

Freeport-McMoRan Cobre Mining Company P.O. Box 10 Bayard, NM 88023



July 27, 2015

Certified Mail #70150640000775397018 Return Receipt Requested

Mr. James Hollen Mining Act and Reclamation Program Mining and Minerals Division 1220 South St. Francis Drive Santa Fe, NM 87505

Dear Mr. Hollen:

Re: Freeport-McMoRan Cobre Mining Company's Responses to Agency and Public Review Comments, Permit No. GR002RE Revision 14-1

Freeport-McMoRan Cobre Mining Company (Cobre) submitted a permit application dated August 22, 2014 for the referenced mining permit to change the approved permit boundary in order to facilitate the construction of a haul road (CHR) between Cobre and Freeport-McMoRan Chino Mines Company. The application also included a Closeout Plan (CP) describing the proposed reclamation of the CHR. In a letter dated October 7, 2014, the Mining and Minerals Division (MMD) deemed the application to be administratively complete. In a letter dated March 27, 2015 MMD provided its comments and the comments of other agencies and the public to Cobre. Below, Cobre provides its responses to those enumerated by MMD in its letter of March 27, 2015, including responses to other agencies and the public. Five copies are enclosed for your convenience.

MMD General Comments (in italics):

MMD reviewed the application and deemed it administratively complete, pursuant to §19.10.5.503 B NMAC, in a letter to Cobre dated October 7, 2014. Since then, Cobre has revised and resubmitted certain portions of the permit revision application. MMD has reviewed the application and found it to be technically incomplete until receipt of acceptable supplemental information as requested by this letter.

Cobre appreciates MMD's review of the referenced application and provides below supplemental information in response to each of MMD's comments. These responses clarify the information provided by Cobre in its August 22, 2014 application.

MMD Specific Comments (in italics):

1. Please find the attached comment letters from NMED Ground Water, Surface Water and Air Quality Bureaus ("GWQB" "SWQB" "AQB", respectively) and address the issues raised by the SWQB in the final paragraph of the December 12, 2014, letter regarding the application's description of erosion control and maintenance for the CHR. Also, page 3 of the AQB's November 24, 2014, letter indicates that the potential for emissions from equipment and construction activities

that may be associated with construction of the CHR must all be considered in determining applicability under 20.2.72 NMAC and may necessitate permit control strategies and conditions regarding air quality impacts that may result from construction and operation of the CHR. Please address these air quality issues raised on page 3 and page 4 of the AQB's letter to MMD. Additionally, the GWQB indicates on page 2 of its December 12, 2014, letter to MMD that it is not providing an environmental determination at this time pending a suitable response from Cobre addressing the SWQB's concerns regarding the application's description of erosion control and maintenance for the CHR. Be advised that a written environmental determination from NMED is required by MMD (19.10.5.506 J (5) NMAC) prior to approving this permit revision.

<u>Response to SWQB:</u> The SWQB is concerned about adequate control for erosion during and following reclamation of the CHR. The SWQB recommends that the amount for erosion control and maintenance not be limited to a specific number of days, but rather erosion control should include frequent inspections of the CHR and culverts and achievement based upon a performance driven goal.

The CP submitted with the August 22, 2014 application includes reclamation cost estimates for erosion control. These costs are based upon the use of labor and equipment to conduct O&M activities for the CHR. In addition to these committed costs, the CP also describes on Page 4 that after reclamation of the CHR, Cobre will continue to maintain compliance with the U.S. EPA NPDES Multi-Sector General Permit for Stormwater (MSGP) and the corresponding Stormwater Pollution Prevention Plan (SWPPP). The permit and plan require regular visual inspections of the CHR and monitoring of stormwater outfalls to insure protection of the surface water quality uses and criteria. If the results from the required inspections and monitoring indicate control measures for erosion are not working, the SWPPP must be revised and any corrective actions reported to the U.S. EPA.

<u>Response to AQB's comments:</u> Cobre currently operates under a combined approved Air Quality Permit issued to Chino Mines Company. An application was submitted to the NMED AQB on 01/05/2015 to modify the existing permit to include mining activities associated with Hanover Mountain, Continental Pit, and the proposed CHR in order to meet the requirements of NMAC 20.2.72. The application was processed and approved by NMED AQB, who issued NSR Permit No. 0298-M7 on May 5, 2015 and includes permit control strategies and emissions limits for the CHR. Cobre/Chino will incorporate into its existing Dust Control Plan mining activities and operation of the CHR as required by the permit, upon commencement of construction and operation of CHR.

<u>Response to GWQB comments</u>: See the response to Comment 25 below regarding the abandonment of existing groundwater monitoring wells. Cobre has received formal approvals from the GWQB to abandon three groundwater monitoring wells currently located within the footprint of the CHR and replace two of these wells. Cobre's responses contained in this letter should support an environmental determination from NMED pursuant to 19.10.5.506.J(5) NMAC that the application for the proposed revision to Cobre's MMD permit has demonstrated that the activities to be permitted or authorized will achieve compliance with all applicable air, water quality, and other environmental standards if carried out as described in the CP.

2. For the attached e-mail dated November 19, 2014, from NMOSE please address both comments regarding the use of water as a best management practice for controlling fugitive dust, whether any additional water rights may be required to do so, or if there are any changes that are necessary to any existing water rights that would require review and approval by NMOSE prior to

use of water for controlling fugitive dust during construction and operation of the CHR. Also, NMOSE has identified two water well permits (M-10566 POD23 and M-10566 POD24) that may be located near or within the proposed CHR route for which NMOSE has no well logs or records to indicate whether or not these two wells exist. Please address the status of these wells and provide records detailing the location and construction specifications of the wells.

Cobre will be utilizing water trucks to control dust on the CHR. Freeport-McMoRan Chino Mines Company has adequate water rights for controlling fugitive emissions from the CHR. Additional water rights or changes to existing water rights are not necessary for this project.

Wells M-10566-POD23 and M-10566-POD24 are groundwater monitoring wells that were drilled in 2006. Well Record forms were submitted to NMOSE. Cobre is working with the NMOSE to resolve any gaps in information.

