECTION

*Jim Gibbons, Governor*

*Leo M. Drozdoff, P.E., Acting Director*

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## Notice of Decision

Permit #NEV0087061 (Major Modification)

Battle Mountain Gold Corporation  
(Newmont Mining Corporation—Operator)

Fortitude/Reona/Phoenix Project

The Nevada Division of Environmental Protection has decided to issue a Major Modification of Water Pollution Control Permit NEV0087061 to Battle Mountain Gold Corporation (Newmont Mining Corporation—Operator). This permit authorizes the construction, operation, and closure of approved mining facilities Fortitude/Reona/Phoenix Project in Lander County. The Division has been provided with sufficient information, in accordance with Nevada Administrative Code (NAC) 445A.350 through NAC 445A.447, to assure the Division that the waters of the State will not be degraded by this operation, and that public safety and health will be protected.

The permit will become effective June 24, 2010. The final determination of the Administrator may be appealed to the State Environmental Commission pursuant to Nevada Revised Statute (NRS) 445A.605 and NAC 445A.407. All requests for appeals must be filed by 5:00 PM, June 19, 2010, on Form 3, with the State Environmental Commission, 901 South Stewart Street, Suite 4001, Carson City, Nevada 89701-5249. For more information, contact Rob Kuczynski, P.E. at (775) 687-9441 or visit the Division's Bureau of Mining Regulation and Reclamation website at [www.ndep.nv.gov/bmrr/bmrr01.htm](http://www.ndep.nv.gov/bmrr/bmrr01.htm).

Two comment letters were received during the public comment period. The first letter, dated April 15, 2010 was received from Mr. Kevin Sur, of Elko, NV. The second letter was received electronically on April 30, 2010 from Mr. John Hadder, Staff Scientist, Great Basin Resource Watch (GBRW). Division responses to the comments are attached to this Notice of Decision.

The Division acknowledges the assistance provided by the Permittee in responding to these comments.

Kevin Sur Comment#1: "The Major Modification of the Water Pollution Control Permit should be issued..." "...The property owner (Newmont Mining Corporation) has a long history of responsible mineral development..." "...The proposed project...will result in a better environment approach toward eventual closure and reclamation of the area." "...[T]he Lander County area will receive

major economic benefits..."...“This economic benefit will be the result of a private enterprise...not the result of more mis-guided [sic] government spending.”

*NDEP Response: Comment noted.*

GBRW Comment #1: “Great Basin Resource Watch appreciates this opportunity for comments. We see some issues that should be addressed and have some questions regarding the information from the fact sheet provided.”...“Great Basin Resource Watch (BGRW) [GBRW] is concerned that this permit modification is premature.”...“Two year ago GBRW submitted scoping comments on the *Supplemental Environmental Impact Statement [SEIS] on the proposed Plan for the Phoenix Copper Leach Project*...to date the draft environmental analysis is not completed by the Bureau of Land Management (BLM).”...“[I]t seem[s] clear that the draft supplemental EIS document is not expected for some time yet...”...“We understand...[that] Newmont would like to work in parallel so that the project can be started as soon as possible.”...“[G]iven the anticipated timeline for the environmental review and apparently numerous changes in the plan over the past few years we wonder whether there will not be further substantive changes in this project that would impact this permit. In our view it is prudent to refrain from permitting a project until the environmental review is clear.”

*NDEP Response: The Supplemental Environmental Impact Statement [SEIS] and Water Pollution Control (WPC) permitting process are independent of each other. Although the BLM and the Division often coordinate with each other, issuance of the WPC Permit is not dependent on NEPA.*

GBRW Comment #2: “[P]ipes under the solution collection system are sized to handle flows from precipitation and the 24-hour, 25-year storm event (Fact Sheet, at 13). This standard is not protective because chances are good that such an event will occur during the lifetime of the project or during closure.”

*NDEP Response: This was an editorial error. The Fact Sheet has been corrected to reflect that water balance calculations and fluid management system design calculations are based on a 100-year, 24-hour recurrence storm event.*

GBRW Comment #3: “What happens if the drainage exceeds the pipe capacity?”... “The standard drainage from the facility will cause the pipe to flow at “50 percent or less to account for potential pipe deformation” (*Id.*)...Does this mean the pipe will be less than half full? Is this based on flow capacity?”