3. Please find the attached letter dated December 19, 2914 [sic], from NMDCA. Within the letter to MMD, NMDCA indicates that although there are no cultural properties listed on either the State or the National Registers, a cultural resources survey for the proposed CHR was conducted in August 2012, for the Bureau of Land Management ("BLM"). This survey documented 17 archaeological sites. According to the application, only 8 sites were documented on BLM land, one of which was determined to be eligible for listing and that this site will be avoided by relocating the road alignment. However, the application does not mention the sites that are located on private land or whether these other sites will be impacted or avoided. In addition, NMDCA's letter also indicates that certain areas of the proposed CHR may not have been included within the original archaeological survey area and may need to be surveyed in order to determine whether any operational or closeout activities could affect any previously unidentified archaeological sites that may be located within these potentially un-surveyed areas.

The 2012 cultural resources survey conducted by Cobre identified only eight sites of interests associated with the CHR. Of these, only one was completely located on BLM land, and one was partly located on BLM land. The CHR design avoids both of these sites. The remaining sites are all on private (Cobre's) property. The 2012 survey was comprehensive and addressed the entire area for the proposed CHR, plus buffer areas around the CHR, and CHR activities. Cobre will comply with all regulations applicable to the protection of cultural resources on private lands.

Additionally, the letter from NMDCA indicates that it has requested additional consultation with the BLM on the project due to potential adverse effects to sites in the project area that may be eligible for listing on the National Register of Historic Properties. According to the NMDCA letter, the BLM has not responded to the NMDCA's request for additional consultation and these issues remain unresolved. Please address the comments and concerns within the December 19, 2014, letter from NMDCA to MMD. It is not clear that the NMDCA was properly consulted in regard to the avoidance strategy associated with the eligible site, nor is it clear as to how much buffer the avoidance strategy will provide between the road and the archaeological site boundary.

The NMDCA stated in its December 19, 2014 letter to MMD that NMDCA will be directly following up with the BLM regarding consultation between the two agencies under the National Historic Preservation Act. The BLM has agreed with the strategies to be used to protect the cultural site on BLM land near

the CHR. This is documented in the BLM's <u>Environmental Assessment</u>, Freeport-McMoRan Cobre Mining Company Mine Plan of Operations Amendment No. 5, March 2015.

Furthermore, as part of MMD's required compliance with our tribal consultation policy and the State Tribal Collaboration Act of 2009 ("STCA"), MMD reaches out to tribal entities for comments when we process permit applications. In response to MMD's tribal consultation request, we received a letter (enclosed) from the Hopi Tribe requesting a copy of the 2012 cultural resources survey(s) report(s) related to the proposed CHR. MMD is requesting courtesy copies of these surveys from FMI so that we can provide them to the Hopi Tribe as requested.

In order to protect the exact location of any archaeological sites, Cobre will directly communicate with the Hopi Tribe regarding the 2012 cultural survey Cobre conducted.

4. Please find the attached letter dated December 19, 2014, from GRIP, and address each of the six comments provided within the letter.

Please see Attachment 1 to this letter.

5. The application indicates that \$302,000 of financial assurance will be necessary to cover the disturbance associated with the CHR Unit. However, MMD is continuing to review the proposed cost estimate for reclaiming the CHR and may have additional comments in the future depending upon changes to the proposed CHR Closeout Plan that result in changes to the overall cost estimate. For example, the cost estimate included with the application does not consider any costs that may be associated with the plugging and abandonment of monitoring wells, removing culverts or maintaining or eventually removing fencing along the route of the proposed CHR. MMD anticipates that the cost estimate will require an update to include all disturbances contemplated by the construction of the CHR.

No monitoring wells will be plugged and closed as a result of reclamation activities for the CHR. As described in the CP submitted with the August 22, 2014 application, the culverts under the crossing for the access road to the forest and Hanover Creek will be removed as part of reclamation of the CHR. These removal costs are included as a line item in Table 1 of the CP submitted with the application. Those culverts installed for the ephemeral drainages to Hanover Creek will remain in place post-reclamation.

As described in response to Comment 7 below, Cobre has adjusted the reclamation cost estimates for the CHR, increasing it from \$302,000 to \$314,000 to provide for changes in fencing along the CHR upon initiation of reclamation activities. Please see Attachment 2 to this letter for the updated reclamation costs. The reclamation costs estimate for the CHR covers the entire 100 acreage disturbance for the CHR.

6. The application states that the permit boundary will be expanded by 31 acres and the design limits will expand to 100 acres. Please provide an estimate of the total acreage of the revised permit boundary and design limits and show these on an updated map.

Figure 2 "Proposed MMD Boundary" of the referenced application indicates in bright green the acreage change for the permit boundary area for Cobre. The net change is an increase of 31 acres, and the total permit boundary area will increase from 5484 acres to 5515 acres.

The change to the design limits results from the addition of the CHR, which, as described in the application, consists of 91 acres of land controlled by Cobre and 8.7 acres of land controlled by the U.S. Bureau of Land Management for a total of approximately 100 acres. The design limit for the CHR is indicated by the shape of the CHR. No other changes to design limits are proposed under the application. For updated maps, please see Attachment 3, Figure 2Ra, which delineates the marginal changes to the permit boundary. Figure 2Rb, also with Attachment 3, reflects the final proposed boundary.

7. The application states that the proposed CHR will be fenced to exclude wildlife and domestic animals as well as unauthorized persons. However, Cobre included no details regarding the type and specifications of the proposed fencing to be installed, details regarding potential use or location of wildlife-friendly access corridors (i.e. jumps, ramps, crossings or passes) that limit the potential for trapping animals within the fenced corridor or fragment high quality wildlife habitat that surrounds the mine permit boundary. Also, Cobre must address whether the fencing will remain following reclamation of the CHR and if so, provide more details on the location of fencing proposed to be left in place following reclamation as a component of the wildlife PMLU for this unit. Currently, fencing is not included in the financial assurance cost estimate. If fencing is proposed to remain postreclamation, the financial assurance estimate must include maintenance costs covering the postreclamation monitoring period in addition to costs for eventually removing the fence. Attached, please find NMDG&F specifications for fencing. MMD requires fencing to be in accordance with NMDG&F guidelines in areas designated as wildlife PMLU.

In accordance with 19.10.5.508.B(2) NMAC, Page 5 of Cobre's application states that the proposed CHR will be fenced "to restrict access of wildlife". Wildlife will not be strictly excluded from the CHR. The primary purpose of the fencing along the CHR is to prevent trespass and provide for public safety. Additionally, the fencing along the CHR will limit livestock from entering the CHR and provide for the safety of employees. Because livestock on the CHR could pose a safety risk to employees, Cobre will install 5-strand barbed wire fencing along the CHR.

The CHR and fencing along the CHR will not fragment the wildlife habitat that surrounds Cobre mining facilities. The proposed CHR "may limit east-west wildlife movement patterns due to traffic . . .[but in] the context of the landscapes within which the proposed Haul Road would be constructed, this effect is not expected to result in population-level effects due to extensive suitable habitat around the mine and road, nor is it expected to preclude deer and elk from moving between winter and summer foraging habitats." ¹ Therefore, the fencing will be consistent with 19.10.5.508.B(2)'s, NMAC, requirement to minimize impacts to wildlife and habitat.

The reclamation cost estimate has been adjusted to include a cost estimate for modifying the fence to make it wildlife friendly upon initiation of reclamation by a third-party. Please see Attachment 2 to this letter for the updated reclamation cost estimate, which provides for adding flagging or other markers on the fencing and replacing or crimping the existing strands upon reclamation.

8. The application indicates that Cobre will conduct bat surveys to determine whether any

¹ Environmental Assessment, Freeport-McMoRan Cobre Mining Company Mine Plan of Operations Amendment No. 5, March 2015, Bureau of Land Management, p. 93.

suitable habitat exists within the disturbance area associated with construction of the CHR and mentions that sites or areas that are determined to be suitable and safe for bat habitat will have appropriate protection measures installed. However, it makes no indication of what areas within the CHR footprint are considered to be suitable bat habitat and how Cobre intends to determine whether this habitat is suitable and inhabited.

Pursuant to MMD rule 19.10.5.508.B(2) NMAC, "Wildlife Protection", Cobre describes on Page 6 of the referenced application that Cobre will minimize impacts on wildlife and important habitat, including bats and bat habitat. Cobre has commissioned studies to identify bat populations and locate suitable bat habitat associated with abandoned mine features within and adjacent to Hanover Valley. Cobre is currently closing, safeguarding, and reclaiming historic abandoned mine features on its Continental Mine properties under Conditions 21 and 63c of DP-1403, issued by NMED. Bat safe closure techniques are used on all features containing bat populations or suitable bat habitat that are identified at historical mines owned by Cobre or located on BLM claims that are controlled by Cobre. Bats that are excluded from closed mine features are expected to utilize suitable habitat in other bat gated sites located on other lands owned by Cobre.² No additional surveys are necessary in support of this application.

9. The application indicates that a smaller scale service road intended for mining-related access and ranching activity will remain in the footprint of the CHR following reclamation of the larger CHR footprint; however, no plans or specifications are provided for this road nor any mention of whether or not this road will require culverts, will be fenced or how it will interface with the proposed wildlife PMLU of the CHR following reclamation. Please provide these additional details, to include a map that indicates all landowners. MMD requires a statement from each of the landowners indicating their agreement with leaving a permanent road in place following reclamation of the CHR.

The proposed footprint of the CHR partially encompasses or is very close to an existing two-track service road that is used to access the monitoring wells which are located on Cobre or BLM property. The service road that is proposed to be left in place will be very similar to the existing two-track road and will be used for on-going post-closure monitoring and maintenance activities. Figures A7-A11 included with the August 22 application indicate the location of the two-track service road after reclamation of the CHR. The culverts that are installed for the operation of the CHR for the ephemeral drainages to Hanover Creek will also remain in place post-reclamation. The final reclamation design for the CHR, including the specific location of the service road, will be sent to MMD and NMED 180 days prior to the start of reclamation.

The service road that remains post-reclamation will be only on FMI property or BLM lands. As described in the response to Question 7 above, the footprint of the reclaimed CHR, including the service road, will remain fenced. An ownership map for the CHR is enclosed as Attachment 4.

10. To improve upon the preliminary design, the final design must include locations, design criteria (size, length, slope, available upstream height of road above culvert invert, etc.) and

² Environmental Assessment, Freeport-McMoRan Cobre Mining Company Mine Plan of Operations Amendment No. 5, March 2015, Bureau of Land Management, p. 98.

evaluations for the safety and effectiveness of culverts and sediment traps as well as the scale of watersheds that feed them. Cobre must also explain its intention for leaving the culverts in place and how leaving the culverts in place following reclamation might positively enhance or contribute to the wildlife PMLU. Additionally, Cobre must provide complete details for the structures proposed to span a public U.S. Forest Service Road and Hanover Creek and also the crossing at Highway 152, including where applicable: demolition and reclamation plans for removing the concrete structures and abutments, traffic control, N.M. Department of Transportation approval, etc.

Upon the initiation of actual construction, the final designs for the CHR will include additional details regarding the culverts and sediment traps and the designs will be certified by a P.E. Cobre believes that Appendix B of the August 22, 2014 application includes adequate preliminary designs for the CHR in support of the application and specifically includes the designs for the crossing over Hanover Creek and the forest access road (the forest access road is not a U.S. Forest Service road but a road upon Cobre property which Cobre allows the public to use to gain access to Forest Service administered lands). Upon reclamation, only the culverts over Hanover Creek and the forest access road will be removed and the cost for this is included in the CP. The culverts for the ephemeral drainages will be buried too deep (some over 70' deep) to be removed upon reclamation.

Freeport-McMoRan Chino Mines Company is responsible for the crossing of the CHR over Highway 152. Chino submitted an application dated April 2, 2015 to MMD to address the Highway 152 crossing in its permit GR009RE.