*NDEP Response: Based on the pipe size, configuration, deformation and flow calculations included in the application, the pipes under the solution collection system have more than adequate flow capacity to handle normal heap draindown in addition to the drainage from the 100-year, 24-hour storm event. With no pipe deformation, the maximum flow capacity would be 50 percent or less of pipe capacity.*

GBRW Comment #4: “Our reading of the fact sheet does not reveal whether there will be a leak detection system beneath the [heap leach pad] HDPE liner.”...“The process component monitoring system (PCMS) will allow independent monitoring for each of the leach pad cells (Fact Sheet, at 15). The description is of a monitoring sump but the fact sheet does not state what is being monitored; please explain.”...“The most important monitoring would be of the volume of water

removed from the "PCMS monitoring sump" .... "It would also be desirable to monitor the water level in each cell (the level of any phreatic surface above the base of the heap pad material) to compare the head on the drainage pipes with the flow rate. Monitoring the head would allow Newmont and/or NDEP to assess whether the pipe flow capacity has been decreased."

*NDEP Response: As stated in the Fact Sheet, the Phoenix and Reona Copper Leach Pads utilize the same liner system design. The pads are constructed with a 12-in thick prepared subgrade of low-permeability soil, compacted to a minimum 92 percent of maximum dry density (ASTM 1557) and a coefficient of permeability less than or equal to  $1 \times 10^{-6}$  cm/sec, overlain by a 80-mil double-textured HDPE geomembrane liner. Pursuant to Nevada Administrative Code (NAC) 445A.434 a system for the detection of leaks from leach pads and other non-impounding surfaces is not required since the maximum recompacted in-place coefficient of soil permeability is less than  $1 \times 10^{-6}$  cm/sec.*

*As stated in the Fact Sheet, the PCMS is a combination trench and sump system for leak detection, collection and recovery. The PCMS is designed to allow for the independent monitoring of leakage from each heap leach pad cell within the Phoenix and Reona Copper Leach Pads as well as various sections of the solution channels where flow will be concentrated. At the outlet of each PCMS trench is a PCMS monitoring sump with an effective capacity of approximately 65 gallons. The PCMS monitoring sump consists of a pipe-in-pipe system to accommodate a small pump and discharge pipe for the purpose of removing any solution collected in the sump. Pursuant to the WPC Permit Parts I.D.20 through 23, each heap leach pad cell and conveyance channel PCMS is monitored weekly for accumulated fluids. Each PCMS must be inspected and evacuated on a more frequent basis than weekly if the fluid level is above the top of the PCMS sump or the invert of any pipe which discharges into the PCMS sump, whichever level is lower.*

*GBRW Comment #5: "There will be six new monitoring wells installed at Phoenix [C]opper Leach Project, with two upgradient and four downgradient of the project." ... "There will be four new wells at the Reona Copper Leach Pad area, one upgradient and three downgradient." ... "Four downgradient wells at the Phoenix Copper Leach Project may not be sufficient to detect a leak." ... "Neither the fact sheet nor the draft permit provide any guidance as to the spacing or exact location of the wells." ... "Neither the fact sheet nor the draft permit provide guidance as to the depth or screen length of the wells." ... "Two upgradient wells may provide an adequate representation of background groundwater quality if the groundwater type does not vary and there are not substantial mine facilities affecting the groundwater quality at this location."*

*NDEP Response: To clarify, the ten new groundwater monitoring wells proposed for installation upgradient and downgradient of the Phoenix and Reona Copper Heap Leach Pads, constitute the first phase of monitoring well installation. The phased installation of additional monitoring wells will continue over the life of the Copper Leach Project.*

*As stated in the Fact Sheet, these monitoring wells will be installed and operational before leach pad construction. The placement, depth and well screening intervals for these monitoring wells was based on the recommendations presented in the document entitled "Ground Water Monitoring for the Proposed Phoenix Copper Leach Pad and the Reona Copper Leach Pad", prepared by John C. Halepaska and Associates, Inc. Water Resource Consultants (November 9, 2007). The document was included in Appendix D of the Major Modification Application. The application materials were available for review during the public comment period.*

*For any monitoring well design and location that is unacceptable or fails to adequately monitor groundwater quality and groundwater elevation, the Permittee is required to submit to the Division, proposed locations for replacement monitoring well(s) for review and approval.*

GBRW Comment #6: "The fact sheet indicates...current mine facilities do affect the groundwater quality (Fact Sheet, at 42)."..."The Fact Sheet does not consider the groundwater quality specific to this proposed major modification..."..."This should include an assessment...to determine whether two background monitoring wells are sufficient...[and] will actually be monitoring premine [pre-mine] or disturbed conditions."