11. The Application indicates that the surface of the CHR will be maintained by "minor grading" to support proper drainage and that the graded material from the road will be integrated into the berms surrounding the road. Since this material is scraped from the surface of the CHR, it seems that - over the long term, this process of integrating this material into the berms could contaminate the berm material and make it difficult to promote eventual revegetation in this material. Please explain how this road base and berm material presumably contaminated and compacted by constant traffic, will remain as a suitable growth media at reclamation, or will it be buried at the time of reclamation? Several of the Figures depicting segments of the CHR show very steep outslopes along the outer perimeter of certain segments of the CHR (e.g., Figure A9) with some appearing to be at or near angle of repose. These steep outslopes may present a stability problem during operation. How does Cobre intend to manage the enlargement of the berms over time as additional road base materials are added and integrated from the road surface into the berms and how does Cobre intend to contain this berm material and prevent sediments from cascading over the outside toe of the berm during storm events and spreading these sediments to the surrounding areas and watersheds? Will the berm be stabilized with interim vegetation?

The August 22, 2014 application does not specifically describe how the CHR will be maintained during operations. Rather, at the top of Page 5, the application describes that during reclamation minor grading of the CHR will occur and the berm material will be integrated [back] into the reclaimed CHR. During operations, maintenance of the CHR will not result in contamination of the haul road surface or berms. The berms will not become larger due to the addition of other material. Rather, grading during operations is a required activity to maintain the appropriate berm sizes for safety purposes. Material that gets graded into the berm will be the same material of which the berm consists. In the unlikely event that materials of environmental concern are spilled on the haul road, the material will be managed in accordance with the appropriate environmental regulations. Compaction is resolved through ripping

prior to revegetation. Thus, the berm material will remain a suitable growth media at reclamation. Further, prior to obtaining the release of financial assurance for the reclaimed CHR, Cobre will meet the vegetative success standards in accordance with 19.10.5.508.E NMAC.

Steep outslopes on the CHR are designed based on standard engineering principals and safe operating practices at Cobre and Chino. There are no stability concerns and this is validated by years of haul road construction and operation at these sites. Operation and maintenance of the haul roads is a constant activity that will be carried out under Cobre and Chino's standard operating procedures.

Sediments from the CHR will be managed under the EPA's MSGP for Stormwater. Prior to construction and operation of the CHR, Cobre's SWPPP will be modified to include the CHR. The SWPPP will identify the control measures, including Best Management Practices (BMPs), to be used during construction and operation of the CHR. These control measures can include grading and channeling to control the direction of surface flow and administrative controls such as regular inspections along the CHR. The CHR design currently includes BMPs to limit the discharge of sediments to adjacent drainages. These BMPs consists of sediment traps along the CHR. Periodic visual assessments and monitoring at stormwater outfalls will be conducted to determine the effectiveness of the control measures. If the results from the required monitoring indicate control measures for erosion are not working, the SWPPP must be revised and any corrective actions reported to the U.S. EPA. Berms will be maintained on a regular basis and primarily for safety reasons. The design and operation of the haul road prevents water from the road surface from "cascading over the outside toe berms" and haul road slopes.

12. Regarding stormwater flows along the path of the CHR, how does Cobre intend to reduce or eliminate channelized surface flows of stormwater along the CHR during high intensity storm events?

As described on Page 8 of the application and consistent with the 19.10.5.508.B(9) NMAC requirement for erosion control on roads during operations, the design for and operation of the CHR will prevent significant channelization upon the CHR from stormwater. Grade changes will be minimized; the channels along the CHR will be adequate to prevent flooding situations across the roadbed and will direct storm water to BMPs and outfalls identified in the SWPPP.

13. Although Cobre states in the application that the CHR is a non-discharging feature and that no toxic or acidic substances will be used on the CHR, it appears that at least some contamination will become imbedded within the road material and the compacted upper crust of the CHR surface, potentially including spilled ore material, diesel fuel, hydraulic fluid, tire rubber residues and other vehicle borne contaminants. How does Cobre expect this material to eventually perform as a viable seedbed given the potential for contamination and severe compaction throughout the upper crust of the roadbed and the berm materials surrounding the road? How many and what are the proposed distances to be set between each of the ripper bars used for ripping the road material and how does Cobre ensure that ripping the compacted road material to depths of 18-24 inches is adequate? Does Cobre intend to test the CHR road material for its suitability to perform as a growth media? Also, how does Cobre intend to manage impacted stormwater that may be released from the road? Will any stormwater from the CHR be discharged to Hanover Creek?

The conjecture in this comment that haul roads will be too impacted physically and chemically to be reclaimed is not supported by fact and experience. Reclamation of haul roads is common practice.

NMED has indicated in its December 12, 2014 memo to MMD that the CHR may be considered a nondischarging unit if the CHR is constructed as described in the application for the CHR. Cobre will manage operations upon the CHR as it does other haul roads and according to the SWPPP described above. The issue of contaminants is responded to in item 11 above. Therefore, operational activities will not impede the ability of the reclaimed CHR to serve as a seedbed for vegetation.

The CHR will be constructed with material that will be broken during road construction then covered with fill of varying thicknesses and bounded by eight-foot high safety berms. As trucks travel over the road the near surface material is crushed and broken up. As part of road maintenance, the road surface is bladed to keep it smooth and direct storm water. This movement of material actually enhances the road bed's surface adequacy for reclamation. As noted in the MMD response, the crushed rock is compacted. However, prior to seeding the road material will be graded and ripped. Specifying the distance between ripper shanks is un-necessary and inappropriate at this conceptual phase. Prior to obtaining the release of financial assurance for the reclaimed CHR, Cobre will meet the vegetative success standards in accordance with 19.10.5.508.E NMAC.

Stormwater will be managed as described in response to Comment 11 above.

14. The application indicates that stormwater runoff from the CHR will be diverted in some places into natural drainages; explain potential impacts to quality of this water in terms of both sediment in the water and potential contaminants of concern. Where will this runoff (sediment and water) be discharged to? Will it be sampled and monitored and if so, where and how? What are the contingency plans in place for Cobre if sampling and monitoring of this runoff shows significant levels of contamination to be emanating from the road?

Pursuant to 19.10.5.508.B(4) NMAC, during construction and operation of the CHR, Cobre will comply with the MSGP for Stormwater and Cobre's corresponding SWPPP, as discussed in response to Comment 11 above. As also discussed above, stormwater will ultimately report to Hanover Creek. The SWPPP will identify site-specific measures to control off-site transport of sediments. Benchmark monitoring data, which are used to determine the overall effectiveness of control measures, will be collected as required under the MSGP for Stormwater. Control measures will be adjusted or changed, as necessary, based upon the monitoring data. The MSGP requires that annual reports be submitted to the U.S. EPA, including a discussion of any corrective actions needed based upon monitoring.

15. Based on the requirement to use the most appropriate technology and best management practices, Cobre will need to salvage topsoil and/or topdressing materials to be used for cover on the CHR. MMD understands the limits of salvaging topsoil given the constraints of this area to be disturbed. Other topdressing materials can be used to supplement topsoil that is in short supply. These materials may be available in the surrounding area, or can be taken from subsoil materials to be salvaged from the road construction. MMD will need more information from FMI concerning the identification, salvage, storage and eventual re-application of these materials.

Cobre, an existing mining operation (19.10.5), is applying the most appropriate technology and best management practices for operation of the CHR (19.10.5.508.A NMAC). Available topsoil within the footprint of the CHR is limited and is not strictly needed for reclamation of the CHR (see the response to Comment 11 above). Topsoil mostly occurs in a thin layer with moderate amounts of bedrock

fragments.³ The National Resource Conservation Service maps and informal surveys of the area indicate that the majority of the soils consist of a thin A-horizon and exposed bedrock. The size of the equipment that must be used for construction of the CHR will also limit the amount of topsoil that can be salvaged. If practicable, salvageable topsoil occurring with a minimum thickness of 2 feet and volume of greater than 300 cubic yards (same as MMD-approved criteria at other mine projects in Grant County) will be removed and placed adjacent to the CHR. Cobre will document the placement of the topsoil for MMD inspection. It is anticipated that if salvageable topsoil is available it will occur in isolated areas along the southern flatter end of the CHR. This material will be used during reclamation of the CHR to achieve desired final grading of the reclaimed CHR.

16. The application indicates that Cobre intends to salvage topsoil for reapplication at reclamation. However, the application does not provide detail concerning the type or volume of topsoil, and/or other topdressing material, to be salvaged. Page 7 of the Application indicates that Cobre intends to salvage and stockpile topsoil materials scraped from the CHR corridor for later use during mine reclamation. Please further describe the process of how Cobre intends to scrape and salvage the topsoil material, or other topdressing material. In addition to how much topsoil will be salvaged, provide an estimate for how much of an area it will cover and to what depth. A mass balance equation should be provided to estimate topsoil/topdressing, for the amount of material to be salvaged and then applied as topsoil or topdressing. The mass balance equation needs to address where the material is coming from and where it is going.

Please see responses to Question 15. Cobre cannot predict accurately how much salvageable topsoil will be encountered prior to construction, but interested agencies are encouraged to inspect the process during construction.

17. Also, describe where and how the stockpile will be constructed and maintained in good condition as viable, living topsoil until ready for use during reclamation. How will Cobre maintain the stockpile to protect it from erosion, mass movement and operational impacts? Cobre's description of the stockpile must also include an estimate for the amount of soil to be removed from the CHR corridor for the stockpile. Additionally, provide an estimate of the size of the footprint for the stockpile area.

Please see responses to Questions 15 and 16.

18. Regarding the topsoil to be removed from the CHR corridor, how can Cobre assure that this topsoil material will be suitable growth media for use in reclamation? How will Cobre assure that overburden materials that are to be salvaged from the cut and filled areas and that are very similar to the overburden materials observed in the general area of the mine (i.e. Hermosa Mountain and Hanover Mountain Leached Cap) and that are being tested in the Cobre Test Plot Program will be suitable sub surface growth media and supportive of revegetation efforts at reclamation? Considering the current failure rates of revegetation efforts in the Cobre Test Plot Program, what is the contingency plan given the likelihood of higher potential for failure of these salvaged overburden materials as seen with revegetation in the test plots? For the most part, it appears as though the CHR will be constructed on bedrock surfaces. Explain how cut and fill areas within the CHR footprint

³ <u>Environmental Assessment, Freeport-McMoRan Cobre Mining Company Mine Plan of Operations Amendment No. 5,</u> <u>March 2015</u>, Bureau of Land Management, p. 71.

that occur on exposed blasted bedrock will be reclaimed and revegetated. Will they be ripped first then covered with topsoil, or topdressing, and then to what depth will they be covered?

As discussed in response to Comment 15 above, Cobre will incorporate any salvaged topsoil from the CHR into the surface of the haul road at closeout, but it is not necessary for successful reclamation. The CHR will be constructed from native material within the CHR footprint, and berms and top surfacing will consist of material from cut slope excess. Non-mineralized, silty limestone makes up the majority of the rock within the CHR. The mineralized rock along the CHR corridor consists primarily of skarn deposits (i.e., metamorphosed limestone). Both the non-mineralized material and skarns are suitable substrate for reclamation. These materials currently support vegetation. Similar materials from the same geologic formations support vegetative grown in the historical reclamation areas (e.g., Hanover Empire-Zinc, Pewabic). Cobre has found that the most crucial factor with these geologic materials appears to be particle size distribution. Haul roads are constructed with a large percentage of fine fraction materials due to the requirements for a smooth travel surface void of rocks. Thus, the CHR will consist of the right materials (e.g., Paleozoic rocks) with the right physical properties (e.g., adequate size fraction) that when ripped will provide a good seed bed.