NDEP Response: *The Fact Sheet makes no such statement about current mine facilities impacting groundwater quality. Groundwater quality data from past monitoring indicates water of generally good quality with the Profile I reference values being met. However, water quality from monitoring and pumping wells located downgradient of the historic copper-gold tailings impoundment typically shows elevated levels of chloride, magnesium, manganese, sulfate, and total dissolved solids. The elevated constituent levels are due to seepage from the historic tailings impoundment which is associated with processing that occurred prior to the Phoenix Mine development. A system of pumping the impacted ground water ("chloride plume") to the tailings impoundment was in operation until 2003, when the source was eliminated.*

GBRW Comment #7: "Three downgradient wells at the Reona Copper Leach Pad may not be sufficient to detect a leak, especially since (RLP-2) is downgradient of the stormwater pond."..."The discussion for both sites [Phoenix Copper Leach Pad and Reona Copper Leach Pad] mentions fluctuating groundwater...[and] the potential for adding new wells due to a reversal of gradient."..."Is [the] gradient reversal predicted by the groundwater modeling[?]"..."If dewatering does reverse the gradient, would any leakage from the pads be drawn toward a long-term hydraulic sink, such as a pit lake?"

NDEP Response: *The wells in question are in addition to a network of existing wells located both up and down gradient of the Phoenix and Reona Copper Heap Leach Pads. With this expanded network of monitoring wells any shift in the groundwater gradient will be detected. The monitoring plan and associated wells would be revised accordingly and, if necessary, additional groundwater monitoring wells would be installed.*

GBRW Comment #8: "Before groundwater monitoring wells can be accurately placed, the project proponent should develop conceptual flow model for the area."

NDEP Response: *Operation of this facility will not result in an increase to currently permitted water consumption. Well placement is based on the current hydrologic model and location of the new process facilities. Water levels in monitoring wells are regularly measured, recorded and reported to the Division to insure that the hydraulic model is representative.*

GBRW Comment #9: "The fact sheet mentions a Tentative Permanent Closure Plan (TPCP) (Fact Sheet, at 21)...it is important to lay out the concepts so the operator can be identifying sources of materials and collecting data which may be useful for closure."

NDEP Response: *Comment noted.*

GBRW Comment #10: "There will be a telemetry system for offsite monitoring" ... "Please explain the purpose of the telemetry system."

NDEP Response: *The telemetry system will facilitate data recovery particularly during inclement weather. It is not a substitute for site personnel. Personnel will be onsite during active operation and during closure pursuant to Division Process Fluid Stabilization guidelines.*

GBRW Comment #11 "Phase 2 includes the capping of each pad with five feet of alluvial cover." ... "Considering the size of these pads, that is a very large amount of alluvium. Does it currently exist at the site?" ... "Can it be obtained without disturbing additional areas?"

NDEP Response: *An assessment of the available capping material (alluvium and non-PAG waste rock) was performed in conjunction with the Phoenix Mine 2008 Waste Rock Management Plan (WRMP). The assessment considered the ultimate extent and build out of the Phoenix Project (including the Phoenix Copper Leach Project) and five feet of capping. The assessment concluded that an excess of capping material would be available. The 2008 WRMP was available for review during the public comment period.*

GBRW Comment #12 "Accumulated precipitates will be bladed and capped when filtration is reduced..." ... "What does "filtration" mean in this context; will the pad be filtrating precipitates?" ... "Should this be infiltration [?]" ... "What is the nature of the precipitates?"