A comparison to the Cobre Test plot results is inappropriate since the issues surrounding the Cobre Test Plot results to date stem primarily from material handling and drought conditions. Sufficient precipitation is key in revegetative responses. The CHR is in carbonate material, which will be enhanced due to being worked by heavy equipment to provide a haul road surface and thus works as a suitable growth media and will be similar to results obtained at Hanover Empire-Zinc, and other historical reclamation sites along the CHR that have been reclaimed. Ripping will promote water infiltration and allow the fine fraction to hold water. In the CP for the CHR, Figure A4 is a conceptual design only and not intended to convey the actual depth of the road surfacing material; however, experience indicates that the depth of material for operation management of haul roads is more than enough to provide a suitable seed bed. As required by Cobre's mining permit, detailed construction designs for reclamation will be submitted to MMD for approval prior to actual reclamation. Again, prior to obtaining the release of financial assurance for the reclaimed CHR, Cobre will meet the vegetative success standards in accordance with 19.10.5.508.E NMAC.

19. What type of revegetation methodology will be applied to the cover material, at reclamation? What is the seeding and mulching sequence? Will the seed be broadcast or drill seeded? What other amendments will be applied?

The reclamation cost estimate for the CHR includes line item costs for grading and revegetation activities. Revegetation activities consist of discing and scarifying, drill seeding with a rangeland drill, mulching (weed free native hay mulch), and crimping. Appendix A of the CP included with the August 22, 2014 application provides the details for the ripping and revegetation cost estimates.

20. Regarding the live and dead standing timber and brush in the forested areas within the CHR footprint, please provide a description of how Cobre intends to remove this material. How and where does Cobre propose to process or dispose of the material? MMD would support chipping and masticating this woody material as an organic soil amendment to be incorporated into and to maintain overall viability and integrity of the topsoil stockpile. MMD discourages burning of this timber and brush resource.

During construction of the CHR, Cobre will clear and grub timber and brush as part of normal sitepreparation activities and, as appropriate, place brush piles around the perimeter of the CHR for use during operations.

21. Cobre must also develop a weed management plan for the Closeout Plan for the CHR to address the identification, management and control of invasive and noxious species throughout the term of active use of the road and following reclamation.

No noxious weeds were identified in the CHR corridor. Cobre will not import any materials for the construction of the CHR or during reclamation of the CHR. Therefore, it is unlikely then that invasive and noxious species will be introduced into the CHR area either during operations or during reclamation. During reclamation, weed control is managed through State approval of seed mixes and seed application rates. Also, crimped weed-free mulch to protect seeding will be used and is already accounted for in the reclamation cost estimate for the CHR.

22. Page 8 of the application describes an overpass structure that will route the CHR over Hanover Creek and the USFS Road at the north end of the CHR. Another overpass structure on the south end of the CHR will evidently cross Highway 152. However, the footprint of the CHR as shown in the application ends abruptly at the southern Cobre Permit Boundary and the application provides no other details describing how the CHR will exit the Cobre Permit Area and re-enter the northern Chino Mine Permit Boundary at the southern extent of the CHR. Has Cobre obtained the necessary approvals from the USFS and the NMDOT to build and reclaim these structures at the end of mine life? If so, are there any plans and specifications for these structures available? Furthermore, the CHR terminates abruptly at the Cobre Permit Boundary and does not appear to cross Highway 152 as no plans or specifications in regard to addressing how the CHR will enter the Chino Permit Area were provided. Does Cobre intend to submit an application to MMD to address the portion of the CHR that extends into the Chino Mine Permit Boundary?

Please see the response to Comment No. 10 above regarding the forest access road at the north end of the CHR. Appendix B of the August 22, 2014 application includes designs for the crossing over Hanover Creek and the forest access road (the forest access road is not a U.S. Forest Service road but a road upon Cobre property which Cobre allows the public to use to gain access to Forest Service administered lands).

Freeport-McMoRan Chino Mines Company is responsible for the crossing of the CHR over Highway 152. Chino submitted an application dated April 2, 2015 to MMD to address the Highway 152 crossing in its permit GR009RE.

23. The application states that no underground activities are associated with the proposed construction of the CHR; however, there are numerous known and unknown historic and abandoned mine workings and voids in the area underneath the CHR. It is apparent that a real potential exists throughout the length of the CHR for subsidence to occur over these relatively shallow underground workings, particularly the unreclaimed abandoned mine workings (i.e. the Jim Fair, Snowflake and Philadelphia areas). With the constant volume of heavy traffic and the associated vibration that is to occur along the CHR, in addition to drilling and the use of explosives in the area during and after construction of the CHR, MMD is concerned with the potential for subsidence and collapse in areas where the CHR spans these underground voids. How does Cobre intend to address this risk and any

safety issues that may be associated with potential subsidence? What is the contingency for such a mass-failure situation if subsidence were to occur?

In regards to 19.10.5.508.B(10) NMAC, Cobre correctly indicated on Page 8 of the August 22, 2014 referenced application that there will be no underground mining associated with the CHR.

During construction of the CHR underground workings could be encountered. Cobre appreciates MMD's attention to this important safety issue.

Over a period of many years, Cobre has mapped the underground workings in and along the CHR. These historical workings are identified on Figure 4 of the application. Historical workings in the CHR area consist of vertical shafts, adits, and horizontal drifts with maximum diameters reaching eight feet. These workings were usually mined upward with a block-cave methodology typically to the surface. The open cuts observable in the Jim Fair, Snowflake and El Paso areas are examples of these underground mine components. As construction of the CHR proceeds, Cobre will employ its experience and capabilities in order to fill and stabilize these features if they are encountered which is not a new activity for Cobre's mine operators. Cobre has constructed haul roads and other mine activities through many old mine workings as part of normal mining sequences (including reclamation activities – e.g. at the Hanover Empire-Zinc mine closure where these features were filled and stabilized). A drilling program recently was conducted to investigate the areas where historical workings would most likely be encountered along the CHR route. Cobre did encounter workings about 60' deep at the south end of the El Paso mine. These workings will be filled and stabilized as part of a normal sequence during drilling and blasting activities associated with cut and fill activities.

Historical shafts, adits and drifts deeper than a few tens of feet in these rock conditions would not pose a significant risk because the overlying rock is competent and any subsidence encountered from a collapse would not be extensive. Cobre has extensive experience working with larger workings that are close to the surface. For example, large workings, which were originally thought to be shafts, were encountered during reclamation of the Hanover Empire-Zinc mine. Cobre devised and successfully implemented a plan to work with large equipment on the roofs of these large working and to stabilize them for even larger traffic. Cobre would invoke this experience in the construction of the CHR should such features be encountered. Therefore, it is unlikely that Cobre will experience a "mass-failure" during construction or operation of the CHR. "Mass-failure" has a geotechnical definition which refers to the large scale movement of rock or soil mass. Mass movement is not anticipated within the footprint of the CHR due to the rock type and the engineering design effort that considered slope stability.

24. There are many known and unknown historic and abandoned mine workings and voids in the area underneath and adjacent to the CHR footprint. It seems plausible that the balanced cut and fill process of removing certain higher elevation terrain within the footprint of the CHR could expose these workings and voids that may extend to hundreds of feet in depth. What contingency plans are in place should Cobre expose shallow underground mine workings and voids during construction of the CHR?

Please see the response to Comment 23 above.

25. Currently, there are several monitoring wells that are located within the CHR footprint that must be abandoned and relocated. Please provide a map identifying the locations of these relocated

monitoring wells. MMD will also require that the costs associated with plugging and abandonment of the monitoring wells be included in the reclamation cost estimate for financial assurance.

Cobre has received formal approvals from NMED to close two groundwater monitoring wells currently located within the footprint of the CHR and replace one of these wells. These approvals are authorized as amendments to DP-181 and DP-1403 and are summarized in a letter dated February 5, 2015 from NMED. The two wells to be abandoned are indicated on Figure 2A of Attachment 5. The location of the replacement well is also indicated on the attached Figures 2A.

26. The application indicates that the CHR meets the requirements of the BLM's surface management regulations and is in the process of updating the Mine Plan of Operations ("MPO") while conducting an Environmental Assessment ("EA") of the proposed action. Has the BLM approved the updated MPO and EA and, if so, please provide these documents to MMD for our records.

Cobre will provide these documents when they become available.

27. Figure A4 of the application should show the thickness of the compacted material, to be placed during construction of the CHR. Does Cobre intend to remove this compacted layer prior to ripping the surface of the CHR or does Cobre intend to integrate this (potentially contaminated) compacted layer into the seedbed?

As discussed above in response to Comment 13 above, ripping of compacted surface will be sufficient to enable revegetation of the CHR. Figure A4 is a conceptual design. The actual depth of the compacted portion of the roadbed for the CHR will vary depending on the specific cut and fill activities at each station. Compaction of the roadbed is necessary for safety of the drivers and to prevent damage to equipment.

28. Figure A5 of the application appears to cut-off the permit boundary along the east and west sides of the Figure. Please revise the Figure to include the entire permit area. Furthermore, certain areas shown on the maps included with the application indicate that the permit boundaries for Cobre and Chino overlap in some places while also leaving slivers of empty spaces between the two permit boundaries. These maps should be revised to more accurately reflect the boundaries for both permits.

In the August 22, 2014 application, no changes were proposed to the east or west permit boundaries. The only changes are those as depicted in Figure 2 of the application. However, Figure 2Rb of Attachment 2 and Figure A5, Attachment 6, have been updated and are enclosed to indicate the entire permit boundary for Cobre, under GR002RE. Further, Figures 2 and A5, as submitted and as updated, adequately represent the permit boundaries for both Cobre and Chino. There are small areas of overlap but none require reclamation.

29. Aside from a generalized cross section of the CHR included with the application, there are no other cross-sections included in the application that show cross sections of the CHR at other critical areas. Additional cross sections are necessary to understand the proposed crossings at Highway 152 and Hanover Creek, the areas over or near historic workings as well as for multiple other areas where deep cut and fill will take place.

Appendix B of Cobre's August 22, 2014 application includes the cross-sections for Hanover Creek, as required by 19.10.5.508.B(9) NMAC. Please see the response to Comment 23 regarding how the historic workings will be addressed during construction of the CHR. As discussed in response to Comment 10 above, Chino Mines Company has recently submitted an application to MMD to address the proposed crossing at Highway 152 under Chino's MMD permit.

Cobre appreciates your review of the above and enclosed responses and information. Should you have any further questions, please do not hesitate to contact me at (575) 912-5907 or Kariann Sokulsky at (575) 912-5386.

Sincerely,

Shoug Bent - Kested for:

Bruce D. Taylor, Manager Freeport-McMoRan Cobre Mining Company

BDT:kes 20150724-200

Attachments

c: Anne Maurer, Ground Water Quality Bureau, NMED Certified Mail # 70150640000775397025

Attachment 1 – Response to GRIP comments

Attachment 2 – Updated Reclamation Cost Estimate

Attachment 3 – Updated Figure 2: Figure 2Ra and Figure 2Rb

Attachment 4 – Figure 3aR, Ownership Map

Attachment 5 - Location of Abandoned & Replacement Wells as Approved by NMED

Attachment 6 – Updated Figure A5R

July 24, 2015

Cobre Mining Company's Responses to MMD Permit No. GR002RE Revision 14-1

MMD Specific Comments

4. Please find the attached letter dated December 19, 2014, from GRIP, and address each of the six comments provided within the letter.

Grip Comments:

P. 6 of Application – NMAC 19.10.5.508.B(2) Wildlife Protection – Were the bat habitat protection measures installed in mine features near the Cobre Haul Road route as stated?

<u>Cobre Response</u>: Thank you for your comment. During the fall of 2014, Cobre closed 6 abandoned mine features located on Cobre lands along the proposed CHR. These features were closed under a bat mitigation and monitoring program in consultation with NMED and consistent with Cobre's closure permit DP-1403. Bats that are excluded from closed mine features are expected to utilize suitable habitat in other bat gated sites located on other lands owned by Cobre.

p. 6 – 7 of Application – NMAC 19.10.5.508.B(4) Hydrologic Balance – Was Cobre Storm Water Pollution Prevention Plan (SWPPP) submitted to EPA? If so, was it approved? What are the SWPPP monitoring, inspection, and control measures and Best Management Practices that will be implemented to minimize the potential contribution of suspended solids and other pollutants to surface waters from construction of the Cobre Haul Road? Where is the data on background levels for surface water entering the permit area? This is not provided in the application per 19.10.5.508.B (4)(c).