NDEP Response: *Infiltration would have been a better word choice. The Fact Sheet has been revised to reflect the change from "filtration" to "infiltration". The accumulated precipitates will be the result of the active evaporation of draindown solution on the copper heap leach pads. In the 2010 document entitled "Phoenix Copper Leach Project Modeling Report", Geomega predicted that the precipitated solids would contain appreciable concentrations of goethite, gypsum, and epsomite with lesser amounts of gibbsite, nontronite, and alunite. Trace metals would also be present. The 2010 modeling report was available for review during the public comment period.*

GBRW Comment #13 "Closure phase 3...will include the use of E-cells to evaporate steady-state drain-down. Precipitate will be transferred from inactive cell[s] to [a] landfill and [be] capped." ... "The implication is this will be required forever..." ... "The fact sheet does not provide sufficient information about five-feet of capping material to assess whether it will be adequate to limit meteoric water infiltration."

NDEP Response: *Experience at the Phoenix Mine and other sites at similar elevation have demonstrated that five feet of capping material will be more than adequate. A thorough analysis of the proposed five-foot thick heap leach closure cap was performed by AMEC and included under Appendix A of the "Tentative Permanent Closure Plan-Phoenix Copper Heap Leach Project". The plan was available for review during the public comment period. Pursuant to the WPC Permit Part I.B.16, with each subsequent submittal for renewal of the Permit or operational or facility change that could affect the Phoenix Copper Leach Project and TPCP, the Permittee must reevaluate the TPCP and provide, based on the evaluation and as necessary, an update or modification of the plan.*

GBRW Comment #14 "What does it mean to limit infiltration? Does this mean eliminate or reduce to zero?" ... "The [P]ermittee should establish a procedure for maintaining the E-cells and burying precipitate in perpetuity; this must include a bond."

NDEP Response: *In this context, the term "to limit infiltration" refers to the placement of cover or capping material on the copper heap leach pad to reduce meteoric infiltration rate from 7 percent for an uncovered heap leach pad to 4 percent for a covered heap leach pad. These percentages are 2 percent higher than what the Nevada Heap Leach Draindown Estimator (HLDE) model recommends. Since the TPCP calculations rely on a mass balance approach for precipitate volume estimates, the uncovered and covered infiltration rates are both conservative in nature.*

*A procedure for maintaining E-cells and handling precipitate is described in the TPCP. Since this is a "tentative" closure plan, the entire TPCP will be reviewed and updated every three years to reflect additional knowledge gained.*

*Bonding issues are not addressed by the WPC Permit.*

GBRW Comment #15: "[W]e would like to draw NDEP's attention to the copper heap leach at the Equitorial [sic] Tonopah Mine..." ... "The copper heap leach pad has been draining for roughly twenty years, and as of 2004 the draindown water was of extremely poor quality" ... "Almost all, if not all, other constituents of concern were elevated."

NDEP Response: *The copper HLP facility at Equitorial Tonopah (Equatorial) was capped between January 6, 2003 and February 12, 2003. The Division is aware of the draindown and water chemistry issues associated with the Equatorial HLP. Since both the Equatorial and Phoenix Copper Leach Project (Phoenix) share some similarities, draindown, water chemistry and performance data from Equatorial were considered in the development of the Phoenix TPCP.*

*Draindown data from Equatorial HLP facility and other facilities were included in the document entitled "Phoenix Copper Leach Project Modeling Report (2010)" prepared by Geomega. Although Equatorial HLP draindown water quality remains poor, it should be noted that since 2001, HLP draindown has decreased significantly from 5,500 gallons per minute (gpm) in July 2001 to 0.26 gpm in June 2008. This equates to a long-term infiltration rate of 0.7 percent. The long-term infiltration rate for the Phoenix copper HLP is predicted to be close to one percent. The Phoenix copper HLP is predicted to drain completely and it is unlikely that the HLP will be blinded with precipitates since they are predicted to occupy approximately 1.4 percent of the total HLP porosity.*

*The 2010 modeling report was available for review during the public comment period.*

GBRW Comment #16: "[I]f the timeline [of the reclamation plan] is extended then so must the bonding be adjusted." ... "GBRW recommends that NDEP review...the situation and background on the Equitorial [sic] copper leach pad as part of this permit modification."

NDEP Response: *Refer to the Division response to Comment #14.*