In accordance with the EPA 2008 NPDES MSGP, Cobre maintains a SWPPP which will be updated as required for construction of the Cobre Haul Road. SWPPP's are not required to be submitted to EPA for approval; these are to be maintained on-site and made available for EPA inspection. The updated SWPPP will identify the site-specific control measures, visual inspection protocols, and monitoring requirements to prevent the discharge of pollutants into surface waters. These controls will include multiple sediment traps along the Cobre Haul Road.

p. 7 of Application – NMAC 19.10.5.508.B(7) Minimization of Mass Movement – How will top soil be "stored appropriately" to minimize mass movement? Where will it be stored?

<u>Cobre Response:</u> Available topsoil within the footprint of the CHR is limited and is not strictly needed for reclamation of the CHR. The National Resource Conservation Service maps of the area indicate that the majority of the soils consist of a thin A-horizon and exposed bedrock. Cobre will document the placement of the topsoil for MMD inspection. It is anticipated that if salvageable topsoil is available it will occur in isolated areas along the southern flatter end of the CHR. This material will be used during reclamation of the CHR to achieve desired final grading of the reclaimed CHR.

p. 8 of Application – NMAC 19.10.5.508.B(11) Explosives – Given community concerns about noise and vibrations, it seems that a "detailed blasting plan, pre-blast surveys or blast design limits to control possible adverse effects to structures" should be required by the Director to determine if procedures will be sufficient to minimize impacts to residences.

<u>Cobre Response:</u> Thank you for your comment. The issues of noise and vibration were addressed by the Bureau of Land Management in its "Environmental Assessment Freeport-McMoRan Cobre Mining Company

Mine Plan of Operations Amendment No. 5", March 2015. The Bureau determined these issues are unlikely to result in significant adverse effects.

p. 9 of Application – NMAC 19.5.508.C Site Stabilization and Surface Configuration – How will the site be configured and stabilized to protect air quality? Permit application does not address how air quality will be protected during mining operations.

Cobre operates under a combined approved Air Quality Permit issued to Chino Mines Company. An application was submitted to the New Mexico Environment Department AQB on 01/05/2015 to modify the existing permit to include mining activities associated with Hanover Mountain, Continental Pit, and the proposed CHR in order to meet the requirements of NAMC 20.2.72. The application was processed and approved by NMED AQB, who issued NSR Permit No. 0298-M7 on May 5, 2015. Cobre/Chino will incorporate into its existing Dust Control Plan mining activities and operations of the CHR as required by the permit, upon commencement of construction and operation of CHR.

p. 9 of Application – NMAC 19.5.508.D Erosion Control – According to Cobre closeout plan, the haul road will be revegetated, but it is not discussed in this section. How frequently will monitoring be conducted to evaluate and control erosion?

<u>Cobre Response:</u> The close-out plan submitted with the August 22, 2014 application describes the methods for revegetation of the Cobre Haul Road. Cobre's mining permit requires Cobre to conduct inspections of reclaimed areas for excessive erosion on a monthly basis for the first year following reclamation and quarterly thereafter until areas are released under the New Mexico Mining Act.

Table 1Cobre Haul Road Cobre SectionJuly 22, 2015

| | Subtotal, | Subtotal, | |
|---------------------------------------|----------------------|---------------------|----------------------|
| Item | Direct Costs | Indirect | Total Cost |
| | Direct Costs | Costs | I Utai CUSt |
| | | 28.3% | |
| Capital | | | |
| Hanover Creek and Forest Service Road | | | |
| Crossing Spanning Arch Demolition | \$34,576 | \$9,785 | \$44,000 |
| Grade Surface CHR-Cobre Section | \$18,503 | \$5,236 | \$24,000 |
| Grade Surface CHR BLM Land | \$1,749 | \$495 | \$2,000 |
| Revegetation CHR-Cobre Section | \$77,169 | \$21,839 | \$99,000 |
| Revegetation BLM Land | \$7,729 | \$2,187 | \$10,000 |
| Total Capital Cost | \$140,000 | \$40,000 | \$180,000 |
| Total Capital Cost - Corrected | | | \$179,000 |
| Operations and Maintenance | | | |
| | | 23.3% | |
| Veg Maintenance CHR-Cobre Section | \$19,272 | \$4,490 | \$23,762 |
| Veg Maintenance CHR BLM Land | \$1,930 | \$450 | \$2,380 |
| Erosion Control CHR-Cobre Section* | \$71,718 | \$16,710 | \$88,428 |
| Erosion Control BLM Land ¹ | \$7,183 | \$1,674 | \$8,856 |
| Total Operations and Maintenance | \$100,000 | \$23,000 | \$123,000 |
| SubTotal | | | |
| CHR-Cobre Section | \$221,000 | \$58,000 | \$279,000 |
| CHR BLM Land | \$19,000 | \$5,000 | \$23,000 |
| Total Current Dollar Cost | \$240,000 | \$63,000 | \$302,000 |
| Upated Total | | | |
| Wildlife Friendly Livestock Fence | \$0.351 | \$2.646 | \$12,000 |
| Perimeter Modification ² | ψ3,001 | ψ2,040 | φ12,000 |
| Updated Total Current Dollar Cost | \$249,000 | \$66,000 | \$314,000 |

¹ Erosion Control was calculated for the entire CHR-Cobre Section; the costs for BLM land were broken out based on percentage of BLM Land.

² \$0.30/foot 38,700 feet of fence; Replace half staples/clips, add flagging or other markers or other wildlife friendly modifications, and replace or crimp 2 of the 4 to 5 strands of barb wire. Labor rate of \$25.34/ hr at 1 hour/100 feet of fence; remaining cost is materials.









